DoD-2 JSF

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SELECTED ACQUISITION REPORT (RCS: DD-A&T(Q&A)823)
PROGRAM: JSF

AS OF DATE: December 31, 1996

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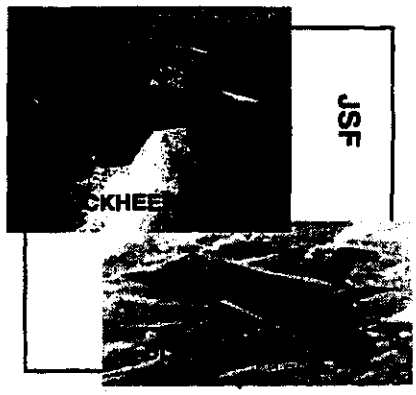

1. **Designation and Nomenclature (Popular Name)**: Joint Strike Fighter (JSF) Program

2. **DoD Component**: OSD

SAF/PAS

Joint Participants:
USAF, USN, USMC, DARPA, United Kingdom, Norway, Denmark, The Netherlands

97-0107

CONGRESSIONAL

3. **Responsible Office and Telephone Number**:

Joint Strike Fighter Program Office	RADM Craig Steidle
1745 Jefferson Davis Hwy	Assigned: August 9, 1995
Suite 307	DSN 332-7638; COMM (703) 602-7638
Arlington, VA 22202-3402	Steidlece.@ntrprs.jast.mil

The JSF Program is a joint DoD 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 Air Force.

CLEARED
FOR OPEN PUBLICATION
AS AMENDED
MAR 6 1997 18

DIRECTORATE FOR FREEDOM OF INFORMATION
AND SECURITY REVIEW (OASD-PA)
DEPARTMENT OF DEFENSE

4. **Program Elements/Procurement Line Items**:

RDT&E:
- PE 0603800E
- PE 0603800F
- PE 0603800N
- PE 0604800F
- PE 0604800N

The United Kingdom, The Netherlands, Denmark and Norway are contributing funding for current JSF development efforts under the terms of

OASD(PA) DFOISR 97-C-0400

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4. **Program Elements/Procurement Line Items (Cont'd):**
existing or pending formal agreements. Foreign participation in the Engineering and Manufacturing Development (E&MD) Phase commencing in 2001 is anticipated. This SAR includes funding from foreign sources as reflected in Section 16.

5. **References:**

SAR Baseline (Planning Estimate):
Defense Acquisition Executive (DAE) Approved Program Baseline (APB) dated November 15, 1996.

Approved Program:
DAE Approved Acquisition Program Baseline (APB) dated November 15, 1996.

6. **Mission and Description:**

The 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 carrier suitable variant of the JSF will provide the Navy a first day of the war, survivable strike fighter aircraft to complement the F/A-18E/F. The Air Force variant will be a multirole aircraft, primary-air-to-ground, to replace the F-16 and A-10 (Service intent) and complement the F-22. The Short Takeoff and Vertical Landing (STOVL) variant will be a multirole strike fighter aircraft to replace the AV-8B and F/A-18A/C/D for the Marine Corps, and replace the Sea Harrier for the United Kingdom Royal Navy. The cornerstone of the JSF Program is affordability -- reducing the development cost, production cost, and cost of ownership of the JSF family of aircraft. The program was structured from the beginning to be a model of acquisition reform, with an emphasis on jointness, technology maturation and concept demonstrations, and early cost and performance trades integral to the weapon system requirements definition process.

7. **Executive Summary:**

The Department of Defense established the Joint Advanced Strike Technology (JAST) Program, now called the Joint Strike Fighter Program, as an outcome of the 1993 Bottom-Up Review. The program was created as the focal point for defining affordable next-generation strike weapon systems to replace aging Navy and Air Force tactical assets. Program emphasis is on affordability -- reducing the development cost, production cost, and cost of ownership of the JSF family of aircraft.

Fiscal Year 1995 legislation merged the Defense Advanced Research Projects Agency (DARPA) Advanced Short Take-Off and Landing (ASTOVL) program with the then-JAST Program. Facilitated by the JSF Program Office, the Services produced the Joint Initial Requirements Document (JIRD) in August 1995 and briefed it to the Joint Requirements Oversight Council (JROC). The JROC endorsed the program process and the "family of aircraft" strategy, and emphasized the "great potential towards achieving an affordable solution to meet our joint warfighting capability." The United Kingdom became a

7. **Executive Summary (Cont'd):**
collaborative partner in the program under the terms of a Memorandum of Understanding (MOU) signed in December 1995, extending a collaboration begun under the DARPA ASTOVL program. The Under Secretary of Defense for Acquisition and Technology designated the JSF Program a joint, DoD Acquisition Category ID Program in May 1996. Norway, Denmark and The Netherlands will participate in the program effective in FY 1997 under the terms of a pending multi-lateral agreement.

Since inception, program activities have centered around three objectives that provide a sound foundation for start of E&MD in 2001: (1)facilitating the Services development of fully validated, affordable operational requirements; (2)lowering risk by investing in and demonstrating key leveraging technologies that lower the cost of development, production and ownership; and (3) demonstrating operational concepts. The Concept Exploration and Concept Development Phases of the JSF Program are completed. Concept Demonstration efforts commenced in November 1996 with competitive contract awards to Boeing and Lockheed Martin for Concept Demonstration Programs (CDP). These competing contractors will build and fly concept demonstrator aircraft, conduct concept unique ground demonstrations, and continue refinement of their ultimate delivered weapon system concepts. Specifically, both Boeing and Lockheed Martin will demonstrate commonality and modularity, STOVL hover and transition, and low speed handling qualities of their concepts. Pratt and Whitney is providing propulsion hardware and engineering support for the Weapon System Concept Demonstration efforts. General Electric is continuing technical efforts related to development of an alternate engine source for production. Requirements definition and technology maturation efforts also continue in this phase.

This is an RDT&E-only SAR since JSF is a pre-Milestone II program. Limited reporting is permitted for pre-Milestone II programs in accordance with Title 10, United States Code, Section 2432, "SARs."

This is an initial SAR.

8. **Threshold Breaches:**

a. Acquisition Program Baseline (APB):

Item	Breach
Schedule	No
Performance	No
Cost -- RDT&E	No
-- Procurement	No
-- MILCON	No
-- O&M	No
-- Average Procurement Unit Cost (APUC)	(Same as APUC, below)

b. Nunn-McCurdy Unit Cost:

Item	Breach
Program Acquisition Unit Cost	No
Average Procurement Unit Cost	No

c. Explanation of Breach:
Nunn-McCurdy unit cost is not applicable for pre-Milestone II programs.

9. **Schedule:**

a. Milestones --

	Planning Estimate (SAR)	Approved Program (APB)	Current Estimate
Concept Demonstration Contract Award	NOV 96	NOV 96	NOV 96
Milestone II	MAR 01	MAR 01	MAR 01
Milestone III	TBD	TBD	TBD
IOC	TBD	TBD	TBD

b. Current Change Explanations -- None.

10. **Performance Characteristics**:

a. Performance --

Jt Init Rqmts Document (JIRD) 1 Desired Operational Characteristics	Planning Estimate (SAR)	Approved Program (APB) Obj/Threshold	Demon-strated Perf	Current Estimate
CTOL Capability	Yes	Yes / Yes	TBD	Yes
STOVL Capability (STOVL Variant)	Yes	Yes / Yes	TBD	Yes
Aircraft Carrier Suitable (CV Variant and STOVL Variant)	Yes	Yes / Yes	TBD	Yes
Range Radius NM - CTOL Variant	450-600	450-600 / N/A	TBD	450-600
Range Radius NM - STOVL Variant	450-550	450-550 / N/A	TBD	450-550
Range Radius NM - CV Variant	>600	>600 / N/A	TBD	>600
Internal Weapons Carriage - CTOL Variant	2 X 1000# class A-G, 2 X AIM-120, Internal Gun	2 X 1000# class A-G, 2 X/ AIM-120,/ Internal/ Gun / / N/A	TBD	2 x 1000# class A-G, 2 X AIM-120, Internal Gun
Internal Weapons Carriage - STOVL Variant	2 X 1000# class A-G, 2X AIM-120	2 X 1000# class A-G, 2X / AIM-120 / / N/A	TBD	2 X 1000 # class A-G, 2 X AIM-120
Internal Weapons Carriage - CV Variant	2 X 2000# class A-G, 2 X AIM-120	2 X 2000# class A-G, 2 X AIM-120 / / / / / N/A	TBD	2 X 2000# class A-G, 2 X AIM-120
Speed & Maneuverability	compa-rable to F-16 / F/A-18	Compa-rable to/ F-16 / / F/A-18 / / N/A	TBD	compa-rable to F-16/ F/A-18
Strike and Destroy Targets Day or Night in Adverse Weather Conditions	Yes	Yes / N/A	TBD	Yes

10a. **Performance Characteristics (Cont'd)**:

	Planning Estimate (SAR)	Approved Program (APB) Obj/Threshold		Demon-strated Perf	Current Estimate
Integration of Offboard Sensors and Data Fusion	Yes	Yes	/ N/A	TBD	Yes
Signature Reduction /Low Observables	Yes	Yes	/ N/A	TBD	Yes
Logistic Footprint	5-8 C-141B equiva-lent loads	5-8 C-141B equiva-lent loads	/ N/A	TBD	5-8 C-141B equival-ent loads
Sortie Generation Rate - CTOL Variant	3-4/day sus-tained; 4-5/day surge	3-4/day sus-tained; 4-5/day surge	/ N/A	TBD	3-4/day sus-tained; 4-5/day surge
Sortie Generation Rate - CV Variant	3/day sus-tained; 4/day surge	3/day sus-tained; 4/day surge	/ N/A	TBD	3/day sus-tained; 4/day surge
Sortie Generation Rate - STOVL Variant	4/day sus-tained; 6/day surge	4/day sus-tained; 6/day surge	/ N/A	TBD	4/day sus-tained; 6/day surge
Unit Flyaway Cost - CTOL Variant	$28M	$28M	/ N/A	TBD	$28M
Unit Flyaway Cost - CV Variant	$31-38M	$31-38M	/ N/A	TBD	$31M
Unit Flyaway Cost - STOVL Variant	$30-35M	$30-35M	/ N/A	TBD	$30M

NOTES:
The above Desired Operational Characteristics are documented in the Joint Initial Requirements Document (JIRD) dated 15 August 1995. The Services will update the JIRD annually with the Joint Requirements Oversight Council (JROC) based on results of cost and operational trades using cost as an independent variable; consequently the Desired Operational Characteristics are subject to change. Objectives and additional thresholds will be established for Key Performance Parameters upon signature of the Joint Operational Requirements Document (JORD) nearing Milestone II.

JSF Variants:
USAF - Conventional Take-Off and Landing (CTOL)
USN - Aircraft Carrier Suitable (CV)
USMC - Short Take-Off and Vertical Landing (STOVL)

Unit flyaway costs above are constant base year FY94 dollars.

10a. Performance Characteristics (Cont'd):

b. Current Change Explanations -- None.

11. Total Program Cost and Quantity (Dollars in Millions):

a. Cost --	Planning Estimate (SAR)	Approved Program (APB)	Current Estimate
Development (RDT&E)	19000.0	19000.0	18860.4
Procurement	0.0	N/A	
Total Sailaway			(0.0)
Total Other Wpn Sys			(0.0)
Peculiar Support	(0.0)		
Initial Spares	(0.0)		
Construction (MILCON)	0.0	N/A	0.0
Acquisition O&M	0.0	0.0	0.0
Total FY 94 Base-Year $	19000.0	19000.0	18860.4
Escalation	5800.0	5800.0	4305.5
Development (RDT&E)	(5800.0)	(5800.0)	(4305.5)
Procurement	(0.0)	(N/A)	(0.0)
Construction (MILCON)	(0.0)	(N/A)	(0.0)
Acquisition O&M	(0.0)	(0.0)	(0.0)
Total Then Year $	24800.0	24800.0	23165.9
b. Quantity --			
Development (RDT&E)	N/A	N/A	N/A
Procurement	N/A	N/A	N/A
Total	N/A	N/A	N/A

c. Foreign Military Sales -- None.

d. Nuclear Costs -- None.

12. **Unit Cost Summary:**

Not required for Pre-Milestone II programs in accordance with Section 2433, Title 10, USC.

13. **Cost Variance Analysis:**

a. Summary (Current (Then-Year) Dollars in Millions)

	RDT&E	PROC	MILCON	TOTAL
Planning Estimate	24800.0	-	-	24800.0
Previous Changes:				
Economic	-	-	-	-
Quantity	-	-	-	-
Schedule	-	-	-	-
Engineering	-	-	-	-
Estimating	-	-	-	-
Other	-	-	-	-
Support	-	-	-	-
Subtotal	-	-	-	-
Current Changes:				
Economic	-1230.4	-	-	-1230.4
Quantity	-	-	-	-
Schedule	-	-	-	-
Engineering	-	-	-	-
Estimating	-403.7	-	-	-403.7
Other	-	-	-	-
Support	-	-	-	-
Subtotal	-1634.1	-	-	-1634.1
Total Changes	-1634.1	-	-	-1634.1
Current Estimate	23165.9	-	-	23165.9

13a. **Cost Variance Analysis (Cont'd):**

Summary (FY 1994 Constant (Base-Year) Dollars in Millions)

	RDT&E	PROC	MILCON	TOTAL
Planning Estimate	19000.0	-	-	19000.0
Previous Changes:				
Quantity	-	-	-	-
Schedule	-	-	-	-
Engineering	-	-	-	-
Estimating	-	-	-	-
Other	-	-	-	-
Support	-	-	-	-
Subtotal	-	-	-	-
Current Changes:				
Economic	-	-	-	-
Quantity	-	-	-	-
Schedule	-	-	-	-
Engineering	-	-	-	-
Estimating	-139.6	-	-	-139.6
Other	-	-	-	-
Support	-	-	-	-
Subtotal	-139.6	-	-	-139.6
Total Changes	-139.6	-	-	-139.6
Current Estimate	18860.4	-	-	18860.4

b. Current Change Explanations --

	(Dollars in Millions) Base-Year	Then-Year
(1) RDT&E		
Revised escalation rates from 1995 to 1997 (Economic)	N/A	-1230.4
Adjustment to reflect uniform application of escalation in prior estimate (Estimating)	-139.6	-403.7
RDT&E Subtotal	-139.6	-1634.1

14. Unit Cost and Other History (Then-Year Dollars in Millions):

a. Not required for Pre-Milestone II programs in accordance with Section 2433, Title 10, USC.

b. Not required for Pre-Milestone II programs in accordance with Section 2433, Title 10, USC.

c. Schedule, Cost, and Quantity History

Item/Event	SAR Planning Estimate(PE)	SAR Development Estimate(DE)	SAR Production Estimate(PdE)	Current Estimate
Milestone I	N/A	N/A	N/A	N/A
Milestone II	MAR 01	N/A	N/A	MAR 01
Milestone III	TBD	N/A	N/A	TBD
FUE/IOC	TBD	N/A	N/A	TBD
Total Cost	N/A	N/A	N/A	N/A
Total Quantity	N/A	N/A	N/A	N/A
Prog Acq Unit Cost	N/A	N/A	N/A	N/A

15. Contract Information (Then-Year Dollars in Millions):

a. RDT&E --
Propulsion CDP:
Pratt and Whitney, West Palm Beach FL
N00019-97-C-0050, CPAF
Award: January 23, 1997
Definitized: January 23, 1997

Initial Contract Price		
Target	Ceiling	Qty
$832.0	$	

Current Contract Price		
Target	Ceiling	Qty
$832.0	$	

Estimated Price At Completion	
Contractor	Program Manager
$	$

	Cost Variance	Schedule Variance
Previous Cumulative Variances	N/A	N/A
Cumulative Variances To Date	$	$
Net Change	$	$

Explanation of Change:

Contract performance data is not provided here due to the competitive nature of the contract.

15. Contract Information (Cont'd):

Weapon System CDP:	Initial Contract Price Target	Ceiling	Qty
Lockheed Martin Corp., Ft. Worth TX N00019-97-C-0038, CPFF Award: November 16, 1996 Definitized: November 16, 1996	$718.8	$	

Current Contract Price Target	Ceiling	Qty	Estimated Price At Completion Contractor	Program Manager
$718.8	$		$	$

	Cost Variance	Schedule Variance
Previous Cumulative Variances	N/A	N/A
Cumulative Variances To Date	$	$
Net Change	$	$

Explanation of Change:

Contract performance data is not provided here due to the competitive nature of the contract.

Weapon System CDP:	Initial Contract Price Target	Ceiling	Qty
Boeing Defense and Space, Seattle WA N00019-97-C-0037, CPFF Award: November 16, 1996 Definitized: November 16, 1996	$661.8	$	

Current Contract Price Target	Ceiling	Qty	Estimated Price At Completion Contractor	Program Manager
$661.8	$		$	$

	Cost Variance	Schedule Variance
Previous Cumulative Variances	N/A	N/A
Cumulative Variances To Date	$	$
Net Change	$	$

Explanation of Change:

Contract performance data is not provided here due to the competitive nature of the contract.

Alternate Engine:	Initial Contract Price Target	Ceiling	Qty
General Electric, Cincinnati, OH N00019-96-C-0176, CPFF Award: February 13, 1997 Definitized: February 13, 1997	$96.0	$	

Current Contract Price Target	Ceiling	Qty	Estimated Price At Completion Contractor	Program Manager

15. **Contract Information (Cont'd):**

$96.0	$	$	$

	Cost Variance	Schedule Variance
Previous Cumulative Variances	N/A	N/A
Cumulative Variances To Date	$	$
Net Change	$	$

Explanation of Change:

Contract performance data is not provided here due to the competitive nature of the contract.

J/IST:
McDonnell Douglas Corp., St. Louis MO
F33615-95-K-3801, CPFF
Award: September 22, 1995
Definitized: September 22, 1995

Initial Contract Price		
Target	Ceiling	Qty
$63.6	$	

Current Contract Price			Estimated Price At Completion	
Target	Ceiling	Qty	Contractor	Program Manager
$63.6	$		$63.6	$63.6

	Cost Variance	Schedule Variance
Previous Cumulative Variances	N/A	N/A
Cumulative Variances To Date	$-0.4	$-0.5
Net Change	$-0.4	$-0.5

Explanation of Change:

Initial SAR; variance is not significant.

MIRFS:
Hughes Aircraft Company, Los Angeles CA
N00019-96-C-0074, CPFF
Award: February 12, 1996
Definitized: February 12, 1996

Initial Contract Price		
Target	Ceiling	Qty
$54.6	$	

Current Contract Price			Estimated Price At Completion	
Target	Ceiling	Qty	Contractor	Program Manager
$54.6	$		$54.6	$54.6

15. Contract Information (Cont'd):

	Cost Variance	Schedule Variance
Previous Cumulative Variances	N/A	N/A
Cumulative Variances To Date	$0.8	$0.0
Net Change	$0.8	$0.0

Explanation of Change:

Initial SAR; variance is not significant.

16. Program Funding Summary (Current Estimate in Millions of Dollars):

a. Appropriation Summary (Then-Year Dollars in Millions)

Appropriation	Prior Years (FY94-97)	Budget Year (FY98)	Budget Year (FY99)	Balance To Complete (FY00-08)	Total
RDT&E	1070.1	995.5	950.7	20149.6	23165.9
Procurement	-	-	-	-	-
MILCON	-	-	-	-	-
O&M	-	-	-	-	-
Total	1070.1	995.5	950.7	20149.6	23165.9

b. Annual Summary -- JSF

Appropriation: 0400 RDT&E, Defense Agencies

Fiscal Year	Qty	Flyaway FY94 Dollars Nonrec	Flyaway FY94 Dollars Rec	Total Program Base-Year $	Total Program Then-Year $
1996				27.4	28.9
1997				71.4	76.9
1998				21.7	23.9
Subtotal				120.5	129.7

Appropriation: 1319 Research, Development, Test + Eval, Navy

Fiscal Year	Qty	Flyaway FY94 Dollars Nonrec	Flyaway FY94 Dollars Rec	Total Program Base-Year $	Total Program Then-Year $
1994				29.1	29.5
1995				95.1	98.3
1996				75.8	80.0
1997				228.5	246.1
1998				408.2	448.9
1999				394.9	443.5
2000				217.5	249.4
2001				498.4	583.6

16b. **Program Funding Summary (Cont'd):**

Appropriation: 1319 Research, Development, Test + Eval, Navy

Fiscal Year	Qty	Flyaway FY94 Dollars Nonrec	Flyaway FY94 Dollars Rec	Total Program Base-Year $	Total Program Then-Year $
2002				1168.5	1398.0
2003				1562.8	1913.7
2004				1556.6	1955.6
2005				1286.7	1658.6
2006				778.0	1028.9
2007				411.9	558.9
2008				91.5	127.4
Subtotal				8803.5	10820.4

Appropriation: 3600 Research, Development, Test + Eval, AF

Fiscal Year	Qty	Flyaway FY94 Dollars Nonrec	Flyaway FY94 Dollars Rec	Total Program Base-Year $	Total Program Then-Year $
1995				81.1	83.8
1996				77.1	81.3
1997				233.9	252.0
1998				416.5	458.1
1999				414.6	465.6
2000				214.0	245.4
2001				498.6	583.9
2002				1170.1	1399.9
2003				1564.5	1915.7
2004				1555.5	1954.2
2005				1283.3	1654.2
2006				778.0	1028.9
2007				411.9	558.9
2008				91.5	127.4
Subtotal				8790.6	10809.3

Appropriation: 9991 Other RDT&E Funding

Fiscal Year	Qty	Flyaway FY94 Dollars Nonrec	Flyaway FY94 Dollars Rec	Total Program Base-Year $	Total Program Then-Year $
1996				13.3	14.0
1997				73.6	79.3
1998				58.7	64.6
1999				37.0	41.6
2000				27.0	31.0
2001				59.9	70.1
2002				140.3	167.8

16b. Program Funding Summary (Cont'd):
Appropriation: 9991 Other RDT&E Funding

Fiscal Year	Qty	Flyaway FY94 Dollars Nonrec	Flyaway FY94 Dollars Rec	Total Program Base-Year $	Total Program Then-Year $
2003				186.9	228.9
2004				204.5	256.9
2005				181.1	233.4
2006				99.3	131.3
2007				52.5	71.3
2008				11.7	16.3
Subtotal				1145.8	1406.5

"Other RDT&E Funding" reflects current and anticipated foreign funding

Service	Qty	Flyaway Dollars Nonrec	Flyaway Dollars Rec	Total Program Base-Year $	Total Program Then-Year $
OSD				120.5	129.7
Navy				8803.5	10820.4
USAF				8790.6	10809.3
Other Funding				1145.8	1406.5
Grand Total				18860.4	23165.9

17. Delivery/Expenditure Information:

a. Deliveries To Date - None.

Percent Total Program Quantities Delivered: N/A

b. Total Expenditures To Date (In Millions of Dollars): $ 363.2

Percent Total Program Expended: 1.6%

18. Operating and Support Costs:

Not applicable for Pre-Milestone II programs.

Defense Acquisition Management
Information Retrieval
(DAMIR)

Selected Acquisition Report (SAR)

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

F-35 (JSF)

As of December 31, 1997

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Program Information

Designation And Nomenclature (Popular Name)

JSF

DoD Component

DoD

Joint Participants

USAF; USN; USMC; DARPA; United Kingdom; Norway; Denmark; The Netherlands; and Canada

The JSF Program is a joint DoD 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.

Responsible Office

Responsible Office

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Arlington, VA 22202-3402
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Phone 703-602-7638
Fax --
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Date Assigned August 1, 1997

References

SAR Baseline (Planning Estimate)

Defense Acquisition Executive (DAE) approved Acquisition Program Baseline (APB) dated November 15, 1996

Approved APB

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F/A-18A/C/D for the Marine Corps, and replace the Sea Harrier for the United Kingdom Royal Navy. The cornerstone of the JSF Program is affordability -- reducing the development cost, production cost, and cost of ownership of the JSF family of aircraft. The program was structured from the beginning to be a model of acquisition reform, with an emphasis on jointness, technology maturation and concept demonstrations, and early cost and performance trades integral to the weapon system requirements definition process.

Executive Summary

The Department of Defense established the Joint Strike Fighter Program, originally named Joint Advanced Strike Technology (JAST) Program, as an outcome of the 1993 Secretary of Defense Bottom-Up Review. The program was created as the focal point for defining affordable next-generation strike weapon systems to replace aging Navy and Air Force tactical assets. Program emphasis is on affordability -- reducing the development cost, production cost, and cost of ownership of the JSF family of aircraft.

Fiscal Year 1995 legislation merged the Defense Advanced Research Projects Agency (DARPA) Advanced Short Take-Off and Landing (ASTOVL) program with the then-JAST Program. Facilitated by the JSF Program Office, the Services produced the Joint Initial Requirements Document (JIRD) in August 1995. The United Kingdom became a collaborative partner in the program under the terms of a Memorandum of Understanding (MOU) signed in December 1995, extending a collaboration begun under the DARPA ASTOVL program. The Under Secretary of Defense for Acquisition and Technology designated the JSF Program a joint, DoD Acquisition Category ID Program in May 1996.

The Concept Exploration and Concept Development Phases of the JSF Program are completed. Concept Demonstration efforts commenced in November 1996 with competitive contract awards to Boeing and Lockheed Martin for Concept Demonstration Programs (CDP). These competing contractors will build and fly concept demonstrator aircraft, conduct concept unique ground demonstrations, and continue refinement of their ultimate delivered weapon system concepts. Specifically, both Boeing and Lockheed Martin will demonstrate commonality and modularity, STOVL hover and transition, and low speed handling qualities of their concepts. Pratt and Whitney is providing propulsion hardware and engineering support for the Weapon System Concept Demonstration efforts. In addition to JSF development activities, requirements definition based on Cost and Operational Performance Trades (COPT) and technology maturation demonstrations continue in this phase. Both COPT and technology maturation demonstrations are essential to achieving JSF affordability goals and lowering risk prior to E&MD entry in 2001. General Electric is continuing technical efforts related to development of an alternate engine source for production.

The alternate engine program is funded through the current FYDP, which ends in FY 2003. The Navy and Air Force are committed to funding the program in the outyears as well. The Department is currently structuring its options for implementing an alternate engine program beyond FY 2003. Outyear funding for the alternate engine program will be included in the December 1998 Selected Acquisition Report.

In 1997 Denmark, Norway and the Netherlands signed agreements to join the program with a focus on requirements validation. Canada also formally joined the program, focusing on preferred weapon system concepts. The program completed key technical baseline and design reviews with Boeing, Lockheed Martin, Pratt and Whitney, and General Electric. Numerous technology maturation demonstration efforts also continued during 1997. The Services completed their second iteration of the JIRD based on the results of supporting JSF Cost and Operational Performance trades. The program is proceeding on schedule and on cost at this time. Funding stability is essential for the remainder of the program. Three technology efforts were cancelled to pay for general reductions taken across RDT&E programs. Further funding reductions are likely to result in program slip since contracts are executing, aircraft are being built, technology efforts are more than 50% complete and little reserve exists to accommodate program reductions.

This is an RDT&E-only SAR since JSF is a pre-Milestone II program. Limited reporting is permitted for pre-Milestone II programs in accordance with Title 10, United States Code, Section 2432, "SARs."

Threshold Breaches

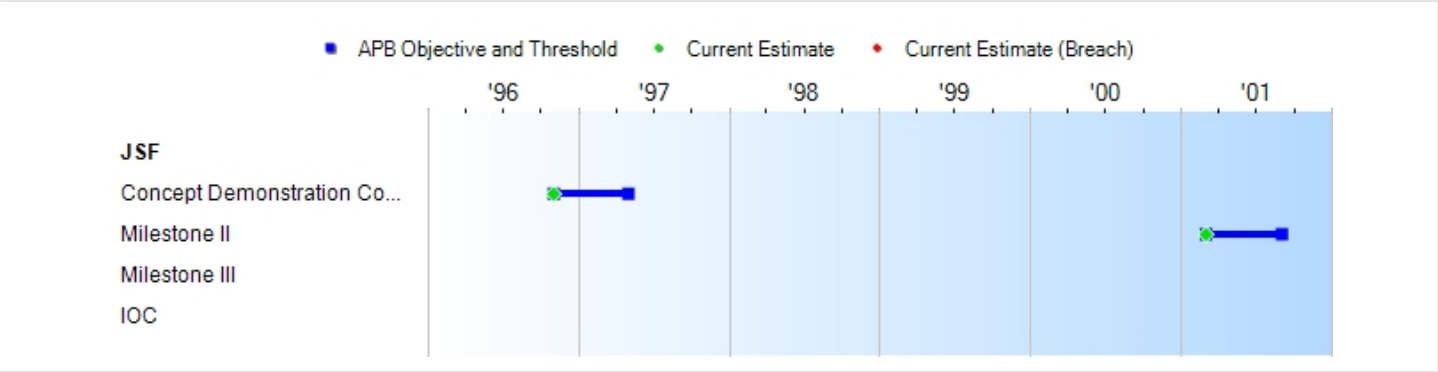
APB Breaches		
Schedule		☐
Performance		☐
Cost	RDT&E	☐
	Procurement	☐
	MILCON	☐
	Acq O&M	☐
Unit Cost	PAUC	☐
	APUC	☐

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

Explanation of Breach

Nunn-McCurdy unit cost is not applicable for pre-Milestone II programs.

Schedule



Milestones	SAR Baseline Plan Est	Current APB Concept Objective/Threshold		Current Estimate
Concept Demonstration Contract Award	NOV 1996	NOV 1996	MAY 1997	NOV 1996
Milestone II	MAR 2001	MAR 2001	SEP 2001	MAR 2001
Milestone III	TBD	TBD	TBD	TBD
IOC	TBD	TBD	TBD	TBD

Change Explanations

None

Memo

None

Performance

Characteristics	SAR Baseline Plan Est	Current APB Concept Objective/Threshold		Demonstrated Performance	Current Estimate
Jt Init Rqmts Document (JIRD) 1 Desired Operational Characteristics					
CTOL Capability	Yes	Yes	Yes	TBD	Yes
STOVL Capability (STOVL Variant)	Yes	Yes	Yes	TBD	Yes
Aircraft Carrier Suitable (CV Variant and STOVL Variant)	Yes	Yes	Yes	TBD	Yes
Range Radius NM - CTOL Variant	450-600	450-600	N/A	TBD	450-600
Range Radius NM - STOVL Variant	450-550	450-550	N/A	TBD	450-550
Range Radius NM - CV Variant	>600	>600	N/A	TBD	>600
Internal Weapons Carriage - CTOL Variant	2 X 1000 # class A-G, 2 XAIM-120, Interna l Gun	2 X 1000# class A-G, 2 XAIM-120, Internal Gun	N/A	TBD	2X 2000# class A-G, 2X AIM-120, Design space for internal gun
Internal Weapons Carriage - STOVL Variant	2 X 1000 # class A-G, 2X AIM-120	2 X 1000# class A-G, 2X AIM-120	N/A	TBD	2X 1000 # class A-G, 2X AIM-120
Internal Weapons Carriage - CV Variant	2 X 2000 # class A-G, 2 X AIM-120	2 X 2000# class A-G, 2 X AIM-120	N/A	TBD	2X 2000# class A-G, 2X AIM-120
Speed & Maneuverability	comparable to F-16 /F/A-18	Comparable to F-16 /F/A-18	N/A	TBD	comparable to F-16/F/A-18
Strike and Destroy Targets Day or Night in Adverse Weather Conditions	Yes	Yes	N/A	TBD	Yes
Integration of Offboard Sensors and Data Fusion	Yes	Yes	N/A	TBD	Yes
Signature Reduction/Low Observables	Yes	Yes	N/A	TBD	Yes
Logistic Footprint	5-8 C-141B equivalent loads	5-8 C-141B equivalent loads	N/A	TBD	no more than 4 C-17 equivalent

					loads (8x C-141B)
Sortie Generation Rate - CTOL Variant	3-4/day sustained; 4-5/day surge	3-4/day sustained; 4-5/day surge	N/A	TBD	3/day sustained; 4/day surge
Sortie Generation Rate - CV Variant	3/day sustained; 4/day s urge	3/day sustained; 4/day surge	N/A	TBD	3/day sustained; 4/day surge
Sortie Generation Rate - STOVL Variant	4/day sustained; 6/day s urge	4/day sustained; 6/day surge	N/A	TBD	4/day sustained; 6/day surge
Unit Flyaway Cost - CTOL Variant	$28M	$28M	N/A	TBD	$28M
Unit Flyaway Cost - CV Variant	$31-38M	$31-38M	N/A	TBD	$31M-38M
Unit Flyaway Cost - STOVL Variant	$30-35M	$30-35M	N/A	TBD	$30M-35M

Change Explanations

None

Memo

NOTES:
The above Desired Operational Characteristics are documented in the Joint Initial Requirements Document (JIRD) dated 15 August 1995. The Services will update the JIRD annually with the Joint Requirements Oversight Council (JROC) based on results of cost and operational trades using cost as an independent variable; consequently the Desired Operational Characteristics are subject to change. Objectives and additional thresholds will be established for Key Performance Parameters upon signature of the Joint Operational Requirements Document (JORD) nearing Milestone II.

JSF Variants:
USAF - Conventional Take-Off and Landing (CTOL)
USN - Aircraft Carrier Suitable (CV)
USMC - Short Take-Off and Vertical Landing (STOVL)

Unit flyaway costs above are constant base year FY94 dollars.

Change Explanations:
Changes in Current Estimate based on the Services' Joint Interim Requirements Document II (September 1997):

Track To Budget

RDT&E		
APPN 0400	PE 0603800E	(DoD)
	Joint Strike Fighter	
APPN 3600	PE 0603800F	(Air Force)
	Joint Advanced Strike Technology Program	
APPN 1319	PE 0603800N	(Navy)
	Joint Advanced Strike Technology Program	
	PE 0604800F	
	PE 0604800N	

General Memo

The United Kingdom, The Netherlands, Denmark, Norway, and Canada are contributing funding for current JSF development efforts under the terms of formal agreements. Foreign participation in the Engineering and Manufacturing Development (E&MD) Phase commencing in 2001 is anticipated. This SAR includes funding from foreign sources as reflected in Section 16.

Cost and Funding

Cost Summary

Total Acquisition Cost and Quantity

	BY1994 $M				TY $M		
Appropriation	SAR Baseline Plan Est	Current APB Concept Objective/Threshold		Current Estimate	SAR Baseline Plan Est	Current APB Concept Objective	Current Estimate
RDT&E	19000.0	19000.0	20900.0	18860.3	24800.0	24800.0	22329.0
Procurement	--	--	--	--	--	--	--
MILCON	--	--	--	--	--	--	--
Acq O&M	--	--	--	--	--	--	--
Total	19000.0	19000.0	20900.0	18860.3	24800.0	24800.0	22329.0

Quantity	SAR Baseline Plan Est	Current APB Concept	Current Estimate
RDT&E	0	0	0
Procurement	0	--	0
Total	0	0	0

Funding Summary

Appropriation and Quantity Summary

FY1999 President's Budget / December 1997 SAR (TY$ M)

Appropriation	Prior	FY1998	FY1999	FY2000	FY2001	FY2002	FY2003	To Complete	Total
RDT&E	1052.4	982.2	964.1	518.3	1208.1	2883.5	3931.3	10789.1	22329.0
Procurement	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MILCON	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Acq O&M	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PB1999 Total	1052.4	982.2	964.1	518.3	1208.1	2883.5	3931.3	10789.1	22329.0
	--	--	--	--	--	--	--	--	--

Quantity	Prior	FY1998	FY1999	FY2000	FY2001	FY2002	FY2003	To Complete	Total
Development	0	0	0	0	0	0	0	0	0
Production	0	0	0	0	0	0	0	0	0
PB1999 Total	0	0	0	0	0	0	0	0	0

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	--	--	--	--	--	--	449.7
1999	--	--	--	--	--	--	463.4
2000	--	--	--	--	--	--	245.0
2001	--	--	--	--	--	--	570.5
2002	--	--	--	--	--	--	1360.1
2003	--	--	--	--	--	--	1854.4
2004	--	--	--	--	--	--	1864.8
2005	--	--	--	--	--	--	1614.7
2006	--	--	--	--	--	--	947.4
2007	--	--	--	--	--	--	527.2
2008	--	--	--	--	--	--	104.5
Subtotal	**--**	**--**	**--**	**--**	**--**	**--**	**10453.2**

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

Fiscal Year	Quantity	End Item Recurring Flyaway BY 1994 $M	Non End Item Recurring Flyaway BY 1994 $M	Non Recurring Flyaway BY 1994 $M	Total Flyaway BY 1994 $M	Total Support BY 1994 $M	Total Program BY 1994 $M
1994	--	--	--	--	--	--	28.6
1995	--	--	--	--	--	--	95.2
1996	--	--	--	--	--	--	76.5
1997	--	--	--	--	--	--	227.8
1998	--	--	--	--	--	--	415.0
1999	--	--	--	--	--	--	421.1
2000	--	--	--	--	--	--	219.0
2001	--	--	--	--	--	--	501.4
2002	--	--	--	--	--	--	1174.7
2003	--	--	--	--	--	--	1571.1
2004	--	--	--	--	--	--	1545.9
2005	--	--	--	--	--	--	1309.8
2006	--	--	--	--	--	--	752.0
2007	--	--	--	--	--	--	409.4
2008	--	--	--	--	--	--	79.4
Subtotal	**--**	**--**	**--**	**--**	**--**	**--**	**8826.9**

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	--	--	--	--	--	--	432.3
1999	--	--	--	--	--	--	456.1
2000	--	--	--	--	--	--	239.6
2001	--	--	--	--	--	--	569.8
2002	--	--	--	--	--	--	1360.2
2003	--	--	--	--	--	--	1854.4
2004	--	--	--	--	--	--	1864.8
2005	--	--	--	--	--	--	1614.8
2006	--	--	--	--	--	--	945.3
2007	--	--	--	--	--	--	528.5
2008	--	--	--	--	--	--	102.7
Subtotal	**--**	**--**	**--**	**--**	**--**	**--**	**10385.2**

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

Fiscal Year	Quantity	End Item Recurring Flyaway BY 1994 $M	Non End Item Recurring Flyaway BY 1994 $M	Non Recurring Flyaway BY 1994 $M	Total Flyaway BY 1994 $M	Total Support BY 1994 $M	Total Program BY 1994 $M
1995	--	--	--	--	--	--	81.1
1996	--	--	--	--	--	--	77.4
1997	--	--	--	--	--	--	235.6
1998	--	--	--	--	--	--	399.0
1999	--	--	--	--	--	--	414.5
2000	--	--	--	--	--	--	214.2
2001	--	--	--	--	--	--	500.7
2002	--	--	--	--	--	--	1174.8
2003	--	--	--	--	--	--	1571.1
2004	--	--	--	--	--	--	1545.9
2005	--	--	--	--	--	--	1309.9
2006	--	--	--	--	--	--	750.3
2007	--	--	--	--	--	--	410.5
2008	--	--	--	--	--	--	78.0
Subtotal	**--**	**--**	**--**	**--**	**--**	**--**	**8763.0**

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	--	--	--	--	--	--	44.6
2000	--	--	--	--	--	--	33.7
2001	--	--	--	--	--	--	67.8
2002	--	--	--	--	--	--	163.2
2003	--	--	--	--	--	--	222.5
2004	--	--	--	--	--	--	236.5
2005	--	--	--	--	--	--	206.8
2006	--	--	--	--	--	--	130.9
2007	--	--	--	--	--	--	76.9
2008	--	--	--	--	--	--	23.3
Subtotal	**--**	**--**	**--**	**--**	**--**	**--**	**1368.4**

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

Fiscal Year	Quantity	End Item Recurring Flyaway BY 1994 $M	Non End Item Recurring Flyaway BY 1994 $M	Non Recurring Flyaway BY 1994 $M	Total Flyaway BY 1994 $M	Total Support BY 1994 $M	Total Program BY 1994 $M
1996	--	--	--	--	--	--	13.3
1997	--	--	--	--	--	--	66.5
1998	--	--	--	--	--	--	71.3
1999	--	--	--	--	--	--	40.5
2000	--	--	--	--	--	--	30.1
2001	--	--	--	--	--	--	59.6
2002	--	--	--	--	--	--	141.0
2003	--	--	--	--	--	--	188.5
2004	--	--	--	--	--	--	196.1
2005	--	--	--	--	--	--	167.7
2006	--	--	--	--	--	--	103.9
2007	--	--	--	--	--	--	59.7
2008	--	--	--	--	--	--	17.7
Subtotal	**--**	**--**	**--**	**--**	**--**	**--**	**1155.9**

(1) "Other RDT&E Funding" reflects current and anticipated foreign funding.

(2) Service appropriation data includes funding for the alternate engine program through FY 2003, the end of the current FYDP. USN and USAF intend to program outyear funding as well to support production availability of an alternate engine source.

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	--	--	--	--	--	--	70.3
1998	--	--	--	--	--	--	23.0
Subtotal	**--**	**--**	**--**	**--**	**--**	**--**	**122.2**

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

Fiscal Year	Quantity	End Item Recurring Flyaway BY 1994 $M	Non End Item Recurring Flyaway BY 1994 $M	Non Recurring Flyaway BY 1994 $M	Total Flyaway BY 1994 $M	Total Support BY 1994 $M	Total Program BY 1994 $M
1996	--	--	--	--	--	--	27.5
1997	--	--	--	--	--	--	65.8
1998	--	--	--	--	--	--	21.2
Subtotal	**--**	**--**	**--**	**--**	**--**	**--**	**114.5**

Low Rate Initial Production

None

Foreign Military Sales

None

Nuclear Cost

None

Unit Cost

Unit Cost Report

Not required for Pre-Milestone B programs in accordance with Section 2433, Title 10, USC.

Unit Cost History

Not required for Pre-Milestone B programs in accordance with Section 2433, Title 10, USC.

SAR Baseline History

Item/Event	SAR Planning Estimate (PE)	SAR Development Estimate (DE)	SAR Production Estimate (PdE)	Current Estimate
Total Cost (TY $M)	N/A	N/A	N/A	22329.0
Total Quantity	N/A	N/A	N/A	0
Prog. Acq. Unit Cost (PAUC)	N/A	N/A	N/A	N/A

Cost Variance

Summary Then Year $M				
	RDT&E	Proc	MILCON	Total
SAR Baseline (Plan Est)	24800.0	--	--	24800.0
Previous Changes				
Economic	-1230.4	--	--	-1230.4
Quantity	0.0	--	--	0.0
Schedule	0.0	--	--	0.0
Engineering	0.0	--	--	0.0
Estimating	-403.7	--	--	-403.7
Other	0.0	--	--	0.0
Support	0.0	--	--	0.0
Subtotal	-1634.1	--	--	-1634.1
Current Changes				
Economic	-745.7	--	--	-745.7
Quantity	--	--	--	--
Schedule	--	--	--	--
Engineering	--	--	--	--
Estimating	-91.2	--	--	-91.2
Other	--	--	--	--
Support	--	--	--	--
Subtotal	-836.9	--	--	-836.9
Total Changes	-2471.0	--	--	-2471.0
CE - Cost Variance	22329.0	--	--	22329.0
CE - Cost & Funding	22329.0	--	--	22329.0

Summary Base Year 1994 $M				
	RDT&E	Proc	MILCON	Total
SAR Baseline (Plan Est)	19000.0	--	--	19000.0
Previous Changes				
Economic	0.0	--	--	0.0
Quantity	0.0	--	--	0.0
Schedule	0.0	--	--	0.0
Engineering	0.0	--	--	0.0
Estimating	-139.6	--	--	-139.6
Other	0.0	--	--	0.0
Support	0.0	--	--	0.0
Subtotal	-139.6	--	--	-139.6
Current Changes				
Economic	--	--	--	--
Quantity	--	--	--	--
Schedule	--	--	--	--
Engineering	--	--	--	--
Estimating	-0.1	--	--	-0.1
Other	--	--	--	--
Support	--	--	--	--
Subtotal	-0.1	--	--	-0.1
Total Changes	-139.7	--	--	-139.7
CE - Cost Variance	18860.3	--	--	18860.3
CE - Cost & Funding	18860.3	--	--	18860.3

Previous Estimate:

RDT&E	$M	
Current Change Explanations	**Base Year**	**Then Year**
Revised escalation indices (Economic)	N/A	-829.6
Adjustment for current and prior escalation (Estimating)	0.0	+20.9
Refinement of phasing of Service funding (Estimating)	-0.1	-112.1
Economic adustment for negative program change (Economic)	N/A	+83.9
RDT&E Subtotal	-0.1	-836.9

Contracts

Appropriation: RDT&E	
Contract Name	**J/IST**
Contractor	McDonnell Douglas Corp.
Contractor Location	St. Louis , MO 63166-0516
Contract Number, Type	F33615-95-K-3801, CPFF
Award Date	September 22, 1995
Definitization Date	September 22, 1995

Initial Contract Price ($M)			Current Contract Price ($M)			Estimated Price At Completion ($M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
64.8	N/A	N/A	64.8	N/A	N/A	64.8	67.2

	Cost Variance	Schedule Variance
Previous Cumulative Variances	--	--
Cumulative Variances To Date	-1.0	+0.4
Net Change	-1.0	+0.4

Cost And Schedule Variance Explanations

Variances are not significant. Variances and Program Manager's Estimate at Completion are expected to improve based on recent management actions.

Contract Comments

None

Appropriation: RDT&E	
Contract Name	**MIRFS**
Contractor	Hughes Aircraft Company
Contractor Location	Los Angeles , CA 90009-2426
Contract Number, Type	N00019-96-C-0074, CPFF
Award Date	February 12, 1996
Definitization Date	February 12, 1996

Initial Contract Price ($M)			Current Contract Price ($M)			Estimated Price At Completion ($M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
54.6	N/A	N/A	54.6	N/A	N/A	54.6	54.6

	Cost Variance	Schedule Variance
Previous Cumulative Variances	--	--
Cumulative Variances To Date	+1.2	-0.4
Net Change	+1.2	-0.4

Cost And Schedule Variance Explanations

Variance is not significant.

Contract Comments

None

Appropriation: RDT&E	
Contract Name	**Alternate Engine**
Contractor	General Electric
Contractor Location	Cincinnati , OH 45215
Contract Number, Type	N00019-96-C-0176, CPFF
Award Date	February 13, 1997
Definitization Date	February 13, 1997

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

Cost And Schedule Variance Explanations

Cost and Schedule variance reporting is not required on this CPFF contract.

Contract Comments

None

Appropriation: RDT&E	
Contract Name	**Weapon System CDP**
Contractor	Boeing Defense and Space
Contractor Location	Seattle , WA 98124-2499
Contract Number, Type	N00019-97-C-0037, CPFF
Award Date	November 16, 1996
Definitization Date	November 16, 1996

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

Cost And Schedule Variance Explanations

Cost and Schedule variance reporting is not required on this CPFF contract.

Contract Comments

None

Appropriation: RDT&E	
Contract Name	**Weapon System CDP**
Contractor	Lockheed Martin Corp.
Contractor Location	Ft. Worth , TX 76101
Contract Number, Type	N00019-97-C-0038, CPFF
Award Date	November 16, 1996
Definitization Date	November 16, 1996

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

Cost And Schedule Variance Explanations

Cost and Schedule variance reporting is not required on this CPFF contract.

Contract Comments

None

Appropriation: RDT&E	
Contract Name	**Propulsion CDP**
Contractor	Pratt and Whitney
Contractor Location	West Palm Beach , FL 33410-9600
Contract Number, Type	N00019-97-C-0050, CPAF
Award Date	January 23, 1997
Definitization Date	January 23, 1997

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

Cost And Schedule Variance Explanations

Cost and Schedule variance reporting is not required on this CPAF contract.

Contract Comments

None

Deliveries and Expenditures

Deliveries To Date	Plan	Actual	Total Quantity	Percent Delivered
Development	0	0	0	--
Production	0	0	0	--
Total Program Quantities Delivered	0	0	0	--

Expenditures and Appropriations (TY $M)			
Total Acquisition Cost	22329.0	Years Appropriated	5
Expenditures To Date	1067.8	Percent Years Appropriated	33.33%
Percent Expended	4.78%	Appropriated to Date	2034.6
Total Funding Years	15	Percent Appropriated	9.11%

Operating and Support Cost

None

Defense Acquisition Management
Information Retrieval
(DAMIR)

Selected Acquisition Report (SAR)

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

F-35 (JSF)

As of December 31, 1998

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Program Information

Designation And Nomenclature (Popular Name)

JSF

DoD Component

DoD

Joint Participants

USAF; USN; USMC; DARPA; United Kingdom; Norway; Denmark; The Netherlands; Canada; Italy

The JSF Program is a joint DoD 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.

Responsible Office

Responsible Office

MGen Leslie Kenne
Joint Strike Fighter Program Office
1213 Jefferson Davis Hwy
Suite 600
Arlington, VA 22202-3402
kennelf@jast.mil

Phone 703-602-7638
Fax --
DSN Phone 332-7638
DSN Fax --

Date Assigned August 1, 1997

References

SAR Baseline (Planning Estimate)

Defense Acquisition Executive (DAE) approved Acquisition Program Baseline (APB) dated November 15, 1996

Approved APB

DAE Approved Acquisition Program Baseline (APB) dated November 15, 1996

Mission and Description

The 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 carrier suitable variant of the JSF will provide the Navy a multi-role, stealthy strike fighter aircraft to complement the F/A-18E/F. The Air Force variant will be a multi-role aircraft, primary-air-to-ground, to replace the F-16 and A-10 (Service intent) and complement the F-22. The Short Takeoff and Vertical Landing (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 Sea Harrier for the United Kingdom Royal Navy. The cornerstone of the JSF Program is affordability -- reducing the development cost, production cost, and cost of ownership of the JSF family of aircraft. The program was structured from the beginning to be a model of acquisition reform, with an emphasis on jointness, technology maturation and concept demonstrations, and early cost and performance trades integral to the weapon system requirements definition process.

Executive Summary

The Department of Defense established the Joint Strike Fighter Program, originally named Joint Advanced Strike Technology (JAST) Program, as an outcome of the 1993 Secretary of Defense Bottom-Up Review. The program was created as the focal point for defining affordable next-generation strike weapon systems to replace aging Navy and Air Force tactical assets. Program emphasis is on affordability -- reducing the Total Ownership Cost of the JSF family of aircraft. This demands a new way of doing business and JSF is accomplishing that through an innovative acquisition approach that uses this phase of the program to define an affordable weapon system for the warfighter, explore technological innovations, and reduce risk. Program activities to accomplish these objectives center on evolving affordable requirements, maturing/demonstrating technology, and flying concept demonstrator aircraft.

Fiscal Year 1995 legislation merged the Defense Advanced Research Projects Agency (DARPA) Advanced Short Take-Off and Landing (ASTOVL) program with the then-JAST Program. The United Kingdom became a collaborative partner in the program in 1995, extending a collaboration begun under the DARPA ASTOVL program. Denmark, Norway, The Netherlands, Canada and Italy subsequently joined the current phase of the program.

Facilitated by the JSF Program Office, the Services produced the Joint Initial Requirements Document (JIRD) in 1995, with updates in 1997 and 1998. The requirements evolution process, based on extensive cost and performance trades emphasizing Cost As An Independent Variable (CAIV), will culminate in the Services' Joint Operational Requirements Document in FY 2000.

The Concept Exploration and Concept Development Phases of the JSF Program are completed. On-going Concept Demonstration efforts commenced in November 1996 with competitive contract awards to Boeing and Lockheed Martin for Concept Demonstration Programs (CDP), with Pratt and Whitney providing propulsion hardware and engineering support. The competing contractors are conducting concept unique ground demonstrations; continuing refinement of the weapon system concepts that will be proposed for Engineering and Manufacturing Development (E&MD) and Production; and building concept demonstrator aircraft for flight demonstrations in 2000. These demonstrators are not full prototypes (i.e., production representative) but basic airframe, propulsion, minimal avionics, and many off-the-shelf subsystems necessary for flight. Specifically the Boeing and Lockheed Martin concept demonstrator aircraft will demonstrate commonality and modularity, STOVL hover and transition, and low speed handling qualities of their respective concepts.

In 1998 Pratt and Whitney successfully commenced engine testing. Boeing and Lockheed Martin completed Final Design Reviews and continued build of their respective Concept Demonstrator Aircraft. The Services completed the third iteration of their requirements document based on Cost and Operational Performance Trades (COPT). Technology maturation demonstrations continued as well. Both COPT and technology maturation demonstrations are essential to achieving JSF affordability goals and lowering risk prior to E&MD entry in 2001. Funding stability is also essential for the remainder of the program.
Italy joined the program with a focus on the STOVL variant.

General Electric is continuing technical efforts related to development of an alternate engine source for production. Specifically, they are developing a core for an alternate engine which will be followed with a fan and turbine development after the winning aircraft design is selected. Funding for the alternate engine program is programmed through the current FYDP, which ends in FY 2005. The Navy and Air Force are committed to funding the program in

the outyears as well, and this SAR reflects outyear funding to support production Lot VII availability.

The Department is currently (January 1999) addressing some program cost growth issues that recently surfaced. Details of those issues cannot be provided in this report due to the proprietary and competition sensitive nature of the information. The Program Director or other Department officials will provide additional information on request.

The Under Secretary of Defense for Acquisition and Technology designated the JSF Program a joint, DoD Acquisition Category ID Program in May 1996.

This is an RDT&E-only SAR since JSF is a pre-Milestone II program. Limited reporting is permitted for pre-Milestone II programs in accordance with Title 10, United States Code, Section 2432, "SARs."

Threshold Breaches

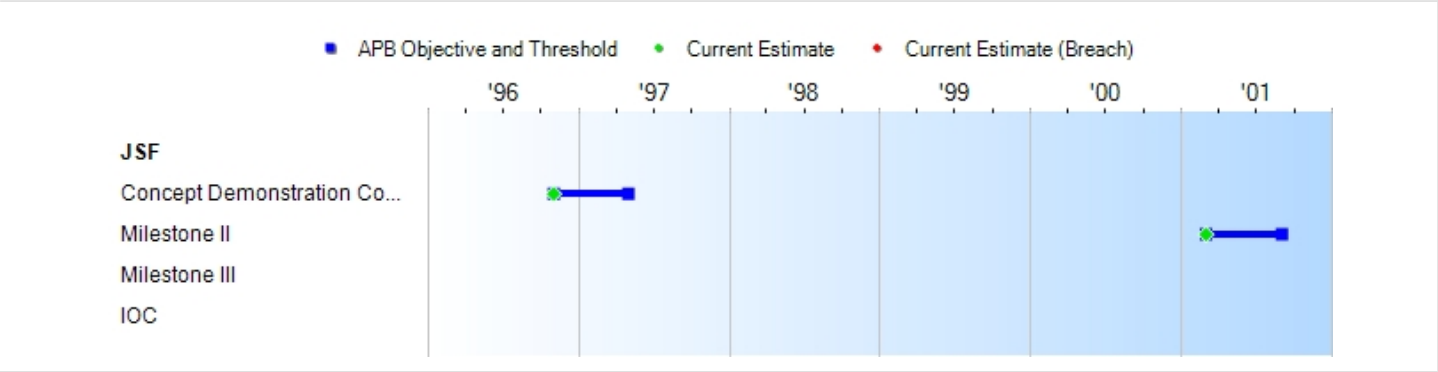
APB Breaches		
Schedule		☐
Performance		☐
Cost	RDT&E	☐
	Procurement	☐
	MILCON	☐
	Acq O&M	☐
Unit Cost	PAUC	☐
	APUC	☐

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

Explanation of Breach

Nunn-McCurdy unit cost is not applicable for pre-Milestone II programs.

Schedule



Milestones	SAR Baseline Plan Est	Current APB Concept Objective/Threshold		Current Estimate
Concept Demonstration Contract Award	NOV 1996	NOV 1996	MAY 1997	NOV 1996
Milestone II	MAR 2001	MAR 2001	SEP 2001	MAR 2001
Milestone III	TBD	TBD	TBD	TBD
IOC	TBD	TBD	TBD	TBD

Change Explanations

None

Memo

None

Performance

Characteristics	SAR Baseline Plan Est	Current APB Concept Objective/Threshold		Demonstrated Performance	Current Estimate
Jt Init Rqmts Document (JIRD) 1 Desired Operational Characteristics					
CTOL Capability	Yes	Yes	Yes	TBD	Yes
STOVL Capability (STOVL Variant)	Yes	Yes	Yes	TBD	Yes
Aircraft Carrier Suitable (CV Variant and STOVL Variant)	Yes	Yes	Yes	TBD	Yes
Range Radius NM - CTOL Variant	450-600	450-600	N/A	TBD	500-600
Range Radius NM - STOVL Variant	450-550	450-550	N/A	TBD	450-550
Range Radius NM - CV Variant	>600	>600	N/A	TBD	500-600
Internal Weapons Carriage - CTOL Variant	2 X 1000 # class A-G, 2 XAIM-120, Interna l Gun	2 X 1000# class A-G, 2 XAIM-120, Internal Gun	N/A	TBD	2X 2000# class A-G, 2X AIM-120, internal advanced gun
Internal Weapons Carriage - STOVL Variant	2 X 1000 # class A-G, 2X AIM-120	2 X 1000# class A-G, 2X AIM-120	N/A	TBD	2X 1000 # class A-G, 2X AIM-120, mission-ized advanced gun
Internal Weapons Carriage - CV Variant	2 X 2000 # class A-G, 2 X AIM-120	2 X 2000# class A-G, 2 X AIM-120	N/A	TBD	2X 2000# class A-G, 2X AIM-120, mission-ized advanced gun
Speed & Maneuverability	comparable to F-16 /F/A-18	Comparable to F-16 /F/A-18	N/A	TBD	comparable to F-16/F/A-18
Strike and Destroy Targets Day or Night in Adverse Weather	Yes	Yes	N/A	TBD	Yes

Conditions					
Integration of Offboard Sensors and Data Fusion	Yes	Yes	N/A	TBD	Yes
Signature Reduction/Low Observables	Yes	Yes	N/A	TBD	Yes
Logistic Footprint	5-8 C-141B equivalent loads	5-8 C-141B equivalent loads	N/A	TBD	no more than 6 C-17 equivalent loads
Sortie Generation Rate - CTOL Variant	3-4/day sustained; 4-5/day surge	3-4/day sustained; 4-5/day surge	N/A	TBD	4/day initial surge; 3/day sustained surge;1-2/day sustained wartime
Sortie Generation Rate - CV Variant	3/day sustained; 4/day s urge	3/day sustained; 4/day surge	N/A	TBD	4/day initial surge; 3/day sustained surge; 1-2/day sustained wartime
Sortie Generation Rate - STOVL Variant	4/day sustained; 6/day s urge	4/day sustained; 6/day surge	N/A	TBD	6/day intitial surge; 4/day sustained surge; 1-2/day sustained wartime
Unit Flyaway Cost - CTOL Variant	$28M	$28M	N/A	TBD	$28M
Unit Flyaway Cost - CV Variant	$31-38M	$31-38M	N/A	TBD	$31M-38M
Unit Flyaway Cost - STOVL Variant	$30-35M	$30-35M	N/A	TBD	$30M-35M

Change Explanations

None

Memo

NOTES:
The above Desired Operational Characteristics are documented in the Services' Joint Interim Requirements Document(JIRD) which was updated October 1998. The Services update the JIRD annually with the Joint Requirements Oversight Council (JROC) based on results of cost and operational trades using cost as an independent variable; consequently the Desired Operational Characteristics are subject to change. Objectives and

additional thresholds will be established for Key Performance Parameters upon signature of the Joint Operational Requirements Document (JORD) nearing Milestone II.

JSF Variants:
USAF - Conventional Take-Off and Landing (CTOL)
USN - Aircraft Carrier Suitable (CV)
USMC - Short Take-Off and Vertical Landing (STOVL)

Unit flyaway costs above are constant base year FY94 dollars.

Change Explanations:
The Approved Program (APB) column reflects the Services' Joint Interim Requirements Document (JIRD) I. The "Current Estimate" column reflects the October 1998 update, JIRD III:

Track To Budget

RDT&E		
APPN 0400	PE 0603800E	(DoD)
	Joint Strike Fighter	
APPN 3600	PE 0603800F	(Air Force)
	Joint Advanced Strike Technology Program	
APPN 1319	PE 0603800N	(Navy)
	Joint Advanced Strike Technology Program	
	PE 0604800F	
	PE 0604800N	

General Memo

The United Kingdom, The Netherlands, Denmark, Norway, Canada and Italy are contributing funding for current JSF development efforts under the terms of formal agreements. Foreign participation in the Engineering and Manufacturing Development (E&MD) Phase commencing in 2001 is anticipated. This SAR includes funding from foreign sources as reflected in Section 16.

Cost and Funding

Cost Summary

Total Acquisition Cost and Quantity

	BY1994 $M				TY $M		
Appropriation	SAR Baseline Plan Est	Current APB Concept Objective/Threshold		Current Estimate	SAR Baseline Plan Est	Current APB Concept Objective	Current Estimate
RDT&E	19000.0	19000.0	20900.0	20015.5	24800.0	24800.0	23362.5
Procurement	--	--	--	--	--	--	--
MILCON	--	--	--	--	--	--	--
Acq O&M	--	--	--	--	--	--	--
Total	19000.0	19000.0	20900.0	20015.5	24800.0	24800.0	23362.5

Quantity	SAR Baseline Plan Est	Current APB Concept	Current Estimate
RDT&E	0	0	0
Procurement	0	--	0
Total	0	0	0

Funding Summary

Appropriation and Quantity Summary

FY2000 President's Budget / December 1998 SAR (TY$ M)

Appropriation	Prior	FY1999	FY2000	FY2001	FY2002	FY2003	FY2004	FY2005	To Complete	Total
RDT&E	2040.8	977.8	510.4	1187.2	2831.5	3855.6	3889.5	3510.7	4559.0	23362.5
Procurement	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MILCON	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Acq O&M	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PB2000 Total	2040.8	977.8	510.4	1187.2	2831.5	3855.6	3889.5	3510.7	4559.0	23362.5
PB1999 Total	2034.6	964.1	518.3	1208.1	2883.5	3931.3	3966.1	3436.3	3386.7	22329.0
Delta	6.2	13.7	-7.9	-20.9	-52.0	-75.7	-76.6	74.4	1172.3	1033.5

Quantity	Prior	FY1999	FY2000	FY2001	FY2002	FY2003	FY2004	FY2005	To Complete	Total
Development	0	0	0	0	0	0	0	0	0	0
Production	0	0	0	0	0	0	0	0	0	0
PB2000 Total	0	0	0	0	0	0	0	0	0	0
PB1999 Total	0	0	0	0	0	0	0	0	0	0
Delta	0	0	0	0	0	0	0	0	0	0

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	--	--	--	--	--	--	468.5
2000	--	--	--	--	--	--	241.2
2001	--	--	--	--	--	--	561.5
2002	--	--	--	--	--	--	1338.4
2003	--	--	--	--	--	--	1823.1
2004	--	--	--	--	--	--	1881.1
2005	--	--	--	--	--	--	1658.9
2006	--	--	--	--	--	--	1077.6
2007	--	--	--	--	--	--	523.5
2008	--	--	--	--	--	--	311.3
2009	--	--	--	--	--	--	119.0
2010	--	--	--	--	--	--	65.0
2011	--	--	--	--	--	--	27.0
Subtotal	**--**	**--**	**--**	**--**	**--**	**--**	**10995.8**

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

Fiscal Year	Quantity	End Item Recurring Flyaway BY 1994 $M	Non End Item Recurring Flyaway BY 1994 $M	Non Recurring Flyaway BY 1994 $M	Total Flyaway BY 1994 $M	Total Support BY 1994 $M	Total Program BY 1994 $M
1994	--	--	--	--	--	--	29.1
1995	--	--	--	--	--	--	95.2
1996	--	--	--	--	--	--	76.6
1997	--	--	--	--	--	--	228.9
1998	--	--	--	--	--	--	418.4
1999	--	--	--	--	--	--	432.5
2000	--	--	--	--	--	--	219.3
2001	--	--	--	--	--	--	502.3
2002	--	--	--	--	--	--	1178.1
2003	--	--	--	--	--	--	1575.8
2004	--	--	--	--	--	--	1592.5
2005	--	--	--	--	--	--	1375.5
2006	--	--	--	--	--	--	875.2
2007	--	--	--	--	--	--	416.4
2008	--	--	--	--	--	--	242.5
2009	--	--	--	--	--	--	90.8
2010	--	--	--	--	--	--	48.6
2011	--	--	--	--	--	--	19.8
Subtotal	**--**	**--**	**--**	**--**	**--**	**--**	**9417.5**

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	--	--	--	--	--	--	454.8
2000	--	--	--	--	--	--	235.4
2001	--	--	--	--	--	--	559.1
2002	--	--	--	--	--	--	1332.9
2003	--	--	--	--	--	--	1814.4
2004	--	--	--	--	--	--	1871.3
2005	--	--	--	--	--	--	1649.5
2006	--	--	--	--	--	--	1077.6
2007	--	--	--	--	--	--	523.5
2008	--	--	--	--	--	--	311.3
2009	--	--	--	--	--	--	119.0
2010	--	--	--	--	--	--	65.0
2011	--	--	--	--	--	--	27.0
Subtotal	**--**	**--**	**--**	**--**	**--**	**--**	**10901.8**

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

Fiscal Year	Quantity	End Item Recurring Flyaway BY 1994 $M	Non End Item Recurring Flyaway BY 1994 $M	Non Recurring Flyaway BY 1994 $M	Total Flyaway BY 1994 $M	Total Support BY 1994 $M	Total Program BY 1994 $M
1995	--	--	--	--	--	--	81.2
1996	--	--	--	--	--	--	77.4
1997	--	--	--	--	--	--	236.8
1998	--	--	--	--	--	--	414.8
1999	--	--	--	--	--	--	419.8
2000	--	--	--	--	--	--	214.0
2001	--	--	--	--	--	--	500.2
2002	--	--	--	--	--	--	1173.2
2003	--	--	--	--	--	--	1568.3
2004	--	--	--	--	--	--	1584.2
2005	--	--	--	--	--	--	1367.7
2006	--	--	--	--	--	--	875.2
2007	--	--	--	--	--	--	416.4
2008	--	--	--	--	--	--	242.5
2009	--	--	--	--	--	--	90.8
2010	--	--	--	--	--	--	48.6
2011	--	--	--	--	--	--	19.8
Subtotal	**--**	**--**	**--**	**--**	**--**	**--**	**9330.9**

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	--	--	--	--	--	--	77.1
1999	--	--	--	--	--	--	54.5
2000	--	--	--	--	--	--	33.8
2001	--	--	--	--	--	--	66.6
2002	--	--	--	--	--	--	160.2
2003	--	--	--	--	--	--	218.1
2004	--	--	--	--	--	--	137.1
2005	--	--	--	--	--	--	202.3
2006	--	--	--	--	--	--	130.0
2007	--	--	--	--	--	--	144.0
2008	--	--	--	--	--	--	38.2
Subtotal	**--**	**--**	**--**	**--**	**--**	**--**	**1346.9**

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

Fiscal Year	Quantity	End Item Recurring Flyaway BY 1994 $M	Non End Item Recurring Flyaway BY 1994 $M	Non Recurring Flyaway BY 1994 $M	Total Flyaway BY 1994 $M	Total Support BY 1994 $M	Total Program BY 1994 $M
1996	--	--	--	--	--	--	13.3
1997	--	--	--	--	--	--	66.8
1998	--	--	--	--	--	--	72.0
1999	--	--	--	--	--	--	50.3
2000	--	--	--	--	--	--	30.7
2001	--	--	--	--	--	--	59.6
2002	--	--	--	--	--	--	141.0
2003	--	--	--	--	--	--	188.5
2004	--	--	--	--	--	--	116.1
2005	--	--	--	--	--	--	167.7
2006	--	--	--	--	--	--	105.6
2007	--	--	--	--	--	--	114.5
2008	--	--	--	--	--	--	29.8
Subtotal	**--**	**--**	**--**	**--**	**--**	**--**	**1155.9**

(1) "Other RDT&E Funding" reflects current and anticipated foreign funding.

(2) USN and USAF appropriation data includes funding for the alternate engine program to support Lot VII production availability.

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 1994 $M	Non End Item Recurring Flyaway BY 1994 $M	Non Recurring Flyaway BY 1994 $M	Total Flyaway BY 1994 $M	Total Support BY 1994 $M	Total Program BY 1994 $M
1996	--	--	--	--	--	--	27.5
1997	--	--	--	--	--	--	64.2
1998	--	--	--	--	--	--	19.5
Subtotal	**--**	**--**	**--**	**--**	**--**	**--**	**111.2**

Low Rate Initial Production

None

Foreign Military Sales

None

Nuclear Cost

None

Unit Cost

Unit Cost Report

Not required for Pre-Milestone B programs in accordance with Section 2433, Title 10, USC.

Unit Cost History

Not required for Pre-Milestone B programs in accordance with Section 2433, Title 10, USC.

SAR Baseline History

Item/Event	SAR Planning Estimate (PE)	SAR Development Estimate (DE)	SAR Production Estimate (PdE)	Current Estimate
Total Cost (TY $M)	24800.0	N/A	N/A	23362.5
Total Quantity	N/A	N/A	N/A	0
Prog. Acq. Unit Cost (PAUC)	N/A	N/A	N/A	N/A

Cost Variance

Summary Then Year $M				
	RDT&E	Proc	MILCON	Total
SAR Baseline (Plan Est)	24800.0	--	--	24800.0
Previous Changes				
Economic	-1976.1	--	--	-1976.1
Quantity	0.0	--	--	0.0
Schedule	0.0	--	--	0.0
Engineering	0.0	--	--	0.0
Estimating	-494.9	--	--	-494.9
Other	0.0	--	--	0.0
Support	0.0	--	--	0.0
Subtotal	-2471.0	--	--	-2471.0
Current Changes				
Economic	-427.7	--	--	-427.7
Quantity	--	--	--	--
Schedule	--	--	--	--
Engineering	+1420.0	--	--	+1420.0
Estimating	+41.2	--	--	+41.2
Other	--	--	--	--
Support	--	--	--	--
Subtotal	+1033.5	--	--	+1033.5
Total Changes	-1437.5	--	--	-1437.5
CE - Cost Variance	23362.5	--	--	23362.5
CE - Cost & Funding	23362.5	--	--	23362.5

Summary Base Year 1994 $M				
	RDT&E	Proc	MILCON	Total
SAR Baseline (Plan Est)	19000.0	--	--	19000.0
Previous Changes				
Economic	0.0	--	--	0.0
Quantity	0.0	--	--	0.0
Schedule	0.0	--	--	0.0
Engineering	0.0	--	--	0.0
Estimating	-139.7	--	--	-139.7
Other	0.0	--	--	0.0
Support	0.0	--	--	0.0
Subtotal	-139.7	--	--	-139.7
Current Changes				
Economic	--	--	--	--
Quantity	--	--	--	--
Schedule	--	--	--	--
Engineering	+1120.8	--	--	+1120.8
Estimating	+34.4	--	--	+34.4
Other	--	--	--	--
Support	--	--	--	--
Subtotal	+1155.2	--	--	+1155.2
Total Changes	+1015.5	--	--	+1015.5
CE - Cost Variance	20015.5	--	--	20015.5
CE - Cost & Funding	20015.5	--	--	20015.5

Previous Estimate: December 1997

RDT&E	$M	
Current Change Explanations	**Base Year**	**Then Year**
Revised escalation indices (Economic)	N/A	-427.7
Adjustment for current & prior year inflation (Estimating)	+28.0	+30.1
Addition of funding for the alternate engine program in FY04-FY11 (Engineering)	+1120.8	+1420.0
Adjustments for phasing and minor changes to Service funding (Estimating)	+6.4	+11.1
RDT&E Subtotal	+1155.2	+1033.5

Contracts

Appropriation: RDT&E	
Contract Name	**J/IST**
Contractor	McDonnell Douglas Corp.
Contractor Location	St. Louis , MO 63166-0516
Contract Number, Type	F33615-95-K-3801, CPFF
Award Date	September 22, 1995
Definitization Date	September 22, 1995

Initial Contract Price ($M)			Current Contract Price ($M)			Estimated Price At Completion ($M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
64.8	N/A	N/A	64.8	N/A	N/A	64.8	67.0

	Cost Variance	Schedule Variance
Previous Cumulative Variances	-1.0	+0.4
Cumulative Variances To Date (11/30/1998)	-1.4	-0.8
Net Change	-0.4	-1.2

Cost And Schedule Variance Explanations

Variances are not significant. Variances and Program Manager's Estimate at Completion are expected to improve as benefits of ongoing management actions are realized.

Contract Comments

None

Appropriation: RDT&E	
Contract Name	**MIRFS**
Contractor	Raytheon Company
Contractor Location	Los Angeles , CA 90009-2426
Contract Number, Type	N00019-96-C-0074, CPFF
Award Date	February 12, 1996
Definitization Date	February 12, 1996

Initial Contract Price ($M)			Current Contract Price ($M)			Estimated Price At Completion ($M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
54.6	N/A	N/A	53.4	N/A	N/A	53.4	53.4

	Cost Variance	Schedule Variance
Previous Cumulative Variances	+1.2	-0.4
Cumulative Variances To Date (12/25/1998)	+0.7	-1.2
Net Change	-0.5	-0.8

Cost And Schedule Variance Explanations

Variance is not significant.

Contract Comments

None

Appropriation: RDT&E	
Contract Name	**Alternate Engine**
Contractor	General Electric
Contractor Location	Cincinnati , OH 45215
Contract Number, Type	N00019-96-C-0176, CPFF
Award Date	February 13, 1997
Definitization Date	February 13, 1997

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

Cost And Schedule Variance Explanations

Cost and Schedule variance reporting is not required on this CPFF contract.

Contract Comments

None

Appropriation: RDT&E	
Contract Name	**Weapon System CDP**
Contractor	Boeing Defense and Space
Contractor Location	Seattle , WA 98124-2499
Contract Number, Type	N00019-97-C-0037, CPFF
Award Date	November 16, 1996
Definitization Date	November 16, 1996

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

Cost And Schedule Variance Explanations

Cost and Schedule variance reporting is not required on this CPFF contract.

Contract Comments

None

Appropriation: RDT&E	
Contract Name	**Weapon System CDP**
Contractor	Lockheed Martin Corp.
Contractor Location	Ft. Worth , TX 76101
Contract Number, Type	N00019-97-C-0038, CPFF
Award Date	November 16, 1996
Definitization Date	November 16, 1996

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

Cost And Schedule Variance Explanations

Cost and Schedule variance reporting is not required on this CPFF contract.

Contract Comments

None

Appropriation: RDT&E	
Contract Name	**Propulsion CDP**
Contractor	Pratt and Whitney
Contractor Location	West Palm Beach , FL 33410-9600
Contract Number, Type	N00019-97-C-0050, CPAF
Award Date	January 23, 1997
Definitization Date	January 23, 1997

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

Cost And Schedule Variance Explanations

Cost and Schedule variance reporting is not required on this CPAF contract.

Contract Comments

None

Deliveries and Expenditures

Deliveries To Date	Plan	Actual	Total Quantity	Percent Delivered
Development	0	0	0	--
Production	0	0	0	--
Total Program Quantities Delivered	0	0	0	--

Expenditures and Appropriations (TY $M)			
Total Acquisition Cost	23362.5	Years Appropriated	6
Expenditures To Date	2251.0	Percent Years Appropriated	33.33%
Percent Expended	9.64%	Appropriated to Date	3018.6
Total Funding Years	18	Percent Appropriated	12.92%

Operating and Support Cost

None

Defense Acquisition Management
Information Retrieval
(DAMIR)

Selected Acquisition Report (SAR)

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

F-35 (JSF)

As of December 31, 1999

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Program Information

Designation And Nomenclature (Popular Name)

JSF

DoD Component

DoD

Joint Participants

USAF; USN; USMC; DARPA; United Kingdom; Norway; Denmark; The Netherlands; Canada; Italy; Singapore; Israel; & Turkey

The JSF Program is a joint DoD 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 Air Force.

Responsible Office

Responsible Office

MajGen Michael Hough
Joint Strike Fighter Program Office
1213 Jefferson Davis Hwy
Suite 600
Arlington, VA 22202-3402
houghma@jast.mil

Phone 703-602-7640
Fax --
DSN Phone 332-7640
DSN Fax --

Date Assigned May 10, 1999

References

SAR Baseline (Planning Estimate)

Defense Acquisition Executive (DAE) approved Acquisition Program Baseline (APB) dated November 15, 1996

Approved APB

DAE Approved Acquisition Program Baseline (APB) dated November 15, 1996

Mission and Description

The 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 carrier suitable variant of the JSF will provide the Navy a multi-role, stealthy strike fighter aircraft to complement the F/A-18E/F. The Air Force variant will be a multi-role aircraft, primary-air-to-ground, to replace the F-16 and A-10 (Service intent) and complement the F-22. The

Short Takeoff and Vertical Landing (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 Sea Harrier and GR-7 for the United Kingdom Royal Navy and Royal Air Force. The cornerstone of the JSF Program is affordability -- reducing the development cost, production cost, and cost of ownership of the JSF family of aircraft. The program was structured from the beginning to be a model of acquisition reform, with an emphasis on jointness, technology maturation and concept demonstrations, and early cost and performance trades integral to the weapon system requirements definition process.

Executive Summary

The Department of Defense established the Joint Strike Fighter Program, originally named Joint Advanced Strike Technology (JAST) Program, as an outcome of the 1993 Secretary of Defense Bottom-Up Review. The program was created as the focal point for defining affordable next-generation strike weapon systems to replace aging Navy and Air Force tactical assets. Program emphasis is on affordability -- reducing the Total Ownership Cost of the JSF family of aircraft. This demands a new way of doing business, and JSF is accomplishing that through an innovative acquisition approach that uses this phase of the program to define an affordable weapon system for the warfighter, explore technological innovations, and reduce risk. Program activities to accomplish these objectives center on evolving affordable requirements, maturing/demonstrating technology, and flying concept demonstrator aircraft.

Fiscal Year 1995 legislation merged the Defense Advanced Research Projects Agency (DARPA) Advanced Short Take-Off and Landing (ASTOVL) program with the then-JAST Program. The United Kingdom became a Collaborative Partner in 1995, extending a collaboration begun under the DARPA ASTOVL program, at an investment level of $200M. Denmark, Norway, the Netherlands, Canada, and Italy became partners, with investments of $10M each. Turkey, Singapore, and Israel subsequently joined the current phase of the program as Foreign Military Sales customers.

Facilitated by the JSF Program Office, the Services produced the Joint Initial Requirements Document (JIRD) in 1995, with updates in 1997 and 1998. The requirements evolution process, based on extensive cost and performance trades emphasizing Cost As An Independent Variable (CAIV), will culminate in the Services' Joint Operational Requirements Document in FY 2000.

The Concept Exploration and Concept Development Phases of the JSF Program are completed. On-going Concept Demonstration efforts commenced in November 1996 with competitive contract awards to Boeing and Lockheed Martin for Concept Demonstration Programs (CDP), with Pratt and Whitney providing propulsion hardware and engineering support. The competing contractors are conducting concept-unique ground demonstrations; continuing refinement of the weapon system concepts that will be proposed for Engineering and Manufacturing Development (E&MD) and Production; and building concept demonstrator aircraft for flight demonstrations in 2000. These demonstrators are not full prototypes (i.e., production representative) but basic airframe, propulsion, minimal avionics, and many off-the-shelf subsystems necessary for flight. Specifically, the Boeing and Lockheed Martin concept demonstrator aircraft will demonstrate commonality and modularity, STOVL hover and transition, and low speed handling qualities of their respective concepts.

In 1998 Pratt and Whitney successfully commenced engine testing. Boeing and Lockheed Martin completed Final Design Reviews and continued build of their respective Concept Demonstrator Aircraft. The Services completed the third iteration of their requirements document based on Cost and Operational Performance Trades (COPT). Technology maturation demonstrations continued as well. Both COPT and technology maturation demonstrations are essential to achieving JSF affordability goals and lowering risk prior to E&MD entry in 2001. Funding stability is also essential for the remainder of the program.

General Electric is continuing technical efforts related to development of an alternate engine source for production. Specifically, they are developing a core for an alternate engine which will be followed with a fan and turbine

development after the winning aircraft design is selected. Funding for the alternate engine program is programmed through the current FYDP, which ends in FY 2007. The Navy and Air Force are committed to funding the program in the outyears as well, and this SAR reflects outyear funding to support production Lot VII availability.

The program experienced cost growth issues in 1999 that resulted in replans from both CDP contractors. Details of those issues cannot be provided in this report due to the proprietary and competition sensitive nature of the information. The Program Director or other Department officials will provide additional information upon request. DEPSECDEF approved the replans, and the Services committed to exempting JSF from further Service-unique "taxes" for the remainder of CDP in order to assure program stability. The EMD estimate is currently being revised. Any changes will be reflected in the December 2000 SAR.

The Under Secretary of Defense for Acquisition, Technology and Logistics designated the JSF Program a joint, DoD Acquisition Category ID Program in May 1996.

This is an RDT&E-only SAR, since JSF is a pre-Milestone II program. Limited reporting is permitted for pre-Milestone II programs in accordance with Title 10, United States Code, Section 2432, "SARs."

Threshold Breaches

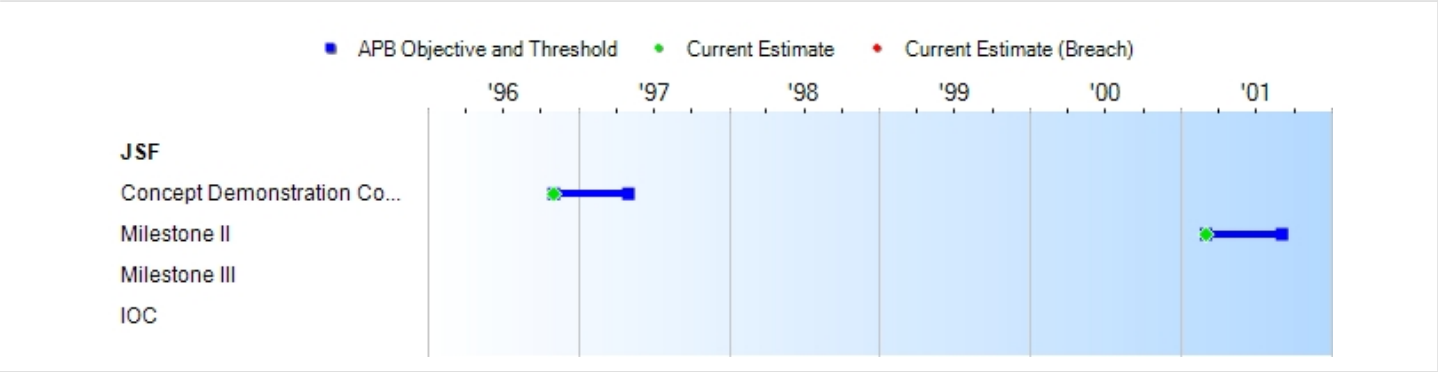
APB Breaches		
Schedule		☐
Performance		☐
Cost	RDT&E	☐
	Procurement	☐
	MILCON	☐
	Acq O&M	☐
Unit Cost	PAUC	☐
	APUC	☐

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

Explanation of Breach

Nunn-McCurdy unit cost is not applicable for pre-Milestone II programs.

Schedule



Milestones	SAR Baseline Plan Est	Current APB Concept Objective/Threshold		Current Estimate
Concept Demonstration Contract Award	NOV 1996	NOV 1996	MAY 1997	NOV 1996
Milestone II	MAR 2001	MAR 2001	SEP 2001	MAR 2001
Milestone III	TBD	TBD	TBD	TBD
IOC	TBD	TBD	TBD	TBD

Change Explanations

None

Memo

None

Performance

Characteristics	SAR Baseline Plan Est	Current APB Concept Objective/Threshold		Demonstrated Performance	Current Estimate
Jt Init Rqmts Document (JIRD) 1 Desired Operational Characteristics					
CTOL Capability	Yes	Yes	Yes	TBD	Yes
STOVL Capability (STOVL Variant)	Yes	Yes	Yes	TBD	Yes
Aircraft Carrier Suitable (CV Variant and STOVL Variant)	Yes	Yes	Yes	TBD	Yes
Range Radius NM - CTOL Variant	450-600	450-600	N/A	TBD	500-600
Range Radius NM - STOVL Variant	450-550	450-550	N/A	TBD	450-550
Range Radius NM - CV Variant	>600	>600	N/A	TBD	500-600
Internal Weapons Carriage - CTOL Variant	2 X 1000 # class A-G, 2 XAIM-120, Interna l Gun	2 X 1000# class A-G, 2 XAIM-120, Internal Gun	N/A	TBD	2X 2000# class A-G, 2X AIM-120, internal advanced gun
Internal Weapons Carriage - STOVL Variant	2 X 1000 # class A-G, 2X AIM-120	2 X 1000# class A-G, 2X AIM-120	N/A	TBD	2X 1000 # class A-G, 2X AIM-120, mission-ized advanced gun
Internal Weapons Carriage - CV Variant	2 X 2000 # class A-G, 2 X AIM-120	2 X 2000# class A-G, 2 X AIM-120	N/A	TBD	2X 2000# class A-G, 2X AIM-120, mission-ized advanced gun
Speed & Maneuverability	comparable to F-16 /F/A-18	Comparable to F-16 /F/A-18	N/A	TBD	comparable to F-16/F/A-18
Strike and Destroy Targets Day or Night in Adverse Weather	Yes	Yes	N/A	TBD	Yes

Conditions					
Integration of Offboard Sensors and Data Fusion	Yes	Yes	N/A	TBD	Yes
Signature Reduction/Low Observables	Yes	Yes	N/A	TBD	Yes
Logistic Footprint	5-8 C-141B equivalent loads	5-8 C-141B equivalent loads	N/A	TBD	no more than 6 C-17 equivalent loads
Sortie Generation Rate - CTOL Variant	3-4/day sustained; 4-5/day surge	3-4/day sustained; 4-5/day surge	N/A	TBD	4/day initial surge; 3/day sustained surge;1-2/day sustained wartime
Sortie Generation Rate - CV Variant	3/day sustained; 4/day s urge	3/day sustained; 4/day surge	N/A	TBD	4/day initial surge; 3/day sustained surge; 1-2/day sustained wartime
Sortie Generation Rate - STOVL Variant	4/day sustained; 6/day s urge	4/day sustained; 6/day surge	N/A	TBD	6/day intitial surge; 4/day sustained surge; 1-2/day sustained wartime
Unit Flyaway Cost - CTOL Variant	$28M	$28M	N/A	TBD	$28M
Unit Flyaway Cost - STOVL Variant	$30-35M	$30-35M	N/A	TBD	$30M-35M
Unit Flyaway Cost - CV Variant	$31-38M	$31-38M	N/A	TBD	$31M-38M

Change Explanations

None

Memo

NOTES:
The above Desired Operational Characteristics are documented in the Services' Joint Interim Requirements Document(JIRD). The Approved Program (APB) column reflects the Services' Joint Interim Requirements Document (JIRD) I. The "Current Estimate" column reflects the October 1998 update, JIRD III, which is the last approved APB. The Services update the JIRD annually with the Joint Requirements Oversight Council (JROC) based on results of

cost and operational trades using cost as an independent variable; consequently, the Desired Operational Characteristics are subject to change. Objectives and additional thresholds will be established for Key Performance Parameters upon signature of the Joint Operational Requirements Document (JORD), which is anticipated to be in March 2000.

JSF Variants:
USAF - Conventional Take-Off and Landing (CTOL)
USN - Aircraft Carrier Suitable (CV)
USMC - Short Take-Off and Vertical Landing (STOVL)

Unit flyaway costs above are constant base year FY94 dollars.

The Unit Recurring Flyaway Cost (URF) for CTOL is under reassessment as the draft JORD matures.

Track To Budget

RDT&E

PE 0603800E
RDT&E, DARPA
PE 0603800F
RDT&E, Air Force CDP
PE 0603800N
RDT&E, Navy CDP
PE 0604800F
RDT&E, Air Force EMD
PE 0604800N
RDT&E, Navy EMD

General Memo

The United Kingdom, The Netherlands, Denmark, Norway, Canada and Italy are contributing funding for current JSF development efforts under the terms of formal agreements. Foreign participation in the Engineering and Manufacturing Development (E&MD) Phase commencing in 2001 is anticipated. This SAR includes funding from foreign sources as reflected in Section 16.

Cost and Funding

Cost Summary

Total Acquisition Cost and Quantity

	BY1994 $M				TY $M		
Appropriation	SAR Baseline Plan Est	Current APB Concept Objective/Threshold		Current Estimate	SAR Baseline Plan Est	Current APB Concept Objective	Current Estimate
RDT&E	19000.0	19000.0	20900.0	20008.4	24800.0	24800.0	23179.7
Procurement	--	--	--	--	--	--	--
MILCON	--	--	--	--	--	--	--
Acq O&M	--	--	--	--	--	--	--
Total	19000.0	19000.0	20900.0	20008.4	24800.0	24800.0	23179.7

Quantity	SAR Baseline Plan Est	Current APB Concept	Current Estimate
RDT&E	0	0	0
Procurement	0	--	0
Total	0	0	0

Funding Summary

Appropriation and Quantity Summary

FY2001 President's Budget / December 1999 SAR (TY$ M)

Appropriation	Prior	FY2000	FY2001	FY2002	FY2003	FY2004	FY2005	To Complete	Total
RDT&E	3022.7	522.8	922.8	2804.3	4082.4	3848.9	3471.1	4504.7	23179.7
Procurement	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MILCON	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Acq O&M	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PB2001 Total	3022.7	522.8	922.8	2804.3	4082.4	3848.9	3471.1	4504.7	23179.7
PB2000 Total	3018.6	510.4	1187.2	2831.5	3855.6	3889.5	3510.7	4559.0	23362.5
Delta	4.1	12.4	-264.4	-27.2	226.8	-40.6	-39.6	-54.3	-182.8

Quantity	Prior	FY2000	FY2001	FY2002	FY2003	FY2004	FY2005	To Complete	Total
Development	0	0	0	0	0	0	0	0	0
Production	0	0	0	0	0	0	0	0	0
PB2001 Total	0	0	0	0	0	0	0	0	0
PB2000 Total	0	0	0	0	0	0	0	0	0
Delta	0	0	0	0	0	0	0	0	0

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	--	--	--	--	--	--	239.9
2001	--	--	--	--	--	--	427.5
2002	--	--	--	--	--	--	1324.0
2003	--	--	--	--	--	--	1932.5
2004	--	--	--	--	--	--	1859.9
2005	--	--	--	--	--	--	1639.1
2006	--	--	--	--	--	--	1065.9
2007	--	--	--	--	--	--	517.4
2008	--	--	--	--	--	--	306.8
2009	--	--	--	--	--	--	117.4
2010	--	--	--	--	--	--	64.0
2011	--	--	--	--	--	--	26.6
Subtotal	**--**	**--**	**--**	**--**	**--**	**--**	**10892.0**

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

Fiscal Year	Quantity	End Item Recurring Flyaway BY 1994 $M	Non End Item Recurring Flyaway BY 1994 $M	Non Recurring Flyaway BY 1994 $M	Total Flyaway BY 1994 $M	Total Support BY 1994 $M	Total Program BY 1994 $M
1994	--	--	--	--	--	--	29.1
1995	--	--	--	--	--	--	95.2
1996	--	--	--	--	--	--	76.6
1997	--	--	--	--	--	--	229.0
1998	--	--	--	--	--	--	418.4
1999	--	--	--	--	--	--	435.9
2000	--	--	--	--	--	--	216.2
2001	--	--	--	--	--	--	384.8
2002	--	--	--	--	--	--	1173.6
2003	--	--	--	--	--	--	1683.8
2004	--	--	--	--	--	--	1588.8
2005	--	--	--	--	--	--	1372.7
2006	--	--	--	--	--	--	875.2
2007	--	--	--	--	--	--	416.5
2008	--	--	--	--	--	--	242.1
2009	--	--	--	--	--	--	90.8
2010	--	--	--	--	--	--	48.5
2011	--	--	--	--	--	--	19.8
Subtotal	**--**	**--**	**--**	**--**	**--**	**--**	**9397.0**

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	--	--	--	--	--	--	429.1
2002	--	--	--	--	--	--	1321.7
2003	--	--	--	--	--	--	1927.2
2004	--	--	--	--	--	--	1853.3
2005	--	--	--	--	--	--	1631.9
2006	--	--	--	--	--	--	1065.9
2007	--	--	--	--	--	--	517.4
2008	--	--	--	--	--	--	306.8
2009	--	--	--	--	--	--	117.4
2010	--	--	--	--	--	--	64.0
2011	--	--	--	--	--	--	26.6
Subtotal	**--**	**--**	**--**	**--**	**--**	**--**	**10827.5**

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

Fiscal Year	Quantity	End Item Recurring Flyaway BY 1994 $M	Non End Item Recurring Flyaway BY 1994 $M	Non Recurring Flyaway BY 1994 $M	Total Flyaway BY 1994 $M	Total Support BY 1994 $M	Total Program BY 1994 $M
1995	--	--	--	--	--	--	81.2
1996	--	--	--	--	--	--	77.4
1997	--	--	--	--	--	--	236.8
1998	--	--	--	--	--	--	414.8
1999	--	--	--	--	--	--	421.9
2000	--	--	--	--	--	--	227.6
2001	--	--	--	--	--	--	386.2
2002	--	--	--	--	--	--	1171.5
2003	--	--	--	--	--	--	1679.2
2004	--	--	--	--	--	--	1583.1
2005	--	--	--	--	--	--	1366.7
2006	--	--	--	--	--	--	875.2
2007	--	--	--	--	--	--	416.5
2008	--	--	--	--	--	--	242.1
2009	--	--	--	--	--	--	90.8
2010	--	--	--	--	--	--	48.5
2011	--	--	--	--	--	--	19.8
Subtotal	**--**	**--**	**--**	**--**	**--**	**--**	**9339.3**

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	--	--	--	--	--	--	77.1
1999	--	--	--	--	--	--	54.5
2000	--	--	--	--	--	--	33.8
2001	--	--	--	--	--	--	66.2
2002	--	--	--	--	--	--	158.6
2003	--	--	--	--	--	--	222.7
2004	--	--	--	--	--	--	135.7
2005	--	--	--	--	--	--	200.1
2006	--	--	--	--	--	--	128.6
2007	--	--	--	--	--	--	142.3
2008	--	--	--	--	--	--	37.6
Subtotal	**--**	**--**	**--**	**--**	**--**	**--**	**1342.2**

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

Fiscal Year	Quantity	End Item Recurring Flyaway BY 1994 $M	Non End Item Recurring Flyaway BY 1994 $M	Non Recurring Flyaway BY 1994 $M	Total Flyaway BY 1994 $M	Total Support BY 1994 $M	Total Program BY 1994 $M
1996	--	--	--	--	--	--	13.3
1997	--	--	--	--	--	--	66.8
1998	--	--	--	--	--	--	72.0
1999	--	--	--	--	--	--	50.4
2000	--	--	--	--	--	--	30.9
2001	--	--	--	--	--	--	59.6
2002	--	--	--	--	--	--	140.6
2003	--	--	--	--	--	--	194.0
2004	--	--	--	--	--	--	115.9
2005	--	--	--	--	--	--	167.6
2006	--	--	--	--	--	--	105.6
2007	--	--	--	--	--	--	114.5
2008	--	--	--	--	--	--	29.7
Subtotal	**--**	**--**	**--**	**--**	**--**	**--**	**1160.9**

Note: (1) "Other RDT&E Funding" reflects current and anticipated foreign funding.

(2) USN and USAF appropriation data include funding for the alternate engine program to support Lot VII production availability.

(3) The EMD estimate is currently being revised. Any changes will be reflected in the December 2000 SAR.

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 1994 $M	Non End Item Recurring Flyaway BY 1994 $M	Non Recurring Flyaway BY 1994 $M	Total Flyaway BY 1994 $M	Total Support BY 1994 $M	Total Program BY 1994 $M
1996	--	--	--	--	--	--	27.5
1997	--	--	--	--	--	--	64.2
1998	--	--	--	--	--	--	19.5
Subtotal	**--**	**--**	**--**	**--**	**--**	**--**	**111.2**

Low Rate Initial Production

None

Foreign Military Sales

None

Nuclear Cost

None

Unit Cost

Unit Cost Report

Not required for Pre-Milestone B programs in accordance with Section 2433, Title 10, USC.

Unit Cost History

Not required for Pre-Milestone B programs in accordance with Section 2433, Title 10, USC.

SAR Baseline History

Item/Event	SAR Planning Estimate (PE)	SAR Development Estimate (DE)	SAR Production Estimate (PdE)	Current Estimate
Total Cost (TY $M)	24800.0	N/A	N/A	23179.7
Total Quantity	N/A	N/A	N/A	0
Prog. Acq. Unit Cost (PAUC)	N/A	N/A	N/A	N/A

Cost Variance

Summary Then Year $M				
	RDT&E	Proc	MILCON	Total
SAR Baseline (Plan Est)	24800.0	--	--	24800.0
Previous Changes				
Economic	-2403.8	--	--	-2403.8
Quantity	0.0	--	--	0.0
Schedule	0.0	--	--	0.0
Engineering	+1420.0	--	--	+1420.0
Estimating	-453.7	--	--	-453.7
Other	0.0	--	--	0.0
Support	0.0	--	--	0.0
Subtotal	-1437.5	--	--	-1437.5
Current Changes				
Economic	-185.0	--	--	-185.0
Quantity	--	--	--	--
Schedule	--	--	--	--
Engineering	--	--	--	--
Estimating	+2.2	--	--	+2.2
Other	--	--	--	--
Support	--	--	--	--
Subtotal	-182.8	--	--	-182.8
Total Changes	-1620.3	--	--	-1620.3
CE - Cost Variance	23179.7	--	--	23179.7
CE - Cost & Funding	23179.7	--	--	23179.7

Summary Base Year 1994 $M				
	RDT&E	Proc	MILCON	Total
SAR Baseline (Plan Est)	19000.0	--	--	19000.0
Previous Changes				
Economic	0.0	--	--	0.0
Quantity	0.0	--	--	0.0
Schedule	0.0	--	--	0.0
Engineering	+1120.8	--	--	+1120.8
Estimating	-105.3	--	--	-105.3
Other	0.0	--	--	0.0
Support	0.0	--	--	0.0
Subtotal	+1015.5	--	--	+1015.5
Current Changes				
Economic	--	--	--	--
Quantity	--	--	--	--
Schedule	--	--	--	--
Engineering	--	--	--	--
Estimating	-7.1	--	--	-7.1
Other	--	--	--	--
Support	--	--	--	--
Subtotal	-7.1	--	--	-7.1
Total Changes	+1008.4	--	--	+1008.4
CE - Cost Variance	20008.4	--	--	20008.4
CE - Cost & Funding	20008.4	--	--	20008.4

Previous Estimate: December 1998

RDT&E	$M	
Current Change Explanations	**Base Year**	**Then Year**
Revised escalation indices (Economic)	N/A	-185.0
Revised phasing of estimate (Estimating)	-7.1	+2.2
RDT&E Subtotal	-7.1	-182.8

Contracts

Appropriation: RDT&E	
Contract Name	**J/IST**
Contractor	McDonnell Douglas Corp.
Contractor Location	St. Louis , MO 63166-0516
Contract Number, Type	F33615-95-K-3801, CPFF
Award Date	September 22, 1995
Definitization Date	September 22, 1995

Initial Contract Price ($M)			Current Contract Price ($M)			Estimated Price At Completion ($M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
64.8	N/A	N/A	64.8	N/A	N/A	64.8	66.4

	Cost Variance	Schedule Variance
Previous Cumulative Variances	-1.4	-0.8
Cumulative Variances To Date	-2.7	-1.2
Net Change	-1.3	-0.4

Cost And Schedule Variance Explanations

JSF INTEGRATED SUBSYSTEMS TECHNOLOGY [J/IST] DEMONSTRATION PROGRAM: Variance due to hardware issues is presently (February 2000) improved, is not considered significant, and is covered by existing funding. Contract is anticipated to complete on time.

Contract Comments

None

Appropriation: RDT&E	
Contract Name	**MIRFS**
Contractor	Raytheon Company
Contractor Location	Los Angeles , CA 90009-2426
Contract Number, Type	N00019-96-C-0074, CPFF
Award Date	February 12, 1996
Definitization Date	February 12, 1996

Initial Contract Price ($M)			Current Contract Price ($M)			Estimated Price At Completion ($M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
54.6	N/A	N/A	53.4	N/A	N/A	45.2	45.2

	Cost Variance	Schedule Variance
Previous Cumulative Variances	+0.7	-1.2
Cumulative Variances To Date (12/25/1999)	+1.3	0.0
Net Change	+0.6	+1.2

Cost And Schedule Variance Explanations

MULTI-FUNCTION INTEGRATED RADIO FREQUENCY SYSTEM (MIRFS): Positive variances are reported as contract nears completion, ahead of schedule and below estimate. It is over 90% complete and will not be reported in future SARs.

Contract Comments

None

Appropriation: RDT&E	
Contract Name	**Alternate Engine**
Contractor	General Electric
Contractor Location	Cincinnati , OH 45215
Contract Number, Type	N00019-96-C-0176, CPFF
Award Date	February 13, 1997
Definitization Date	February 13, 1997

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

Cost And Schedule Variance Explanations

Cost and Schedule variance reporting is not required on this CPFF contract.

Contract Comments

None

Appropriation: RDT&E	
Contract Name	**Weapon System CDP**
Contractor	Boeing Defense and Space
Contractor Location	Seattle , WA 98124-2499
Contract Number, Type	N00019-97-C-0037, CPFF
Award Date	November 16, 1996
Definitization Date	November 16, 1996

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

Cost And Schedule Variance Explanations

Cost and Schedule variance reporting is not required on this CPFF contract.

Contract Comments

None

Appropriation: RDT&E	
Contract Name	**Weapon System CDP**
Contractor	Lockheed Martin Corp.
Contractor Location	Ft. Worth , TX 76101
Contract Number, Type	N00019-97-C-0038, CPFF
Award Date	November 16, 1996
Definitization Date	November 16, 1996

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

Cost And Schedule Variance Explanations

Cost and Schedule variance reporting is not required on this CPFF contract.

Contract Comments

None

Appropriation: RDT&E	
Contract Name	**Propulsion CDP**
Contractor	Pratt and Whitney
Contractor Location	West Palm Beach , FL 33410-9600
Contract Number, Type	N00019-97-C-0050, CPAF
Award Date	January 23, 1997
Definitization Date	January 23, 1997

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

Cost And Schedule Variance Explanations

Cost and Schedule variance reporting is not required on this CPAF contract.

Contract Comments

None

Deliveries and Expenditures

Deliveries To Date	Plan	Actual	Total Quantity	Percent Delivered
Development	0	0	0	--
Production	0	0	0	--
Total Program Quantities Delivered	0	0	0	--

Expenditures and Appropriations (TY $M)			
Total Acquisition Cost	23179.7	Years Appropriated	7
Expenditures To Date	3130.8	Percent Years Appropriated	38.89%
Percent Expended	13.51%	Appropriated to Date	3545.5
Total Funding Years	18	Percent Appropriated	15.30%

Operating and Support Cost

None

Defense Acquisition Management
Information Retrieval
(DAMIR)

Selected Acquisition Report (SAR)

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

F-35 (JSF)

As of September 30, 2001

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Program Information

Designation And Nomenclature (Popular Name)

JSF

DoD Component

DoD

Joint Participants

USAF; USN; USMC; DARPA; United Kingdom; Norway; Denmark; the Netherlands; Canada; Italy

The JSF Program is a joint DoD 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 Air Force.

Responsible Office

Responsible Office

MajGen Michael Hough
Joint Strike Fighter Program Office
1213 Jefferson Davis Highway
Suite 600
Arlington, VA 22202-3402
houghma@jast.mil

Phone 703-602-7640
Fax --
DSN Phone --
DSN Fax --

Date Assigned May 10, 1999

References

SAR Baseline (Planning Estimate)

Defense Acquisition Executive (DAE) approved Acquisition Program Baseline (APB) dated November 15, 1996

Approved APB

DAE Approved Acquisition Program Baseline (APB) dated November 15, 1996

Mission and Description

The 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 carrier suitable variant of the JSF will provide the Navy a multi-role, stealthy strike fighter aircraft to complement the F/A-18E/F. The Air Force variant will be a multi-role aircraft, primary-air-to-ground, to replace the F-16 and A-10 (Service intent) and complement the F-22. The Short Takeoff and Vertical Landing (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 Sea Harrier and GR-7 for the United Kingdom Royal Navy and Royal Air Force. The cornerstone of the JSF Program is affordability -- reducing the development cost, production cost, and cost of ownership of the JSF family of aircraft. The program was structured from the beginning to be a model of acquisition reform, with an emphasis on jointness, technology maturation and concept demonstrations, and early cost and performance trades integral to the weapon system requirements definition process.

The Under Secretary of Defense for Acquisition, Technology and Logistics designated the JSF Program a joint, DoD Acquisition Category ID Program in May 1996.

Executive Summary

This quarterly exception SAR is being submitted to report a schedule delay in Milestone B (System Development & Demonstration) from March 2001 to October 2001.

The Department of Defense established the Joint Strike Fighter Program, originally named Joint Advanced Strike Technology (JAST) Program, as an outcome of the 1993 Secretary of Defense Bottom-Up Review. The program was created as the focal point for defining affordable next-generation strike weapon systems to replace aging Navy and Air Force tactical assets. Program emphasis is on affordability -- reducing the Total Ownership Cost of the JSF family of aircraft. This demands a new way of doing business, and JSF is accomplishing that through an innovative acquisition approach that uses this phase of the program to define an affordable weapon system for the warfighter, explore technological innovations, and reduce risk. Program activities to accomplish these objectives center on evolving affordable requirements, maturing/demonstrating technology, and flying concept demonstrator aircraft.

Fiscal Year 1995 legislation merged the Defense Advanced Research Projects Agency (DARPA) Advanced Short Take-Off and Landing (ASTOVL) program with the then-JAST Program. The United Kingdom became a Collaborative Partner in 1995, extending a collaboration begun under the DARPA ASTOVL program, at an investment level of $200M. Denmark, Norway, the Netherlands, Canada, and Italy became partners, with investments of $10M each. Turkey, Singapore, and Israel subsequently joined the current phase of the program as Foreign Military Sales customers.

Facilitated by the JSF Program Office, the Services produced the Joint Initial Requirements Document (JIRD) in 1995, with updates in 1997 and 1998. The requirements evolution process, based on extensive cost and performance trades emphasizing Cost As An Independent Variable (CAIV), culminated in the Services' Joint Operational Requirements Document in FY 2000.

The Concept Exploration and Concept Development Phases of the JSF Program are completed. The Concept Demonstration Phase, now essentially complete, commenced in November 1996 with competitive contract awards to Boeing and Lockheed Martin for Concept Demonstration Programs (CDP), with Pratt and Whitney providing propulsion hardware and engineering support. The competing contractors conducted concept-unique ground demonstrations; continued refinement of the weapon system concepts that they proposed for Engineering and Manufacturing Development (E&MD) and Production; and built and flew concept demonstrator aircraft for flight demonstrations. These demonstrators are not full prototypes (i.e., production representative) but basic airframe, propulsion, minimal avionics, and many off-the-shelf subsystems necessary for flight. Specifically, the Boeing and Lockheed Martin concept demonstrator aircraft demonstrated commonality and modularity, STOVL hover and transition, and low speed handling qualities of their respective concepts. Contractor flight demonstrations commenced in September 2000 and completed in August 2001. Flight test results met or exeeded expections, to an unprecedented degree in many cases. Risk reducing technology maturation demonstrations are also complete. Risks have been identified, baselined and tracked, documenting the specific program events required to reduce risks prior to EMD start. The JSF program has successfully completed the CDP exit criteria and demonstrated sufficient technical maturity to enter EMD. The JSF program has also met the Congressional requirement to fly the STOVL

variant selected for EMD at least 20 hours.

General Electric continued technical efforts related to development of a second engine source for production in competition. The General Electric and Pratt and Whitney engines will be physically and functionally interchangeable in the aircraft in order to minimize development and support costs.

The UK signed a Memorandum of Understanding in January 2001 committing $2 billion to the EMD phase. Negotiations continue for additional international partnerships in the EMD phase of the program.

This is an RDT&E-only SAR, since JSF is a pre-Milestone II program. Limited reporting is permitted for pre-Milestone II programs in accordance with Title 10, United States Code, Section 2432, "SARs."

FY 2003 & beyond costs reported here reflect the FY 2001 President's Budget. Consequently, the total costs do not necessarily reflect current requirements. The Department is currently reviewing these requirements and they will be reported in the December 2001 SAR submitted in conjunction with the FY 2003 President's Budget.

Threshold Breaches

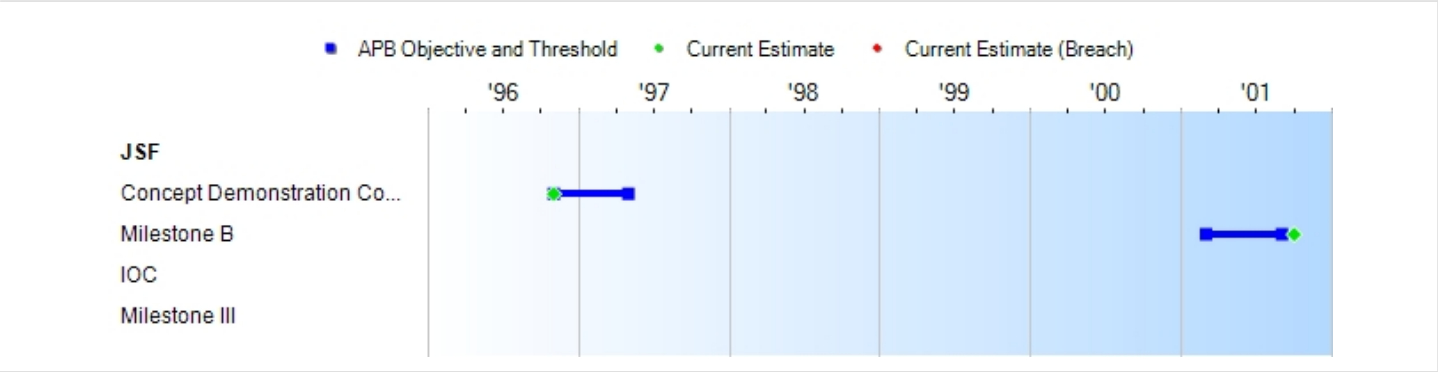
APB Breaches		
Schedule		☐
Performance		☐
Cost	RDT&E	☐
	Procurement	☐
	MILCON	☐
	Acq O&M	☐
Unit Cost	PAUC	☐
	APUC	☐

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

Explanation of Breach

Milestone B slipped from March 2001 to October 2001 due to delays in contractors' flight test programs.

Schedule



Milestones	SAR Baseline Plan Est	Current APB Concept Objective/Threshold		Current Estimate
Concept Demonstration Contract Award	NOV 1996	NOV 1996	MAY 1997	NOV 1996
Milestone B	MAR 2001	MAR 2001	SEP 2001	OCT 2001
IOC	TBD	TBD	TBD	TBD
Milestone III	TBD	TBD	TBD	N/A

Change Explanations

None

Memo

Change Explanations:
Milestone B slipped from March 2001 to October 2001 due to delays in contractors' flight test programs.

Performance

Characteristics	SAR Baseline Plan Est	Current APB Concept Objective/Threshold		Demonstrated Performance	Current Estimate
Jt Init Rqmts Document (JIRD) 1 Desired Operational Characteristics					
CTOL Capability	Yes	Yes	Yes	TBD	Yes.
STOVL Mission Performance	Yes	Yes	Yes	TBD	2 1000# JDAMs & 2 internal AIM-120s, full expendab l es, execute 550' STOVL from LHA, LHD & aircraft carriers with a combat radius of 550-450 nm. Perform STOVL vertical landing to profile STOVL Recovery.
Aircraft Carrier Suitable (CV Variant and STOVL Variant)	Yes	Yes	Yes	TBD	Yes.
Combat Radius NM - CTOL Variant	450-600	450-600	N/A	TBD	690-590 Objective Threshold.
Combat Radius NM - STOVL Variant	450-550	450-550	N/A	TBD	550-450 Objective Threshold.
Combat Radius NM -CV Variant	>600	>600	N/A	TBD	730-600 Objective Threshold.
Internal Weapons Carriage - CTOL Variant	2 X 1000 # class A-G, 2 XAIM-120, Interna l Gun	2 X 1000# class A-G, 2 XAIM-120, Internal Gun	N/A	TBD	2x 2000# class A-G, 2x AIM-120, internal advanced

					gun.
Internal Weapons Carriage - STOVL Variant	2 X 1000 # class A-G, 2X AIM-120	2 X 1000# class A-G, 2X AIM-120	N/A	TBD	2x 1000# class A-G, 2x AIM-120, missioni z ed advanced gun.
Internal Weapons Carriage - CV Variant	2 X 2000 # class A-G, 2 X AIM-120	2 X 2000# class A-G, 2 X AIM-120	N/A	TBD	2x 2000# class A-G, 2x AIM-120, space and provision s for gun.
Speed & Maneuverability	comparable to F-16 /F/A-18	Comparable to F-16 /F/A-18	N/A	TBD	Comparab l e to F-16 & F/A-18.
Strike and Destroy Targets Day or Night in Adverse Weather Conditions	Yes	Yes	N/A	TBD	Yes.
Integration of Offboard Sensors and Data Fusion	Yes	Yes	N/A	TBD	Yes.
Radio Frequency (RF) Signature	Yes	Yes	N/A	TBD	Yes.
Logistic Footprint -CTOL Variant	5-8 C-141B equivalent loads	5-8 C-141B equivalent loads	N/A	TBD	6-8 USAF and 4-8 USMC Objective Threshold. C-17 equivale n t loads.
Sortie Generation Rate - CTOL Variant	3-4/day sustained; 4-5/day surge	3-4/day sustained; 4-5/day surge	N/A	TBD	Objective Threshold 4-3/day surge; 3/2-day sustained surge; 2/1 day sustained.
Sortie Generation Rate - CV Variant	3/day sustained; 4/day s urge	3/day sustained; 4/day surge	N/A	TBD	Objective Threshold 4-3/day surge;3-2/day sustained surge; 1-1/day sustained.

Sortie Generation Rate - STOVL Variant	4/day sustained; 6/day s urge	4/day sustained; 6/day surge	N/A	TBD	Objective Threshold 6-4/day surge; 4-3/day sustained surge; 2-1/day sustained.
Unit Flyaway Cost - CTOL Variant	$28M	$28M	N/A	TBD	$28M -TBD
Unit Flyaway Cost - STOVL Variant	$30-35M	$30-35M	N/A	TBD	$31M-38M
Unit Flyaway Cost - CV Variant	$31-38M	$31-38M	N/A	TBD	$30M-35M

Change Explanations

None

Memo

The "November 1996 APB" column reflects the Services' Joint Interim Requirements Document (JIRD) 1. The "Current Estimate" column reflects the joint Operational Requirements Document completed by the Services in March 2000 and approved by the Joint Requirements Oversight Council (JROC) in April 2000.

Track To Budget

RDT&E	
	PE 0603800E
	RDT&E, DARPA
	PE 0603800F
	RDT&E, Air Force
	PE 0603800N
	RDT&E, Navy
	PE 0604800F
	RDT&E, Air Force
APPN	PE 0604800N ()
	RDT&E, Navy

General Memo

The United Kingdom (UK), The Netherlands, Denmark, Norway, Canada and Italy are cooperative partners during the Concept Demonstration Phase of the program. The UK is a committed partner for the Engineering and Manufacturing Development (E&MD) Phase commencing in October 2001, and additional international partnership is anticipated. This SAR includes funding from foreign sources as reflected in Section 16.

Cost and Funding

Cost Summary

Total Acquisition Cost and Quantity

	BY1994 $M				TY $M		
Appropriation	SAR Baseline Plan Est	Current APB Concept Objective/Threshold		Current Estimate	SAR Baseline Plan Est	Current APB Concept Objective	Current Estimate
RDT&E	19000.0	19000.0	20900.0	18735.7	24800.0	24800.0	21938.8
Procurement	--	--	--	--	--	--	--
MILCON	--	--	--	--	--	--	--
Acq O&M	--	--	--	--	--	--	--
Total	19000.0	19000.0	20900.0	18735.7	24800.0	24800.0	21938.8

FY 2003 & beyond costs reported here reflect the FY 2001 President's Budget. Consequently, the total costs do not necessarily reflect current requirements. The Department is currently reviewing these requirements and they will be reported in the December 01 SAR submitted in conjunction with the FY 2003 President's Budget.

Quantity	SAR Baseline Plan Est	Current APB Concept	Current Estimate
RDT&E	0	0	0
Procurement	0	--	0
Total	0	0	0

Funding Summary

Appropriation and Quantity Summary

SEP 2001 Exception SAR (TY $M)

Appropriation	Prior	FY2001	FY2002	FY2003	FY2004	FY2005	FY2006	FY2007	To Complete	Total
RDT&E	3545.0	684.9	1631.8	4119.0	3887.1	3509.0	2287.3	1192.1	1082.6	21938.8
Procurement	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MILCON	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Acq O&M	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SEP 2001 Total	3545.0	684.9	1631.8	4119.0	3887.1	3509.0	2287.3	1192.1	1082.6	21938.8
PB2001 Total	3545.5	922.8	2804.3	4082.4	3848.9	3471.1	2260.4	1177.1	1067.2	23179.7
Delta	-0.5	-237.9	-1172.5	36.6	38.2	37.9	26.9	15.0	15.4	-1240.9

Quantity	Prior	FY2001	FY2002	FY2003	FY2004	FY2005	FY2006	FY2007	To Complete	Total
Development	0	0	0	0	0	0	0	0	0	0
Production	0	0	0	0	0	0	0	0	0	0
SEP 2001 Total	0	0	0	0	0	0	0	0	0	0
PB2001 Total	0	0	0	0	0	0	0	0	0	0
Delta	0	0	0	0	0	0	0	0	0	0

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	--	--	--	--	--	--	767.3
2003	--	--	--	--	--	--	1949.8
2004	--	--	--	--	--	--	1878.4
2005	--	--	--	--	--	--	1657.0
2006	--	--	--	--	--	--	1078.6
2007	--	--	--	--	--	--	524.0
2008	--	--	--	--	--	--	311.0
2009	--	--	--	--	--	--	119.1
2010	--	--	--	--	--	--	65.1
2011	--	--	--	--	--	--	27.0
Subtotal	**--**	**--**	**--**	**--**	**--**	**--**	**10327.9**

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

Fiscal Year	Quantity	End Item Recurring Flyaway BY 1994 $M	Non End Item Recurring Flyaway BY 1994 $M	Non Recurring Flyaway BY 1994 $M	Total Flyaway BY 1994 $M	Total Support BY 1994 $M	Total Program BY 1994 $M
1994	--	--	--	--	--	--	29.1
1995	--	--	--	--	--	--	95.2
1996	--	--	--	--	--	--	76.6
1997	--	--	--	--	--	--	229.0
1998	--	--	--	--	--	--	418.3
1999	--	--	--	--	--	--	434.6
2000	--	--	--	--	--	--	216.6
2001	--	--	--	--	--	--	305.0
2002	--	--	--	--	--	--	674.8
2003	--	--	--	--	--	--	1683.8
2004	--	--	--	--	--	--	1588.8
2005	--	--	--	--	--	--	1372.7
2006	--	--	--	--	--	--	875.2
2007	--	--	--	--	--	--	416.4
2008	--	--	--	--	--	--	242.1
2009	--	--	--	--	--	--	90.8
2010	--	--	--	--	--	--	48.6
2011	--	--	--	--	--	--	19.7
Subtotal	**--**	**--**	**--**	**--**	**--**	**--**	**8817.3**

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	--	--	--	--	--	--	769.5
2003	--	--	--	--	--	--	1944.5
2004	--	--	--	--	--	--	1871.7
2005	--	--	--	--	--	--	1649.8
2006	--	--	--	--	--	--	1078.6
2007	--	--	--	--	--	--	524.0
2008	--	--	--	--	--	--	311.0
2009	--	--	--	--	--	--	119.1
2010	--	--	--	--	--	--	65.1
2011	--	--	--	--	--	--	27.0
Subtotal	**--**	**--**	**--**	**--**	**--**	**--**	**10267.7**

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

Fiscal Year	Quantity	End Item Recurring Flyaway BY 1994 $M	Non End Item Recurring Flyaway BY 1994 $M	Non Recurring Flyaway BY 1994 $M	Total Flyaway BY 1994 $M	Total Support BY 1994 $M	Total Program BY 1994 $M
1995	--	--	--	--	--	--	81.2
1996	--	--	--	--	--	--	77.4
1997	--	--	--	--	--	--	236.8
1998	--	--	--	--	--	--	414.7
1999	--	--	--	--	--	--	420.6
2000	--	--	--	--	--	--	226.3
2001	--	--	--	--	--	--	305.0
2002	--	--	--	--	--	--	676.7
2003	--	--	--	--	--	--	1679.2
2004	--	--	--	--	--	--	1583.1
2005	--	--	--	--	--	--	1366.7
2006	--	--	--	--	--	--	875.2
2007	--	--	--	--	--	--	416.4
2008	--	--	--	--	--	--	242.1
2009	--	--	--	--	--	--	90.8
2010	--	--	--	--	--	--	48.6
2011	--	--	--	--	--	--	19.7
Subtotal	**--**	**--**	**--**	**--**	**--**	**--**	**8760.5**

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	--	--	--	--	--	--	95.0
2003	--	--	--	--	--	--	224.7
2004	--	--	--	--	--	--	137.0
2005	--	--	--	--	--	--	202.2
2006	--	--	--	--	--	--	130.1
2007	--	--	--	--	--	--	144.1
2008	--	--	--	--	--	--	38.2
Subtotal	**--**	**--**	**--**	**--**	**--**	**--**	**1225.2**

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

Fiscal Year	Quantity	End Item Recurring Flyaway BY 1994 $M	Non End Item Recurring Flyaway BY 1994 $M	Non Recurring Flyaway BY 1994 $M	Total Flyaway BY 1994 $M	Total Support BY 1994 $M	Total Program BY 1994 $M
1996	--	--	--	--	--	--	13.3
1997	--	--	--	--	--	--	66.8
1998	--	--	--	--	--	--	72.0
1999	--	--	--	--	--	--	50.4
2000	--	--	--	--	--	--	31.3
2001	--	--	--	--	--	--	2.2
2002	--	--	--	--	--	--	83.5
2003	--	--	--	--	--	--	194.0
2004	--	--	--	--	--	--	115.9
2005	--	--	--	--	--	--	167.5
2006	--	--	--	--	--	--	105.6
2007	--	--	--	--	--	--	114.5
2008	--	--	--	--	--	--	29.7
Subtotal	**--**	**--**	**--**	**--**	**--**	**--**	**1046.7**

"Other RDT&E Funding" reflects current and anticipated foreign funding.

The EMD estimate is currently being revised in conjunction with the Milestone B decision. Any changes will be reflected in the December 2001 SAR.

FY 2003 & beyond costs reported here reflect the FY 2001 President's Budget. Consequently, the total costs do not necessarily reflect current requirements. The Department is currently reviewing these requirements and they will be reported in the December 2001 SAR submitted in conjunction with the FY 2003 President's Budget.

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 1994 $M	Non End Item Recurring Flyaway BY 1994 $M	Non Recurring Flyaway BY 1994 $M	Total Flyaway BY 1994 $M	Total Support BY 1994 $M	Total Program BY 1994 $M
1996	--	--	--	--	--	--	27.5
1997	--	--	--	--	--	--	64.2
1998	--	--	--	--	--	--	19.5
Subtotal	**--**	**--**	**--**	**--**	**--**	**--**	**111.2**

Low Rate Initial Production

None

Foreign Military Sales

None

Nuclear Cost

None

Unit Cost

Unit Cost Report

Not required for Pre-Milestone B programs in accordance with Section 2433, Title 10, USC.

Unit Cost History

Not required for Pre-Milestone B programs in accordance with Section 2433, Title 10, USC.

SAR Baseline History

Item/Event	SAR Planning Estimate (PE)	SAR Development Estimate (DE)	SAR Production Estimate (PdE)	Current Estimate
Milestone I	N/A	N/A	N/A	NOV 1996
Milestone II	MAR 2001	N/A	N/A	N/A
Milestone III	TBD	N/A	N/A	N/A
IOC	TBD	N/A	N/A	TBD
Total Cost (TY $M)	24800.0	N/A	N/A	21938.8
Total Quantity	N/A	N/A	N/A	0
Prog. Acq. Unit Cost (PAUC)	N/A	N/A	N/A	N/A

Cost Variance

Summary Then Year $M				
	RDT&E	Proc	MILCON	Total
SAR Baseline (Plan Est)	24800.0	--	--	24800.0
Previous Changes				
Economic	-2588.8	--	--	-2588.8
Quantity	0.0	--	--	0.0
Schedule	0.0	--	--	0.0
Engineering	+1420.0	--	--	+1420.0
Estimating	-451.5	--	--	-451.5
Other	0.0	--	--	0.0
Support	0.0	--	--	0.0
Subtotal	-1620.3	--	--	-1620.3
Current Changes				
Economic	+641.5	--	--	+641.5
Quantity	--	--	--	--
Schedule	-1870.4	--	--	-1870.4
Engineering	--	--	--	--
Estimating	-12.0	--	--	-12.0
Other	--	--	--	--
Support	--	--	--	--
Subtotal	-1240.9	--	--	-1240.9
Total Changes	-2861.2	--	--	-2861.2
CE - Cost Variance	21938.8	--	--	21938.8
CE - Cost & Funding	21938.8	--	--	21938.8

Summary Base Year 1994 $M				
	RDT&E	Proc	MILCON	Total
SAR Baseline (Plan Est)	19000.0	--	--	19000.0
Previous Changes				
Economic	0.0	--	--	0.0
Quantity	0.0	--	--	0.0
Schedule	0.0	--	--	0.0
Engineering	+1120.8	--	--	+1120.8
Estimating	-105.3	--	--	-105.3
Other	0.0	--	--	0.0
Support	0.0	--	--	0.0
Subtotal	+1015.5	--	--	+1015.5
Current Changes				
Economic	--	--	--	--
Quantity	--	--	--	--
Schedule	-1271.0	--	--	-1271.0
Engineering	--	--	--	--
Estimating	-8.8	--	--	-8.8
Other	--	--	--	--
Support	--	--	--	--
Subtotal	-1279.8	--	--	-1279.8
Total Changes	-264.3	--	--	-264.3
CE - Cost Variance	18735.7	--	--	18735.7
CE - Cost & Funding	18735.7	--	--	18735.7

Previous Estimate: December 1999

RDT&E	$M	
Current Change Explanations	**Base Year**	**Then Year**
Revised escalation indices. (Economic)	N/A	+202.1
Economic adjustment for negative program change. (Economic)	N/A	+439.4
Revised EMD schedule (from 90 to 126 months) and a delay in EMD start shifted FY2001 and FY2002 EMD funding to the right. However, the FY2003-FY2011 estimates are constrained to the FY2001 President's Budget. As a result, the RDT&E profile shown understates current requirements. (Schedule)	-1271.0	-1870.4
Adjustment for Current and Prior Inflation. (Estimating)	-8.8	-12.0
RDT&E Subtotal	-1279.8	-1240.9

Contracts

General Contract Memo

The following contracts are over 90% complete: - Pratt & Whitney Propulsion CDP Contract - Lockheed Martin Weapon System CDP Contract - Boeing Weapon System CDP Contract - McDonnell Douglas J/IST Contract - Raytheon MIRFS Contract

Appropriation: RDT&E

Contract Name	**GE JSF F120 Engine**
Contractor	General Electric
Contractor Location	Cincinnati , OH 45215
Contract Number, Type	N00019-96-C-0176, CPFF
Award Date	February 13, 1997
Definitization Date	February 13, 1997

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

Cost And Schedule Variance Explanations

Cost and Schedule variance reporting is not required on this CPFF contract.

Contract Comments

Further contract data is not provided here due to the competitive nature of the contract. Data is available from the Program Office on request.

Deliveries and Expenditures

Deliveries To Date	Plan	Actual	Total Quantity	Percent Delivered
Development	0	0	0	--
Production	0	0	0	--
Total Program Quantities Delivered	0	0	0	--

Expenditures and Appropriations (TY $M)			
Total Acquisition Cost	21938.8	Years Appropriated	8
Expenditures To Date	0.0	Percent Years Appropriated	44.44%
Percent Expended	0.00%	Appropriated to Date	4229.9
Total Funding Years	18	Percent Appropriated	19.28%

Operating and Support Cost

None

Defense Acquisition Management
Information Retrieval
(DAMIR)

Selected Acquisition Report (SAR)

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

F-35 (JSF)

As of December 31, 2001

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Program Information

Designation And Nomenclature (Popular Name)

JSF

DoD Component

DoD

Joint Participants

USAF; USN; USMC; DARPA; United Kingdom; Norway; Denmark; the Netherlands; Canada; Italy

The JSF Program is a joint DoD 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.

Responsible Office

Responsible Office

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Joint Strike Fighter Program Office
1213 Jefferson Davis Hwy
Suite 600
Arlington, VA 22202-3402
john.hudson@jsf.mil

Phone 703-602-7640
Fax 703-602-7649
DSN Phone 332-7640
DSN Fax --

Date Assigned October 26, 2001

References

SAR Baseline (Planning Estimate)

Defense Acquisition Executive (DAE) approved Acquisition Program Baseline (APB) dated November 15, 1996

Approved APB

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

Mission and Description

The Joint Strike Fighter (JSF) Program will develop and field an affordable, highly common family of next-generation strike fighter aircraft for the United States Navy, Air Force, Marine Corps and Allies. The carrier suitable variant of the JSF will provide the Navy a multi-role, stealthy strike fighter aircraft to complement the F/A-18E/F. The Air Force variant will be a multi-role aircraft, primary-air-to-ground, to replace the F-16 and A-10 (Service intent) and complement the F-22. The Short Takeoff and Vertical Landing (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 Sea Harrier and GR-7 for the United Kingdom Royal Navy and Royal Air Force. The cornerstone of the JSF Program is affordability -- reducing the development cost, production cost, and cost of ownership of the JSF family of aircraft. The program was structured from the beginning to be a model of acquisition reform, with an emphasis on jointness, technology maturation and concept demonstrations, and early cost and performance trades integral to the weapon system requirements definition process.

Executive Summary

The Department of Defense established the Joint Strike Fighter Program, originally named Joint Advanced Strike Technology (JAST) Program, in 1993. It was created as the focal point for defining affordable next-generation strike weapon systems to replace aging Navy and Air Force tactical assets. Fiscal Year 1995 legislation merged the Defense Advanced Research Projects Agency (DARPA) Advanced Short Take-Off and Landing (ASTOVL) program with the then-JAST Program.

The United Kingdom (UK) became a Collaborative Partner in 1995, extending a collaboration begun under the DARPA ASTOVL program, at an initial investment level of $200M. Denmark, Norway, the Netherlands, Canada, and Italy also became partners, with investments of $10M each in the Concept Demonstration Phase, with Turkey, Singapore, and Israel as Foreign Military Sales customers. The UK signed a Memorandum of Understanding in January 2001 committing $2 Billion to the Systems Development and Demonstration (SDD) phase (formerly called Engineering and Manufacturing Development).

Facilitated by the JSF Program Office, the Services evolved weapon system requirements based on extensive cost and performance trades emphasizing Cost As An Independent Variable (CAIV). The process culminated in the Services' Joint Operational Requirements Document in March 2000, revalidated by the Joint Requirements Oversight Council (JROC) in October 2001.

The Department designated the JSF Program a joint, DoD Acquisition Category ID Program in May 1996. The Concept Demonstration Phase commenced in November 1996 with competitive contract awards to Boeing and Lockheed Martin for Concept Demonstration Programs (CDP), with Pratt and Whitney providing propulsion hardware and engineering support. The competing contractors conducted concept-unique ground demonstrations; continued refinement of the weapon system concepts that they proposed for SDD and Production; and built and flew concept demonstrator aircraft. Specifically, the Boeing and Lockheed Martin concept demonstrator aircraft demonstrated commonality and modularity, STOVL hover and transition, and low speed handling qualities of their respective concepts. Contractor flight demonstrations commenced in September 2000 and completed in August 2001. Flight test results met or exceeded expectations, to an unprecedented degree in many cases. A Milestone B Defense Acquisition Board (DAB) review was held on October 24, 2001. On October 25, 2001 the Secretary of Defense provided certification to congressional defense committees (in accordance with Section 212 of the FY 2001 Defense Authorization Act) that the JSF program successfully completed the CDP exit criteria, demonstrated sufficient technical maturity to enter SDD, and the short take-off , vertical-landing variant selected for further development successfully flew at least twenty hours. On October 26, 2001 System Development and Demonstration contract awards were awarded to Lockheed Martin and to Pratt and Whitney. General Electric continues technical efforts related to development of a second, interchangeable, engine for competition in production.

Since December 31, 2001, a successful Air System Requirements Review (ASRR) was conducted with Lockheed Martin in February 2002. It was the first major post-award JSF technical review. Canada signed a Memorandum of Understanding in February 2002 for SDD participation, contributing $150 million. Negotiations continue for additional international partnerships in the SDD phase of the program.

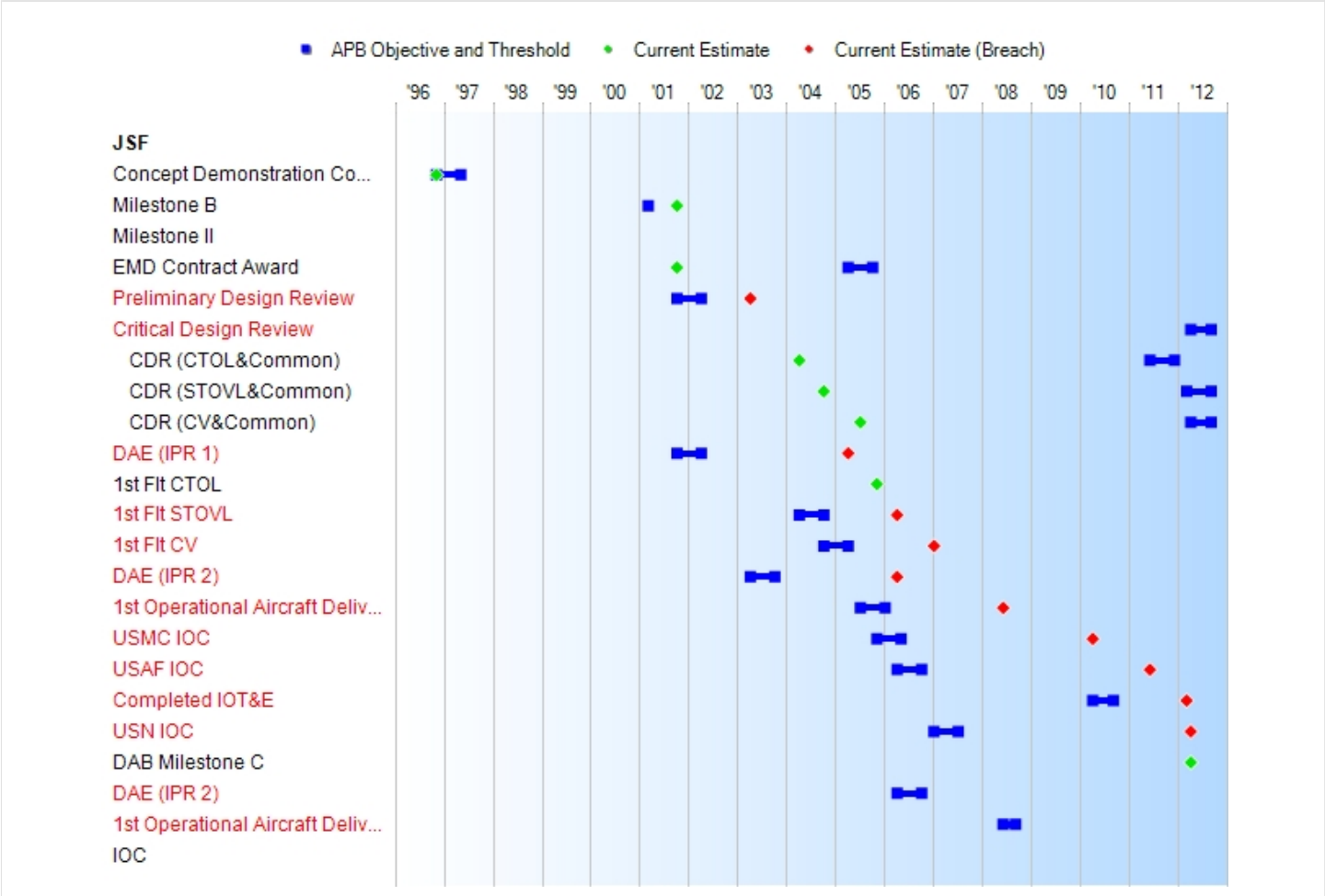
This is a transition SAR (Planning to Development), following a Milestone B decision in October 2001.

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
JSF
Concept Demonstration Co...
Milestone B
Milestone II
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 Operational Aircraft Deliv...
USMC IOC
USAF IOC
Completed IOT&E
USN IOC
DAB Milestone C
DAE (IPR 2)
1st Operational Aircraft Deliv...
IOC

Milestones	SAR Baseline Plan Est	Current APB Development Objective/Threshold		Current Estimate
Concept Demonstration Contract Award	NOV 1996	NOV 1996	MAY 1997	NOV 1996
Milestone B	MAR 2001	N/A	N/A	OCT 2001
Milestone II	N/A	N/A	N/A	N/A
EMD Contract Award	N/A	APR 2005	OCT 2005	OCT 2001
Preliminary Design Review	N/A	OCT 2001	APR 2002	**APR 2003** [1]
Critical Design Review	N/A	APR 2012	SEP 2012	
CDR (CTOL&Common)	N/A	JUN 2011	DEC 2011	APR 2004
CDR (STOVL&Common)	N/A	MAR 2012	SEP 2012	OCT 2004
CDR (CV&Common)	N/A	APR 2012	SEP 2012	JUL 2005
DAE (IPR 1)	N/A	OCT 2001	APR 2002	**APR 2005** [1]
1st Flt CTOL	N/A			NOV 2005
1st Flt STOVL	N/A	APR 2004	OCT 2004	**APR 2006** [1]
1st Flt CV	N/A	OCT 2004	APR 2005	**JAN 2007** [1]
DAE (IPR 2)	N/A	APR 2003	OCT 2003	**APR 2006** [1]
1st Operational Aircraft Delivered	N/A	JUL 2005	JAN 2006	**JUN 2008** [1]
USMC IOC	N/A	NOV 2005	MAY 2006	**APR 2010** [1]
USAF IOC	N/A	APR 2006	OCT 2006	**JUN 2011** [1]
Completed IOT&E	N/A	APR 2010	SEP 2010	**MAR 2012** [1]
USN IOC	N/A	JAN 2007	JUL 2007	**APR 2012** [1]
DAB Milestone C	TBD	N/A	N/A	APR 2012
DAE (IPR 2)	N/A	APR 2006	OCT 2006	**N/A** [1]
1st Operational Aircraft Delivered	N/A	JUN 2008	SEP 2008	**N/A** [1]
IOC	TBD	N/A	N/A	N/A

[1] **APB Breach**

Change Explanations

None

Memo

None

Performance

Characteristics	SAR Baseline Plan Est	Current APB Development Objective/Threshold		Demonstrated Performance	Current Estimate
CTOL Capability	Yes	N/A	N/A	N/A	N/A [1]
STOVL Mission Performance	Yes	N/A	N/A	TBD	Execute 550 ft. STO with 2 JDAM (internal), 2 AIM-120 (internal), fuel to fly 450nm
Aircraft Carrier Suitable (CV Variant and STOVL Variant)	Yes	N/A	N/A	N/A	N/A [1]
Combat Radius NM - CTOL Variant	450-600	N/A	N/A	TBD	590
Combat Radius NM - STOVL Variant	450-550	N/A	N/A	TBD	450
Combat Radius NM -CV Variant	>600	N/A	N/A	TBD	600
Internal Weapons Carriage - CTOL Variant	2 X 1000 # class A-G, 2 XAIM-120, Interna l Gun	N/A	N/A	TBD	Sufficient bay volume to load, carry & employ objective Annex A weapons
Internal Weapons Carriage - STOVL Variant	2 X 1000 # class A-G, 2X AIM-120	N/A	N/A	TBD	Sufficient bay volume to load, carry & employ objective Annex A weapons
Internal Weapons Carriage - CV Variant	2 X 2000 # class A-G, 2 X AIM-120	N/A	N/A	TBD	Sufficient bay volume to load, carry & employ objective Annex A weapons
Speed & Maneuverability	comparable to F-16 /F/A-18	N/A	N/A	N/A	N/A [1]
Strike and Destroy	Yes	N/A	N/A	N/A	N/A [1]

Targets Day or Night in Adverse Weather Conditions					
Integration of Offboard Sensors and Data Fusion	Yes	N/A	N/A	N/A	**N/A** [1]
Radio Frequency (RF) Signature	Yes	N/A	N/A	TBD	Classified
Logistic Footprint -CTOL Variant	5-8 C-141B equivalent loads	N/A	N/A	TBD	Less than or equal to 8 C-17 equivalent loads
Logistic Footprint -CV Variant	N/A	Less than or equal to 34,000 cu ft, 183 Short Tons	Less than or equal to 46,000 cu ft, 243 Short Tons	TBD	Less than or equal to 46,000 cu ft, 243 Short Tons
Logistic Footprint -STOVL Variant	N/A	Less than or equal to 4 C-17 equivalent loads	Less than or equal to 8 C-17 equivalent loads	TBD	Less than or equal to 8 C-17 equivalent loads
Sortie Generation Rate - CTOL Variant	3-4/day sustained; 4-5/day surge	N/A	N/A	TBD	3/day initial surge; 2/day sustained surge; 1/day Wartime Sustained based on ASD of 2.5
Sortie Generation Rate - CV Variant	3/day sustained; 4/day s urge	N/A	N/A	TBD	3/day initial surge; 2/day sustained surge; 1/day Wartime Sustained based on ASD of 1.8
Sortie Generation Rate - STOVL Variant	4/day sustained; 6/day s urge	N/A	N/A	TBD	4/day initial surge; 3/day sustained surge; 1/day Wartime Sustained based on ASD of 1.1
Unit Flyaway Cost - CTOL Variant	$28M	N/A	N/A	N/A	**N/A** [1]
Unit Flyaway Cost - STOVL Variant	$30-35M	N/A	N/A	N/A	**N/A** [1]
Unit Flyaway Cost - CV Variant	$31-38M	N/A	N/A	N/A	**N/A** [1]

Signature Reduction/Low Obserables	N/A	N/A	N/A	N/A	**N/A** [1]
Interoperability	N/A	100% of all top level IERs	100% of critical top level IERs	TBD	100% of critical top level IERs
Mission Reliability	N/A	98% for all variants at ASD's listed in Table 13	95% for CV & STOVL & 93% for CTOL at ASD's listed in Table 13.	TBD	95% for CV & STOVL & 93% for CTOL at ASDs listed in Table 13
CV Recovery Performance, Approach Speed	N/A	Max approach speed (Vpa)at Required Carrier Landing Weight (RCLW) of less than 140 kts	Max approach speed (Vpa) at Required Carrier Landing Weight (RCLW) of less than 145 kts w/15 kts WOD at RCLW	TBD	Max approach speed (Vpa) at Required Carrier Landing Weight (RCLW) of less than 145 kts w/15 kts WOD at RCLW
STOVL Mission Performance	N/A	Execute 550 ft. STO with 4 JDAM (2 external & 2 internal), 2 AIM-120 (internal), fuel to fly 550nm	Execute 550 ft. STO with 2 JDAM (internal), 2 AIM-120 (internal), fuel to fly 450nm	N/A	**N/A** [1]
Combat Radius NM - CTOL Variant	N/A	690	590	N/A	**N/A** [1]
Combat Radius NM - STOVL Variant	N/A	550	450	N/A	**N/A** [1]
Combat Radius NM -CV Variant	N/A	730	600	N/A	**N/A** [1]
Internal Weapons Carriage - CTOL Variant	N/A	Sufficient bay volume to load, carry & employ objective Annex A weapons	Sufficient bay volume to load, carry & employ threshold Annex A weapons	N/A	**N/A** [1]
Internal Weapons Carriage - STOVL Variant	N/A	Sufficient bay volume to load, carry & employ	Sufficient bay volume to load, carry & employ threshold	N/A	**N/A** [1]

		objective Annex A weapons	Annex A weapons		
Internal Weapons Carriage - CV Variant	N/A	Sufficient bay volume to load, carry & employ objective Annex A weapons	Sufficient bay volume to load, carry & employ threshold Annex A weapons	N/A	**N/A** [1]
Radio Frequency (RF) Signature	N/A	See Classified Extract	See Classified Extract	N/A	**N/A** [1]
Logistic Footprint -CTOL Variant	N/A	Less than or equal to 6 C-17 equivalent loads	Less than or equal to 8 C-17 equivalent loads	N/A	**N/A** [1]
Sortie Generation Rate - CTOL Variant	N/A	4/day initial surge; 3/day sustained surge; 2/day Wartime Sustained based on ASD of 2.5	3/day initial surge; 2/day sustained surge; 1/day Wartime Sustained based on ASD of 2.5	N/A	**N/A** [1]
Sortie Generation Rate - CV Variant	N/A	4/day initial surge; 3/day sustained surge; 1/day Wartime Sustained based on ASD of 1.8	3/day initial surge; 2/day sustained surge; 1/day Wartime Sustained based on ASD of 1.8	N/A	**N/A** [1]
Sortie Generation Rate - STOVL Variant	N/A	6/day initial surge; 4/day sustained surge; 2/day Wartime Sustained based on ASD of 1.1	4/day initial surge; 3/day sustained surge; 1/day Wartime Sustained based on ASD of 1.1	N/A	**N/A** [1]
Jt Init Rqmts Document (JIRD) 1 Desired Operational Characteristics		N/A	N/A	N/A	**N/A** [1]

[1]**APB Breach**

Change Explanations

None

Memo

The "Planning Estimate (SAR)" column reflects the Milestone I (November 1996) APB, with Desired Operational Characteristics from the Services' Joint Initial Requirements Document (JIRD I) dated August 1995. The "Approved Program;DE" column reflects the Milestone B (October 2001) APB, with Key Performance Parameters (KPPs) from the Services' March 2000 Joint Operational Requirements document (ORD), revalidated by the JROC in October 2001. The "Current Estimate" column reflects KPP threshhold values pending completion of the Air System Requirements Review assessment and reconciliation.

Track To Budget

RDT&E		
APPN 0400	PE 0603800E	(DoD)
	RDT&E, DARPA	
APPN 3600	PE 0603800F	(Air Force)
	RDT&E, Air Force CDP	
APPN 1319	PE 0603800N	(Navy)
	RDT&E, Navy CDP	
APPN 3600	PE 0604800F	(Air Force)
	RDT&E, Air Force EMD	
APPN 1319	PE 0604800N	(Navy)
	RDT&E, Navy EMD	

Procurement			
APPN 3010		(Air Force)	ICN 0207142F
	Aircraft Procurement, USAF		
APPN 1506		(Navy)	ICN 0214146N
	Aircraft Procurement, Air Force		

General Memo

The United Kingdom, the Netherlands, Denmark, Norway, Canada and Italy were cooperative partners during the Concept Demonstration Phase of the program. The UK is a committed partner for the System Development and Demonstration phase which commenced in October 2001. Associated funding is reflected in Section 16.

Cost and Funding

Cost Summary

Total Acquisition Cost and Quantity

	BY2002 $M				TY $M		
Appropriation	SAR Baseline Plan Est	Current APB Development Objective/Threshold		Current Estimate	SAR Baseline Plan Est	Current APB Development Objective	Current Estimate
RDT&E	21265.3	32300.0	35600.0	32390.9	24800.0	34400.0	34391.5
Procurement	--	--	--	145139.7	--	--	192066.8
Non Recurring	--	--	--	5551.2	--	--	7216.9
MILCON	--	--	--	--	--	--	--
Acq O&M	--	--	--	--	--	--	--
Total	21265.3	32300.0	35600.0	177530.6	24800.0	34400.0	226458.3

The Services have not yet established basing plans for JSF. No MILCON projects are included in the FY 2003 President's Budget request and supporting documentation. The "Approved Program;DE" column for MILCON reflects a top-level parametric estimate, not discrete estimates for specific sites. "PM's Estimate" for MILCON will be updated as specific MILCON requirements are identified in future budget requests.

Quantity	SAR Baseline Plan Est	Current APB Development	Current Estimate
RDT&E	0	14	14
Procurement	0	--	2852
Total	0	14	2866

Procurement Quantities:
USAF (CTOL variant) 1763
USMC (STOVL variant 609
USN (CV variant) 480
Total DoD 2852

JSF procurement cost reflects DoD cost only, but assumes the benefits of 150 UK aircraft anticipated but not formalized in a MOU for procurement.

The approved Low-Rate Initial Production (LRIP) aircraft quantity of 465 exceeds 10% of planned total production. This is necessary to meet Service IOC requirements, prevent a break in production, and to ramp up to full rate production. The DAE reaffirmed the LRIP quantity in the Milestone B Acquisition Decision Memorandum dated October 26, 2001.

Funding Summary

Appropriation and Quantity Summary

FY2003 President's Budget / December 2001 SAR (TY$ M)

Appropriation	Prior	FY2002	FY2003	FY2004	FY2005	FY2006	FY2007	To Complete	Total
RDT&E	4229.9	1619.9	3632.2	4073.8	5330.9	4356.1	3731.6	7417.1	34391.5
Procurement	0.0	0.0	0.0	0.0	124.1	1805.8	3141.0	186995.9	192066.8
MILCON	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Acq O&M	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PB2003 Total	4229.9	1619.9	3632.2	4073.8	5455.0	6161.9	6872.6	194413.0	226458.3
PB2001 Total	4468.3	2804.3	4082.4	3848.9	3471.1	2260.4	1177.1	1067.2	23179.7
Delta	-238.4	-1184.4	-450.2	224.9	1983.9	3901.5	5695.5	193345.8	203278.6

Quantity	Prior	FY2002	FY2003	FY2004	FY2005	FY2006	FY2007	To Complete	Total
Development	0	0	0	0	0	0	0	0	14
Production	0	0	0	0	0	10	22	2820	2852
PB2003 Total	0	0	0	0	0	10	22	2820	2866
PB2001 Total	0	0	0	0	0	0	0	0	0
Delta	0	0	0	0	0	10	22	2820	2866

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	--	--	--	--	--	--	763.0
2003	--	--	--	--	--	--	1727.5
2004	--	--	--	--	--	--	1931.8
2005	--	--	--	--	--	--	2489.1
2006	--	--	--	--	--	--	1987.2
2007	--	--	--	--	--	--	1689.8
2008	--	--	--	--	--	--	1260.9
2009	--	--	--	--	--	--	1181.3
2010	--	--	--	--	--	--	655.1
2011	--	--	--	--	--	--	269.9
2012	--	--	--	--	--	--	97.2
Subtotal	**9**	**--**	**--**	**--**	**--**	**--**	**16003.4**

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	--	--	--	--	--	--	32.8
1995	--	--	--	--	--	--	107.4
1996	--	--	--	--	--	--	86.3
1997	--	--	--	--	--	--	258.1
1998	--	--	--	--	--	--	471.6
1999	--	--	--	--	--	--	489.9
2000	--	--	--	--	--	--	244.2
2001	--	--	--	--	--	--	343.5
2002	--	--	--	--	--	--	756.4
2003	--	--	--	--	--	--	1687.3
2004	--	--	--	--	--	--	1854.3
2005	--	--	--	--	--	--	2346.0
2006	--	--	--	--	--	--	1838.0
2007	--	--	--	--	--	--	1533.8
2008	--	--	--	--	--	--	1123.1
2009	--	--	--	--	--	--	1032.6
2010	--	--	--	--	--	--	562.0
2011	--	--	--	--	--	--	227.2
2012	--	--	--	--	--	--	80.3
Subtotal	**9**	**--**	**--**	**--**	**--**	**--**	**15074.8**

Note: USN and USAF RDT&E funding in FY04 and subsequent assumes approval to waive current policy on full funding of termination liability.

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	--	--	--	--	--	--	761.9
2003	--	--	--	--	--	--	1743.7
2004	--	--	--	--	--	--	1942.0
2005	--	--	--	--	--	--	2485.8
2006	--	--	--	--	--	--	1984.4
2007	--	--	--	--	--	--	1686.6
2008	--	--	--	--	--	--	1244.9
2009	--	--	--	--	--	--	1181.3
2010	--	--	--	--	--	--	655.1
2011	--	--	--	--	--	--	269.9
2012	--	--	--	--	--	--	97.2
Subtotal	**5**	**--**	**--**	**--**	**--**	**--**	**15960.2**

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	--	--	--	--	--	--	91.5
1996	--	--	--	--	--	--	87.3
1997	--	--	--	--	--	--	266.9
1998	--	--	--	--	--	--	467.5
1999	--	--	--	--	--	--	474.1
2000	--	--	--	--	--	--	255.1
2001	--	--	--	--	--	--	343.5
2002	--	--	--	--	--	--	755.4
2003	--	--	--	--	--	--	1703.2
2004	--	--	--	--	--	--	1864.1
2005	--	--	--	--	--	--	2342.8
2006	--	--	--	--	--	--	1835.4
2007	--	--	--	--	--	--	1530.9
2008	--	--	--	--	--	--	1108.9
2009	--	--	--	--	--	--	1032.6
2010	--	--	--	--	--	--	562.0
2011	--	--	--	--	--	--	227.2
2012	--	--	--	--	--	--	80.3
Subtotal	**5**	**--**	**--**	**--**	**--**	**--**	**15028.7**

Note: USN and USAF RDT&E funding in FY04 and subsequent assumes approval to waive current policy on full funding of termination liability.

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	--	--	--	--	--	--	95.0
2003	--	--	--	--	--	--	161.0
2004	--	--	--	--	--	--	200.0
2005	--	--	--	--	--	--	356.0
2006	--	--	--	--	--	--	384.5
2007	--	--	--	--	--	--	355.2
2008	--	--	--	--	--	--	266.2
2009	--	--	--	--	--	--	85.0
2010	--	--	--	--	--	--	76.3
2011	--	--	--	--	--	--	76.2
2012	--	--	--	--	--	--	0.6
Subtotal	**--**	**--**	**--**	**--**	**--**	**--**	**2309.9**

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	--	--	--	--	--	--	15.0
1997	--	--	--	--	--	--	75.3
1998	--	--	--	--	--	--	81.2
1999	--	--	--	--	--	--	56.9
2000	--	--	--	--	--	--	35.3
2001	--	--	--	--	--	--	2.5
2002	--	--	--	--	--	--	94.2
2003	--	--	--	--	--	--	157.3
2004	--	--	--	--	--	--	192.0
2005	--	--	--	--	--	--	335.5
2006	--	--	--	--	--	--	355.6
2007	--	--	--	--	--	--	322.4
2008	--	--	--	--	--	--	237.1
2009	--	--	--	--	--	--	74.3
2010	--	--	--	--	--	--	65.5
2011	--	--	--	--	--	--	64.1
2012	--	--	--	--	--	--	0.5
Subtotal	**--**	**--**	**--**	**--**	**--**	**--**	**2164.7**

"Other RDT&E Funding" reflects firm international cooperative committments as of December 2001. The United Kingdom, the Netherlands, Denmark, Norway, Canada and Italy were cooperative partners during the Concept Demonstration Phase of the program. The UK is a committed partner for the System Development and Demonstration phase which commenced in October 2001.

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	--	--	--	--	--	--	30.4
1997	--	--	--	--	--	--	70.9
1998	--	--	--	--	--	--	21.4
Subtotal	**--**	**--**	**--**	**--**	**--**	**--**	**122.7**

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
2005	--	--	--	--	--	--	50.1
2006	4	--	--	48.4	--	--	762.9
2007	8	--	--	110.3	--	--	1325.3
2008	29	--	--	224.8	--	--	3640.1
2009	52	--	--	251.2	--	--	5641.6
2010	64	--	--	332.6	--	--	5880.4
2011	84	--	--	325.2	--	--	7196.0
2012	84	--	--	199.6	--	--	6385.4
2013	84	--	--	191.3	--	--	5980.6
2014	84	--	--	186.4	--	--	5915.9
2015	84	--	--	183.0	--	--	5962.7
2016	84	--	--	182.1	--	--	5849.8
2017	84	--	--	181.1	--	--	5610.2
2018	84	--	--	180.3	--	--	5597.9
2019	71	--	--	153.1	--	--	4573.2
2020	36	--	--	78.4	--	--	2410.1
2021	36	--	--	83.7	--	--	2540.2
2022	36	--	--	84.4	--	--	2561.9
2023	36	--	--	80.8	--	--	2408.6
2024	36	--	--	81.6	--	--	2419.4
2025	9	--	--	20.7	--	--	597.2
Subtotal	**1089**	**--**	**--**	**3179.0**	**--**	**--**	**83309.5**

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
2005	--	--	--	--	--	--	46.4
2006	4	--	--	44.0	--	--	694.2
2007	8	--	--	98.5	--	--	1183.5
2008	29	--	--	197.0	--	--	3189.9
2009	52	--	--	216.0	--	--	4851.8
2010	64	--	--	280.7	--	--	4962.8
2011	84	--	--	269.3	--	--	5959.9
2012	84	--	--	162.2	--	--	5189.9
2013	84	--	--	152.6	--	--	4770.3
2014	84	--	--	145.9	--	--	4630.7
2015	84	--	--	140.6	--	--	4580.3
2016	84	--	--	137.3	--	--	4409.8
2017	84	--	--	134.0	--	--	4150.3
2018	84	--	--	130.9	--	--	4064.0
2019	71	--	--	109.1	--	--	3258.2
2020	36	--	--	54.8	--	--	1685.1
2021	36	--	--	57.4	--	--	1742.9
2022	36	--	--	56.8	--	--	1725.0
2023	36	--	--	53.4	--	--	1591.6
2024	36	--	--	52.9	--	--	1568.9
2025	9	--	--	13.2	--	--	380.0
Subtotal	**1089**	**--**	**--**	**2506.6**	**--**	**--**	**64635.5**

Cost Quantity Information
1506 | Procurement | Aircraft Procurement, Navy

Fiscal Year	Quantity	End Item Recurring Flyaway (Aligned with Quantity) BY 2002 $M
2005	--	--
2006	4	509.1
2007	8	840.4
2008	29	2547.7
2009	52	3733.8
2010	64	3960.6
2011	84	4631.0
2012	84	4058.6
2013	84	3817.7
2014	84	3651.6
2015	84	3519.2
2016	84	3435.6
2017	84	3351.9
2018	84	3276.1
2019	71	2729.7
2020	36	1371.1
2021	36	1436.9
2022	36	1422.4
2023	36	1336.4
2024	36	1324.7
2025	9	331.5
Subtotal	**1089**	**51286.0**

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
2005	--	--	--	--	--	--	74.0
2006	6	--	--	69.9	--	--	1042.9
2007	14	--	--	187.6	--	--	1815.7
2008	20	--	--	145.3	--	--	2059.3
2009	30	--	--	133.4	--	--	2990.0
2010	44	--	--	213.4	--	--	3470.4
2011	72	--	--	254.2	--	--	5099.4
2012	110	--	--	226.3	--	--	6888.9
2013	110	--	--	216.3	--	--	6604.2
2014	110	--	--	210.4	--	--	6574.7
2015	110	--	--	206.6	--	--	6453.8
2016	110	--	--	205.6	--	--	6287.4
2017	110	--	--	204.7	--	--	6116.8
2018	110	--	--	204.0	--	--	6228.4
2019	110	--	--	205.2	--	--	6289.8
2020	110	--	--	207.7	--	--	6192.9
2021	110	--	--	209.6	--	--	6428.8
2022	110	--	--	211.2	--	--	6449.1
2023	110	--	--	213.2	--	--	6538.2
2024	110	--	--	215.3	--	--	6416.1
2025	110	--	--	219.4	--	--	6572.4
2026	37	--	--	78.6	--	--	2164.1
Subtotal	**1763**	**--**	**--**	**4037.9**	**--**	**--**	**108757.3**

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
2005	--	--	--	--	--	--	68.6
2006	6	--	--	63.6	--	--	949.0
2007	14	--	--	167.5	--	--	1621.4
2008	20	--	--	127.3	--	--	1804.6
2009	30	--	--	114.7	--	--	2571.4
2010	44	--	--	180.1	--	--	2928.9
2011	72	--	--	210.5	--	--	4223.5
2012	110	--	--	183.9	--	--	5599.2
2013	110	--	--	172.5	--	--	5267.7
2014	110	--	--	164.7	--	--	5146.4
2015	110	--	--	158.7	--	--	4957.6
2016	110	--	--	155.0	--	--	4739.7
2017	110	--	--	151.4	--	--	4525.1
2018	110	--	--	148.1	--	--	4521.7
2019	110	--	--	146.2	--	--	4481.2
2020	110	--	--	145.2	--	--	4329.9
2021	110	--	--	143.8	--	--	4411.0
2022	110	--	--	142.2	--	--	4342.4
2023	110	--	--	140.9	--	--	4320.3
2024	110	--	--	139.6	--	--	4160.6
2025	110	--	--	139.6	--	--	4182.5
2026	37	--	--	49.1	--	--	1351.5
Subtotal	**1763**	**--**	**--**	**3044.6**	**--**	**--**	**80504.2**

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

Fiscal Year	Quantity	End Item Recurring Flyaway (Aligned with Quantity) BY 2002 $M
2005	--	--
2006	6	704.2
2007	14	1348.4
2008	20	1543.6
2009	30	1908.2
2010	44	2399.5
2011	72	3462.1
2012	110	4602.4
2013	110	4315.2
2014	110	4121.1
2015	110	3972.0
2016	110	3879.1
2017	110	3787.9
2018	110	3706.9
2019	110	3656.9
2020	110	3633.0
2021	110	3597.7
2022	110	3558.8
2023	110	3524.6
2024	110	3492.3
2025	110	3493.1
2026	37	1227.5
Subtotal	**1763**	**65934.5**

Low Rate Initial Production

None

Foreign Military Sales

None

Nuclear Cost

None

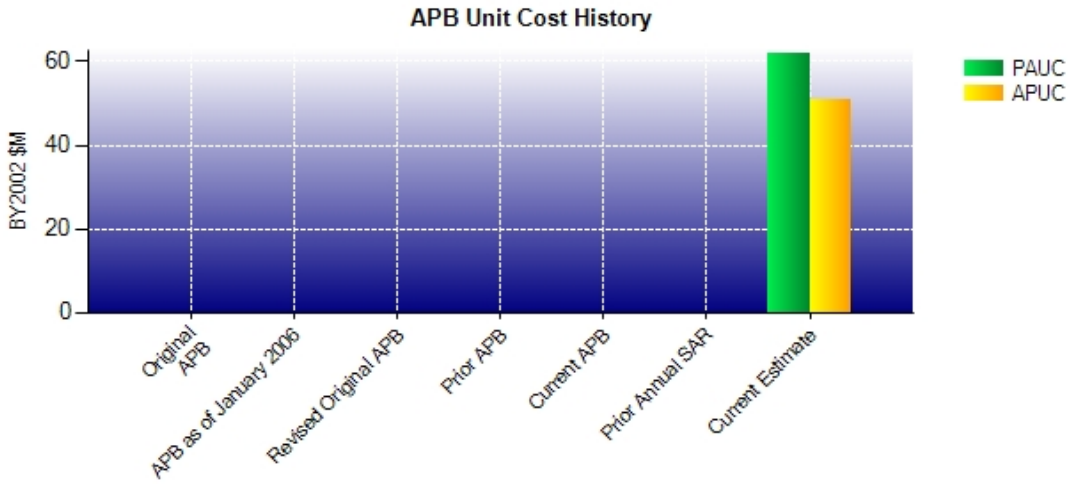
Unit Cost

Unit Cost Report

	BY2002 $M		
Unit Cost	**Current UCR Baseline (OCT 2001 APB)**	**Current Estimate (DEC 2001 SAR)**	**BY % Change**
Program Acquisition Unit Cost (PAUC)			
Cost	177100.0	177530.6	
Quantity	2866	2866	
Unit Cost	61.793	61.944	+0.24
Average Procurement Unit Cost (APUC)			
Cost	143300.0	145139.7	
Quantity	2852	2852	
Unit Cost	50.245	50.890	+1.28

	BY2002 $M		
Unit Cost	**Original UCR Baseline**	**Current Estimate (DEC 2001 SAR)**	**BY % Change**
Program Acquisition Unit Cost (PAUC)			
Cost		177530.6	
Quantity		2866	
Unit Cost		61.944	+0.00
Average Procurement Unit Cost (APUC)			
Cost		145139.7	
Quantity		2852	
Unit Cost		50.890	+0.00

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	N/A	N/A	N/A	N/A	N/A
Revised Original APB	N/A	N/A	N/A	N/A	N/A
Prior APB	N/A	N/A	N/A	N/A	N/A
Current APB	N/A	N/A	N/A	N/A	N/A
Prior Annual SAR	N/A	N/A	N/A	N/A	N/A
Current Estimate	DEC 2001	61.944	50.890	79.015	67.345

SAR Unit Cost History

Current SAR Baseline to Current Estimate (TY $M)

Initial PAUC Plan Est	Changes								PAUC Current Est
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
0.000	-2.331	0.000	-0.134	79.375	2.105	0.000	0.000	79.015	79.015

Current SAR Baseline to Current Estimate (TY $M)

Initial APUC Plan Est	Changes								APUC Current Est
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
0.000	-1.595	0.000	0.000	0.000	68.940	0.000	0.000	67.345	67.345

SAR Baseline History

Item/Event	SAR Planning Estimate (PE)	SAR Development Estimate (DE)	SAR Production Estimate (PdE)	Current Estimate
Milestone I	N/A	N/A	N/A	NOV 1996
Milestone B	MAR 2001	N/A	N/A	OCT 2001
Milestone C	TBD	TBD	N/A	APR 2012
IOC	TBD	TBD	N/A	APR 2010
Total Cost (TY $M)	24800.0	N/A	N/A	226458.3
Total Quantity	N/A	N/A	N/A	2866
Prog. Acq. Unit Cost (PAUC)	N/A	N/A	N/A	79.015

Note: "Current Estimate" for each Service IOC:
USMC - Apr 2010
USAF - Jun 2011
USN - Apr 2012

Cost Variance

Summary Then Year $M				
	RDT&E	Proc	MILCON	Total
SAR Baseline (Plan Est)	24800.0	--	--	24800.0
Previous Changes				
Economic	-1947.3	0.0	0.0	-1947.3
Quantity	0.0	0.0	0.0	0.0
Schedule	-1870.4	0.0	0.0	-1870.4
Engineering	+1420.0	0.0	0.0	+1420.0
Estimating	-463.5	0.0	0.0	-463.5
Other	0.0	0.0	0.0	0.0
Support	0.0	0.0	0.0	0.0
Subtotal	-2861.2	0.0	0.0	-2861.2
Current Changes				
Economic	-186.3	-4548.2	--	-4734.5
Quantity	--	--	--	--
Schedule	+1486.2	--	--	+1486.2
Engineering	+4670.0	--	--	+4670.0
Estimating	+6482.8	+15.0	--	+6497.8
Other	--	--	--	--
Support	--	--	--	--
Subtotal	+12452.7	-4533.2	--	+7919.5
Adjustments	0.0	+196600.0	0.0	+196600.0
Total Changes	+9591.5	+192066.8	0.0	+201658.3
CE - Cost Variance	34391.5	192066.8	--	226458.3
CE - Cost & Funding	34391.5	192066.8	--	226458.3

Summary Base Year 2002 $M				
	RDT&E	Proc	MILCON	Total
SAR Baseline (Plan Est)	21265.3	--	--	21265.3
Previous Changes				
Economic	0.0	0.0	0.0	0.0
Quantity	0.0	0.0	0.0	0.0
Schedule	-1433.1	0.0	0.0	-1433.1
Engineering	+1263.7	0.0	0.0	+1263.7
Estimating	-128.7	0.0	0.0	-128.7
Other	0.0	0.0	0.0	0.0
Support	0.0	0.0	0.0	0.0
Subtotal	-298.1	0.0	0.0	-298.1
Current Changes				
Economic	--	--	--	--
Quantity	--	--	--	--
Schedule	+1414.0	--	--	+1414.0
Engineering	+4188.0	--	--	+4188.0
Estimating	+5727.2	+1839.7	--	+7566.9
Other	--	--	--	--
Support	--	--	--	--
Subtotal	+11329.2	+1839.7	--	+13168.9
Adjustments	0.0	+143300.0	0.0	+143300.0
Total Changes	+11031.1	+145139.7	0.0	+156170.8
CE - Cost Variance	32296.4	145139.7	--	177436.1
CE - Cost & Funding	32390.9	145139.7	--	177530.6

Previous Estimate: September 2001

RDT&E	$M	
Current Change Explanations	**Base Year**	**Then Year**
Revised escalation indices. (Economic)	N/A	-186.3
Adjustment for Current and Prior Inflation. (Estimating)	+17.7	+17.1
Reflects outyear impact of schedule delays in FY 2002 and prior (Schedule)	+1414.0	+1486.2
Implemented Block Development approach; maturation of mission systems and improved weapons capability resulted in an expansion of SDD from 90 to 126 months (Engineering)	+4188.0	+4670.0
Changes in cost modeling methodologies and assumptions (see note below) (Estimating)	+5709.5	+6465.7
RDT&E Subtotal	+11329.2	+12452.7

Procurement	$M	
Current Change Explanations	**Base Year**	**Then Year**
Revised escalation indices (Economic)	N/A	-4548.2
Refinement of Oct 2001 Milestone B APB value (note, Base Year adjustment reflects impact of revised inflation indices) (Estimating)	+1839.7	+15.0
Procurement Subtotal	+1839.7	-4533.2

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	18981.9	N/A	14	18981.9	18981.9

Cost And Schedule Variance Explanations

Cost and Schedule variance reporting is not required on this CPAF contract.

Contract Comments

New contract; earned value data not yet available.

Appropriation: RDT&E	
Contract Name	**Propulsion JSF F135 SDD**
Contractor	Pratt and Whitney
Contractor Location	East Hartford , CT 06057
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	4827.8	N/A	33	4827.8	4827.8

Cost And Schedule Variance Explanations

Cost and Schedule variance reporting is not required on this CPAF contract.

Contract Comments

New contract; earned value data not yet available.

Appropriation: RDT&E	
Contract Name	**GE F136 Phase IIIb**
Contractor	General Electric
Contractor Location	Cincinnati , OH 45215
Contract Number, Type	N00019-96-C-0176, CPAF
Award Date	November 13, 2001
Definitization Date	November 13, 2001

Initial Contract Price ($M)			Current Contract Price ($M)			Estimated Price At Completion ($M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
411.0	N/A	N/A	411.0	N/A	N/A	411.0	411.0

Cost And Schedule Variance Explanations

Cost and Schedule variance reporting is not required on this CPAF contract.

Contract Comments

Scope reported in previous SAR is complete; the information above reflects a new contract modification. Earned value data not yet available.

Deliveries and Expenditures

Deliveries To Date	Plan	Actual	Total Quantity	Percent Delivered
Development	0	0	14	0.00%
Production	0	0	2852	0.00%
Total Program Quantities Delivered	0	0	2866	0.00%

Expenditures and Appropriations (TY $M)			
Total Acquisition Cost	226458.3	Years Appropriated	9
Expenditures To Date	3976.0	Percent Years Appropriated	27.27%
Percent Expended	1.76%	Appropriated to Date	5849.8
Total Funding Years	33	Percent Appropriated	2.58%

Operating and Support Cost

Assumptions and Ground Rules

The JSF 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 JSF O&S estimate is based on F-18C, F-16C, and AV-8B history.

JSF O&S costs shown in comparison with the antecedent system reflect cost-per-flying-hour for the JSF CTOL variant only. The CTOL variant will make up the majority of the JSF aircraft DoD buy, 1,763 of the 2,852 total. The O&S differences between JSF CTOL and F-16 are representative of the comparisons across legacy fleets.

JSF CTOL costs reflect 24-aircraft squadrons operating at 300 flying hours per aircraft per year. F-16 costs have been normalized to the same groundrules as were used in estimating the JSF CTOL costs. The F-16 costs are reconciled numbers developed in a joint effort by the JSF Program Office and the Air Force, and reflected in JSF Milestone B briefings in Fall 2001.

"Total O&S Cost" below reflects the O&S costs for all three variants based on an estimated 8000 hour aircraft service life. A comparable number for antecedent systems is not available.

Costs BY2002 $M

Cost Element	JSF Cost per Flying Hour ($BY02)	F-16C/D Cost per Flying Hour ($BY02)
Mission Pay & Allowance	3289	5233
Unit Level Consumption	3295	3507
Intermediate Maintenance	0	3
Depot Maintenance	399	293
Contractor Support	0	44
Sustaining Support	861	627
Indirect	1301	2329
Other	--	--
Total Unitized Cost (Base Year 2002 $)	9145	12036

Total O&S Costs $M	JSF	F-16C/D
Base Year	151923.0	--
Then Year	387615.0	--

Defense Acquisition Management
Information Retrieval
(DAMIR)

Selected Acquisition Report (SAR)

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

F-35 (JSF)

As of December 31, 2002

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Program Information

Designation And Nomenclature (Popular Name)

F-35 Joint Strike Fighter (JSF)

DoD Component

DoD

Joint Participants

USAF; USN; USMC; DARPA; United Kingdom; Norway; Denmark; the Netherlands; Canada; Italy; Turkey; Australia

The JSF Program is a joint DoD 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.

Responsible Office

Responsible Office

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john.hudson@jsf.mil

Phone 703-602-7640
Fax 703-602-7649
DSN Phone 332-7640
DSN Fax --

Date Assigned October 26, 2001

References

SAR Baseline (Development Estimate)

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

Approved APB

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 fighter aircraft for the United States Navy, Air Force, Marine Corps and allies. The carrier suitable variant of the JSF will provide the Navy a multi-role, stealthy strike fighter aircraft to complement the F/A-18E/F. The Air Force variant will be a multi-role aircraft, primary-air-to-ground, to replace the F-16 and A-10 (Service intent) and complement the F-22. The Short Takeoff and Vertical Landing (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 Sea Harrier and GR-7 for the United Kingdom Royal Navy and Royal Air Force. The cornerstone of the JSF Program is affordability -- reducing the development cost, production cost, and cost of ownership of the JSF family of aircraft. The program was structured from the beginning to be a model of acquisition reform, with an emphasis on jointness, technology maturation and concept demonstrations, and early cost and performance trades integral to the weapon system requirements definition process.

Executive Summary

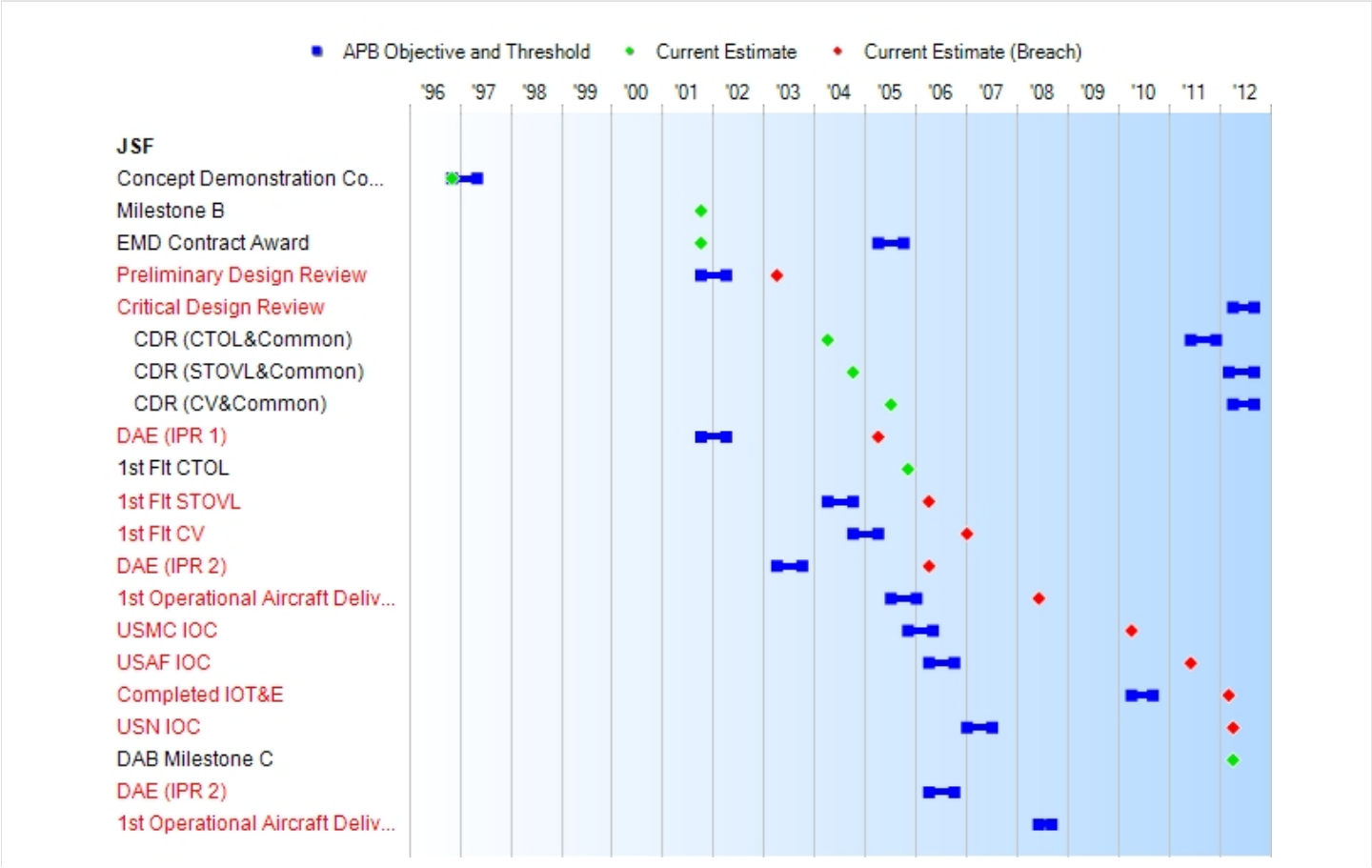
This SAR completes the transition to a Development SAR following the Milestone B decision in October 2001.
The Department of Defense established the F-35 Joint Strike Fighter Program, originally named Joint Advanced Strike Technology (JAST) Program, in 1993. It was created as the focal point for defining affordable next-generation strike weapon systems to replace aging Navy and Air Force tactical assets. Fiscal Year 1995 legislation merged the Defense Advanced Research Projects Agency (DARPA) Advanced Short Take-Off and Landing (ASTOVL) program with the then-JAST Program. The United Kingdom became a Collaborative Partner in 1995, extending a collaboration begun under the DARPA ASTOVL program. Denmark, Norway, the Netherlands, Canada, and Italy also became partners in the Concept Demonstration Phase, with Turkey, Singapore, and Israel as Foreign Military Sales customers.
Facilitated by the JSF Program Office, the Services evolved weapon system requirements based on extensive cost and performance trades emphasizing Cost As An Independent Variable (CAIV). The process culminated in the Services' Joint Operational Requirements Document in March 2000, revalidated by the Joint Requirements Oversight Council (JROC) in October 2001.
The Concept Demonstration Phase commenced in November 1996 with competitive contract awards to Boeing and Lockheed Martin for Concept Demonstration Programs (CDP), with Pratt and Whitney providing propulsion hardware and engineering support. The competing contractors conducted concept-unique ground demonstrations; continued refinement of the weapon system concepts that they proposed for Systems Development and Demonstration (SDD) and Production; and built and flew concept demonstrator aircraft. Contractor flight demonstrations commenced in September 2000 and completed in August 2001. Flight test results met or exceeded expectations, to an unprecedented degree in many cases.
A Milestone B Defense Acquisition Board (DAB) review was held on October 24, 2001. On October 25, the Secretary of Defense provided certification to congress (in accordance with Section 212 of the FY 2001 Defense Authorization Act) that the JSF program successfully completed the CDP exit criteria and demonstrated sufficient technical maturity to enter SDD. On October 26, SDD contracts were awarded to Lockheed Martin and Pratt and Whitney. General Electric continues technical efforts related to development of a second engine source for competition in production.
Significant SDD technical accomplishments over the past year include the following: successful completion of the Air System Requirements Review (ASRR) with Lockheed Martin in February 2002; completion of Integrated Baseline Reviews (IBRs) for all three primes, major subcontractors and key suppliers in Spring and Summer 2002; completion of propulsion Preliminary Design Reviews (PDR)in Summer 2002; and preparation for the March 2003 Air System PDR.
JSF is DoD's largest cooperative development program. The UK signed a Memorandum of Understanding (MOU) in January 2001 as the only SDD Level 1 partner. During 2002 seven additional countries signed MOUs for JSF SDD participation as follows: Canada, Denmark, the Netherlands, Norway, Italy, Turkey, Australia. Italy and the Netherlands are Level II partners, and the others are Level III partners. The Department held discussions with Israel and Singapore for potential as Security Cooperation Participants for case specific scope outside of the JSF cooperative partnership.

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
JSF
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 Operational Aircraft Deliv...
USMC IOC
USAF IOC
Completed IOT&E
USN IOC
DAB Milestone C
DAE (IPR 2)
1st Operational Aircraft Deliv...

Milestones	SAR Baseline Dev Est	Current APB Development Objective/Threshold		Current Estimate
Concept Demonstration Contract Award	NOV 1996	NOV 1996	MAY 1997	NOV 1996
Milestone B	N/A	N/A	N/A	OCT 2001
EMD Contract Award	APR 2005	APR 2005	OCT 2005	OCT 2001
Preliminary Design Review	OCT 2001	OCT 2001	APR 2002	**APR 2003** [1]
Critical Design Review	APR 2012	APR 2012	SEP 2012	
CDR (CTOL&Common)	JUN 2011	JUN 2011	DEC 2011	APR 2004
CDR (STOVL&Common)	MAR 2012	MAR 2012	SEP 2012	OCT 2004
CDR (CV&Common)	APR 2012	APR 2012	SEP 2012	JUL 2005
DAE (IPR 1)	OCT 2001	OCT 2001	APR 2002	**APR 2005** [1]
1st Flt CTOL				NOV 2005
1st Flt STOVL	APR 2004	APR 2004	OCT 2004	**APR 2006** [1]
1st Flt CV	OCT 2004	OCT 2004	APR 2005	**JAN 2007** [1]
DAE (IPR 2)	APR 2003	APR 2003	OCT 2003	**APR 2006** [1]
1st Operational Aircraft Delivered	JUL 2005	JUL 2005	JAN 2006	**JUN 2008** [1]
USMC IOC	NOV 2005	NOV 2005	MAY 2006	**APR 2010** [1]
USAF IOC	APR 2006	APR 2006	OCT 2006	**JUN 2011** [1]
Completed IOT&E	APR 2010	APR 2010	SEP 2010	**MAR 2012** [1]
USN IOC	JAN 2007	JAN 2007	JUL 2007	**APR 2012** [1]
DAB Milestone C	N/A	N/A	N/A	APR 2012
DAE (IPR 2)	APR 2006	APR 2006	OCT 2006	**N/A** [1]
1st Operational Aircraft Delivered	JUN 2008	JUN 2008	SEP 2008	**N/A** [1]

[1] **APB Breach**

Change Explanations

None

Memo

The "Development Estimate (SAR)" and "Approved Program (APB)" columns reflect Milestone B (October 2001) baselines.

Performance

Characteristics	SAR Baseline Dev Est	Current APB Development Objective/Threshold		Demonstrated Performance	Current Estimate
STOVL Mission Performance	N/A	N/A	N/A	TBD	Execute 514 ft. STO with 2 JDAM (internal), 2 AIM-120 (internal), fuel to fly 472nm
Combat Radius NM - CTOL Variant	N/A	N/A	N/A	TBD	679
Combat Radius NM - STOVL Variant	N/A	N/A	N/A	TBD	472
Combat Radius NM -CV Variant	N/A	N/A	N/A	TBD	771
Internal Weapons Carriage - CTOL Variant	N/A	N/A	N/A	TBD	Sufficient bay volume to load, carry & employ objective Annex A weapons
Internal Weapons Carriage - STOVL Variant	N/A	N/A	N/A	TBD	Sufficient bay volume to load, carry & employ objective Annex A weapons
Internal Weapons Carriage - CV Variant	N/A	N/A	N/A	TBD	Sufficient bay volume to load, carry & employ objective Annex A weapons
Radio Frequency (RF) Signature	N/A	N/A	N/A	TBD	Classified
Logistic Footprint -CTOL Variant	N/A	N/A	N/A	TBD	Less than or equal to 5.6 C-17 equivalent loads

Logistic Footprint -CV Variant	Less than or equal to 46,000 cu ft, 183 Short Tons	Less than or equal to 34,000 cu ft, 183 Short Tons	Less than or equal to 46,000 cu ft, 243 Short Tons	TBD	Less than or equal to 18,473 cu ft, 131 Short Tons
Logistic Footprint -STOVL Variant	Less than or equal to 4 C-17 equivalent loads	Less than or equal to 4 C-17 equivalent loads	Less than or equal to 8 C-17 equivalent loads	TBD	Less than or equal to 3.4 C-17 equivalent loads cu ft, 131 Short Tons
Sortie Generation Rate - CTOL Variant	N/A	N/A	N/A	TBD	3.7/day initial surge; 2/day sustained surge; 1/day Wartime Sustained based on ASD of 2.5
Sortie Generation Rate - CV Variant	N/A	N/A	N/A	TBD	4.4/day initial surge; 2/day sustained surge; 1/day Wartime Sustained based on ASD of 1.8
Sortie Generation Rate - STOVL Variant	N/A	N/A	N/A	TBD	7.2/day initial surge; 3/day sustained surge; 1/day Wartime Sustained based on ASD of 1.1
Interoperability	100% of all top level IE Rs	100% of all top level IERs	100% of critical top level IERs	TBD	100% of critical top level IERs
Mission Reliability	98% for all variants at ASD's listed in Table 13	98% for all variants at ASD's listed in Table 13	95% for CV & STOVL & 93% for CTOL at ASD's listed in Table 13.	TBD	98.4% for CV, 99.1 % for STOVL & 98.3% for CTOL at ASDs listed in Table
CV Recovery Performance, Approach Speed	Max approach speed (Vpa) at Required Carrier	Max approach speed (Vpa)at	Max approach speed (Vpa) at Required	TBD	Max approach speed (Vpa) at Required

	Landing Weight (RCLW) of less than 140 kts	Required Carrier Landing Weight (RCLW) of less than 140 kts	Carrier Landing Weight (RCLW) of less than 145 kts w/15 kts WOD at RCLW		Carrier Landing Weight (RCLW) of less than 139 kts w/15 kts WOD at RCLW
STOVL Mission Performance	Execute 550 ft. STO with 4 JDAM (2 external & 2 internal), 2 AIM -120 (internal), fuel to fly 550 nm	Execute 550 ft. STO with 4 JDAM (2 external & 2 internal), 2 AIM-120 (internal), fuel to fly 550nm	Execute 550 ft. STO with 2 JDAM (internal), 2 AIM-120 (internal), fuel to fly 450nm	N/A	**N/A** [1]
Combat Radius NM - CTOL Variant	690	690	590	N/A	**N/A** [1]
Combat Radius NM - STOVL Variant	550	550	450	N/A	**N/A** [1]
Combat Radius NM -CV Variant	730	730	600	N/A	**N/A** [1]
Internal Weapons Carriage - CTOL Variant	Sufficient bay volume to load, c arry & employ objective Annex A weapons	Sufficient bay volume to load, carry & employ objective Annex A weapons	Sufficient bay volume to load, carry & employ threshold Annex A weapons	N/A	**N/A** [1]
Internal Weapons Carriage - STOVL Variant	Sufficient bay volume to load, c arry & employ objective Annex A weapons	Sufficient bay volume to load, carry & employ objective Annex A weapons	Sufficient bay volume to load, carry & employ threshold Annex A weapons	N/A	**N/A** [1]
Internal Weapons Carriage - CV Variant	Sufficient bay volume to load, c arry & employ objective Annex A weapons	Sufficient bay volume to load, carry & employ objective Annex A weapons	Sufficient bay volume to load, carry & employ threshold Annex A weapons	N/A	**N/A** [1]
Radio Frequency (RF) Signature	See Classified Extract	See Classified Extract	See Classified Extract	N/A	**N/A** [1]
Logistic Footprint -CTOL	Less than or	Less than	Less than or	N/A	**N/A** [1]

Variant	equal to 6 C-17 equivalent loads	or equal to 6 C-17 equivalent loads	equal to 8 C-17 equivalent loads		
Sortie Generation Rate - CTOL Variant	4/day initial surge; 3/day sustained surge; 2/day Wartime Sustained based on ASD of 2.5	4/day initial surge; 3/day sustained surge; 2/day Wartime Sustained based on ASD of 2.5	3/day initial surge; 2/day sustained surge; 1/day Wartime Sustained based on ASD of 2.5	N/A	**N/A** [1]
Sortie Generation Rate - CV Variant	4/day initial surge; 3/day sustained surge; 1/day Wartime Sustained based on ASD of 1.8	4/day initial surge; 3/day sustained surge; 1/day Wartime Sustained based on ASD of 1.8	3/day initial surge; 2/day sustained surge; 1/day Wartime Sustained based on ASD of 1.8	N/A	**N/A** [1]
Sortie Generation Rate - STOVL Variant	6/day initial surge; 4/day sustained surge; 2/day Wartime Sustained based on ASD of 1.1	6/day initial surge; 4/day sustained surge; 2/day Wartime Sustained based on ASD of 1.1	4/day initial surge; 3/day sustained surge; 1/day Wartime Sustained based on ASD of 1.1	N/A	**N/A** [1]

[1] **APB Breach**

Change Explanations

None

Memo

The "Development Estimate (SAR)" and "Approved Program (APB)" columns reflect Milestone B (October 2001) baselines for JSF Key Performance Parameters (KPPs).

"Current Estimate" reflects government assessment of projected performance based on Lockheed Martin's pre-PDR (240-1.1 Rev A) configuration and the Pratt and Whitney PDR (A-14) engine deck using LM IOC weight empty targets. For logistics characteristics, government assessment is based on Lockheed Martin's Milestone B (235-1.2) configuration. JSF is projected to meet or exceed all KPP threshold requirements; degradation of performance margins is anticipated in future configuration updates. Some non-KPP threshhold requirements will not be met. Refinements to performance projections will continue as the design configuration matures during SDD.

Change Explanations:
"PM's Current Estimate" changed from the December 01 SAR as follows due to design maturation:

Track To Budget

RDT&E		
APPN 0400	PE 0603800E	(DoD)
	RDT&E, DARPA	
APPN 3600	PE 0603800F	(Air Force)
	RDT&E, Air Force CDP	
APPN 1319	PE 0603800N	(Navy)
	RDT&E, Navy CDP	
APPN 3600	PE 0604800F	(Air Force)
	RDT&E, Air Force EMD	
APPN 1319	PE 0604800N	(Navy)
	RDT&E, Navy EMD	

Procurement		
APPN 3010	(Air Force)	ICN 0207142F
APPN 1506	(Navy)	ICN 0214146N

MILCON		
APPN 1205	PE 0204146N	(Navy)
	MILCON, USN	
APPN 3300	PE 0207142F	(Air Force)
	MILCON, AF	

General Memo

JSF is DoD's largest cooperative development program. The UK signed a Memorandum of Understanding in January 2001 as the only Level 1 partner. During 2002 seven additional countries signed MOUs for JSF SDD participation as follows: Canada, Denmark, the Netherlands, Norway, Italy, Turkey, Australia. Italy and the Netherlands are Level II partners, and the others are Level III. Associated financial contributions are reflected in Section 16.

Cost and Funding

Cost Summary

Total Acquisition Cost and Quantity

	BY2002 $M				TY $M		
Appropriation	SAR Baseline Dev Est	Current APB Development Objective/Threshold		Current Estimate	SAR Baseline Dev Est	Current APB Development Objective	Current Estimate
RDT&E	32300.0	32300.0	35600.0	35368.1	34400.0	34400.0	37287.5
Procurement	143300.0	143300.0	157700.0	125948.5	196600.0	196600.0	162196.1
Flyaway	121215.5	--	--	--	166349.7	--	--
Recurring	116093.6	--	--	--	159390.4	--	--
Non Recurring	5121.9	--	--	4824.8	6959.3	--	6112.5
Support	22084.5	--	--	--	30250.3	--	--
Other Support	15403.5	--	--	--	21109.3	--	--
Initial Spares	6681.0	--	--	--	9141.0	--	--
MILCON	1500.0	1500.0	1700.0	227.3	2000.0	2000.0	252.8
Acq O&M	--	--	--	--	--	--	--
Total	177100.0	177100.0	N/A	161543.9	233000.0	233000.0	199736.4

The "Development Estimate (SAR)" and "Approved Program (APB)" columns reflect MS B (Oct 2001) baselines for all cited appropriations.

Since the Services had not yet fully established JSF basing plans, the Milestone B MILCON estimate reflected a top-level parametric estimate, not discrete estimate for specific sites. "Current Estimate" reflects specific MILCON requirements identified in the FY 2004/2005 President's Budget Future Years Defense Plan (FYDP). The MILCON "Current Estimate" will continue to be updated as additional specific MILCON requirements are identified in future budget submissions.

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

Procurement Quantities:
1763- Air Force (CTOL variant)
680- Department of Navy (CV and STOVL variants)
2443- Total DoD

The October 2001 Milestone B procurement baseline for the Department of Navy (DoN) reflected 609 STOVL variants for USMC and 480 CV variants for USN (DoN total of 1089). Subsequently, the DoN Navy/Marine Corps Tactical Aviation (TACAIR) Integration Plan reduced total JSF CV/STOVL procurement quantities to 680. Annual STOVL and CV quantities through FY 2009 still reflect the Milestone B quantity profile. The annual and total quantity mix (and definitive related procurement estimates) of STOVL and CV variants beyond FY 2009 remain To Be Determined pending further assessment by the Services. Procurement estimates will continue to be refined in future budget cycles.

JSF procurement cost reflects DoD cost only, but assumes the benefits of 150 UK aircraft anticipated but not formalized in a MOU for procurement.

The approved Low-Rate Initial Production (LRIP) aircraft quantity of 465 exceeds 10% of planned total production. This is necessary to meet Service IOC requirements, prevent a break in production, and to ramp up to full rate production. The DAE reaffirmed the LRIP quantity in the Milestone B Acquisition Decision Memorandum dated October 26, 2001.

Funding Summary

Appropriation and Quantity Summary

FY2004 President's Budget / December 2002 SAR (TY$ M)

Appropriation	Prior	FY2003	FY2004	FY2005	FY2006	FY2007	FY2008	FY2009	To Complete	Total
RDT&E	5981.3	3824.3	4889.0	5226.4	4797.5	3997.0	3098.3	2274.6	3199.1	37287.5
Procurement	0.0	0.0	0.0	119.5	1751.4	3061.5	5560.9	8391.9	143310.9	162196.1
MILCON	0.0	0.0	44.5	11.2	0.0	0.0	104.1	93.0	0.0	252.8
Acq O&M	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PB2004 Total	5981.3	3824.3	4933.5	5357.1	6548.9	7058.5	8763.3	10759.5	146510.0	199736.4
PB2003 Total	5849.8	3632.2	4073.8	5455.0	6161.9	6872.6	8471.4	11079.2	174862.4	226458.3
Delta	131.5	192.1	859.7	-97.9	387.0	185.9	291.9	-319.7	-28352.4	-26721.9

Quantity	Prior	FY2003	FY2004	FY2005	FY2006	FY2007	FY2008	FY2009	To Complete	Total
Development	0	0	0	0	0	0	0	0	0	14
Production	0	0	0	0	10	22	49	82	2280	2443
PB2004 Total	0	0	0	0	10	22	49	82	2280	2457
PB2003 Total	0	0	0	0	10	22	49	82	2689	2866
Delta	0	0	0	0	0	0	0	0	-409	-409

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	--	--	--	--	--	--	724.9
2003	--	--	--	--	--	--	1708.9
2004	--	--	--	--	--	--	2171.7
2005	--	--	--	--	--	--	2226.0
2006	--	--	--	--	--	--	1999.5
2007	--	--	--	--	--	--	1648.0
2008	--	--	--	--	--	--	1309.3
2009	--	--	--	--	--	--	1057.0
2010	--	--	--	--	--	--	744.4
2011	--	--	--	--	--	--	536.5
2012	--	--	--	--	--	--	194.3
Subtotal	**9**	**--**	**--**	**--**	**--**	**--**	**16271.1**

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	--	--	--	--	--	--	242.3
2001	--	--	--	--	--	--	342.1
2002	--	--	--	--	--	--	720.6
2003	--	--	--	--	--	--	1679.6
2004	--	--	--	--	--	--	2102.6
2005	--	--	--	--	--	--	2122.1
2006	--	--	--	--	--	--	1875.1
2007	--	--	--	--	--	--	1518.9
2008	--	--	--	--	--	--	1185.4
2009	--	--	--	--	--	--	940.0
2010	--	--	--	--	--	--	650.3
2011	--	--	--	--	--	--	460.4
2012	--	--	--	--	--	--	163.8
Subtotal	**9**	**--**	**--**	**--**	**--**	**--**	**15437.0**

Note: USN and USAF RDT&E funding in FY04 and subsequent is premised on use of a Special Termination Cost Clause (STCC) in JSF SDD contracts with Lockheed Martin and Pratt and Whitney effective FY 2004 through contracts completion.

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	--	--	--	--	--	--	720.1
2003	--	--	--	--	--	--	1697.8
2004	--	--	--	--	--	--	2194.1
2005	--	--	--	--	--	--	2242.5
2006	--	--	--	--	--	--	1992.4
2007	--	--	--	--	--	--	1640.1
2008	--	--	--	--	--	--	1302.7
2009	--	--	--	--	--	--	1046.8
2010	--	--	--	--	--	--	747.3
2011	--	--	--	--	--	--	539.4
2012	--	--	--	--	--	--	197.2
Subtotal	**5**	**--**	**--**	**--**	**--**	**--**	**16227.8**

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	--	--	--	--	--	--	342.1
2002	--	--	--	--	--	--	715.8
2003	--	--	--	--	--	--	1668.7
2004	--	--	--	--	--	--	2124.3
2005	--	--	--	--	--	--	2137.8
2006	--	--	--	--	--	--	1868.4
2007	--	--	--	--	--	--	1511.6
2008	--	--	--	--	--	--	1179.4
2009	--	--	--	--	--	--	931.0
2010	--	--	--	--	--	--	652.9
2011	--	--	--	--	--	--	462.9
2012	--	--	--	--	--	--	166.2
Subtotal	**5**	**--**	**--**	**--**	**--**	**--**	**15389.6**

Note: USN and USAF RDT&E funding in FY04 and subsequent is premised on use of a Special Termination Cost Clause (STCC) in JSF SDD contracts with Lockheed Martin and Pratt and Whitney effective FY 2004 through contracts completion.

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	--	--	--	--	--	--	417.6
2004	--	--	--	--	--	--	523.2
2005	--	--	--	--	--	--	757.9
2006	--	--	--	--	--	--	805.6
2007	--	--	--	--	--	--	708.9
2008	--	--	--	--	--	--	486.3
2009	--	--	--	--	--	--	170.8
2010	--	--	--	--	--	--	128.4
2011	--	--	--	--	--	--	109.1
2012	--	--	--	--	--	--	2.5
Subtotal	**--**	**--**	**--**	**--**	**--**	**--**	**4670.6**

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	--	--	--	--	--	--	304.6
2003	--	--	--	--	--	--	410.4
2004	--	--	--	--	--	--	506.6
2005	--	--	--	--	--	--	722.5
2006	--	--	--	--	--	--	755.5
2007	--	--	--	--	--	--	653.4
2008	--	--	--	--	--	--	440.3
2009	--	--	--	--	--	--	151.9
2010	--	--	--	--	--	--	112.2
2011	--	--	--	--	--	--	93.6
2012	--	--	--	--	--	--	2.1
Subtotal	**--**	**--**	**--**	**--**	**--**	**--**	**4417.2**

"Other RDT&E Funding" reflects financial conributions under international cooperative agreements with the following countries: United Kingdom, Canada, Denmark, the Netherlands, Norway, Italy, Turkey, and Australia.

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$
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
2005	--	--	--	--	--	--	48.7
2006	4	--	--	47.2	--	--	759.0
2007	8	--	--	99.5	--	--	1327.5
2008	29	--	--	220.3	--	--	3579.1
2009	52	--	--	184.2	--	--	5519.3
2010	41	--	--	194.3	--	--	3907.5
2011	42	--	--	202.4	--	--	3646.7
2012	48	--	--	128.3	--	--	3674.3
2013	55	--	--	128.5	--	--	4112.1
2014	55	--	--	124.7	--	--	3993.0
2015	55	--	--	122.1	--	--	3912.0
2016	55	--	--	121.2	--	--	3884.5
2017	55	--	--	120.4	--	--	3768.6
2018	55	--	--	123.5	--	--	3744.8
2019	57	--	--	123.7	--	--	3854.2
2020	40	--	--	87.2	--	--	2704.2
2021	29	--	--	63.7	--	--	1962.0
Subtotal	**680**	**--**	**--**	**2091.2**	**--**	**--**	**54397.5**

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
2005	--	--	--	--	--	--	45.8
2006	4	--	--	43.6	--	--	701.8
2007	8	--	--	90.4	--	--	1206.0
2008	29	--	--	196.6	--	--	3194.1
2009	52	--	--	161.5	--	--	4838.5
2010	41	--	--	167.3	--	--	3365.0
2011	42	--	--	171.2	--	--	3084.9
2012	48	--	--	106.6	--	--	3053.2
2013	55	--	--	104.9	--	--	3356.6
2014	55	--	--	100.0	--	--	3201.8
2015	55	--	--	96.2	--	--	3081.4
2016	55	--	--	93.8	--	--	3005.6
2017	55	--	--	91.5	--	--	2864.4
2018	55	--	--	92.2	--	--	2795.9
2019	57	--	--	90.7	--	--	2826.7
2020	40	--	--	62.8	--	--	1948.2
2021	29	--	--	45.1	--	--	1388.5
Subtotal	**680**	**--**	**--**	**1714.4**	**--**	**--**	**43958.4**

Cost Quantity Information
1506 | Procurement | Aircraft Procurement, Navy

Fiscal Year	Quantity	End Item Recurring Flyaway (Aligned with Quantity) BY 2002 $M
2005	--	--
2006	4	506.3
2007	8	834.8
2008	29	2567.8
2009	52	3762.6
2010	41	2608.4
2011	42	2435.9
2012	48	2438.2
2013	55	2622.2
2014	55	2500.6
2015	55	2405.9
2016	55	2346.5
2017	55	2287.4
2018	55	2233.8
2019	57	2267.8
2020	40	1571.3
2021	29	1127.6
Subtotal	**680**	**34517.1**

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
2005	--	--	--	--	--	--	70.8
2006	6	--	--	68.1	--	--	992.4
2007	14	--	--	168.7	--	--	1734.0
2008	20	--	--	141.2	--	--	1981.8
2009	30	--	--	93.5	--	--	2872.6
2010	44	--	--	191.6	--	--	3652.6
2011	72	--	--	319.8	--	--	5261.7
2012	110	--	--	253.2	--	--	6875.3
2013	110	--	--	216.8	--	--	6698.4
2014	110	--	--	210.1	--	--	6497.4
2015	110	--	--	205.9	--	--	6364.7
2016	110	--	--	204.5	--	--	6323.8
2017	110	--	--	203.1	--	--	6138.3
2018	110	--	--	210.1	--	--	6105.6
2019	110	--	--	202.1	--	--	6095.9
2020	110	--	--	202.5	--	--	6110.0
2021	110	--	--	204.5	--	--	6171.8
2022	110	--	--	209.6	--	--	6324.5
2023	110	--	--	211.4	--	--	6381.5
2024	110	--	--	213.5	--	--	6441.8
2025	110	--	--	214.6	--	--	6425.2
2026	37	--	--	76.5	--	--	2278.5
Subtotal	**1763**	**--**	**--**	**4021.3**	**--**	**--**	**107798.6**

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
2005	--	--	--	--	--	--	66.6
2006	6	--	--	63.0	--	--	917.7
2007	14	--	--	153.3	--	--	1575.3
2008	20	--	--	126.0	--	--	1768.6
2009	30	--	--	82.0	--	--	2518.3
2010	44	--	--	165.0	--	--	3145.5
2011	72	--	--	270.5	--	--	4451.0
2012	110	--	--	210.4	--	--	5713.2
2013	110	--	--	177.0	--	--	5467.8
2014	110	--	--	168.5	--	--	5209.9
2015	110	--	--	162.2	--	--	5013.3
2016	110	--	--	158.2	--	--	4893.0
2017	110	--	--	154.4	--	--	4665.5
2018	110	--	--	156.9	--	--	4558.6
2019	110	--	--	148.2	--	--	4470.8
2020	110	--	--	145.9	--	--	4402.0
2021	110	--	--	144.7	--	--	4367.9
2022	110	--	--	145.7	--	--	4396.8
2023	110	--	--	144.4	--	--	4358.0
2024	110	--	--	143.2	--	--	4321.4
2025	110	--	--	141.4	--	--	4234.0
2026	37	--	--	49.5	--	--	1474.9
Subtotal	**1763**	**--**	**--**	**3110.4**	**--**	**--**	**81990.1**

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

Fiscal Year	Quantity	End Item Recurring Flyaway (Aligned with Quantity) BY 2002 $M
2005	--	--
2006	6	699.3
2007	14	1338.5
2008	20	1532.4
2009	30	1893.2
2010	44	2436.8
2011	72	3602.3
2012	110	4741.0
2013	110	4425.1
2014	110	4215.4
2015	110	4055.2
2016	110	3957.7
2017	110	3862.4
2018	110	3778.2
2019	110	3705.1
2020	110	3647.5
2021	110	3618.5
2022	110	3643.3
2023	110	3611.0
2024	110	3580.7
2025	110	3536.2
2026	37	1237.4
Subtotal	**1763**	**67117.2**

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

Fiscal Year	Total Program TY $M
2004	24.4
Subtotal	**24.4**

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

Fiscal Year	Total Program BY 2002 $M
2004	23.3
Subtotal	**23.3**

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

Fiscal Year	Total Program TY $M
2004	20.1
2005	11.2
2006	--
2007	--
2008	104.1
2009	93.0
Subtotal	**228.4**

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

Fiscal Year	Total Program BY 2002 $M
2004	19.2
2005	10.5
2006	--
2007	--
2008	92.8
2009	81.5
Subtotal	**204.0**

Low Rate Initial Production

None

Foreign Military Sales

None

Nuclear Cost

None

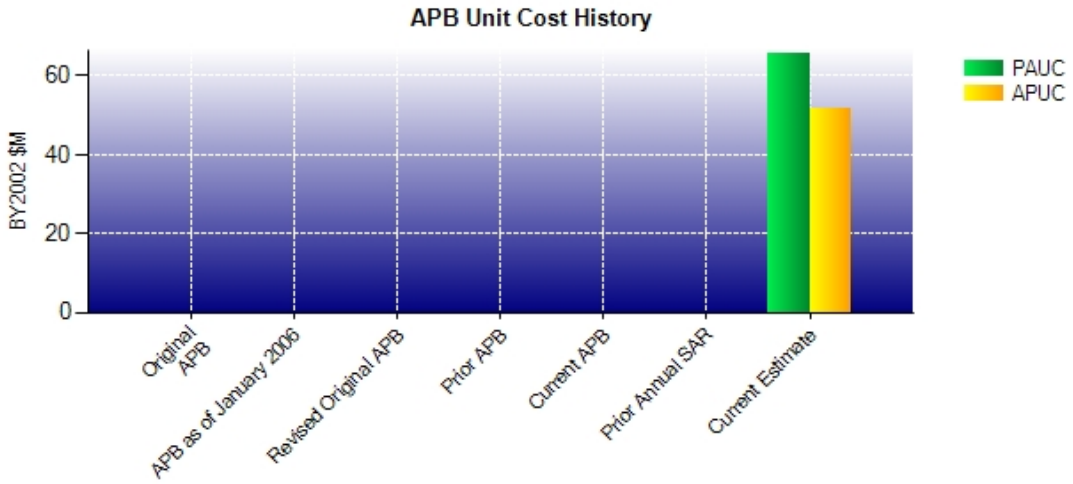
Unit Cost

Unit Cost Report

	BY2002 $M		
Unit Cost	**Current UCR Baseline (OCT 2001 APB)**	**Current Estimate (DEC 2002 SAR)**	**BY % Change**
Program Acquisition Unit Cost (PAUC)			
Cost	177100.0	161543.9	
Quantity	2866	2457	
Unit Cost	61.793	65.748	+6.40
Average Procurement Unit Cost (APUC)			
Cost	143300.0	125948.5	
Quantity	2852	2443	
Unit Cost	50.245	51.555	+2.61

	BY2002 $M		
Unit Cost	**Original UCR Baseline**	**Current Estimate (DEC 2002 SAR)**	**BY % Change**
Program Acquisition Unit Cost (PAUC)			
Cost		161543.9	
Quantity		2457	
Unit Cost		65.748	+0.00
Average Procurement Unit Cost (APUC)			
Cost		125948.5	
Quantity		2443	
Unit Cost		51.555	+0.00

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	N/A	N/A	N/A	N/A	N/A
Revised Original APB	N/A	N/A	N/A	N/A	N/A
Prior APB	N/A	N/A	N/A	N/A	N/A
Current APB	N/A	N/A	N/A	N/A	N/A
Prior Annual SAR	N/A	N/A	N/A	N/A	N/A
Current Estimate	DEC 2002	65.748	51.555	81.293	66.392

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	-3.237	2.367	1.084	1.091	0.185	0.000	-1.495	-0.005	81.293

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	-3.118	1.129	1.074	0.000	-0.123	0.000	-1.504	-2.542	66.392

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	APR 2012
IOC	TBD	APR 2010	N/A	APR 2010
Total Cost (TY $M)	24800.0	233000.0	N/A	199736.4
Total Quantity	N/A	2866	N/A	2457
Prog. Acq. Unit Cost (PAUC)	N/A	81.298	N/A	81.293

Cost Variance

Summary Then Year $M				
	RDT&E	Proc	MILCON	Total
SAR Baseline (Dev Est)	34400.0	196600.0	2000.0	233000.0
Previous Changes				
Economic	0.0	-4548.2	0.0	-4548.2
Quantity	0.0	0.0	0.0	0.0
Schedule	0.0	0.0	0.0	0.0
Engineering	0.0	0.0	0.0	0.0
Estimating	-8.5	+15.0	0.0	+6.5
Other	0.0	0.0	0.0	0.0
Support	0.0	0.0	0.0	0.0
Subtotal	-8.5	-4533.2	0.0	-4541.7
Current Changes				
Economic	-334.3	-3070.1	--	-3404.4
Quantity	--	-25434.9	--	-25434.9
Schedule	+39.2	+2623.7	--	+2662.9
Engineering	+2427.8	--	+252.8	+2680.6
Estimating	+763.3	-315.9	--	+447.4
Other	--	--	--	--
Support	--	-3673.5	--	-3673.5
Subtotal	+2896.0	-29870.7	+252.8	-26721.9
Adjustments	0.0	0.0	-2000.0	-2000.0
Total Changes	+2887.5	-34403.9	-1747.2	-33263.6
CE - Cost Variance	37287.5	162196.1	252.8	199736.4
CE - Cost & Funding	37287.5	162196.1	252.8	199736.4

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	0.0	0.0	0.0	0.0
Quantity	0.0	0.0	0.0	0.0
Schedule	0.0	0.0	0.0	0.0
Engineering	0.0	0.0	0.0	0.0
Estimating	+90.9	+1839.7	0.0	+1930.6
Other	0.0	0.0	0.0	0.0
Support	0.0	0.0	0.0	0.0
Subtotal	+90.9	+1839.7	0.0	+1930.6
Current Changes				
Economic	--	--	--	--
Quantity	--	-16249.1	--	-16249.1
Schedule	0.0	0.0	--	0.0
Engineering	+2231.0	--	+227.3	+2458.3
Estimating	+746.2	-347.0	--	+399.2
Other	--	--	--	--
Support	--	-2595.1	--	-2595.1
Subtotal	+2977.2	-19191.2	+227.3	-15986.7
Adjustments	0.0	0.0	-1500.0	-1500.0
Total Changes	+3068.1	-17351.5	-1272.7	-15556.1
CE - Cost Variance	35368.1	125948.5	227.3	161543.9
CE - Cost & Funding	35368.1	125948.5	227.3	161543.9

Previous Estimate: December 2001

RDT&E	$M	
Current Change Explanations	**Base Year**	**Then Year**
Revised escalation indices. (Economic)	N/A	-334.3
Adjustment for Current and Prior Inflation. (Estimating)	-6.7	-5.1
Impact of schedule delays in GE F136 Engine Program. (Schedule)	0.0	+39.2
Addition of International Commonality Effort (ICE). (Engineering)	+1183.9	+1270.0
Refined planned GE engine program to optimize F135/F-136 engine interchangeability. (Engineering)	+1047.1	+1157.8
Revised SDD estimating methodology reflecting transition from parametric modeling to bottom-up estimate of definitive requirements. (Estimating)	+471.7	+451.4
Revised estimate of OPTEVFOR Testing and GE Engine testing at Arnold Engineering Development Center. (Estimating)	+281.2	+317.0
RDT&E Subtotal	+2977.2	+2896.0

Procurement	$M	
Current Change Explanations	**Base Year**	**Then Year**
Revised escalation indices. (Economic)	N/A	-4958.4
Economic adjustment for negative program change. (Economic)	N/A	+1888.3
Change in costs associated with decrease of 409 DoN aircraft from 1089 to 680. (Quantity) (QR)	-16249.1	-25434.9
Schedule variance associated with decrease of 409 DoN aircraft from 1089 to 680 and lowered outyear rate. (Schedule)	0.0	+2623.7
Model refinements (Estimating)	-64.2	-33.1
Decrease in initial spares requirement associated with decrease of from 1089 DoN aircraft to 680 DoN aircraft. (Support) (QR)	-921.2	-1181.8
Reduced requirement for Peculiar Support Equipment (PSE) and other Weapons' System Support Cost due to reduced DoN quantity (Support) (QR)	-1956.7	-2774.5
Correction to align Flyaway and Support Costs. (Subtotal)	0.0	0.0
(Support)	+282.8	+282.8
(Estimating)	-282.8	-282.8
Procurement Subtotal	-19191.2	-29870.7

(QR) Quantity Related

MILCON	$M	
Current Change Explanations	**Base Year**	**Then Year**
Project established for test facility at Edwards AFB and for inital USAF operational sites. (Engineering)	+204.0	+228.4
Project established for test facility at NAS Pax River. (Engineering)	+23.3	+24.4
MILCON Subtotal	+227.3	+252.8

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	19041.5	N/A	14	19041.5	19041.5

	Cost Variance	Schedule Variance
Previous Cumulative Variances	--	--
Cumulative Variances To Date	+25.5	-40.7
Net Change	+25.5	-40.7

Cost And Schedule Variance Explanations

The cumulative cost variance is primarily due to the efficiencies recorded by the Vehicle Systems IPT suppliers and staffing shortfalls in the Mission Systems IPT suppliers as well as unexpected efficiencies in Program Integration.

The cumulative schedule variance is primarily due to prime and supplier staffing shortfalls and a late start up in mission systems and vehicle systems requirements development, airframe loads analysis, and airframe layout activities in the Air Vehicle IPT.

Contract Comments

"Current Contract Price" increase from the "Initial Contract Price" reflects a contract modification for International Commonality Effort which includes trade studies for development of a partner version and associated development work.

Appropriation: RDT&E	
Contract Name	**Propulsion JSF F135 SDD**
Contractor	Pratt and Whitney
Contractor Location	East Hartford , CT 06057
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	4827.8	N/A	33	4827.8	4827.8

	Cost Variance	Schedule Variance
Previous Cumulative Variances	--	--
Cumulative Variances To Date	+13.0	-9.0
Net Change	+13.0	-9.0

Cost And Schedule Variance Explanations

The cumulative cost variance is due to efficiencies in lift fan, STOVL exhaust duct, product assurance and engine system integration.

The cumulative schedule variance is driven by Turbine Exhaust Case augmentor design and redesigns for roll post, lift fan and clutch.

Contract Comments

None

Appropriation: RDT&E	
Contract Name	**GE F136 Phase IIIb**
Contractor	General Electric
Contractor Location	Cincinnati , OH 45215
Contract Number, Type	N00019-96-C-0176, CPAF
Award Date	November 13, 2001
Definitization Date	November 13, 2001

Initial Contract Price ($M)			Current Contract Price ($M)			Estimated Price At Completion ($M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
411.0	N/A	0	425.5	N/A	0	425.5	425.5

	Cost Variance	Schedule Variance
Previous Cumulative Variances	--	--
Cumulative Variances To Date	+6.2	-3.9
Net Change	+6.2	-3.9

Cost And Schedule Variance Explanations

The cumulative cost variance is due to contractor efficiency in selected cost accounts; work is being accomplished with fewer resources than originally estimated.

The cumulative schedule variance is due to design complexity, the requirement to iterate the overall engine design concept and a shortage of engineering manpower. The manpower issues in general have been resolved, although some shortfalls exist in specific skill areas.

Contract Comments

The F136 contract price increased from $411M to $425M to add scope to the contract to support engine interchangeability and autonomic logistics analysis.

Deliveries and Expenditures

Deliveries To Date	Plan	Actual	Total Quantity	Percent Delivered
Development	0	0	14	0.00%
Production	0	0	2443	0.00%
Total Program Quantities Delivered	0	0	2457	0.00%

Expenditures and Appropriations (TY $M)			
Total Acquisition Cost	199736.4	Years Appropriated	10
Expenditures To Date	6033.0	Percent Years Appropriated	30.30%
Percent Expended	3.02%	Appropriated to Date	9805.6
Total Funding Years	33	Percent Appropriated	4.91%

Operating and Support Cost

Assumptions and Ground Rules

The JSF 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 JSF O&S estimate is based on F-18C, F-16C, and AV-8B history.

JSF O&S costs shown in comparison with the antecedent system reflect cost-per-flying-hour for the JSF CTOL variant only. The CTOL variant will make up the majority of the JSF aircraft DoD buy, 1,763 of the 2,443 total. The O&S differences between JSF CTOL and F-16 are representative of the comparisons across legacy fleets.

JSF CTOL costs reflect 24-aircraft squadrons operating at 300 flying hours per aircraft per year. F-16 costs have been normalized to the same groundrules as were used in estimating the JSF CTOL costs. The F-16 costs are reconciled numbers developed in a joint effort by the JSF Program Office and the Air Force, and reflected in JSF Milestone B briefings in Fall 2001.

"Total O&S Cost" below reflects the O&S costs for all three variants based on an estimated 8000 hour aircraft service life. A comparable number for antecedent systems is not available.

Costs BY2002 $M

Cost Element	JSF Cost per Flying Hour ($BY02)	F-16C/D Cost per Flying Hour ($BY02)
Mission Pay & Allowance	3289	5233
Unit Level Consumption	3295	3507
Intermediate Maintenance	0	3
Depot Maintenance	399	293
Contractor Support	0	44
Sustaining Support	861	627
Indirect	1301	2329
Other	--	--
Total Unitized Cost (Base Year 2002 $)	9145	12036

Total O&S Costs $M	JSF	F-16C/D
Base Year	130136.0	--
Then Year	332028.0	--

Defense Acquisition Management
Information Retrieval
(DAMIR)

Selected Acquisition Report (SAR)

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

F-35 (JSF)

As of December 31, 2003

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Program Information

Designation And Nomenclature (Popular Name)

F-35 Joint Strike Fighter (JSF)

DoD Component

DoD

Joint Participants

USAF; USN; USMC; DARPA; United Kingdom; Norway; Denmark; the Netherlands; Canada; Italy; Turkey; Australia

The JSF Program is a joint DoD 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.

Responsible Office

Responsible Office

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Suite 600
Arlington, VA 22202-3402
john.hudson@jsf.mil

Phone 703-602-7640
Fax 703-602-7649
DSN Phone 332-7640
DSN Fax --

Date Assigned October 26, 2001

References

SAR Baseline (Development Estimate)

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

Approved APB

DAE Approved Acquisition Program Baseline (APB) dated March 17, 2004

Mission and Description

The F-35 Joint Strike Fighter (JSF) Program will develop and field an affordable, highly common family of next-generation strike fighter aircraft for the United States Navy, Air Force, Marine Corps and allies. The carrier suitable variant of the JSF will provide the Navy a multi-role, stealthy strike fighter aircraft to complement the F/A-18E/F. The Air Force variant will be a multi-role aircraft, primary-air-to-ground, to replace the F-16 and A-10 (Service intent) and complement the F-22. The Short Takeoff and Vertical Landing (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 Sea Harrier and GR-7 for the United Kingdom Royal Navy and Royal Air Force. The cornerstone of the JSF Program is affordability -- reducing the development cost, production cost, and cost of ownership of the JSF family of aircraft. The program was structured from the beginning to be a model of acquisition reform, with an emphasis on jointness, technology maturation and concept demonstrations, and early cost and performance trades integral to the weapon system requirements definition process.

Executive Summary

The Department of Defense established the F-35 Joint Strike Fighter Program, originally named Joint Advanced Strike Technology (JAST) Program, in 1993. It was created as the focal point for defining affordable next-generation strike weapon systems to replace aging Navy and Air Force tactical assets. Fiscal Year (FY) 1995 legislation merged the Defense Advanced Research Projects Agency (DARPA) Advanced Short Take-Off and Landing (ASTOVL) program with the then-JAST Program. The United Kingdom became a Collaborative Partner in 1995, extending a collaboration begun under the DARPA ASTOVL program. Denmark, Norway, the Netherlands, Canada, and Italy also became partners in the Concept Demonstration Phase (CDP), with Turkey, Singapore, and Israel as Foreign Military Sales customers.

Facilitated by the JSF Program Office, the Services evolved weapon system requirements based on extensive cost and performance trades emphasizing Cost As an Independent Variable (CAIV). The process culminated in the Services' Joint Operational Requirements Document in March 2000, revalidated by the Joint Requirements Oversight Council (JROC) in October 2001.

The Concept Demonstration Phase commenced in November 1996 with competitive contract awards to Boeing and Lockheed Martin for Concept Demonstration Programs, with Pratt and Whitney providing propulsion hardware and engineering support. The competing contractors conducted concept-unique ground demonstrations; continued refinement of the weapon system concepts that they proposed for Systems Development and Demonstration (SDD) and Production; and built and flew concept demonstrator aircraft. Contractor flight demonstrations commenced in September 2000 and completed in August 2001. Flight test results met or exceeded expectations, to an unprecedented degree in many cases. The UK became a cooperative partner for SDD in 2001.

A Milestone B Defense Acquisition Board (DAB) review was held on October 24, 2001. On October 25, 2001 the Secretary of Defense provided certification to congress (in accordance with Section 212 of the FY 2001 Defense Authorization Act) that the JSF program successfully completed the CDP exit criteria and demonstrated sufficient technical maturity to enter SDD. On 26 October SDD contracts were awarded to Lockheed Martin and Pratt and Whitney. General Electric continues technical efforts related to development of a second engine source for competition in production. In 2002 the other CDP partners joined the SDD cooperative partnership, as did Turkey and Australia.

Significant technical milestones completed in the past year (year 2 of SDD) include the following: Air System Preliminary Design Review; Propulsion Critical Design Reviews (CDRs) for Pratt and Whitney and General Electric; and Pratt and Whitney's First Engine to Test. Propulsion, vehicle systems, mission systems and integrated testing development are on schedule and performing well. Additional time is needed to mature the airframe design to address projected performance issues that emerged during the past year. Consequently, the FY 2005 President's Budget request reflects extension of the SDD schedule, additional SDD funding, and a one-year delay (to FY 2007) for the start of Low Rate Initial Production (LRIP). The Department is finalizing the details of a program replan to include upfront focus on ensuring STOVL viability for the warfighters, aggressive pursuit of trade studies to improve performance by reducing weight, aggressive pursuit of propulsion enhancements to improve performance, and recognition that FY 2007 is the optimum time to begin JSF LRIP. The objective is to ensure all variants can comply with the performance requirements to the greatest extent possible. Additionally, the Department has chartered an

independent review team to assess the program's overall status and risks and make recommendations.

The schedule delay and associated cost increases contributed to a Nunn-McCurdy Unit Cost breach to the prior Acquisition Program Baseline (APB). Pursuant to Section 2433, Title 10, United States Code, the Secretary of the Navy notification to Congress is in process. Details of the major cost growth drivers are provided in Section 12. The Under Secretary of Defense for Acquisition, Technology and Logistics [USD (AT&L)] approved a revised APB on March 17, 2004.

Israel became a Security Cooperative Partner in 2003 for case specific scope outside the cooperative partnership. A similar agreement with Singapore is in progress.

Threshold Breaches

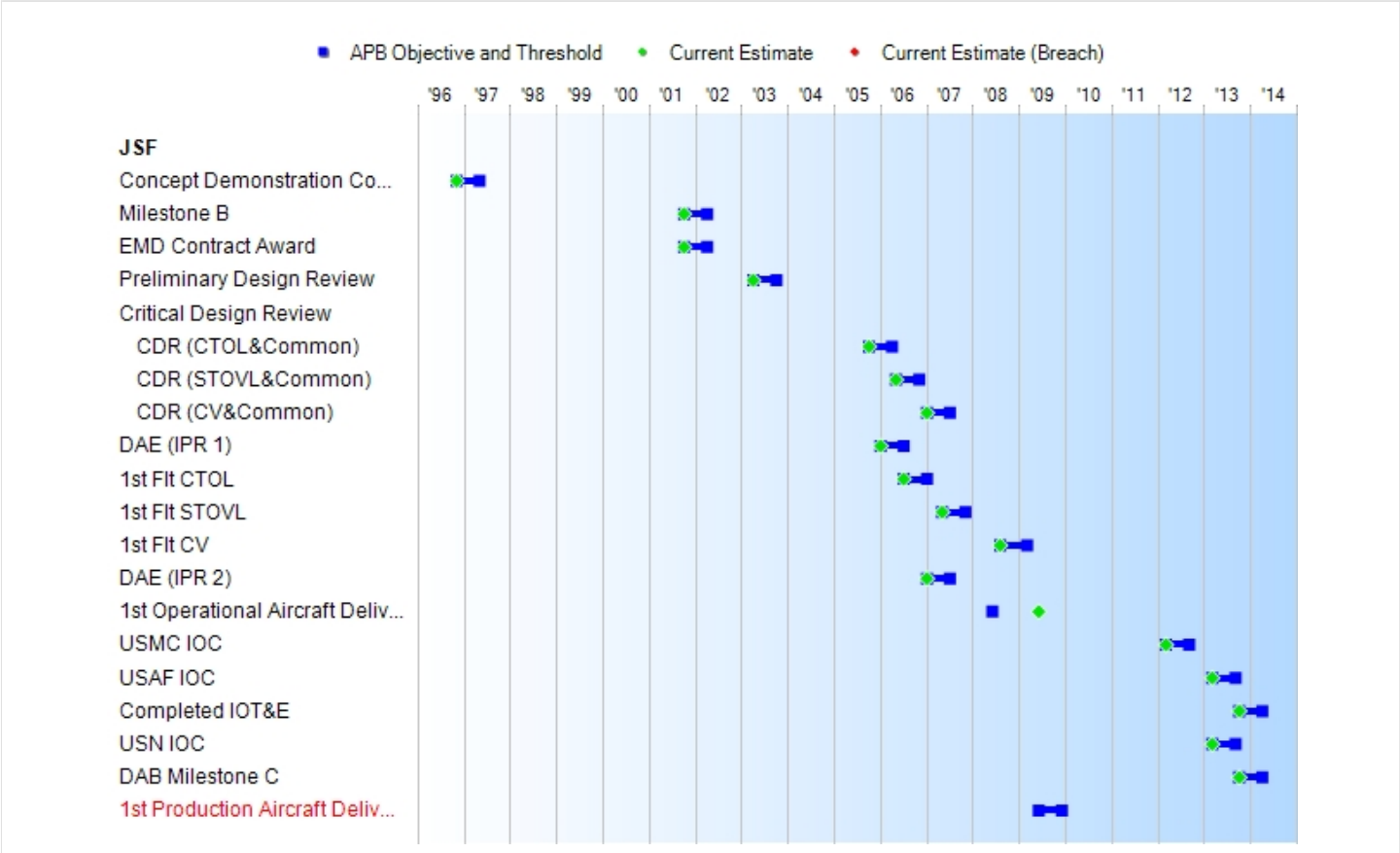
APB Breaches		
Schedule		☑
Performance		☐
Cost	RDT&E	☐
	Procurement	☐
	MILCON	☐
	Acq O&M	☐
Unit Cost	PAUC	☐
	APUC	☐

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

Explanation of Breach

The F-35 JSF Program breached the Program Acquisition Unit Cost (PAUC) by 19.4% and Average Procurement Unit Cost (APUC) by 18.7%. The JSF PAUC and APUC increases were primarily due to: a revised estimate for completion of the General Electric (GE) F136 engine development, including additional components and tests to enhance interchangibility with the Pratt and Whitney F135 engine; SDD schedule extension for additional design maturation and known and unknown risks (including anti-tamper); procurement labor and overhead rate increases; procurement configuration update and refined support requirement definitions; a one-year production delay, revised LRIP buy profile, and associated increases due to changes in learning curve assumptions, labor rates, and supplier confidence cost assumptions; and the result of delaying the multi-year procurement from FY 2012 to 2014. Pursuant to Section 2433, Title 10, United States Code, the Secretary of the Navy notification to Congress is in process. Additional information regarding the increased cost is contained in Section 12 of this report. The Under Secretary of Defense for Acquisition, Technology and Logistics (USD AT&L) approved a revised APB on March 17, 2004.

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 '13 '14
JSF
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 Operational Aircraft Deliv...
USMC IOC
USAF IOC
Completed IOT&E
USN IOC
DAB Milestone C
1st Production Aircraft Deliv...

Milestones	SAR Baseline Dev Est	Current APB Development Objective/Threshold		Current Estimate
Concept Demonstration Contract Award	NOV 1996	NOV 1996	MAY 1997	NOV 1996
Milestone B	OCT 2001	OCT 2001	APR 2002	OCT 2001
EMD Contract Award	OCT 2001	OCT 2001	APR 2002	OCT 2001
Preliminary Design Review	APR 2003	APR 2003	OCT 2003	APR 2003
Critical Design Review				
CDR (CTOL&Common)	APR 2004	OCT 2005	APR 2006	OCT 2005
CDR (STOVL&Common)	OCT 2004	MAY 2006	NOV 2006	MAY 2006
CDR (CV&Common)	JUL 2005	JAN 2007	JUL 2007	JAN 2007
DAE (IPR 1)	APR 2005	JAN 2006	JUL 2006	JAN 2006
1st Flt CTOL	NOV 2005	JUL 2006	JAN 2007	JUL 2006
1st Flt STOVL	APR 2006	MAY 2007	NOV 2007	MAY 2007
1st Flt CV	JAN 2007	AUG 2008	MAR 2009	AUG 2008
DAE (IPR 2)	APR 2006	JAN 2007	JUL 2007	JAN 2007
1st Operational Aircraft Delivered	JUN 2008	N/A	N/A	JUN 2009
USMC IOC	APR 2010	MAR 2012	SEP 2012	MAR 2012
USAF IOC	JUN 2011	MAR 2013	SEP 2013	MAR 2013
Completed IOT&E	MAR 2012	OCT 2013	APR 2014	OCT 2013
USN IOC	APR 2012	MAR 2013	SEP 2013	MAR 2013
DAB Milestone C	APR 2012	OCT 2013	APR 2014	OCT 2013
1st Production Aircraft Delivered	N/A	JUN 2009	DEC 2009	**N/A** [1]

[1] **APB Breach**

Change Explanations

None

Memo

Acronym and Abbreviation List:

CTOL - Conventional Takeoff and Landing
STOVL - Short Takeoff and Vertical Landing
CV - Aircract Carrier
DAE - Defense Acquisition Executive
EMD - Engineering, Manufacturing and Development
IOT&E - Initial Operational Testing and Evaluation
IPR - Interim Progress Review
USMC - United States Marine Corps
USN - United States Navy
USAF - United States Air Force

Performance

Characteristics	SAR Baseline Dev Est	Current APB Development 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	Execute 550 ft. STO with 4 JDAM (2 external & 2 internal), 2 AIM-120 (internal), fuel to fly 550nm	Execute 550 ft. STO with 2 JDAM (internal), 2 AIM-120 (internal), fuel to fly 450nm	TBD	Execute 550 ft. STO with 2 JDAM (internal), 2 AIM-120 (internal), fuel to fly 450nm
Combat Radius NM - CTOL Variant	690	690	590	TBD	639
Combat Radius NM - STOVL Variant	550	550	450	TBD	452
Combat Radius NM -CV Variant	730	730	600	TBD	759
Internal Weapons Carriage - CTOL Variant	Sufficient bay volume to load, c arry & employ objective Annex A weapons	Sufficient bay volume to load, carry & employ objective Annex A weapons	Sufficient bay volume to load, carry & employ threshold Annex A weapons	TBD	Sufficient bay volume to load, carry & employ objective Annex A weapons
Internal Weapons Carriage - STOVL Variant	Sufficient bay volume to load, c arry & employ objective Annex A weapons	Sufficient bay volume to load, carry & employ objective Annex A weapons	Sufficient bay volume to load, carry & employ threshold Annex A weapons	TBD	Sufficient bay volume to load, carry & employ objective Annex A weapons
Internal Weapons Carriage - CV Variant	Sufficient bay volume to load, c arry & employ objective Annex A weapons	Sufficient bay volume to load, carry & employ objective Annex A weapons	Sufficient bay volume to load, carry & employ threshold Annex A weapons	TBD	Sufficient bay volume to load, carry & employ objective Annex A weapons
Radio Frequency (RF) Signature	See Classified Extract	See Classified Extract	See Classified Extract	TBD	Classified
Logistic Footprint -CTOL Variant	Less than or equal to 6 C-17 equivalent	Less than or equal to 6 C-17	Less than or equal to 8 C-17 equivalent	TBD	Less than or equal to 6.4 C-17

	loads	equivalent loads	loads		equivalent loads
Logistic Footprint -CV Variant	Less than or equal to 46,000 cu ft, 183 Short Tons	Less than or equal to 34,000 cu ft, 183 Short Tons	Less than or equal to 46,000 cu ft, 243 Short Tons	TBD	Less than or equal to 15,413 cu ft, 131 Short Tons
Logistic Footprint -STOVL Variant	Less than or equal to 4 C-17 equivalent loads	Less than or equal to 4 C-17 equivalent loads	Less than or equal to 8 C-17 equivalent loads	TBD	Less than or equal to 4.6 C-17 equivalent loads cu ft, 131 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	4/day initial surge; 3/day sustained surge; 2/day Wartime Sustained based on ASD of 2.5	3/day initial surge; 2/day sustained surge; 1/day Wartime Sustained based on ASD of 2.5	TBD	3.7/day initial surge; 2/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	4/day initial surge; 3/day sustained surge; 1/day Wartime Sustained based on ASD of 1.8	3/day initial surge; 2/day sustained surge; 1/day Wartime Sustained based on ASD of 1.8	TBD	4.3/day initial surge; 2/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	6/day initial surge; 4/day sustained surge; 2/day Wartime Sustained based on ASD of 1.1	4/day initial surge; 3/day sustained surge; 1/day Wartime Sustained based on ASD of 1.1	TBD	6.4/day initial surge; 3/day sustained surge; 1/day Wartime Sustained based on ASD of 1.1
Interoperability	100% of all top level IE Rs	100% of all top level IERs	100% of critical top level IERs	TBD	100% of critical top level IERs
Mission Reliability	98% for all variants at ASD's listed in Table 13	98% for all variants at ASD's listed in Table 13	95% for CV & STOVL & 93% for CTOL at ASD's listed in Table 13.	TBD	98.6% for CV, 99.0 % for STOVL & 98.5% for CTOL at ASDs listed

					in Table
CV Recovery Performance, Approach Speed	Max approach speed (Vpa) at Required Carrier Landing Weight (RCLW) of less than 140 kts	Max approach speed (Vpa)at Required Carrier Landing Weight (RCLW) of less than 140 kts	Max approach speed (Vpa) at Required Carrier Landing Weight (RCLW) of less than 145 kts w/15 kts WOD at RCLW	TBD	Max approach speed (Vpa) at Required Carrier Landing Weight (RCLW) of less than 144.3 kts w/15 kts WOD at RCLW

Change Explanations

None

Memo

Acronym and Abbreviation List:

ASD - Average Sortie Duration
CTOL - Conventional Takeoff and Landing
STOVL - Short Takeoff and Vertical Landing
CV - Aircraft Carrier
IER - Information Exchange Requirement
JDAM - Joint Direct Attack Munitions
NM - Nautical Miles
RCLW - Required Carrier Landing Weight
TBD - To be determined
Vpa - Maximum Approach Speed
WOD - Wind Over the Deck

The Current Estimate reflects the government assessment based on Lockheed Martin's planned 240-2.2 configuration and December 2003 Bottom-Up Weight #4 projections for Initial Operational Capability (IOC). IOC weight projections include anticipated weight savings, identified potential weight increases, and a 3% growth factor based on legacy aircraft experience. The weight projections were reviewed and risk-weighted by a team of subject matter experts. As of 5 February 2004, projected weights exceed IOC targets (in pounds) as follows: CTOL +1479, STOVL +2350, and CV +1372.

Recognizing the currently projected STOVL weight overage of 2350 pounds, the Current Estimate for STOVL Mission Performance (i.e., execute 550' Short Take-off with stated weapons and fuel load) reflects a realization of improved performance through the following: (1) maximize weight reduction from design improvements (2) optimize installed thrust efficiencies; (3) minimize realization of known weight growth threats (4) minimize weight growth from Critical Design Review to IOC (i.e., lower than historical average); and (5) optimize Concept of Operations and techniques.

Some non-KPP threshold requirements will not be met for all variants. Program acquisition leadership will continue to work with the Service warfighters and the prime contractor to optimize the performance of the JSF aircraft and gain margin in critical areas.

Change Explanations:

The Current Estimate changed from the December 2002 SAR as follows due to design maturation:

Track To Budget

RDT&E		
APPN 0400	PE 0603800E	(DoD)
	RDT&E, DARPA	
APPN 3600	PE 0603800F	(Air Force)
	RDT&E, Air Force CDP	
APPN 1319	PE 0603800N	(Navy)
	RDT&E, Navy CDP	
APPN 3600	PE 0604800F	(Air Force)
	RDT&E, Air Force EMD	
APPN 1319	PE 0604800N	(Navy)
	RDT&E, Navy EMD	

Procurement		
APPN 3010	(Air Force)	ICN 0207142F
APPN 1506	(Navy)	ICN 0214146N

MILCON		
APPN 1205	PE 0204146N	(Navy)
	MILCON, USN	
APPN 3300	PE 0207142F	(Air Force)
	MILCON, AF	

General Memo

In addition to the above DoD funding lines, eight other countries are partners with the US and providing funding in the System Development and Demonstration (SDD) Phase: United Kingdom (Level 1); Italy and the Netherlands (Level II); and Turkey, Canada, Australia, Denmark, and Norway (Level III). All but Turkey and Australia were also partners in the prior phase. Associated financial contributions are reflected in Section 16. JSF is DoD's largest cooperative development program.

Cost and Funding

Cost Summary

Total Acquisition Cost and Quantity

	BY2002 $M				TY $M		
Appropriation	SAR Baseline Dev Est	Current APB Development Objective/Threshold		Current Estimate	SAR Baseline Dev Est	Current APB Development Objective	Current Estimate
RDT&E	32300.0	42100.0	46310.0	42032.8	34400.0	44800.0	44778.3
Procurement	143300.0	149500.0	164450.0	149403.6	196600.0	199900.0	199835.2
Flyaway	121215.5	--	--	--	166349.7	--	--
Recurring	116093.6	--	--	--	159390.4	--	--
Non Recurring	5121.9	--	--	6696.0	6959.3	--	8876.5
Support	22084.5	--	--	--	30250.3	--	--
Other Support	15403.5	--	--	--	21109.3	--	--
Initial Spares	6681.0	--	--	--	9141.0	--	--
MILCON	1500.0	1500.0	1700.0	196.5	2000.0	2000.0	220.8
Acq O&M	--	--	--	--	--	--	--
Total	177100.0	193100.0	N/A	191632.9	233000.0	246700.0	244834.3

Future cost updates will reflect Department leadership decisions on program replan refinements.

Since the Services have not yet fully established JSF basing plans, the Milestone B and approved APB MILCON estimates reflect a top-level parametric estimate, not discrete estimates for specific sites. The Current Estimate reflects specific MILCON requirements identified in the FY 2005 President's Budget Future Years Defense Program (FYDP). The MILCON Current Estimate will continue to be updated as additional specific MILCON requirements are identified in future budget submissions.

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

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

The October 2001 Milestone B procurement baseline for the Department of Navy (DoN) reflected 609 STOVL variants for United States Marine Corps (USMC) and 480 CV variants for UNited States Navy (USN) (DoN total of 1089). Subsequently, the DoN Navy/Marine Corps Tactical Aviation (TACAIR) Integration Plan reduced total JSF CV/STOVL procurement quantities to 680. The annual and total quantity mix (and definitive related procurement estimates), of STOVL and CV variants in FY 2007 and beyond remain to be determined pending further assessment by the Services. Procurement estimates will continue to be refined in future budget cycles.

JSF procurement cost reflects DoD cost only, but assumes the benefits of 150 UK aircraft anticipated but not formalized in a Memorandum of Understanding (MOU) for procurement.

The Low-Rate Initial Production (LRIP) aircraft quantity of 465 approved at Milestone B exceeded 10% of planned total production. This was necessary to meet Service Initial Operational Capability (IOC) requirements, prevent a break in production, and to ramp up to full rate production. The Defense Acquisition Executive (DAE) reaffirmed the LRIP quantity in the Milestone B Acquisition Decision Memorandum dated October 26, 2001. The LRIP quantity will be revised based on Department decisions on program replan options currently under review.

Funding Summary

Appropriation and Quantity Summary

FY2005 President's Budget / December 2003 SAR (TY$ M)

Appropriation	Prior	FY2004	FY2005	FY2006	FY2007	FY2008	FY2009	To Complete	Total
RDT&E	9679.5	4773.5	5328.2	5787.0	5191.2	4623.5	3472.7	5922.7	44778.3
Procurement	0.0	0.0	0.0	235.0	1876.6	4098.8	7375.5	186249.3	199835.2
MILCON	0.0	44.5	10.9	0.0	0.0	85.4	80.0	0.0	220.8
Acq O&M	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PB2005 Total	9679.5	4818.0	5339.1	6022.0	7067.8	8807.7	10928.2	192172.0	244834.3
PB2004 Total	9805.6	4933.5	5357.1	6548.9	7058.5	8763.3	10759.5	146510.0	199736.4
Delta	-126.1	-115.5	-18.0	-526.9	9.3	44.4	168.7	45662.0	45097.9

Quantity	Prior	FY2004	FY2005	FY2006	FY2007	FY2008	FY2009	To Complete	Total
Development	0	0	0	0	0	0	0	0	14
Production	0	0	0	0	8	24	58	2353	2443
PB2005 Total	0	0	0	0	8	24	58	2353	2457
PB2004 Total	0	0	0	10	22	49	82	2280	2457
Delta	0	0	0	-10	-14	-25	-24	73	0

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	--	--	--	--	--	--	722.9
2003	--	--	--	--	--	--	1661.5
2004	--	--	--	--	--	--	2159.2
2005	--	--	--	--	--	--	2264.5
2006	--	--	--	--	--	--	2493.8
2007	--	--	--	--	--	--	2281.8
2008	--	--	--	--	--	--	2086.4
2009	--	--	--	--	--	--	1615.6
2010	--	--	--	--	--	--	1275.6
2011	--	--	--	--	--	--	792.8
2012	--	--	--	--	--	--	414.1
2013	--	--	--	--	--	--	240.9
Subtotal	**7**	**--**	**--**	**--**	**--**	**--**	**19959.7**

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	--	--	--	--	--	--	32.6
1995	--	--	--	--	--	--	106.6
1996	--	--	--	--	--	--	85.7
1997	--	--	--	--	--	--	256.3
1998	--	--	--	--	--	--	468.1
1999	--	--	--	--	--	--	486.4
2000	--	--	--	--	--	--	242.4
2001	--	--	--	--	--	--	342.2
2002	--	--	--	--	--	--	718.2
2003	--	--	--	--	--	--	1631.4
2004	--	--	--	--	--	--	2091.8
2005	--	--	--	--	--	--	2163.0
2006	--	--	--	--	--	--	2343.8
2007	--	--	--	--	--	--	2106.3
2008	--	--	--	--	--	--	1888.8
2009	--	--	--	--	--	--	1433.8
2010	--	--	--	--	--	--	1109.7
2011	--	--	--	--	--	--	676.0
2012	--	--	--	--	--	--	346.1
2013	--	--	--	--	--	--	197.4
Subtotal	**7**	**--**	**--**	**--**	**--**	**--**	**18726.6**

Note: USN and USAF RDT&E funding in FY04 and subsequent is premised on use of a Special Termination Cost Clause (STCC) in JSF SDD contracts with Lockheed Martin and Pratt and Whitney effective FY 2004 through contracts completion.

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	--	--	--	--	--	--	720.1
2003	--	--	--	--	--	--	1612.8
2004	--	--	--	--	--	--	2092.5
2005	--	--	--	--	--	--	2307.4
2006	--	--	--	--	--	--	2489.8
2007	--	--	--	--	--	--	2203.4
2008	--	--	--	--	--	--	2051.9
2009	--	--	--	--	--	--	1686.7
2010	--	--	--	--	--	--	1315.6
2011	--	--	--	--	--	--	832.8
2012	--	--	--	--	--	--	454.0
2013	--	--	--	--	--	--	242.1
Subtotal	**7**	**--**	**--**	**--**	**--**	**--**	**19916.5**

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	--	--	--	--	--	--	90.9
1996	--	--	--	--	--	--	86.7
1997	--	--	--	--	--	--	265.0
1998	--	--	--	--	--	--	464.0
1999	--	--	--	--	--	--	470.7
2000	--	--	--	--	--	--	253.3
2001	--	--	--	--	--	--	342.2
2002	--	--	--	--	--	--	715.4
2003	--	--	--	--	--	--	1583.6
2004	--	--	--	--	--	--	2027.2
2005	--	--	--	--	--	--	2203.9
2006	--	--	--	--	--	--	2340.1
2007	--	--	--	--	--	--	2033.9
2008	--	--	--	--	--	--	1857.6
2009	--	--	--	--	--	--	1496.9
2010	--	--	--	--	--	--	1144.5
2011	--	--	--	--	--	--	710.2
2012	--	--	--	--	--	--	379.5
2013	--	--	--	--	--	--	198.4
Subtotal	**7**	**--**	**--**	**--**	**--**	**--**	**18664.0**

Note: USN and USAF RDT&E funding in FY04 and subsequent is premised on use of a Special Termination Cost Clause (STCC) in JSF SDD contracts with Lockheed Martin and Pratt and Whitney effective FY 2004 through contracts completion.

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	--	--	--	--	--	--	425.9
2004	--	--	--	--	--	--	521.8
2005	--	--	--	--	--	--	756.3
2006	--	--	--	--	--	--	803.4
2007	--	--	--	--	--	--	706.0
2008	--	--	--	--	--	--	485.2
2009	--	--	--	--	--	--	170.4
2010	--	--	--	--	--	--	186.2
2011	--	--	--	--	--	--	165.7
2012	--	--	--	--	--	--	2.9
Subtotal	**--**	**--**	**--**	**--**	**--**	**--**	**4784.1**

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	--	--	--	--	--	--	74.8
1998	--	--	--	--	--	--	80.6
1999	--	--	--	--	--	--	56.4
2000	--	--	--	--	--	--	35.1
2001	--	--	--	--	--	--	2.5
2002	--	--	--	--	--	--	304.4
2003	--	--	--	--	--	--	418.2
2004	--	--	--	--	--	--	505.5
2005	--	--	--	--	--	--	722.4
2006	--	--	--	--	--	--	755.1
2007	--	--	--	--	--	--	651.7
2008	--	--	--	--	--	--	439.3
2009	--	--	--	--	--	--	151.2
2010	--	--	--	--	--	--	162.0
2011	--	--	--	--	--	--	141.3
2012	--	--	--	--	--	--	2.4
Subtotal	**--**	**--**	**--**	**--**	**--**	**--**	**4517.8**

"Other RDT&E Funding" reflects financial conributions under international cooperative agreements with the following countries: United Kingdom, Canada, Denmark, the Netherlands, Norway, Italy, Turkey, and Australia.

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	--	--	--	--	--	--	71.8
1998	--	--	--	--	--	--	21.8
Subtotal	**--**	**--**	**--**	**--**	**--**	**--**	**124.4**

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
2006	--	--	--	--	--	--	61.6
2007	2	--	--	44.6	--	--	711.3
2008	16	--	--	206.8	--	--	2865.8
2009	40	--	--	203.9	--	--	5134.1
2010	31	--	--	214.8	--	--	3730.0
2011	34	--	--	222.0	--	--	3659.7
2012	39	--	--	175.0	--	--	3921.3
2013	47	--	--	223.3	--	--	4456.4
2014	55	--	--	199.5	--	--	4569.2
2015	55	--	--	198.8	--	--	4685.5
2016	55	--	--	198.9	--	--	4637.4
2017	55	--	--	199.6	--	--	4619.8
2018	55	--	--	204.9	--	--	4619.8
2019	57	--	--	209.2	--	--	4774.9
2020	57	--	--	211.1	--	--	4739.5
2021	46	--	--	174.2	--	--	3889.1
2022	36	--	--	141.4	--	--	3021.7
Subtotal	**680**	**--**	**--**	**3028.0**	**--**	**--**	**64097.1**

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
2006	--	--	--	--	--	--	57.2
2007	2	--	--	40.6	--	--	647.9
2008	16	--	--	184.7	--	--	2559.6
2009	40	--	--	178.5	--	--	4495.6
2010	31	--	--	184.4	--	--	3202.1
2011	34	--	--	186.8	--	--	3080.1
2012	39	--	--	144.4	--	--	3235.6
2013	47	--	--	180.6	--	--	3605.0
2014	55	--	--	158.2	--	--	3623.8
2015	55	--	--	154.6	--	--	3643.1
2016	55	--	--	151.6	--	--	3535.0
2017	55	--	--	149.2	--	--	3452.6
2018	55	--	--	150.1	--	--	3384.9
2019	57	--	--	150.3	--	--	3429.9
2020	57	--	--	148.7	--	--	3337.7
2021	46	--	--	120.3	--	--	2685.2
2022	36	--	--	95.7	--	--	2045.4
Subtotal	**680**	**--**	**--**	**2378.7**	**--**	**--**	**50020.7**

Cost Quantity Information
1506 | Procurement | Aircraft Procurement, Navy

Fiscal Year	Quantity	End Item Recurring Flyaway (Aligned with Quantity) BY 2002 $M
2006	--	--
2007	2	299.9
2008	16	1892.3
2009	40	3575.8
2010	31	2427.1
2011	34	2391.9
2012	39	2481.0
2013	47	2802.5
2014	55	2965.7
2015	55	2847.4
2016	55	2761.1
2017	55	2692.8
2018	55	2638.4
2019	57	2676.0
2020	57	2618.7
2021	46	2107.6
2022	36	1649.7
Subtotal	**680**	**38827.9**

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	--	--	--	--	--	--	173.4
2007	6	--	--	124.6	--	--	1165.3
2008	8	--	--	94.7	--	--	1233.0
2009	18	--	--	77.5	--	--	2241.4
2010	31	--	--	188.7	--	--	3468.3
2011	58	--	--	327.9	--	--	5537.2
2012	92	--	--	332.1	--	--	7725.1
2013	96	--	--	372.5	--	--	7652.1
2014	110	--	--	310.1	--	--	7692.5
2015	110	--	--	308.4	--	--	7922.4
2016	110	--	--	308.3	--	--	7856.3
2017	110	--	--	309.2	--	--	7842.3
2018	110	--	--	319.0	--	--	7838.9
2019	110	--	--	312.5	--	--	7842.7
2020	110	--	--	315.2	--	--	7843.3
2021	110	--	--	320.8	--	--	7940.8
2022	110	--	--	328.9	--	--	8089.2
2023	110	--	--	343.0	--	--	8373.6
2024	110	--	--	348.0	--	--	8481.6
2025	110	--	--	353.1	--	--	8547.3
2026	110	--	--	358.4	--	--	8252.6
2027	24	--	--	95.6	--	--	2018.8
Subtotal	**1763**	**--**	**--**	**5848.5**	**--**	**--**	**135738.1**

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	--	--	--	--	--	--	160.9
2007	6	--	--	113.5	--	--	1061.4
2008	8	--	--	84.6	--	--	1101.2
2009	18	--	--	67.9	--	--	1962.6
2010	31	--	--	162.0	--	--	2977.4
2011	58	--	--	276.0	--	--	4660.3
2012	92	--	--	274.0	--	--	6374.2
2013	96	--	--	301.3	--	--	6190.2
2014	110	--	--	245.9	--	--	6100.8
2015	110	--	--	239.8	--	--	6160.0
2016	110	--	--	235.0	--	--	5988.8
2017	110	--	--	231.1	--	--	5860.9
2018	110	--	--	233.7	--	--	5743.5
2019	110	--	--	224.5	--	--	5633.6
2020	110	--	--	222.0	--	--	5523.6
2021	110	--	--	221.5	--	--	5482.6
2022	110	--	--	222.6	--	--	5475.5
2023	110	--	--	227.6	--	--	5556.9
2024	110	--	--	226.4	--	--	5518.2
2025	110	--	--	225.2	--	--	5451.9
2026	110	--	--	224.1	--	--	5160.7
2027	24	--	--	58.6	--	--	1237.7
Subtotal	**1763**	**--**	**--**	**4317.3**	**--**	**--**	**99382.9**

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

Fiscal Year	Quantity	End Item Recurring Flyaway (Aligned with Quantity) BY 2002 $M
2006	--	--
2007	6	810.3
2008	8	828.4
2009	18	1465.5
2010	31	2186.9
2011	58	3587.3
2012	92	5064.5
2013	96	4935.1
2014	110	5119.7
2015	110	4932.4
2016	110	4792.8
2017	110	4683.9
2018	110	4593.9
2019	110	4505.1
2020	110	4413.5
2021	110	4378.9
2022	110	4369.1
2023	110	4436.4
2024	110	4405.8
2025	110	4354.4
2026	110	4227.7
2027	24	968.0
Subtotal	**1763**	**79059.6**

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

Fiscal Year	Total Program TY $M
2004	24.4
Subtotal	**24.4**

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

Fiscal Year	Total Program BY 2002 $M
2004	23.2
Subtotal	**23.2**

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

Fiscal Year	Total Program TY $M
2004	20.1
2005	10.9
2006	--
2007	--
2008	85.4
2009	80.0
Subtotal	**196.4**

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

Fiscal Year	Total Program BY 2002 $M
2004	19.1
2005	10.2
2006	--
2007	--
2008	75.1
2009	68.9
Subtotal	**173.3**

Low Rate Initial Production

None

Foreign Military Sales

None

Nuclear Cost

None

Unit Cost

Unit Cost Report

Unit Cost	BY2002 $M Current UCR Baseline (OCT 2001 APB)	BY2002 $M Current Estimate (DEC 2003 SAR)	BY2002 $M BY % Change
Program Acquisition Unit Cost (PAUC)			
Cost	177100.0	191632.9	
Quantity	2866	2457	
Unit Cost	61.793	77.995	**+26.22** [1]
Average Procurement Unit Cost (APUC)			
Cost	143300.0	149403.6	
Quantity	2852	2443	
Unit Cost	50.245	61.156	**+21.72** [1]

Unit Cost	BY2002 $M Original UCR Baseline	BY2002 $M Current Estimate (DEC 2003 SAR)	BY2002 $M BY % Change
Program Acquisition Unit Cost (PAUC)			
Cost		191632.9	
Quantity		2457	
Unit Cost		77.995	+0.00
Average Procurement Unit Cost (APUC)			
Cost		149403.6	
Quantity		2443	
Unit Cost		61.156	+0.00

Unit Cost	TY $M Current UCR Baseline (OCT 2001 APB)	TY $M Current Estimate (DEC 2003 SAR)	TY $M TY % Change
Program Acquisition Unit Cost (PAUC)			
Cost	233000.0	244834.3	
Unit Cost	81.298	99.648	+22.57
Average Procurement Unit Cost (APUC)			
Cost	196600.0	199835.2	
Unit Cost	68.934	81.799	+18.66

	TY $M		
Unit Cost	**Original UCR Baseline**	**Current Estimate (DEC 2003 SAR)**	**TY % Change**
Program Acquisition Unit Cost (PAUC)			
Cost		244834.3	
Unit Cost		99.648	+0.00
Average Procurement Unit Cost (APUC)			
Cost		199835.2	
Unit Cost		81.799	+0.00

[1] **Nunn-McCurdy Breach**

Unit Cost Breach Data

Changes from Previous SAR	$M/Qty.	Percent
PAUC (BY $M)	12.250	+18.63
APUC (BY $M)	9.600	+18.62
PAUC Quantity		0.00
PAUC (TY $M)	18.350	+22.58
APUC (TY $M)	15.410	+23.21

Initial SAR Information DEC 2001	BY2002 $M	TY $M
Program Aquisition Cost	177530.6	226458.3

Unit Cost PAUC Changes

The increase to the PAUC reported above includes programmatic increases. The percent changes in the PAUC reported above includes the following programmatic increases:

- Reduction of Department of Navy total CV/STOVL planned procurement quantity from 1089 aircraft to 680 aircraft in accordance with the TACAIR Integration Plan;
- Added RDT&E scope for design, development, verification, and test of the JSF partner configuration in accordance with SDD cooperative agreements signed after Milestone B and after award of the SDD contracts;
- Added procurement scope due to the Services' decision to procure the Electro-Optical Tracking System (EOTS) for each JSF aircraft instead one-third of production aircraft as planned at Milestone B.

The Nunn McCurdy determination of 19.4% is based on the following increases:

- Revised RDT&E estimate for completion of General Electric (GE) F136 engine development including additional components and test to enhance interchangeability with the Pratt and Whitney F135 engine;
- SDD schedule extension for additional design maturation and known and unknown risks (including anti-tamper);
- Procurement labor and overhead rate increases;
- Procurement configuration update and refined support requirements definitions;
- 1 year production delay, revised LRIP buy profile, and associated increases due to learning curves, rate, and supplier confidence cost factors;
- Multi-Year Procurement (MYP) delayed from FY 2012 to FY 2014.

Unit Cost APUC Changes

The Nunn McCurdy breach determination of 18.7% is based on the following increases:

- Procurement labor and overhead rate increases;
- Procurement configuration update and refined support requirement definitions;
- 1 year production delay, revised LRIP buy profile, and associated increases due to learning curves, rate, and supplier confidence cost factors;
- Multi-Year Procurement (MYP) delayed from FY 2012 to FY 2014.

Impact of Performance or Schedule Changes

-Delay of SDD first flights
-Delay of Low Rate Initial Production start by one year
-Delay of IOCs
-Revised procurement profiles
-Revised schedule milestones are included in the new APB and reflected in Section 9.

Program Management or Control

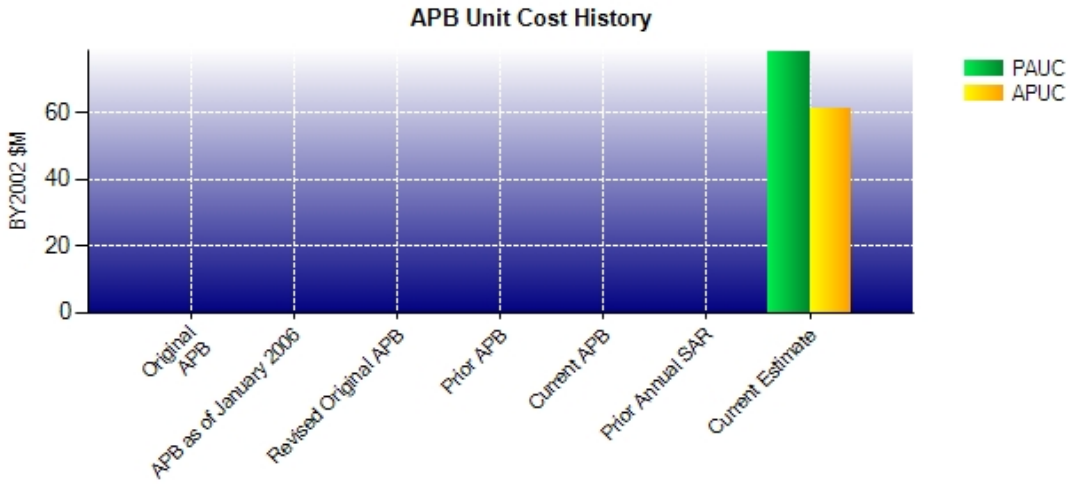
Program Manager - Major General John Hudson
Deputy Program Manager - Rear Admiral Steven Enewold

Cost Control Actions

For the FY 2005 President's Budget, JSF procurement funding was realigned to offset RDT&E shortfalls. The Department is finalizing the details of a program replan, and has chartered an independent review team to assess the program's overall status/risks and to make recommendations. A Defense Acquisition Board (DAB) review is planned for late Spring 2004. Subsequent to that review, the Lockheed Martin SDD contract will be modified to reflect the replan schedule and the associated Performance Measurement Baseline. The replan includes aggressive pursuit of trade studies to improve air system performance, and cost will be a factor in the trades. A revised APB was approved by the Under Secretary of Defense, Acquisition Technology and Logistics (USD AT&L) on March 17, 2004 with updated cost objectives and thresholds.

Nunn-McCurdy Comments

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	N/A	N/A	N/A	N/A	N/A
Revised Original APB	N/A	N/A	N/A	N/A	N/A
Prior APB	N/A	N/A	N/A	N/A	N/A
Current APB	N/A	N/A	N/A	N/A	N/A
Prior Annual SAR	N/A	N/A	N/A	N/A	N/A
Current Estimate	DEC 2003	77.995	61.156	99.648	81.799

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	-2.238	2.368	6.389	2.130	8.017	0.000	1.684	18.350	99.648

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	-2.113	1.129	3.342	1.045	7.768	0.000	1.694	12.865	81.799

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	OCT 2013
IOC	TBD	APR 2010	N/A	MAR 2012
Total Cost (TY $M)	24800.0	233000.0	N/A	244834.3
Total Quantity	N/A	2866	N/A	2457
Prog. Acq. Unit Cost (PAUC)	N/A	81.298	N/A	99.648

Cost Variance

Summary Then Year $M				
	RDT&E	Proc	MILCON	Total
SAR Baseline (Dev Est)	34400.0	196600.0	2000.0	233000.0
Previous Changes				
Economic	-334.3	-7618.3	0.0	-7952.6
Quantity	0.0	-25434.9	0.0	-25434.9
Schedule	+39.2	+2623.7	0.0	+2662.9
Engineering	+2427.8	0.0	+252.8	+2680.6
Estimating	+754.8	-300.9	0.0	+453.9
Other	0.0	0.0	0.0	0.0
Support	0.0	-3673.5	0.0	-3673.5
Subtotal	+2887.5	-34403.9	+252.8	-31263.6
Current Changes				
Economic	-4.6	+2456.3	+2.3	+2454.0
Quantity	--	--	--	--
Schedule	+7495.4	+5540.4	--	+13035.8
Engineering	--	+2553.1	--	+2553.1
Estimating	0.0	+19278.2	-34.3	+19243.9
Other	--	--	--	--
Support	--	+7811.1	--	+7811.1
Subtotal	+7490.8	+37639.1	-32.0	+45097.9
Adjustments	0.0	0.0	-2000.0	-2000.0
Total Changes	+10378.3	+3235.2	-1779.2	+11834.3
CE - Cost Variance	44778.3	199835.2	220.8	244834.3
CE - Cost & Funding	44778.3	199835.2	220.8	244834.3

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	0.0	0.0	0.0	0.0
Quantity	0.0	-16249.1	0.0	-16249.1
Schedule	0.0	0.0	0.0	0.0
Engineering	+2231.0	0.0	+227.3	+2458.3
Estimating	+837.1	+1492.7	0.0	+2329.8
Other	0.0	0.0	0.0	0.0
Support	0.0	-2595.1	0.0	-2595.1
Subtotal	+3068.1	-17351.5	+227.3	-14056.1
Current Changes				
Economic	--	--	--	--
Quantity	--	--	--	--
Schedule	+6664.2	+1359.5	--	+8023.7
Engineering	--	+1911.8	--	+1911.8
Estimating	+0.5	+14853.4	-30.8	+14823.1
Other	--	--	--	--
Support	--	+5330.4	--	+5330.4
Subtotal	+6664.7	+23455.1	-30.8	+30089.0
Adjustments	0.0	0.0	-1500.0	-1500.0
Total Changes	+9732.8	+6103.6	-1303.5	+14532.9
CE - Cost Variance	42032.8	149403.6	196.5	191632.9
CE - Cost & Funding	42032.8	149403.6	196.5	191632.9

Previous Estimate: December 2002

RDT&E	$M	
Current Change Explanations	**Base Year**	**Then Year**
Revised escalation indices. (Economic)	N/A	-4.7
Economic adjustment for negative program change. (Economic)	N/A	+0.1
SDD schedule extension for additional design maturation and known and unknown risks (including anti-tamper) (Schedule)	+6664.2	+7495.4
Adjustment for Current and Prior Inflation. (Estimating)	+2.7	+2.7
Model Refinements to the cost estimating refinements (Estimating)	-2.2	-2.7
RDT&E Subtotal	+6664.7	+7490.8

Procurement	$M	
Current Change Explanations	**Base Year**	**Then Year**
Revised escalation indices. (Economic)	N/A	+2456.3
Delay in procurement start from FY 2006 to FY 2007 and revised annual quantity profiles (Schedule)	+1359.5	+5540.4
Increased quantity procurement of Electro Optical Tracking System(EOTS) (Engineering)	+831.0	+1083.8
Multi-Year Procurement delayed from 2012 to 2014 due to production start delay and revised annual procurement profiles (Estimating)	+739.4	+904.7
Design maturation to reflect government assessment based on Lockheed Martin 240-2.2 configuration and December 2003 Bottom-Up Weight #4 (Engineering)	+1080.8	+1469.3
Revised Contractor Direct Labor and Overhead Rates (Estimating)	+10525.5	+13669.2
Learning curve impact of revised SDD and production schedules on prime contractors and subs and vendors (Estimating)	+3358.0	+4374.0
Increase in standard hardware and general equipment costs. (Estimating)	+230.5	+330.3
Increase due to aircraft configuration update, methodology changes, and refined definitions of support requirements (Support)	+5330.4	+7811.1
Procurement Subtotal	+23455.1	+37639.1

MILCON	$M	
Current Change Explanations	**Base Year**	**Then Year**
Revised escalation indices. (Economic)	N/A	+3.3
Economic adjustment for negative program change. (Economic)	N/A	-1.0
Adjustment for Current and Prior Inflation. (Estimating)	-0.2	-0.2
Refinements to USAF planning for initial operational sites (Estimating)	-30.6	-34.1
MILCON Subtotal	-30.8	-32.0

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	19673.4	N/A	14	19673.4	23673.4

	Cost Variance	Schedule Variance
Previous Cumulative Variances	+25.5	-40.7
Cumulative Variances To Date	-68.3	-227.0
Net Change	-93.8	-186.3
Percent Variance		
Percent Complete		

Cost And Schedule Variance Explanations

The net unfavorable change in cost variance is primarily due to Airframe efforts associated with the completed Blue Ribbon Action Team (BRAT) and Bottoms-up-weight (BUW)#1-4 activities. These efforts generated cost with no associated performance. Cost performance will continue to degrade as attempts to recover schedule are initiated.

The net unfavorable change in schedule variance is primarily due to delays in Airframe Build-to-Package (BTP) Design Maturation tasks and Tooling. Tooling continues behind schedule in the Center Fuselage, resulting in a delay in completion. Program replan alternatives are under review as discussed in previous sections of the report.

Contract Comments

"Current Contract Price" increase from the "Initial Contract Price" reflects several contract modifications. The recently awarded modification for development of a partner version accounts for 87% of the increase.

"Program Manager's Estimate at Completion" reflects SDD schedule extension and known risks. Estimate will be refined based on Department leadership decisions on program replan options currently under review.

Appropriation: RDT&E	
Contract Name	**Propulsion JSF F135 SDD**
Contractor	Pratt and Whitney
Contractor Location	East Hartford , CT 06057
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	4827.8	N/A	33	4827.8	4827.8

	Cost Variance	Schedule Variance
Previous Cumulative Variances	+13.0	-9.0
Cumulative Variances To Date	-7.1	-2.3
Net Change	-20.1	+6.7
Percent Variance		
Percent Complete		

Cost And Schedule Variance Explanations

The net unfavorable change in cost variance has deteriorated slightly due to rig testing and Engine Assembly difficulties associated with late hardware and instrumentation complexity.

The net favorable change in schedule variance improved with early delivery of the First Engine To Test (FETT).

Contract Comments

None

Appropriation: RDT&E	
Contract Name	**GE F136 Phase IIIb**
Contractor	General Electric
Contractor Location	Cincinnati , OH 45215
Contract Number, Type	N00019-96-C-0176, CPAF
Award Date	November 13, 2001
Definitization Date	November 13, 2001

Initial Contract Price ($M)			Current Contract Price ($M)			Estimated Price At Completion ($M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
411.0	N/A	0	454.4	N/A	0	453.4	453.4

	Cost Variance	Schedule Variance
Previous Cumulative Variances	+6.2	-3.9
Cumulative Variances To Date	+1.4	-5.5
Net Change	-4.8	-1.6
Percent Variance		
Percent Complete		

Cost And Schedule Variance Explanations

The net change in the positive cost variance is primarily due to additional design costs for the fan, tooling costs in transmissions and additional design work in Bearings and Mechanical systems.

The net change in the negative schedule variance is due to high value hardware items being slightly behind schedule, telemetry unit delays in manufacturing and a slow start to the instrumentation rework program in the Fan IPT. The items that are behind schedule are not on the critical path and therefore do no impact the First Engine Test milestone.

Contract Comments

The F136 contract price increased from $425M to $454M due to additional scope to the contract supporting augmentor and controls risk reduction efforts.

Deliveries and Expenditures

Deliveries To Date	Plan	Actual	Total Quantity	Percent Delivered
Development	0	0	14	0.00%
Production	0	0	2443	0.00%
Total Program Quantities Delivered	0	0	2457	0.00%

Expenditures and Appropriations (TY $M)			
Total Acquisition Cost	244834.3	Years Appropriated	11
Expenditures To Date	8935.5	Percent Years Appropriated	32.35%
Percent Expended	3.65%	Appropriated to Date	14497.5
Total Funding Years	34	Percent Appropriated	5.92%

Operating and Support Cost

Assumptions and Ground Rules

The JSF 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 JSF O&S estimate is based on F-18C, F-16C, and AV-8B history.

JSF O&S costs shown in comparison with the antecedent system reflect cost-per-flying-hour for the JSF CTOL variant only. The CTOL variant will make up the majority of the JSF aircraft DoD buy, 1,763 of the 2,443 total. The O&S differences between JSF CTOL and F-16 are representative of the comparisons across legacy fleets.

JSF CTOL costs reflect 24-aircraft squadrons operating at 300 flying hours per aircraft per year. F-16 costs have been normalized to the same groundrules as were used in estimating the JSF CTOL costs. The F-16 costs are reconciled numbers developed in a joint effort by the JSF Program Office and the Air Force, and reflected in JSF Milestone B briefings in Fall 2001.

"Total O&S Cost" ($ in Millions) below reflects the O&S costs for all three variants based on an estimated 8000 hour service life and predicted attrition and usage rates. A comparable number for antecedent systems is not available.

Costs BY2002 $M

Cost Element	JSF Cost per Flying Hour ($)	F-16C/D Cost per Flying Hour ($)
Mission Pay & Allowance	3289	5233
Unit Level Consumption	3624	3507
Intermediate Maintenance	0	3
Depot Maintenance	399	293
Contractor Support	0	44
Sustaining Support	861	627
Indirect	1301	2329
Other	--	--
Total Unitized Cost (Base Year 2002 $)	9474	12036

Total O&S Costs $M	JSF	F-16C/D
Base Year	134821.0	--
Then Year	343981.0	--

Defense Acquisition Management
Information Retrieval
(DAMIR)

Selected Acquisition Report (SAR)

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

F-35 (JSF)

As of December 31, 2004

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Program Information

Designation And Nomenclature (Popular Name)

Joint Strike Fighter Program

DoD Component

DoD

Joint Participants

USAF; USN; USMC; DARPA; United Kingdom; Norway; Denmark; the Netherlands; Canada; Italy; Turkey; Australia

The JSF Program is a joint DoD program in 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

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Date Assigned June 18, 2004

References

SAR Baseline (Development Estimate)

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

Approved APB

DAE Approved Acquisition Program Baseline (APB) dated March 17, 2004

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/A-22. The Short Takeoff and Vertical Landing (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 Sea Harrier and GR-7 for the United Kingdom Royal Navy and Royal Air Force, respectively. The CV will provide the Navy a multi-role, stealthy strike fighter aircraft to complement the F/A-18E/F. The cornerstone of the JSF Program is affordability -- reducing the development cost, production cost, and cost of ownership of the JSF family of aircraft. The program was structured from the beginning to be a model of acquisition reform, with an emphasis on jointness, technology maturation and concept demonstrations, and early cost and performance trades integral to the weapon system requirements definition process.

Executive Summary

The Department of Defense established the F-35 Joint Strike Fighter Program, originally named Joint Advanced Strike Technology (JAST) Program, in 1993. Fiscal Year (FY) 1995 legislation merged the Defense Advanced Research Projects Agency (DARPA) Advanced Short Take-Off and Landing (ASTOVL) program with the then-JAST Program. Facilitated by the JSF Program Office, the Services evolved weapon system requirements based on extensive cost and performance trades emphasizing Cost As an Independent Variable (CAIV). The process culminated in the Services' Joint Operational Requirements Document in March 2000, revalidated by the Joint Requirements Oversight Council (JROC) in October 2001. The Concept Demonstration Phase (CDP) commenced in November 1996 with competitive contract awards to Boeing and Lockheed Martin, with Pratt and Whitney providing propulsion hardware and engineering support. The Milestone B Defense Acquisition Board (DAB) review was held on October 24, 2001. On October 25, 2001 the Secretary of Defense provided certification to Congress (in accordance with Section 212 of the FY 2001 Defense Authorization Act) that the JSF program successfully completed the CDP exit criteria and demonstrated sufficient technical maturity to enter SDD. On October 26, 2001 SDD contracts were awarded to Lockheed Martin and Pratt and Whitney. General Electric continues technical efforts related to development of a second engine source for competition in production.

The F-35 Program has completed its third year of development. Manufacture and assembly of the initial flight test aircraft (Conventional Takeoff and Landing (CTOL) variant) are underway. Detailed design work continues for the production representative CTOL and STOVL variants. The program has aggressively addressed the performance issues associated with weight and airframe design identified in 2003. As of December 2004 the Short Takeoff and Vertical Landing (STOVL) variant weight has been reduced by 2700 pounds through design optimization. Installed thrust improvements, drag reduction and requirements tailoring are being incorporated to further improve aerodynamic performance. Many of the STOVL design improvements are expected to be applicable to the other variants also. All three variants are projected to meet Key Performance Parameter (KPP) requirements.

The Design Integration and Maturity Review (DIMR) was held in April 2004 to assess the design of the CTOL variant. Critical Design Reviews were conducted on all portions of the Air Vehicle design except for the airframe. The Department chartered an Independent Review Team (IRT) to assess the program's overall status and risks and make recommendations. The IRT completed its report in August, and the Department provided results to the congressional defense committees. Through mid-January 2005, the program completed 1975 test hours on 4 CTOL/CV and 3 STOVL F135 Pratt and Whitney propulsion systems, and 53 test hours on 1 CTOL/CV F136 General Electric Rolls Royce Fighter Engine Team engines. The F-35 Program is completing a replan effort that began in late 2003. DAB reviews in June and October 2004 assessed progress and endorsed the path forward. Final replan focus areas are the capability block plan, the test plan, and cost estimates. The FY 2006/2007 President's Budget request reflects SDD schedule refinements, a one-year delay to initial STOVL procurement (to FY 2008) and a revised procurement profile for all variants, consistent with replan requirements and the Services' priorities.

Cost, schedule and perfomance estimate changes from the prior SAR do not result from specific software changes. The capability block plan, including software, remains under review as part of the replan refinement, and will be included in the Spring 2005 DAB program assessment. Software impacts status will be reported in future SARs.

The F-35 remains the Department of Defense's largest cooperative program (see Section 4.a for partners). Israel and

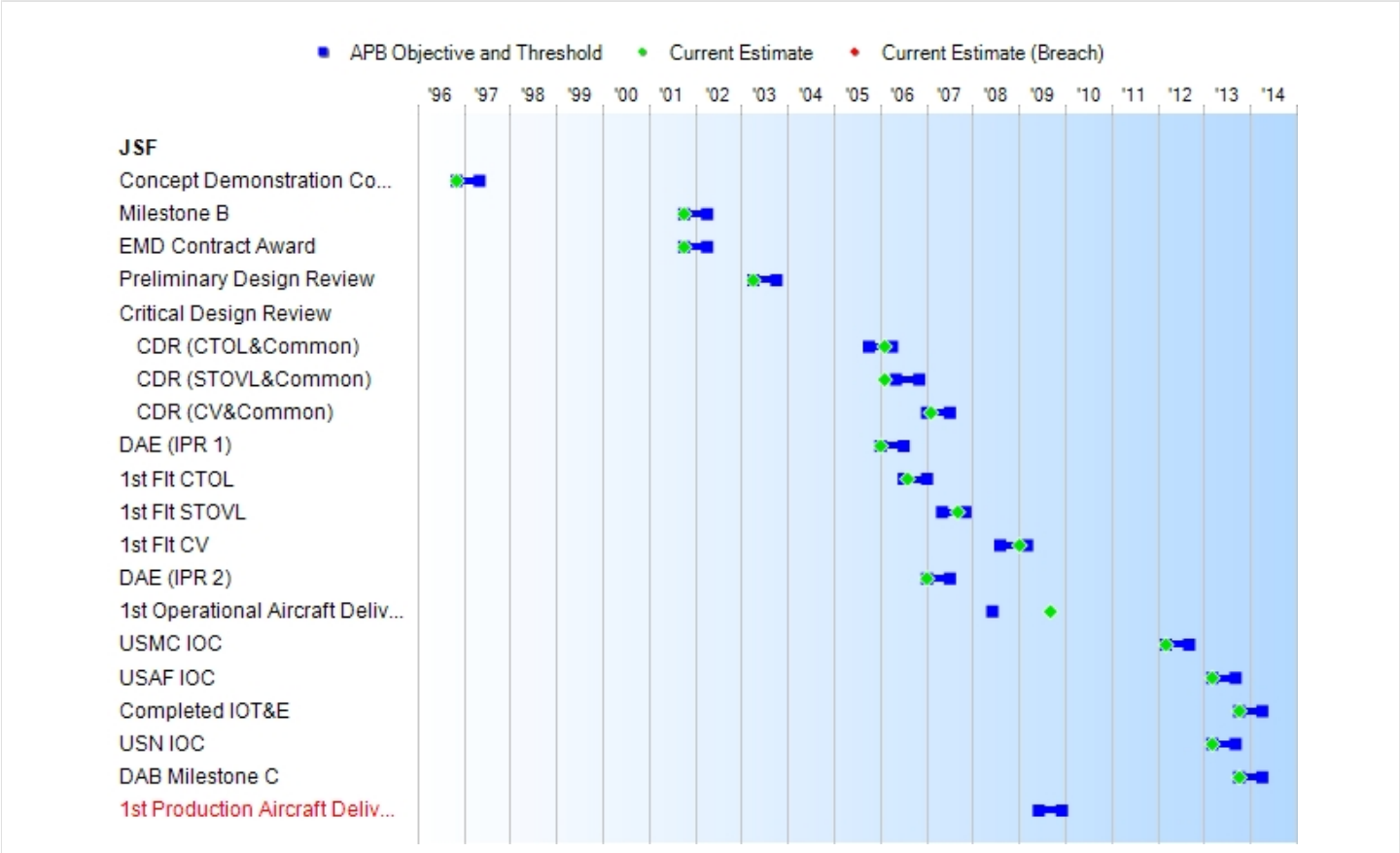
Singapore are Security Cooperation Participants with specific case scope outside the cooperative partnership.

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 '13 '14
JSF
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 Operational Aircraft Deliv...
USMC IOC
USAF IOC
Completed IOT&E
USN IOC
DAB Milestone C
1st Production Aircraft Deliv...

Milestones	SAR Baseline Dev Est	Current APB Development Objective/Threshold		Current Estimate
Concept Demonstration Contract Award	NOV 1996	NOV 1996	MAY 1997	NOV 1996
Milestone B	OCT 2001	OCT 2001	APR 2002	OCT 2001
EMD Contract Award	OCT 2001	OCT 2001	APR 2002	OCT 2001
Preliminary Design Review	APR 2003	APR 2003	OCT 2003	APR 2003
Critical Design Review				
CDR (CTOL&Common)	APR 2004	OCT 2005	APR 2006	FEB 2006
CDR (STOVL&Common)	OCT 2004	MAY 2006	NOV 2006	FEB 2006
CDR (CV&Common)	JUL 2005	JAN 2007	JUL 2007	FEB 2007
DAE (IPR 1)	APR 2005	JAN 2006	JUL 2006	JAN 2006
1st Flt CTOL	NOV 2005	JUL 2006	JAN 2007	AUG 2006
1st Flt STOVL	APR 2006	MAY 2007	NOV 2007	SEP 2007
1st Flt CV	JAN 2007	AUG 2008	MAR 2009	JAN 2009
DAE (IPR 2)	APR 2006	JAN 2007	JUL 2007	JAN 2007
1st Operational Aircraft Delivered	JUN 2008	N/A	N/A	SEP 2009
USMC IOC	APR 2010	MAR 2012	SEP 2012	MAR 2012
USAF IOC	JUN 2011	MAR 2013	SEP 2013	MAR 2013
Completed IOT&E	MAR 2012	OCT 2013	APR 2014	OCT 2013
USN IOC	APR 2012	MAR 2013	SEP 2013	MAR 2013
DAB Milestone C	APR 2012	OCT 2013	APR 2014	OCT 2013
1st Production Aircraft Delivered	N/A	JUN 2009	DEC 2009	**N/A** [1]

[1] **APB Breach**

Acronyms

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
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

None

Memo

None

Performance

Characteristics	SAR Baseline Dev Est	Current APB Development 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	Execute 550 ft. STO with 4 JDAM (2 external & 2 internal), 2 AIM-120 (internal), fuel to fly 550nm	Execute 550 ft. STO with 2 JDAM (internal), 2 AIM-120 (internal), fuel to fly 450nm	TBD	Execute 508 ft. STO with 2 JDAM (internal), 2 AIM-120 (internal), fuel to fly 450nm
Combat Radius NM - CTOL Variant	690	690	590	TBD	632
Combat Radius NM - STOVL Variant	550	550	450	TBD	534
Combat Radius NM -CV Variant	730	730	600	TBD	732
Internal Weapons Carriage - CTOL Variant	Sufficient bay volume to load, c arry & employ objective Annex A weapons	Sufficient bay volume to load, carry & employ objective Annex A weapons	Sufficient bay volume to load, carry & employ threshold Annex A weapons	TBD	Sufficient bay volume to load, carry & employ threshold Annex A weapons
Internal Weapons Carriage - STOVL Variant	Sufficient bay volume to load, c arry & employ objective Annex A weapons	Sufficient bay volume to load, carry & employ objective Annex A weapons	Sufficient bay volume to load, carry & employ threshold Annex A weapons	TBD	Sufficient bay volume to load, carry & employ threshold Annex A weapons
Internal Weapons Carriage - CV Variant	Sufficient bay volume to load, c arry & employ objective Annex A weapons	Sufficient bay volume to load, carry & employ objective Annex A weapons	Sufficient bay volume to load, carry & employ threshold Annex A weapons	TBD	Sufficient bay volume to load, carry & employ threshold Annex A weapons
Radio Frequency (RF) Signature	See Classified Extract	See Classified Extract	See Classified Extract	TBD	Classified
Logistic Footprint -CTOL Variant	Less than or equal to 6 C-17 equivalent	Less than or equal to 6 C-17	Less than or equal to 8 C-17 equivalent	TBD	Less than or equal to 5.9 C-17

	loads	equivalent loads	loads		equivalent loads
Logistic Footprint -CV Variant	Less than or equal to 46,000 cu ft, 183 Short Tons	Less than or equal to 34,000 cu ft, 183 Short Tons	Less than or equal to 46,000 cu ft, 243 Short Tons	TBD	Less than or equal to 16,967 cu ft, 109 Short Tons
Logistic Footprint -STOVL Variant	Less than or equal to 4 C-17 equivalent loads	Less than or equal to 4 C-17 equivalent loads	Less than or equal to 8 C-17 equivalent loads	TBD	Less than or equal to 4.6 C-17 equivalent loads
Sortie Generation Rate - CTOL Variant	4/day initial surge; 3/day sustained surge; 2/day Wartime Sustained based on ASD of 2.5	4/day initial surge; 3/day sustained surge; 2/day Wartime Sustained based on ASD of 2.5	3/day initial surge; 2/day sustained surge; 1/day Wartime Sustained based on ASD of 2.5	TBD	3.7/day initial surge; 3.4/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	4/day initial surge; 3/day sustained surge; 1/day Wartime Sustained based on ASD of 1.8	3/day initial surge; 2/day sustained surge; 1/day Wartime Sustained based on ASD of 1.8	TBD	4.4/day initial surge; 3.3/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	6/day initial surge; 4/day sustained surge; 2/day Wartime Sustained based on ASD of 1.1	4/day initial surge; 3/day sustained surge; 1/day Wartime Sustained based on ASD of 1.1	TBD	6.5/day initial surge; 6.2/day sustained surge; 1/day Wartime Sustained based on ASD of 1.1
Interoperability	100% of all top level IE Rs	100% of all top level IERs	100% of critical top level IERs	TBD	100% of critical top level IERs
Mission Reliability	98% for all variants at ASD's listed in Table 13	98% for all variants at ASD's listed in Table 13	95% for CV & STOVL & 93% for CTOL at ASD's listed in Table 13.	TBD	97.7% for CV, 98.5 % for STOVL & 97.6% for CTOL at ASDs listed in Table
CV Recovery	Max approach	Max	Max	TBD	Max

Performance, Approach Speed	speed (Vpa) at Required Carrier Landing Weight (RCLW) of less than 140 kts	approach speed (Vpa)at Required Carrier Landing Weight (RCLW) of less than 140 kts	approach speed (Vpa) at Required Carrier Landing Weight (RCLW) of less than 145 kts w/15 kts WOD at RCLW		approach speed (Vpa) at Required Carrier Landing Weight (RCLW) of less than 145.0 kts w/15 kts WOD at RCLW

Acronyms

ASD - Average Sortie Duration
CTOL - Conventional Takeoff and Landing
CV - Aircraft Carrier Suitable Variant
IER - Information Exchange Requirement
JDAM - Joint Direct Attack Munitions
NM - Nautical Miles
RCLW - Required Carrier Landing Weight
STOVL - Short Takeoff and Vertical Landing
TBD - To be determined
WOD - Wind Over the Deck

Change Explanations

None

Memo

Change Explanations:
The Current Estimate changed from the December 2003 SAR as follows due to design maturation:

Track To Budget

RDT&E			
APPN 0400	PE 0603800E	(DoD)	
	RDT&E, DARPA		
APPN 3600	PE 0603800F	(Air Force)	
	RDT&E, Air Force CDP		
APPN 1319	PE 0603800N	(Navy)	
	RDT&E, Navy CDP		
APPN 3600	PE 0604800F	(Air Force)	
	RDT&E, Air Force EMD		
APPN 1319	PE 0604800N	(Navy)	
	RDT&E, Navy EMD		

Procurement			
APPN 3010		(Air Force)	Invalid item control number (P-1) removed.
	Line Item 01 (Air Force)		
APPN 1506		(Navy)	Invalid item control number (P-147) removed.
	Line Item 147 (Navy)		

MILCON			
APPN 1205	PE 0204146N	(Navy)	
	MILCON, USN		
APPN 3300	PE 0207142F	(Air Force)	
	MILCON, AF		

General Memo

JSF is DoD's largest cooperative development program. In addition to the above DoD funding lines, eight other partner countries are providing funding in the System Development and Demonstration (SDD) Phase: United Kingdom, Italy, the Netherlands, Turkey, Canada, Australia, Denmark, and Norway. All but Turkey and Australia were also partners in the prior phase. Associated financial contributions are reflected in Section 16.

Cost and Funding

Cost Summary

Total Acquisition Cost and Quantity

	BY2002 $M				TY $M		
Appropriation	SAR Baseline Dev Est	Current APB Development Objective/Threshold		Current Estimate	SAR Baseline Dev Est	Current APB Development Objective	Current Estimate
RDT&E	32300.0	42100.0	46310.0	42009.3	34400.0	44800.0	45702.3
Procurement	143300.0	149500.0	164450.0	150317.0	196600.0	199900.0	210694.5
Flyaway	121215.5	--	--	--	166349.7	--	--
Recurring	116093.6	--	--	--	159390.4	--	--
Non Recurring	5121.9	--	--	3865.0	6959.3	--	5256.0
Support	22084.5	--	--	--	30250.3	--	--
Other Support	15403.5	--	--	--	21109.3	--	--
Initial Spares	6681.0	--	--	--	9141.0	--	--
MILCON	1500.0	1500.0	1700.0	192.7	2000.0	2000.0	220.8
Acq O&M	--	--	--	--	--	--	--
Total	177100.0	193100.0	N/A	192519.0	233000.0	246700.0	256617.6

JSF procurement cost reflects DoD cost only, but assumes the benefits of 150 UK aircraft anticipated but not formalized in a Memorandum of Understanding (MOU) for procurement.

Since the Services have not yet fully established JSF basing plans, the Milestone B and approved APB MILCON estimates reflect a top-level parametric estimate, not discrete estimates for specific sites. The Current Estimate reflects specific MILCON requirements identified in the FY 2006/2007 President's Budget Future Years Defense Program (FYDP). The MILCON Current Estimate will continue to be updated as additional specific MILCON requirements are identified in future budget submissions.

RDT&E and Procurement estimates reflect current Program Executive Officer (PEO) assessments. The Defense Acquisition Board will reassess the estimate in Spring 2005.

Quantity	SAR Baseline Dev Est	Current APB Development	Current Estimate
RDT&E	14	14	15
Procurement	2852	2443	2443
Total	2866	2457	2458

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

The October 2001 Milestone B procurement baseline for the Department of Navy (DoN) reflected 609 STOVL variants for United States Marine Corps (USMC) and 480 CV variants for United States Navy (USN) (DoN total of 1089). Subsequently, the DoN Navy/Marine Corps Tactical Aviation (TACAIR) Integration Plan reduced total JSF CV/STOVL procurement quantities to 680. The annual and total quantity mix (and definitive related procurement estimates), of STOVL and CV variants in FY 2012 and beyond remain TBD pending further assessment by the Services. Procurement estimates will continue to be refined in future budget cycles.

The Low-Rate Initial Production (LRIP) aircraft quantity of 465 approved at Milestone B exceeded 10% of planned total production. This was necessary to meet Service Initial Operational Capability (IOC) requirements, prevent a break in production, and to ramp up to full rate production.

The Defense Acquisition Executive (DAE) approved the LRIP quantity in the Milestone B Acquisition Decision Memorandum dated October 26, 2001. The LRIP quantity has been revised based on Department decisions on program replan refinements.

The flight test aircraft quantity of 14 in the SAR development baseline has been revised to 15 as part of program replan refinements; risk funding was reallocated to the additional flight test aircraft.

Funding Summary

Appropriation and Quantity Summary

FY2006 President's Budget / December 2004 SAR (TY$ M)

Appropriation	Prior	FY2005	FY2006	FY2007	FY2008	FY2009	FY2010	FY2011	To Complete	Total
RDT&E	14300.2	5076.8	5669.3	5184.8	4339.7	3324.7	2657.0	1728.6	3421.2	45702.3
Procurement	0.0	0.0	152.4	1342.2	3429.1	6763.3	7049.7	7307.6	184650.2	210694.5
MILCON	44.5	10.9	0.0	0.0	85.4	80.0	0.0	0.0	0.0	220.8
Acq O&M	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PB2006 Total	14344.7	5087.7	5821.7	6527.0	7854.2	10168.0	9706.7	9036.2	188071.4	256617.6
PB2005 Total	14497.5	5339.1	6022.0	7067.8	8807.7	10928.2	9975.7	10988.2	171208.1	244834.3
Delta	-152.8	-251.4	-200.3	-540.8	-953.5	-760.2	-269.0	-1952.0	16863.3	11783.3

Quantity	Prior	FY2005	FY2006	FY2007	FY2008	FY2009	FY2010	FY2011	To Complete	Total
Development	0	0	0	0	0	0	0	0	0	15
Production	0	0	0	5	18	47	56	64	2253	2443
PB2006 Total	0	0	0	5	18	47	56	64	2253	2458
PB2005 Total	0	0	0	8	24	58	62	92	2199	2457
Delta	0	0	0	-3	-6	-11	-6	-28	54	1

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	--	--	--	--	--	--	722.9
2003	--	--	--	--	--	--	1661.5
2004	--	--	--	--	--	--	2081.9
2005	--	--	--	--	--	--	2145.2
2006	--	--	--	--	--	--	2393.0
2007	--	--	--	--	--	--	2287.1
2008	--	--	--	--	--	--	1944.6
2009	--	--	--	--	--	--	1518.1
2010	--	--	--	--	--	--	1207.5
2011	--	--	--	--	--	--	751.6
2012	--	--	--	--	--	--	1036.5
2013	--	--	--	--	--	--	723.2
Subtotal	**7**	**--**	**--**	**--**	**--**	**--**	**20423.7**

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	--	--	--	--	--	--	32.6
1995	--	--	--	--	--	--	106.6
1996	--	--	--	--	--	--	85.7
1997	--	--	--	--	--	--	256.3
1998	--	--	--	--	--	--	468.1
1999	--	--	--	--	--	--	486.3
2000	--	--	--	--	--	--	242.4
2001	--	--	--	--	--	--	342.1
2002	--	--	--	--	--	--	717.5
2003	--	--	--	--	--	--	1626.1
2004	--	--	--	--	--	--	1997.2
2005	--	--	--	--	--	--	2017.1
2006	--	--	--	--	--	--	2204.9
2007	--	--	--	--	--	--	2064.0
2008	--	--	--	--	--	--	1718.9
2009	--	--	--	--	--	--	1314.3
2010	--	--	--	--	--	--	1023.8
2011	--	--	--	--	--	--	624.1
2012	--	--	--	--	--	--	843.0
2013	--	--	--	--	--	--	576.1
Subtotal	**7**	**--**	**--**	**--**	**--**	**--**	**18747.1**

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	--	--	--	--	--	--	720.1
2003	--	--	--	--	--	--	1612.8
2004	--	--	--	--	--	--	2021.0
2005	--	--	--	--	--	--	2181.3
2006	--	--	--	--	--	--	2474.8
2007	--	--	--	--	--	--	2192.6
2008	--	--	--	--	--	--	1914.4
2009	--	--	--	--	--	--	1578.3
2010	--	--	--	--	--	--	1282.8
2011	--	--	--	--	--	--	840.0
2012	--	--	--	--	--	--	946.5
2013	--	--	--	--	--	--	708.5
Subtotal	**8**	**--**	**--**	**--**	**--**	**--**	**20380.5**

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	--	--	--	--	--	--	90.9
1996	--	--	--	--	--	--	86.7
1997	--	--	--	--	--	--	265.0
1998	--	--	--	--	--	--	464.0
1999	--	--	--	--	--	--	470.6
2000	--	--	--	--	--	--	253.3
2001	--	--	--	--	--	--	342.1
2002	--	--	--	--	--	--	714.7
2003	--	--	--	--	--	--	1578.4
2004	--	--	--	--	--	--	1938.8
2005	--	--	--	--	--	--	2051.1
2006	--	--	--	--	--	--	2280.3
2007	--	--	--	--	--	--	1978.7
2008	--	--	--	--	--	--	1692.2
2009	--	--	--	--	--	--	1366.4
2010	--	--	--	--	--	--	1087.7
2011	--	--	--	--	--	--	697.6
2012	--	--	--	--	--	--	769.8
2013	--	--	--	--	--	--	564.4
Subtotal	**8**	**--**	**--**	**--**	**--**	**--**	**18692.7**

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	--	--	--	--	--	--	425.9
2004	--	--	--	--	--	--	517.8
2005	--	--	--	--	--	--	750.3
2006	--	--	--	--	--	--	801.5
2007	--	--	--	--	--	--	705.1
2008	--	--	--	--	--	--	480.7
2009	--	--	--	--	--	--	228.3
2010	--	--	--	--	--	--	166.7
2011	--	--	--	--	--	--	137.0
2012	--	--	--	--	--	--	6.5
Subtotal	**--**	**--**	**--**	**--**	**--**	**--**	**4780.1**

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	--	--	--	--	--	--	74.8
1998	--	--	--	--	--	--	80.6
1999	--	--	--	--	--	--	56.4
2000	--	--	--	--	--	--	35.1
2001	--	--	--	--	--	--	2.5
2002	--	--	--	--	--	--	304.1
2003	--	--	--	--	--	--	416.8
2004	--	--	--	--	--	--	496.7
2005	--	--	--	--	--	--	705.5
2006	--	--	--	--	--	--	738.5
2007	--	--	--	--	--	--	636.3
2008	--	--	--	--	--	--	424.9
2009	--	--	--	--	--	--	197.6
2010	--	--	--	--	--	--	141.3
2011	--	--	--	--	--	--	113.8
2012	--	--	--	--	--	--	5.3
Subtotal	**--**	**--**	**--**	**--**	**--**	**--**	**4445.1**

"Other RDT&E Funding" reflects financial contributions under international cooperative agreements with the following countries: United Kingdom, Canada, Denmark, the Netherlands, Norway, Italy, Turkey, and Australia.

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	--	--	--	--	--	--	71.8
1998	--	--	--	--	--	--	21.8
Subtotal	**--**	**--**	**--**	**--**	**--**	**--**	**124.4**

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	--	--	--	--	--	--	247.2
2008	10	--	--	169.7	--	--	2042.9
2009	32	--	--	143.7	--	--	4636.7
2010	36	--	--	127.8	--	--	4518.5
2011	33	--	--	120.2	--	--	3733.1
2012	36	--	--	188.9	--	--	4387.5
2013	43	--	--	199.8	--	--	4549.8
2014	50	--	--	92.6	--	--	4562.7
2015	50	--	--	92.7	--	--	4658.5
2016	50	--	--	92.6	--	--	4613.9
2017	50	--	--	92.9	--	--	4591.9
2018	50	--	--	93.4	--	--	4590.7
2019	50	--	--	94.1	--	--	4592.6
2020	50	--	--	94.3	--	--	4552.6
2021	50	--	--	95.4	--	--	4656.9
2022	50	--	--	97.1	--	--	4668.2
2023	34	--	--	67.9	--	--	3097.8
2024	6	--	--	13.1	--	--	565.0
Subtotal	**680**	**--**	**--**	**1876.2**	**--**	**--**	**69266.5**

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	--	--	--	--	--	--	219.9
2008	10	--	--	147.8	--	--	1779.5
2009	32	--	--	122.6	--	--	3955.9
2010	36	--	--	106.8	--	--	3775.8
2011	33	--	--	98.4	--	--	3055.4
2012	36	--	--	151.4	--	--	3517.0
2013	43	--	--	156.9	--	--	3572.1
2014	50	--	--	71.2	--	--	3508.7
2015	50	--	--	69.8	--	--	3508.7
2016	50	--	--	68.3	--	--	3403.6
2017	50	--	--	67.1	--	--	3317.6
2018	50	--	--	66.1	--	--	3248.4
2019	50	--	--	65.2	--	--	3183.1
2020	50	--	--	64.0	--	--	3090.5
2021	50	--	--	63.4	--	--	3096.1
2022	50	--	--	63.2	--	--	3039.8
2023	34	--	--	43.3	--	--	1975.8
2024	6	--	--	8.2	--	--	352.9
Subtotal	**680**	**--**	**--**	**1433.7**	**--**	**--**	**51600.8**

Cost Quantity Information
1506 | Procurement | Aircraft Procurement, Navy

Fiscal Year	Quantity	End Item Recurring Flyaway (Aligned with Quantity) BY 2002 $M
2007	--	--
2008	10	1443.2
2009	32	3370.3
2010	36	3213.6
2011	33	2644.7
2012	36	2516.2
2013	43	2779.7
2014	50	2850.3
2015	50	2722.7
2016	50	2638.5
2017	50	2569.6
2018	50	2514.9
2019	50	2464.2
2020	50	2387.2
2021	50	2394.6
2022	50	2381.3
2023	34	1590.8
2024	6	271.5
Subtotal	**680**	**40753.3**

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	--	--	--	--	--	--	152.4
2007	5	--	--	34.4	--	--	1095.0
2008	8	--	--	65.9	--	--	1386.2
2009	15	--	--	63.6	--	--	2126.6
2010	20	--	--	112.8	--	--	2531.2
2011	31	--	--	294.3	--	--	3574.5
2012	65	--	--	285.4	--	--	6509.3
2013	90	--	--	270.5	--	--	7770.1
2014	108	--	--	151.8	--	--	7888.2
2015	110	--	--	153.1	--	--	8191.0
2016	110	--	--	152.8	--	--	8119.6
2017	110	--	--	153.2	--	--	8101.1
2018	110	--	--	154.0	--	--	8118.2
2019	110	--	--	155.1	--	--	8136.1
2020	110	--	--	156.4	--	--	8147.0
2021	110	--	--	157.9	--	--	8197.7
2022	110	--	--	159.7	--	--	8271.0
2023	110	--	--	164.2	--	--	8444.9
2024	110	--	--	171.9	--	--	8787.6
2025	110	--	--	175.9	--	--	8883.5
2026	110	--	--	178.6	--	--	8782.6
2027	101	--	--	168.3	--	--	8214.2
Subtotal	**1763**	**--**	**--**	**3379.8**	**--**	**--**	**141428.0**

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	--	--	--	--	--	--	138.4
2007	5	--	--	30.6	--	--	973.9
2008	8	--	--	57.4	--	--	1207.5
2009	15	--	--	54.3	--	--	1814.4
2010	20	--	--	94.3	--	--	2115.1
2011	31	--	--	240.9	--	--	2925.6
2012	65	--	--	228.8	--	--	5217.9
2013	90	--	--	212.4	--	--	6100.4
2014	108	--	--	116.7	--	--	6066.0
2015	110	--	--	115.3	--	--	6169.3
2016	110	--	--	112.7	--	--	5989.7
2017	110	--	--	110.7	--	--	5853.0
2018	110	--	--	109.0	--	--	5744.6
2019	110	--	--	107.5	--	--	5639.1
2020	110	--	--	106.2	--	--	5530.5
2021	110	--	--	105.0	--	--	5450.2
2022	110	--	--	104.0	--	--	5385.8
2023	110	--	--	104.7	--	--	5386.1
2024	110	--	--	107.4	--	--	5489.5
2025	110	--	--	107.6	--	--	5435.3
2026	110	--	--	107.0	--	--	5262.8
2027	101	--	--	98.8	--	--	4821.1
Subtotal	**1763**	**--**	**--**	**2431.3**	**--**	**--**	**98716.2**

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

Fiscal Year	Quantity	End Item Recurring Flyaway (Aligned with Quantity) BY 2002 $M
2006	--	--
2007	5	733.5
2008	8	919.1
2009	15	1367.3
2010	20	1548.1
2011	31	2193.0
2012	65	3900.2
2013	90	4849.9
2014	108	5088.7
2015	110	4942.7
2016	110	4793.8
2017	110	4680.8
2018	110	4591.8
2019	110	4505.4
2020	110	4415.1
2021	110	4348.4
2022	110	4300.9
2023	110	4304.2
2024	110	4400.0
2025	110	4365.1
2026	110	4239.0
2027	101	4035.6
Subtotal	**1763**	**78522.6**

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

Fiscal Year	Total Program TY $M
2004	24.4
Subtotal	**24.4**

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

Fiscal Year	Total Program BY 2002 $M
2004	22.9
Subtotal	**22.9**

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

Fiscal Year	Total Program TY $M
2004	20.1
2005	10.9
2006	--
2007	--
2008	85.4
2009	80.0
Subtotal	**196.4**

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

Fiscal Year	Total Program BY 2002 $M
2004	18.9
2005	10.0
2006	--
2007	--
2008	73.5
2009	67.4
Subtotal	**169.8**

Low Rate Initial Production

None

Foreign Military Sales

None

Nuclear Cost

None

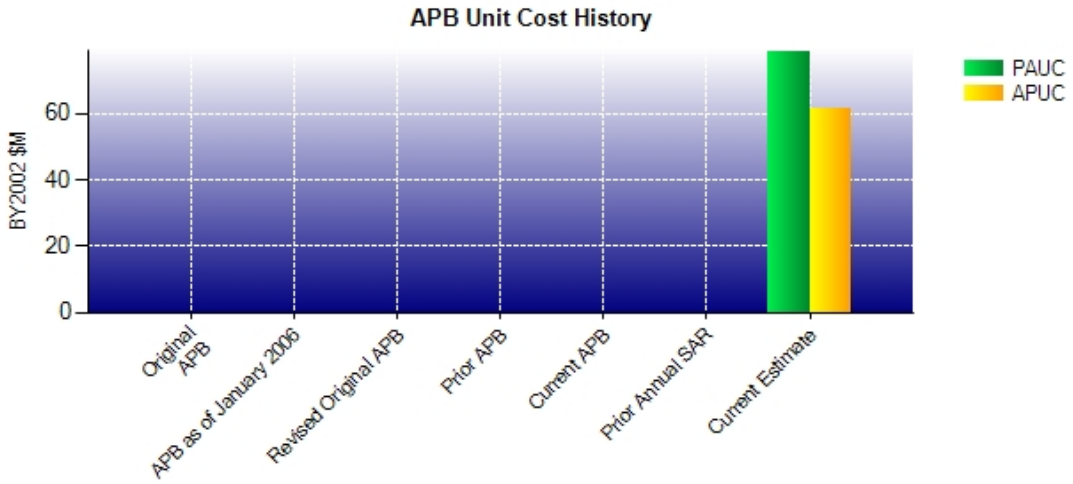
Unit Cost

Unit Cost Report

	BY2002 $M		
Unit Cost	**Current UCR Baseline (MAR 2004 APB)**	**Current Estimate (DEC 2004 SAR)**	**BY % Change**
Program Acquisition Unit Cost (PAUC)			
Cost	193100.0	192519.0	
Quantity	2457	2458	
Unit Cost	78.592	78.323	-0.34
Average Procurement Unit Cost (APUC)			
Cost	149500.0	150317.0	
Quantity	2443	2443	
Unit Cost	61.195	61.530	+0.55

	BY2002 $M		
Unit Cost	**Original UCR Baseline**	**Current Estimate (DEC 2004 SAR)**	**BY % Change**
Program Acquisition Unit Cost (PAUC)			
Cost		192519.0	
Quantity		2458	
Unit Cost		78.323	+0.00
Average Procurement Unit Cost (APUC)			
Cost		150317.0	
Quantity		2443	
Unit Cost		61.530	+0.00

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	N/A	N/A	N/A	N/A	N/A
Revised Original APB	N/A	N/A	N/A	N/A	N/A
Prior APB	N/A	N/A	N/A	N/A	N/A
Current APB	N/A	N/A	N/A	N/A	N/A
Prior Annual SAR	N/A	N/A	N/A	N/A	N/A
Current Estimate	DEC 2004	78.323	61.530	104.401	86.244

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	0.881	2.333	7.450	4.165	4.987	0.000	3.287	23.103	104.401

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	0.720	1.130	4.276	3.093	4.784	0.000	3.307	17.310	86.244

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	OCT 2013
IOC	TBD	APR 2010	N/A	MAR 2012
Total Cost (TY $M)	24800.0	233000.0	N/A	256617.6
Total Quantity	N/A	2866	N/A	2458
Prog. Acq. Unit Cost (PAUC)	N/A	81.298	N/A	104.401

Pursuant to 10 USC 2432, SAR Planning Estimate reflected RDT&E cost only.

Cost Variance

Summary Then Year $M				
	RDT&E	Proc	MILCON	Total
SAR Baseline (Dev Est)	34400.0	196600.0	2000.0	233000.0
Previous Changes				
Economic	-338.9	-5162.0	+2.3	-5498.6
Quantity	0.0	-25434.9	0.0	-25434.9
Schedule	+7534.6	+8164.1	0.0	+15698.7
Engineering	+2427.8	+2553.1	+252.8	+5233.7
Estimating	+754.8	+18977.3	-34.3	+19697.8
Other	0.0	0.0	0.0	0.0
Support	0.0	+4137.6	0.0	+4137.6
Subtotal	+10378.3	+3235.2	+220.8	+13834.3
Current Changes				
Economic	+737.5	+6922.0	+4.2	+7663.7
Quantity	--	--	--	--
Schedule	+332.3	+2281.8	--	+2614.1
Engineering	--	+5002.9	--	+5002.9
Estimating	-145.8	-7289.4	-4.2	-7439.4
Other	--	--	--	--
Support	--	+3942.0	--	+3942.0
Subtotal	+924.0	+10859.3	0.0	+11783.3
Adjustments	0.0	0.0	-2000.0	-2000.0
Total Changes	+11302.3	+14094.5	-1779.2	+23617.6
CE - Cost Variance	45702.3	210694.5	220.8	256617.6
CE - Cost & Funding	45702.3	210694.5	220.8	256617.6

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	0.0	0.0	0.0	0.0
Quantity	0.0	-16249.1	0.0	-16249.1
Schedule	+6664.2	+1359.5	0.0	+8023.7
Engineering	+2231.0	+1911.8	+227.3	+4370.1
Estimating	+837.6	+16346.1	-30.8	+17152.9
Other	0.0	0.0	0.0	0.0
Support	0.0	+2735.3	0.0	+2735.3
Subtotal	+9732.8	+6103.6	+196.5	+16032.9
Current Changes				
Economic	--	--	--	--
Quantity	--	--	--	--
Schedule	+115.2	0.0	--	+115.2
Engineering	--	+3569.9	--	+3569.9
Estimating	-138.7	-5012.8	-3.8	-5155.3
Other	--	--	--	--
Support	--	+2356.3	--	+2356.3
Subtotal	-23.5	+913.4	-3.8	+886.1
Adjustments	0.0	0.0	-1500.0	-1500.0
Total Changes	+9709.3	+7017.0	-1307.3	+15419.0
CE - Cost Variance	42009.3	150317.0	192.7	192519.0
CE - Cost & Funding	42009.3	150317.0	192.7	192519.0

Previous Estimate: December 2003

RDT&E	$M	
Current Change Explanations	**Base Year**	**Then Year**
Revised escalation indices (Economic)	N/A	+737.5
Realignment of funding to out-years based on replan schedule refinements (Schedule)	+115.2	+332.3
Adjustment for Current and Prior Inflation. (Estimating)	-138.7	-145.8
RDT&E Subtotal	-23.5	+924.0

Procurement	$M	
Current Change Explanations	**Base Year**	**Then Year**
Revised escalation indices. (Economic)	N/A	+6922.0
Delay in STOVL initial procurement from FY07 to FY08, and revised annual quantity profiles for all variants (Schedule)	0.0	+2281.8
Design maturation to reflect government assessment based on Lockheed Martin 240-4 configuration (Engineering)	+3569.9	+5002.9
Decrease in standard hardware and general equipment cost based on refined engineering assessments (Estimating)	-5012.8	-7289.4
Increase due to aircraft configuration update, methodology changes, and refined definitions of support requirements (Support)	+2356.3	+3942.0
Procurement Subtotal	+913.4	+10859.3

MILCON	$M	
Current Change Explanations	**Base Year**	**Then Year**
Revised escalation indices. (Economic)	N/A	+4.2
Adjustment for Current and Prior Inflation. (Estimating)	-0.7	-0.7
Refinements to USAF Milcon planning for initial operational sites (Estimating)	-3.1	-3.5
MILCON Subtotal	-3.8	0.0

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	19670.1	N/A	14	19670.1	24670.1

	Cost Variance	Schedule Variance
Previous Cumulative Variances	-68.3	-227.0
Cumulative Variances To Date	-444.8	-684.2
Net Change	-376.5	-457.2

Cost And Schedule Variance Explanations

The net change in the unfavorable cost variance is primarily due to Airframe efforts associated with the completed STOVL Weight Attack Team (SWAT) and Bottom-up-weight (BUW) #4 activities. These efforts generated cost with no associated performance.

The net change in the unfavorable schedule variance is primarily due to delays in Airframe Build-to-Package (BTP) Design Maturation tasks and Tooling. Tooling continues behind schedule in the Center Fuselage, resulting in a delay in completion. Weight activities and replan efforts have consumed considerable unplanned resources.

Contract Comments

None

Appropriation: RDT&E	
Contract Name	**Propulsion JSF F135 SDD**
Contractor	Pratt and Whitney
Contractor Location	East Hartford , CT 06057
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	4850.5	N/A	33	4850.5	5950.0

	Cost Variance	Schedule Variance
Previous Cumulative Variances	-7.1	-2.3
Cumulative Variances To Date	-25.9	-29.2
Net Change	-18.8	-26.9

Cost And Schedule Variance Explanations

The net unfavorable change in cost variance was due to redesign to the turbine exhaust case and augmentor, as well as cost increases for the lift system design and test support.

The net unfavorable change in schedule variance was due to delays in hardware delivery and test.

Contract Comments

The contract price increased from $4,828M to $4,851M due to scope realignment from the Air System contractor for Engine Starter Generator redesign, as well as hardware transfers between contractors.

Appropriation: RDT&E	
Contract Name	**GE F136 Phase IIIb**
Contractor	General Electric
Contractor Location	Cincinnati , OH 45215
Contract Number, Type	N00019-96-C-0176, CPAF
Award Date	November 13, 2001
Definitization Date	November 13, 2001

Initial Contract Price ($M)			Current Contract Price ($M)			Estimated Price At Completion ($M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
411.0	N/A	0	468.4	N/A	0	468.4	468.4

	Cost Variance	Schedule Variance
Previous Cumulative Variances	+1.4	-5.5
Cumulative Variances To Date	-14.4	-3.1
Net Change	-15.8	+2.4

Cost And Schedule Variance Explanations

The net unfavorable change in cost variance is primarily due to an increase in engineering overhead and cost of money rates, cost for hardware, tooling, and engine test.

The improvement to the unfavorable schedule variance was due to final delivery of hardware and tooling. The remaining unfavorable schedule variance can be attributed to combustor rig test delays and engine test delays.

Contract Comments

The F136 contract price increased from $454M to $468M due to additional scope supporting Fan, Combustor and Structures risk reduction efforts.

Deliveries and Expenditures

Deliveries To Date	Plan	Actual	Total Quantity	Percent Delivered
Development	0	0	15	0.00%
Production	0	0	2443	0.00%
Total Program Quantities Delivered	0	0	2458	0.00%

Expenditures and Appropriations (TY $M)			
Total Acquisition Cost	256617.6	Years Appropriated	12
Expenditures To Date	13685.0	Percent Years Appropriated	35.29%
Percent Expended	5.33%	Appropriated to Date	19432.4
Total Funding Years	34	Percent Appropriated	7.57%

Operating and Support Cost

Assumptions and Ground Rules

The JSF 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 JSF O&S estimate is based on F-18C, F-16C, and AV-8B history.

JSF O&S costs shown in comparison with the antecedent system reflect cost-per-flying-hour for the JSF CTOL variant only. The CTOL variant will make up the majority of the JSF aircraft DoD buy, 1,763 of the 2,443 total. The O&S differences between JSF CTOL and F-16 are representative of the comparisons across legacy fleets.

JSF CTOL costs reflect 24-aircraft squadrons operating at 300 flying hours per aircraft per year. F-16 costs have been normalized to the same groundrules as were used in estimating the JSF CTOL costs. The F-16 costs are reconciled numbers developed in a joint effort by the JSF Program Office and the Air Force, and reflected in JSF Milestone B briefings in Fall 2001.

"Total O&S Cost" ($ in Millions) below reflects total O&S costs for all three 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	JSF Cost per Flying Hour	F-16C/D Cost per Flying Hour
Mission Pay & Allowance	3.040	5.233
Unit Level Consumption	3.937	3.507
Intermediate Maintenance	0.000	0.003
Depot Maintenance	0.505	0.293
Contractor Support	0.000	0.044
Sustaining Support	0.848	0.627
Indirect	1.407	2.329
Other	--	--
Total Unitized Cost (Base Year 2002 $)	9.737	12.036

Total O&S Costs $M	JSF	F-16C/D
Base Year	135900.0	--
Then Year	346733.0	--

Defense Acquisition Management
Information Retrieval
(DAMIR)

Selected Acquisition Report (SAR)

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

F-35 (JSF)

As of December 31, 2005

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Program Information

Designation And Nomenclature (Popular Name)

F-35 (Joint Strike Fighter Program)

DoD Component

DoD

Joint Participants

USAF; USN; USMC; DARPA; United Kingdom; Norway; Denmark; the Netherlands; Canada; Italy; Turkey; Australia

The F-35 Program is a joint DoD program in 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

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Date Assigned June 18, 2004

References

SAR Baseline (Development Estimate)

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

Approved APB

DAE Approved Acquisition Program Baseline (APB) dated March 17, 2004

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/A-22. The Short Takeoff and Vertical Landing (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 Sea Harrier and GR-7 for the United Kingdom Royal Navy and Royal Air Force, respectively. The CV will provide the Navy a multi-role, stealthy strike fighter aircraft to complement the F/A-18E/F. The cornerstone of the JSF Program is affordability -- reducing the development cost, production cost, and cost of ownership of the JSF family of aircraft. The program was structured from the beginning to be a model of acquisition reform, with an emphasis on jointness, technology maturation and concept demonstrations, and early cost and performance trades integral to the weapon system requirements definition process.

Executive Summary

The Department of Defense established the F-35 Joint Strike Fighter Program, originally named Joint Advanced Strike Technology (JAST) Program, in 1993. Fiscal Year (FY) 1995 legislation merged the Defense Advanced Research Projects Agency (DARPA) Advanced Short Take-Off and Landing (ASTOVL) program with the then-JAST Program. Facilitated by the JSF Program Office, the Services evolved weapon system requirements based on extensive cost and performance trades emphasizing Cost As an Independent Variable (CAIV). The process culminated in the Services' Joint Operational Requirements Document in March 2000, revalidated by the Joint Requirements Oversight Council (JROC) in October 2001. The Concept Demonstration Phase (CDP) commenced in November 1996 with competitive contract awards to Boeing and Lockheed Martin, with Pratt and Whitney providing propulsion hardware and engineering support. The Milestone B Defense Acquisition Board (DAB) review was held on October 24, 2001. On October 25, 2001 the Secretary of Defense provided certification to Congress (in accordance with Section 212 of the FY 2001 Defense Authorization Act) that the JSF program successfully completed the CDP exit criteria and demonstrated sufficient technical maturity to enter System Development & Demonstration (SDD). On October 26, 2001 SDD contracts were awarded to Lockheed Martin and Pratt and Whitney. General Electric continued technical efforts related to development of a second engine source for competition in production.

The program completed its fourth year of development in October 2005. Through early January 2006, the program completed approximately 4100 test hours on nine F135 Pratt and Whitney propulsion systems, and approximately 200 test hours in F136 General Electric Rolls-Royce Fighter Engine Team efforts. Manufacture and assembly of the initial flight test aircraft (CTOL and STOVL variants) are underway, with first flight of the CTOL variant planned in 2006. Detailed design work continues for the production representative CTOL and CV variants. Subsystems development and testing are underway and on track. The program has aggressively addressed the performance issues associated with weight and airframe design identified in 2003. A DAB Program Review in May 2005 endorsed program progress and the path forward. Definitization of replan contract modifications completed in October 2005. All three variants are projected to meet all Key Performance Parameter (KPP) requirements with the exception of the Interoperability (KPP), a facet of which is at risk due to complexities of evolving DoD interoperability standards and application across platforms.

The FY 2007 President's Budget request eliminates funding for the F136 engine in FY 2007 and subsequent years, and reduces planned FY 2008 STOVL quantity by two (no change to total planned quantity). The Department determined that a single engine supplier provides the best balance of risk and cost.

Cost, schedule and performance estimate changes from the prior SAR do not result from specific software changes. Finalization of the capability block plan, including software, continues to progress according to plan.

The F-35 remains the Department of Defense's largest cooperative development program. Israel and Singapore are Security Cooperative Participants with specific case scope outside the cooperative development partnership. Formal

negotiations with SDD partners commenced in 2005 for an MOU for Production, Sustainment and Follow-on Development.

Threshold Breaches

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

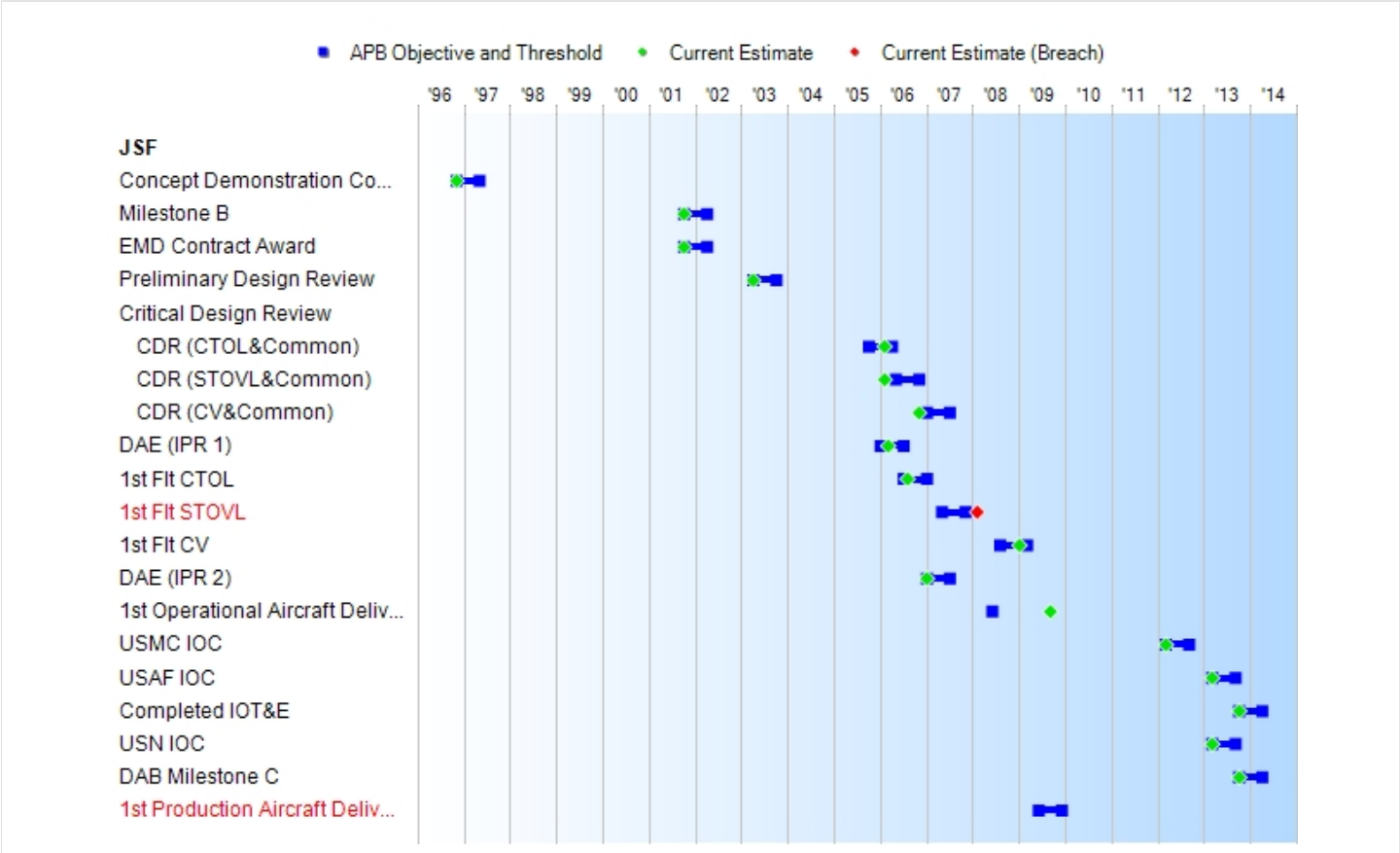
Nunn-McCurdy Breaches		
Current UCR Baseline		
	PAUC	None
	APUC	None
Original UCR Baseline		
	PAUC	Significant
	APUC	Significant

Explanation of Breach

The Acquisition Program Baseline (APB) Schedule breach for Short Take-Off Vertical Landing (STOVL) First Flight results from the combination of (1) expected manufacturing lead times and (2) matching STOVL airframe structure load to expected flight loads results. The five-month expected delay for STOVL First Flight does not affect the low rate production plans or fielding for the Marine Corps.

In accordance with the FY 2006 National Defense Authorization Act (P.L. 109-163), the Department is required to report Nunn-McCurdy unit cost breaches to the "original" Acquisition Program Baseline (APB), i.e., the APB established at Milestone B (previously Milestone II). Accordingly, this program is reporting an increase in the Program Acquisition Unit Cost (PAUC) and Average Procurement Unit Cost (APUC) of at least 30% to the "original" APB. Compared to the MS B (October 2001) APB, the F-35 Program PAUC and APUC increased 32.8% and 31.3%, respectively. These increases are primarily due to historical increases previously reported in the December 2003 SAR (26.2% and 21.7% for PAUC and APUC, respectively, including programmatic changes). Additional unit cost breach information is provided in the Unit Cost Information section of this SAR.

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 '13 '14
JSF
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 Operational Aircraft Deliv...
USMC IOC
USAF IOC
Completed IOT&E
USN IOC
DAB Milestone C
1st Production Aircraft Deliv...

Milestones	SAR Baseline Dev Est	Current APB Development Objective/Threshold		Current Estimate
Concept Demonstration Contract Award	NOV 1996	NOV 1996	MAY 1997	NOV 1996
Milestone B	OCT 2001	OCT 2001	APR 2002	OCT 2001
EMD Contract Award	OCT 2001	OCT 2001	APR 2002	OCT 2001
Preliminary Design Review	APR 2003	APR 2003	OCT 2003	APR 2003
Critical Design Review				
CDR (CTOL&Common)	APR 2004	OCT 2005	APR 2006	FEB 2006
CDR (STOVL&Common)	OCT 2004	MAY 2006	NOV 2006	FEB 2006
CDR (CV&Common)	JUL 2005	JAN 2007	JUL 2007	NOV 2006
DAE (IPR 1)	APR 2005	JAN 2006	JUL 2006	MAR 2006
1st Flt CTOL	NOV 2005	JUL 2006	JAN 2007	AUG 2006
1st Flt STOVL	APR 2006	MAY 2007	NOV 2007	**FEB 2008** [1]
1st Flt CV	JAN 2007	AUG 2008	MAR 2009	JAN 2009
DAE (IPR 2)	APR 2006	JAN 2007	JUL 2007	JAN 2007
1st Operational Aircraft Delivered	JUN 2008	N/A	N/A	SEP 2009
USMC IOC	APR 2010	MAR 2012	SEP 2012	MAR 2012
USAF IOC	JUN 2011	MAR 2013	SEP 2013	MAR 2013
Completed IOT&E	MAR 2012	OCT 2013	APR 2014	OCT 2013
USN IOC	APR 2012	MAR 2013	SEP 2013	MAR 2013
DAB Milestone C	APR 2012	OCT 2013	APR 2014	OCT 2013
1st Production Aircraft Delivered	N/A	JUN 2009	DEC 2009	**N/A** [1]

[1] **APB Breach**

Acronyms

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

None

Memo

None

Performance

Characteristics	SAR Baseline Dev Est	Current APB Development 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	Execute 550 ft. STO with 4 JDAM (2 external & 2 internal), 2 AIM-120 (internal), fuel to fly 550nm	Execute 550 ft. STO with 2 JDAM (internal), 2 AIM-120 (internal), fuel to fly 450nm	TBD	Execute 480 ft. STO with 2 JDAM (internal), 2 AIM-120 (internal), fuel to fly 450nm
Combat Radius NM - CTOL Variant	690	690	590	TBD	644
Combat Radius NM - STOVL Variant	550	550	450	TBD	509
Combat Radius NM -CV Variant	730	730	600	TBD	701
Internal Weapons Carriage - CTOL Variant	Sufficient bay volume to load, c arry & employ objective Annex A weapons	Sufficient bay volume to load, carry & employ objective Annex A weapons	Sufficient bay volume to load, carry & employ threshold Annex A weapons	TBD	Sufficient bay volume to load, carry & employ threshold Annex A weapons
Internal Weapons Carriage - STOVL Variant	Sufficient bay volume to load, c arry & employ objective Annex A weapons	Sufficient bay volume to load, carry & employ objective Annex A weapons	Sufficient bay volume to load, carry & employ threshold Annex A weapons	TBD	Sufficient bay volume to load, carry & employ threshold Annex A weapons
Internal Weapons Carriage - CV Variant	Sufficient bay volume to load, c arry & employ objective Annex A weapons	Sufficient bay volume to load, carry & employ objective Annex A weapons	Sufficient bay volume to load, carry & employ threshold Annex A weapons	TBD	Sufficient bay volume to load, carry & employ threshold Annex A weapons
Radio Frequency (RF) Signature	See Classified Extract	See Classified Extract	See Classified Extract	TBD	Classified
Logistic Footprint -CTOL Variant	Less than or equal to 6 C-17 equivalent	Less than or equal to 6 C-17	Less than or equal to 8 C-17 equivalent	TBD	Less than or equal to 6.8 C-17

	loads	equivalent loads	loads		equivalent loads
Logistic Footprint -STOVL Variant	Less than or equal to 4 C-17 equivalent loads	Less than or equal to 4 C-17 equivalent loads	Less than or equal to 8 C-17 equivalent loads	TBD	Less than or equal to 5.3 C-17 equivalent loads
Logistic Footprint -CV Variant	Less than or equal to 46,000 cu ft, 183 Short Tons	Less than or equal to 34,000 cu ft, 183 Short Tons	Less than or equal to 46,000 cu ft, 243 Short Tons	TBD	Less than or equal to 17,030 cu ft, 118.8 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	4/day initial surge; 3/day sustained surge; 2/day Wartime Sustained based on ASD of 2.5	3/day initial surge; 2/day sustained surge; 1/day Wartime Sustained based on ASD of 2.5	TBD	3.6/day initial surge; 2.7/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	4/day initial surge; 3/day sustained surge; 1/day Wartime Sustained based on ASD of 1.8	3/day initial surge; 2/day sustained surge; 1/day Wartime Sustained based on ASD of 1.8	TBD	4.4/day initial surge; 3.3/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	6/day initial surge; 4/day sustained surge; 2/day Wartime Sustained based on ASD of 1.1	4/day initial surge; 3/day sustained surge; 1/day Wartime Sustained based on ASD of 1.1	TBD	6.1/day initial surge; 5.1/day sustained surge; 1/day Wartime Sustained based on ASD of 1.1
Interoperability	100% of all top level IE Rs	100% of all top level IERs	100% of critical top level IERs	TBD	Less than 100 % of critical top level IERs
Mission Reliability	98% for all variants at ASD's listed in Table 13	98% for all variants at ASD's listed in Table 13	95% for CV & STOVL & 93% for CTOL at ASD's listed in Table 13.	TBD	97.7% for CV, 98.5 % for STOVL & 97.6% for CTOL at ASDs listed in Table

CV Recovery Performance, Approach Speed	Max approach speed (Vpa) at Required Carrier Landing Weight (RCLW) of less than 140 kts	Max approach speed (Vpa)at Required Carrier Landing Weight (RCLW) of less than 140 kts	Max approach speed (Vpa) at Required Carrier Landing Weight (RCLW) of less than 145 kts w/15 kts WOD at RCLW	TBD	Max approach speed (Vpa) at Required Carrier Landing Weight (RCLW) of less than 145.0 kts w/15 kts WOD at RCLW

Acronyms

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
WOD - Wind Over the Deck

Change Explanations

None

Memo

Change Explanations:
The Current Estimate changed from the December 2004 SAR as follows due to design maturation:

Track To Budget

RDT&E					
APPN 0400	PE 0603800E	(DoD)		(Shared)	Sunk
	RDT&E, DARPA				
APPN 3600	PE 0603800F	(Air Force)		(Shared)	Sunk
	RDT&E, Air Force CDP				
APPN 1319	PE 0603800N	(Navy)		(Shared)	Sunk
	RDT&E, Navy CDP				
APPN 3600	PE 0604800F	(Air Force)			
	RDT&E, Air Force EMD				
APPN 3600	PE 0604800F	(Air Force)	Project 3831		
	RDT&E, Air Force EMD/Joint Strike Fighter Quantity of RDT&E Articles				
APPN 1319	PE 0604800N	(Navy)	Project 2261		
	RDT&E, Navy EMD/JSF				
APPN 1319	PE 0604800N	(Navy)	Project 9999		
	RDT&E, Navy EMD/Congressional Adds				

Procurement					
APPN 3010	BA 01	(Air Force)			Invalid item control number (P-1) removed.
	Line Item 01 (Air Force)				
APPN 1506	BA 01	(Navy)			Invalid item control number (P-147) removed.
	Line Item 147 (Navy)				
APPN 1506		(Navy)		(Shared)	Invalid item control number (P-605) removed.
	Line Item 605 (Spares)				
APPN 3010		(Air Force)		(Shared)	Invalid item control number (P-69) removed.
	Line Item 69 (Spares)				

MILCON					
APPN 1205	PE 0204146N	(Navy)			
	MILCON, USN				
APPN 3300	PE 0207142F	(Air Force)			
	MILCON, AF				

General Memo

F-35 is DoD's largest cooperative development program. In addition to the above DoD funding lines, eight other partner countries 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 Funding & Cost section.

Cost and Funding

Cost Summary

Total Acquisition Cost and Quantity

Appropriation	BY2002 $M SAR Baseline Dev Est	BY2002 $M Current APB Development Objective/Threshold		BY2002 $M Current Estimate	TY $M SAR Baseline Dev Est	TY $M Current APB Development Objective	TY $M Current Estimate
RDT&E	32300.0	42100.0	46310.0	40388.6	34400.0	44800.0	44502.6
Procurement	143300.0	149500.0	164450.0	161149.2	196600.0	199900.0	231735.5
Flyaway	121215.5	--	--	--	166349.7	--	--
Recurring	116093.6	--	--	--	159390.4	--	--
Non Recurring	5121.9	--	--	5718.5	6959.3	--	8037.9
Support	22084.5	--	--	--	30250.3	--	--
Other Support	15403.5	--	--	--	21109.3	--	--
Initial Spares	6681.0	--	--	--	9141.0	--	--
MILCON	1500.0	1500.0	1700.0	191.8	2000.0	2000.0	220.8
Acq O&M	--	--	--	--	--	--	--
Total	177100.0	193100.0	N/A	201729.6	233000.0	246700.0	276458.9

F-35 procurement cost reflects DoD cost only, but assumes the quantity benefits of 646 Partner aircraft anticipated under an MOU for procurement planned for signature in late 2006.

Since the Services have not yet fully established F-35 basing plans, the Milestone B and approved APB MILCON estimates reflect a top-level parametric estimate, not discrete estimates for specific sites. The Current Estimate reflects specific MILCON requirements identified in the FY 2007 President's Budget Future Years Defense Program (FYDP). The MILCON Current Estimate will continue to be updated as additional specific MILCON requirements are identified in future budget submissions.

RDT&E and Procurement estimates reflect current Program Executive Officer (PEO) assessments.

Quantity	SAR Baseline Dev Est	Current APB Development	Current Estimate
RDT&E	14	14	15
Procurement	2852	2443	2443
Total	2866	2457	2458

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

The October 2001 Milestone B procurement baseline for the Department of Navy (DoN) reflected 609 STOVL variants for United States Marine Corps (USMC) and 480 CV variants for United States Navy (USN) (DoN total of 1089). Subsequently, the DoN Navy/Marine Corps Tactical Aviation (TACAIR) Integration Plan reduced total JSF CV/STOVL procurement quantities to 680. The annual and total quantity mix (and definitive related procurement estimates), of STOVL and CV variants in FY 2012 and beyond remain To Be Determined pending further assessment by the Services. Procurement estimates will continue to be refined in future budget cycles.

The Low-Rate Initial Production (LRIP) aircraft quantity of 465 approved at Milestone B exceeded 10% of planned total production. This was necessary to meet Service Initial Operational Capability (IOC) requirements, prevent a break in production, and to ramp up to full rate production.

The Defense Acquisition Executive (DAE) approved the LRIP quantity in the Milestone B Acquisition Decision Memorandum dated October 26, 2001. The LRIP quantity has been revised based on Department decisions on program replan refinements.

The flight test aircraft quantity of 14 in the SAR development baseline has been revised to 15 as part of program replan refinements; risk funding was reallocated to the additional flight test aircraft.

Funding Summary

Appropriation and Quantity Summary

FY2007 President's Budget / December 2005 SAR (TY$ M)

Appropriation	Prior	FY2006	FY2007	FY2008	FY2009	FY2010	FY2011	To Complete	Total
RDT&E	19222.7	5400.2	4732.8	3899.0	2942.9	2290.9	1515.5	4498.6	44502.6
Procurement	0.0	118.4	1358.1	3282.7	6840.1	7178.5	7482.2	205475.5	231735.5
MILCON	55.4	0.0	0.0	85.4	80.0	0.0	0.0	0.0	220.8
Acq O&M	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PB2007 Total	19278.1	5518.6	6090.9	7267.1	9863.0	9469.4	8997.7	209974.1	276458.9
PB2006 Total	19432.4	5821.7	6527.0	7854.2	10168.0	9706.7	9036.2	188071.4	256617.6
Delta	-154.3	-303.1	-436.1	-587.1	-305.0	-237.3	-38.5	21902.7	19841.3

Quantity	Prior	FY2006	FY2007	FY2008	FY2009	FY2010	FY2011	To Complete	Total
Development	0	0	0	0	0	0	0	0	15
Production	0	0	5	16	47	56	64	2255	2443
PB2007 Total	0	0	5	16	47	56	64	2255	2458
PB2006 Total	0	0	5	18	47	56	64	2253	2458
Delta	0	0	0	-2	0	0	0	2	0

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	--	--	--	--	--	--	722.9
2003	--	--	--	--	--	--	1661.5
2004	--	--	--	--	--	--	2081.9
2005	--	--	--	--	--	--	2083.8
2006	--	--	--	--	--	--	2269.2
2007	--	--	--	--	--	--	2031.0
2008	--	--	--	--	--	--	1710.8
2009	--	--	--	--	--	--	1323.3
2010	--	--	--	--	--	--	1021.5
2011	--	--	--	--	--	--	645.4
2012	--	--	--	--	--	--	1247.8
2013	--	--	--	--	--	--	1075.0
Subtotal	**7**	**--**	**--**	**--**	**--**	**--**	**19824.7**

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	--	--	--	--	--	--	717.4
2003	--	--	--	--	--	--	1625.3
2004	--	--	--	--	--	--	1982.8
2005	--	--	--	--	--	--	1933.6
2006	--	--	--	--	--	--	2057.9
2007	--	--	--	--	--	--	1802.3
2008	--	--	--	--	--	--	1486.2
2009	--	--	--	--	--	--	1125.9
2010	--	--	--	--	--	--	851.3
2011	--	--	--	--	--	--	526.5
2012	--	--	--	--	--	--	995.9
2013	--	--	--	--	--	--	839.5
Subtotal	**7**	**--**	**--**	**--**	**--**	**--**	**17962.6**

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	--	--	--	--	--	--	720.1
2003	--	--	--	--	--	--	1612.8
2004	--	--	--	--	--	--	2021.0
2005	--	--	--	--	--	--	2080.1
2006	--	--	--	--	--	--	2333.0
2007	--	--	--	--	--	--	1999.1
2008	--	--	--	--	--	--	1708.9
2009	--	--	--	--	--	--	1393.3
2010	--	--	--	--	--	--	1103.1
2011	--	--	--	--	--	--	733.4
2012	--	--	--	--	--	--	1176.6
2013	--	--	--	--	--	--	992.7
Subtotal	**8**	**--**	**--**	**--**	**--**	**--**	**19781.5**

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	--	--	--	--	--	--	714.6
2003	--	--	--	--	--	--	1577.6
2004	--	--	--	--	--	--	1924.0
2005	--	--	--	--	--	--	1930.1
2006	--	--	--	--	--	--	2115.7
2007	--	--	--	--	--	--	1774.0
2008	--	--	--	--	--	--	1484.6
2009	--	--	--	--	--	--	1185.5
2010	--	--	--	--	--	--	919.3
2011	--	--	--	--	--	--	598.3
2012	--	--	--	--	--	--	939.1
2013	--	--	--	--	--	--	775.2
Subtotal	**8**	**--**	**--**	**--**	**--**	**--**	**17908.5**

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	--	--	--	--	--	--	425.9
2004	--	--	--	--	--	--	517.8
2005	--	--	--	--	--	--	758.6
2006	--	--	--	--	--	--	798.0
2007	--	--	--	--	--	--	702.7
2008	--	--	--	--	--	--	479.3
2009	--	--	--	--	--	--	226.3
2010	--	--	--	--	--	--	166.3
2011	--	--	--	--	--	--	136.7
2012	--	--	--	--	--	--	6.5
Subtotal	**--**	**--**	**--**	**--**	**--**	**--**	**4778.4**

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	--	--	--	--	--	--	304.1
2003	--	--	--	--	--	--	416.6
2004	--	--	--	--	--	--	493.0
2005	--	--	--	--	--	--	703.9
2006	--	--	--	--	--	--	723.7
2007	--	--	--	--	--	--	623.6
2008	--	--	--	--	--	--	416.4
2009	--	--	--	--	--	--	192.5
2010	--	--	--	--	--	--	138.6
2011	--	--	--	--	--	--	111.5
2012	--	--	--	--	--	--	5.2
Subtotal	**--**	**--**	**--**	**--**	**--**	**--**	**4393.2**

"Other RDT&E Funding" reflects financial contributions under international cooperative agreements with the following countries: United Kingdom, Canada, Denmark, the Netherlands, Norway, Italy, Turkey, and Australia.

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$
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	--	--	--	--	--	--	245.0
2008	8	--	--	169.7	--	--	1876.4
2009	32	--	--	143.7	--	--	4683.4
2010	36	--	--	127.8	--	--	4610.0
2011	33	--	--	120.2	--	--	3850.9
2012	38	--	--	228.1	--	--	4993.2
2013	45	--	--	212.5	--	--	5416.4
2014	49	--	--	186.2	--	--	5131.1
2015	50	--	--	119.8	--	--	5264.4
2016	50	--	--	119.6	--	--	5202.7
2017	50	--	--	119.7	--	--	5184.1
2018	50	--	--	121.4	--	--	5217.0
2019	50	--	--	122.8	--	--	5237.6
2020	50	--	--	125.5	--	--	5269.7
2021	50	--	--	127.3	--	--	5300.6
2022	43	--	--	111.3	--	--	4626.0
2023	38	--	--	100.4	--	--	4077.1
2024	8	--	--	24.5	--	--	820.0
Subtotal	**680**	**--**	**--**	**2280.5**	**--**	**--**	**77005.6**

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	--	--	--	--	--	--	214.8
2008	8	--	--	145.7	--	--	1610.9
2009	32	--	--	120.8	--	--	3937.6
2010	36	--	--	105.2	--	--	3794.9
2011	33	--	--	96.8	--	--	3102.3
2012	38	--	--	179.8	--	--	3936.0
2013	45	--	--	163.9	--	--	4177.7
2014	49	--	--	140.5	--	--	3872.5
2015	50	--	--	88.5	--	--	3887.7
2016	50	--	--	86.4	--	--	3759.4
2017	50	--	--	84.6	--	--	3665.2
2018	50	--	--	84.0	--	--	3609.1
2019	50	--	--	83.1	--	--	3545.4
2020	50	--	--	83.1	--	--	3490.3
2021	50	--	--	82.5	--	--	3435.3
2022	43	--	--	70.6	--	--	2933.4
2023	38	--	--	62.3	--	--	2529.7
2024	8	--	--	14.9	--	--	497.8
Subtotal	**680**	**--**	**--**	**1692.7**	**--**	**--**	**56000.0**

Cost Quantity Information
1506 | Procurement | Aircraft Procurement, Navy

Fiscal Year	Quantity	End Item Recurring Flyaway (Aligned with Quantity) BY 2002 $M
2007	--	--
2008	8	1249.1
2009	32	3319.7
2010	36	3165.5
2011	33	2602.7
2012	38	2845.3
2013	45	3114.5
2014	49	3016.8
2015	50	2929.2
2016	50	2828.1
2017	50	2754.2
2018	50	2709.8
2019	50	2660.0
2020	50	2612.7
2021	50	2567.3
2022	43	2263.1
2023	38	1971.4
2024	8	392.1
Subtotal	**680**	**43001.5**

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	--	--	--	--	--	--	118.4
2007	5	--	--	108.1	--	--	1113.1
2008	8	--	--	121.1	--	--	1406.3
2009	15	--	--	81.0	--	--	2156.7
2010	20	--	--	101.2	--	--	2568.5
2011	31	--	--	201.6	--	--	3631.3
2012	65	--	--	523.4	--	--	6854.0
2013	90	--	--	491.0	--	--	8349.9
2014	108	--	--	441.6	--	--	8472.1
2015	110	--	--	266.6	--	--	8685.3
2016	110	--	--	266.0	--	--	8637.0
2017	110	--	--	267.2	--	--	8681.5
2018	110	--	--	270.9	--	--	8820.9
2019	110	--	--	273.3	--	--	8916.6
2020	110	--	--	276.4	--	--	9016.5
2021	110	--	--	279.6	--	--	9153.2
2022	110	--	--	284.6	--	--	9360.9
2023	110	--	--	289.8	--	--	9558.0
2024	110	--	--	299.1	--	--	9811.6
2025	110	--	--	306.5	--	--	10041.4
2026	110	--	--	310.7	--	--	10046.2
2027	101	--	--	297.7	--	--	9330.5
Subtotal	**1763**	**--**	**--**	**5757.4**	**--**	**--**	**154729.9**

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	--	--	--	--	--	--	106.1
2007	5	--	--	94.8	--	--	976.0
2008	8	--	--	104.0	--	--	1207.3
2009	15	--	--	68.1	--	--	1813.3
2010	20	--	--	83.3	--	--	2114.3
2011	31	--	--	162.4	--	--	2925.4
2012	65	--	--	412.6	--	--	5402.8
2013	90	--	--	378.7	--	--	6440.3
2014	108	--	--	333.3	--	--	6394.0
2015	110	--	--	196.9	--	--	6414.1
2016	110	--	--	192.2	--	--	6241.1
2017	110	--	--	188.9	--	--	6137.9
2018	110	--	--	187.4	--	--	6102.3
2019	110	--	--	185.0	--	--	6035.7
2020	110	--	--	183.1	--	--	5972.0
2021	110	--	--	181.2	--	--	5932.1
2022	110	--	--	180.5	--	--	5935.9
2023	110	--	--	179.8	--	--	5930.4
2024	110	--	--	181.6	--	--	5956.9
2025	110	--	--	182.1	--	--	5965.0
2026	110	--	--	180.6	--	--	5839.5
2027	101	--	--	169.3	--	--	5306.8
Subtotal	**1763**	**--**	**--**	**4025.8**	**--**	**--**	**105149.2**

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

Fiscal Year	Quantity	End Item Recurring Flyaway (Aligned with Quantity) BY 2002 $M
2006	--	--
2007	5	680.2
2008	8	861.0
2009	15	1252.0
2010	20	1441.9
2011	31	2009.1
2012	65	3989.6
2013	90	4962.2
2014	108	5188.0
2015	110	5086.9
2016	110	4944.5
2017	110	4859.1
2018	110	4831.1
2019	110	4777.6
2020	110	4725.1
2021	110	4691.4
2022	110	4700.5
2023	110	4699.3
2024	110	4750.9
2025	110	4766.2
2026	110	4663.5
2027	101	4410.5
Subtotal	**1763**	**82290.6**

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

Fiscal Year	Total Program TY $M
2004	24.4
Subtotal	**24.4**

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

Fiscal Year	Total Program BY 2002 $M
2004	22.8
Subtotal	**22.8**

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

Fiscal Year	Total Program TY $M
2004	20.1
2005	10.9
2006	--
2007	--
2008	85.4
2009	80.0
Subtotal	**196.4**

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

Fiscal Year	Total Program BY 2002 $M
2004	18.8
2005	10.0
2006	--
2007	--
2008	73.1
2009	67.1
Subtotal	**169.0**

Low Rate Initial Production

None

Foreign Military Sales

None

Nuclear Cost

None

Unit Cost

Unit Cost Report

	BY2002 $M		
Unit Cost	**Current UCR Baseline (MAR 2004 APB)**	**Current Estimate (DEC 2005 SAR)**	**BY % Change**
Program Acquisition Unit Cost (PAUC)			
Cost	193100.0	201729.6	
Quantity	2457	2458	
Unit Cost	78.592	82.071	+4.43
Average Procurement Unit Cost (APUC)			
Cost	149500.0	161149.2	
Quantity	2443	2443	
Unit Cost	61.195	65.964	+7.79

	BY2002 $M		
Unit Cost	**Original UCR Baseline (OCT 2001 APB)**	**Current Estimate (DEC 2005 SAR)**	**BY % Change**
Program Acquisition Unit Cost (PAUC)			
Cost	177100.0	201729.6	
Quantity	2866	2458	
Unit Cost	61.793	82.071	**+32.82** [1]
Average Procurement Unit Cost (APUC)			
Cost	143300.0	161149.2	
Quantity	2852	2443	
Unit Cost	50.245	65.964	**+31.28** [1]

	TY $M		
Unit Cost	**Current UCR Baseline (MAR 2004 APB)**	**Current Estimate (DEC 2005 SAR)**	**TY % Change**
Program Acquisition Unit Cost (PAUC)			
Cost	246700.0	276458.9	
Unit Cost	100.407	112.473	+12.02
Average Procurement Unit Cost (APUC)			
Cost	199900.0	231735.5	
Unit Cost	81.826	94.857	+15.93

	TY $M		
Unit Cost	**Original UCR Baseline (OCT 2001 APB)**	**Current Estimate (DEC 2005 SAR)**	**TY % Change**
Program Acquisition Unit Cost (PAUC)			
Cost	233000.0	276458.9	
Unit Cost	81.298	112.473	+38.35
Average Procurement Unit Cost (APUC)			
Cost	196600.0	231735.5	
Unit Cost	68.934	94.857	+37.61

[1] **Nunn-McCurdy Breach**

Unit Cost Breach Data

Changes from Previous SAR	**$M/Qty.**	**Percent**
PAUC (BY $M)	3.748	+4.79
APUC (BY $M)	4.434	+7.21
PAUC Quantity		0.00
PAUC (TY $M)	8.072	+7.73
APUC (TY $M)	8.613	+9.99

Initial SAR Information DEC 1996	**BY2002 $M**	**TY $M**
Program Aquisition Cost	18860.4	23165.9

Unit Cost PAUC Changes

The above Nunn McCurdy breaches of 32.8% PAUC and 31.32% APUC ($BY02) against the Milestone B (October 2001) baseline are primarily due to historical increases previously reported. The December 2003 SAR addressed PAUC and APUC increases of 26.2% and 21.7%, including programmatic changes, against the MS B baseline. The associated reported Nunn McCurdy determinations were 19.4% for PAUC and 18.8% for APUC, which excluded increases due to programmatic changes. Subsequent increases to PAUC and APUC are primarily due to estimated procurement cost increases. Details are provided below.

PAUC increases:
Historical increases reported in December 2003 SAR
- Reduction of Department of Navy total Carrier Variant (CV)/Short Take-Off Vertical Landing (STOVL) planned procurement quantity from 1089 aircraft to 680 aircraft in accordance with the Tactical Aircraft (TACAIR) Integration Plan (Programmatic);
- Added Research Development Test & Evaluation scope for design, development, verification, and test of the JSF International partner configuration in accordance with System Development and Demonstration (SDD) cooperative agreements signed after MS B and after award of the SDD contracts (Programmatic);
- Added procurement scope due to the Services' decision to procure the Electro-Optical Tracking System (EOTS) for each JSF aircraft instead one-third of production aircraft as planned at MS B (Programmatic);
- Revised RDT&E estimate for completion of General Electric (GE) F136 engine development including additional components and test to enhance interchangeability with the Pratt and Whitney F135 engine;
- SDD schedule extension for additional design maturation and known and unknown risks (including anti-tamper);
- Procurement labor and overhead rate increases;
- Procurement configuration update and refined support requirements definitions;
- One year production delay, revised Low Rate Initial Production (LRIP) buy profile, and associated increases due to learning curves, rate, and supplier confidence cost factors;

- Multi-Year Procurement (MYP) delayed from FY 2012 to FY 2014.

December 2005 increases
- Increase due to aircraft configuration update and methodology changes;
- Increase in cost of materials for airframe;
- Change in subcontractor manufacturing plan for the wing;
- Revised assumptions for prime and subcontractors work share including impacts on labor rates.

Unit Cost APUC Changes

APUC Increases:
Historical increases reported in December 2003 SAR
- Procurement labor and overhead rate increases;
- Procurement configuration update and refined support requirement definitions;
- One year production delay, revised LRIP buy profile, and associated increases due to learning curves, rate, and supplier confidence cost factors;
- Multi-Year Procurement (MYP) delayed from FY 2012 to FY 2014.

December 2005 increases
- Increase due to aircraft configuration update and methodology changes;
- Increase in cost of materials for airframe;
- Change in subcontractor manufacturing plan for the wing;
- Revised assumptions for prime and subcontractors work share including impacts on labor rates.

Impact of Performance or Schedule Changes

Impact of Performance or Schedule Changes
Historical increases reported in December 2003 SAR
-Delay of SDD first flights
-Delay of LRIP start by one year
-Delay of Initial Operating Capability (IOC)
-Revised procurement profiles
-Revised schedule milestones were included in the March 2004 revised Acquisition Program Baseline (APB) and reflected in Section 9.

December 2005 change
-STOVL First Flight delay

Program Management or Control

Program Management & Control

Program Manager - Rear Admiral Steven Enewold
Deputy Program Manager - Brig. Gen Charles Davis

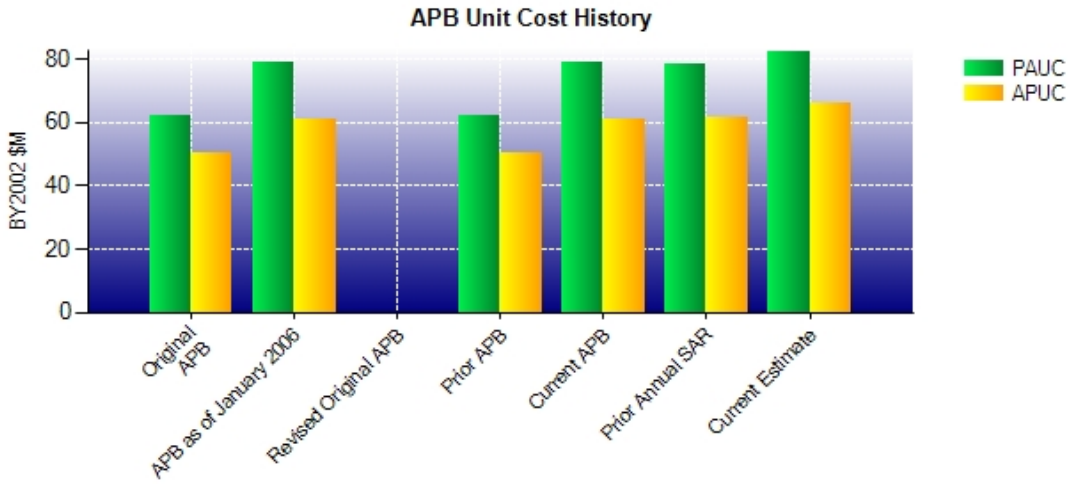
Cost Control Actions

The FY 2005 President's Budget realigned JSF procurement funding to offset RDT&E shortfalls. Office of Secretary of Defense (OSD) chartered an Independent Review Team to assess the program's overall status/risks and make recommendations. The Department completed System Development & Demonstration replan contract modifications in October 2005 in accordance with the Defense Acquisition Board (DAB) approved replan strategy. Prime contract Performance Measurement Baselines were revised consistent with the replan. Cost is a factor in any Air System performance trade-off analyses. The Under Secretary of Defense, Acquisition Technology and Logistics (USD AT&L) approved a revised Acquisition Program Baseline (APB) on March 17, 2004 with updated cost objectives and thresholds. There is no cost breach to the current APB.

Nunn-McCurdy Comments

The Unit Cost Report (UCR) Baseline includes the quantity benefit of 150 United Kingdom (UK) aircraft only. Current Estimates of PAUC and APUC include the quantity benefit of 138 UK and 508 other International Partner aircraft. Excluding the benefits of the 508 other International Partner aircraft, PAUC and APUC would be $84.5 (+8%) and $68.4 (+12%), respectively (% increases are in comparison to Current APB).

Unit Cost History



		BY2002 $M		TY $M	
	Date	PAUC	APUC	PAUC	APUC
Original APB	OCT 2001	61.793	50.245	81.298	68.934
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	OCT 2001	61.793	50.245	81.298	68.934
Current APB	MAR 2004	78.592	61.195	100.407	81.826
Prior Annual SAR	DEC 2004	78.323	61.530	104.401	86.244
Current Estimate	DEC 2005	82.071	65.964	112.473	94.857

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	3.095	2.334	7.488	4.381	8.800	0.000	5.077	31.175	112.473

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	2.693	1.129	4.314	3.311	9.367	0.000	5.109	25.923	94.857

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	N/A
Milestone B	MAR 2001	OCT 2001	N/A	N/A
Milestone C	TBD	APR 2012	N/A	OCT 2013
IOC	TBD	APR 2010	N/A	MAR 2012
Total Cost (TY $M)	24800.0	233000.0	N/A	276458.9
Total Quantity	N/A	2866	N/A	2458
Prog. Acq. Unit Cost (PAUC)	N/A	81.298	N/A	112.473

SAR Planning Estimate reflected RDT&E cost only, in accordance with 10 USC 2432.

Cost Variance

Summary Then Year $M				
	RDT&E	Proc	MILCON	Total
SAR Baseline (Dev Est)	34400.0	196600.0	2000.0	233000.0
Previous Changes				
Economic	+398.6	+1760.0	+6.5	+2165.1
Quantity	0.0	-25434.9	0.0	-25434.9
Schedule	+7866.9	+10445.9	0.0	+18312.8
Engineering	+2427.8	+7556.0	+252.8	+10236.6
Estimating	+609.0	+11687.9	-38.5	+12258.4
Other	0.0	0.0	0.0	0.0
Support	0.0	+8079.6	0.0	+8079.6
Subtotal	+11302.3	+14094.5	+220.8	+25617.6
Current Changes				
Economic	+623.1	+4818.6	+1.0	+5442.7
Quantity	--	--	--	--
Schedule	--	+93.5	--	+93.5
Engineering	--	+531.6	--	+531.6
Estimating	-1822.8	+11196.7	-1.0	+9372.9
Other	--	--	--	--
Support	--	+4400.6	--	+4400.6
Subtotal	-1199.7	+21041.0	0.0	+19841.3
Adjustments	0.0	0.0	-2000.0	-2000.0
Total Changes	+10102.6	+35135.5	-1779.2	+43458.9
CE - Cost Variance	44502.6	231735.5	220.8	276458.9
CE - Cost & Funding	44502.6	231735.5	220.8	276458.9

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	0.0	0.0	0.0	0.0
Quantity	0.0	-16249.1	0.0	-16249.1
Schedule	+6779.4	+1359.5	0.0	+8138.9
Engineering	+2231.0	+5481.7	+227.3	+7940.0
Estimating	+698.9	+11333.3	-34.6	+11997.6
Other	0.0	0.0	0.0	0.0
Support	0.0	+5091.6	0.0	+5091.6
Subtotal	+9709.3	+7017.0	+192.7	+16919.0
Current Changes				
Economic	--	--	--	--
Quantity	--	--	--	--
Schedule	--	+69.0	--	+69.0
Engineering	--	+338.8	--	+338.8
Estimating	-1620.9	+7461.9	-0.9	+5840.1
Other	--	--	--	--
Support	--	+2962.5	--	+2962.5
Subtotal	-1620.9	+10832.2	-0.9	+9210.4
Adjustments	0.0	0.0	-1500.0	-1500.0
Total Changes	+8088.4	+17849.2	-1308.2	+24629.4
CE - Cost Variance	40388.4	161149.2	191.8	201729.4
CE - Cost & Funding	40388.6	161149.2	191.8	201729.6

Previous Estimate: December 2004

RDT&E	$M	
Current Change Explanations	**Base Year**	**Then Year**
Increased Pratt & Whitney F135 flight test assets and support required to offset cancelled F136 scope (Estimating)	+79.0	+100.0
Realignment of funding to out-years due to Congressional and Service FYDP reductions (Estimating)	+44.4	+130.0
Revised escalation indices (Economic)	N/A	+623.1
Refinement of International Partner Contributions (Estimating)	-1.0	-1.7
Adjustment for Current and Prior Inflation (Estimating)	-0.1	-0.1
Cancellation of F136 Engine effective FY 2007 (Estimating)	-1743.2	-2051.0
RDT&E Subtotal	-1620.9	-1199.7

Procurement	$M	
Current Change Explanations	**Base Year**	**Then Year**
Delay procurement of 2 STOVL aircraft from FY08 to FY24 (Schedule)	+69.0	+93.5
Design maturation to reflect government assessment based on Lockheed Martin 240-4.2 configuration (Engineering)	-1943.0	-3017.3
Revised escalation indices (Economic)	N/A	+4818.6
Increased cost of materials for airframe (Estimating)	+6676.8	+10252.9
Change in subcontractor manufacturing plan for the wing (Engineering)	+2281.8	+3548.9
Learning curve adjustment to reflect single engine source (Estimating)	-3289.2	-5112.5
Revised inflation impact assumptions and methodology, including differences between OSD/OMB inflation indices and industry projections (Estimating)	+6529.1	+9872.9
Revised assumptions for prime and subcontractors work share including impacts on labor rates (Estimating)	+3650.2	+5519.6
Refined Estimating Methodology (Estimating)	-102.4	-90.3
Revised assumptions to reflect the benefits of additional Partner quantites (Estimating)	-6000.7	-9243.8
Adjustment for Current and Prior Inflation (Estimating)	-1.9	-2.1
Increase due to aircraft configuration update and methodology changes (Support)	+2962.5	+4400.6
Procurement Subtotal	+10832.2	+21041.0

MILCON	$M	
Current Change Explanations	**Base Year**	**Then Year**
Adjustment for Current and Prior Inflation. (Estimating)	-0.9	-1.0
Revised escalation indices. (Economic)	N/A	+1.0
MILCON Subtotal	-0.9	0.0

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	25704.1	N/A	14	25704.1	25704.1

	Cost Variance	Schedule Variance
Previous Cumulative Variances	-444.8	-684.2
Cumulative Variances To Date (12/25/2005)	-111.7	-102.6
Net Change	+333.1	+581.6
Percent Variance	-1.21	-1.10
Percent Complete	+41.57	

Cost And Schedule Variance Explanations

The net favorable change in cost variance was primarily due to rebaselining, offset by delays in Build-to-Packages for Airframe.

The net favorable change in schedule variance was due primarily to rebaselining, offset by delays in Airframe Build-to-Packages. These delays impact Production Engineering.

Contract Comments

The SDD contract price increased from $19,670 to $25,704 due to schedule extension and scope adjustments in accordance with the approved program Replan.

Appropriation: RDT&E	
Contract Name	**Propulsion JSF F135 SDD**
Contractor	Pratt and Whitney
Contractor Location	East Hartford , CT 06057
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	5819.1	N/A	33	5819.1	5819.1

	Cost Variance	Schedule Variance
Previous Cumulative Variances	-25.9	-29.2
Cumulative Variances To Date	-106.3	-27.2
Net Change	-80.4	+2.0
Percent Variance	-3.93	-1.00
Percent Complete	+53.93	

Cost And Schedule Variance Explanations

The net unfavorable change in cost variance was due primarily to cost increase for lift system design and development, turbine exhaust case and augmentor design and rework, and test support.

The net favorable change in schedule variance was due primarily to rebaselining, offset by delays in hardware deliveries and test.

Contract Comments

The contract price increased from $4,851M to $5,819M due to schedule extension and added scope in accordance with the approved program Replan.

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	0	2486.2	N/A	0	2486.2	434.9

	Cost Variance	Schedule Variance
Previous Cumulative Variances	--	--
Cumulative Variances To Date (11/30/2005)	+1.7	-2.4
Net Change	+1.7	-2.4
Percent Variance	+3.18	-4.30
Percent Complete	+2.73	

Cost And Schedule Variance Explanations

This is a new contract. The preliminary cost variance data reflects contract start-up and is not sufficient to indicate trends. Program Manager's Estimate at Completion reflects F136 funds deletion FY 2007 and subsequent years.

Contract Comments

Contract N00019-19C-0176 is complete and no longer reported.

Deliveries and Expenditures

Deliveries To Date	Plan	Actual	Total Quantity	Percent Delivered
Development	0	0	15	0.00%
Production	0	0	2443	0.00%
Total Program Quantities Delivered	0	0	2458	0.00%

Expenditures and Appropriations (TY $M)			
Total Acquisition Cost	276458.9	Years Appropriated	13
Expenditures To Date	18930.2	Percent Years Appropriated	38.24%
Percent Expended	6.85%	Appropriated to Date	24796.7
Total Funding Years	34	Percent Appropriated	8.97%

Operating and Support Cost

Assumptions and Ground Rules

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.

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-35 CTOL costs reflect 24-aircraft squadrons operating at 300 flying hours per aircraft per year. F-16 costs have been normalized to the same groundrules as were used in estimating the F-35 CTOL costs. The F-16 costs are reconciled numbers developed in a joint effort by the F-35 Program Office and the Air Force, and reflected in F-35 Milestone B briefings in Fall 2001.

"Total O&S Cost" ($ in Millions) below reflects total O&S costs for all three 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	JSF Cost per Flying Hour ($)	F-16C/D Cost per Flying Hour ($)
Mission Pay & Allowance	3.040	5.233
Unit Level Consumption	3.937	3.507
Intermediate Maintenance	0.000	0.003
Depot Maintenance	0.505	0.293
Contractor Support	0.000	0.044
Sustaining Support	0.848	0.627
Indirect	1.407	2.329
Other	--	--
Total Unitized Cost (Base Year 2002 $)	9.737	12.036

Total O&S Costs $M	JSF	F-16C/D
Base Year	135900.0	--
Then Year	346733.0	--

Defense Acquisition Management
Information Retrieval
(DAMIR)

Selected Acquisition Report (SAR)

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

F-35 (JSF)

As of December 31, 2006

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Program Information

Designation And Nomenclature (Popular Name)

Joint Strike Fighter Program

DoD Component

DoD

Joint Participants

USAF; USN; USMC; DARPA; United Kingdom; Norway; Denmark; the Netherlands; Canada; Italy; Turkey; Australia

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 Navy.

Responsible Office

Responsible Office

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DSN Phone 332-7640
DSN Fax --

Date Assigned July 10, 2006

References

SAR Baseline (Development Estimate)

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

Approved APB

DAE Approved Acquisition Program Baseline (APB) dated March 30, 2007

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/A-22. The Short Takeoff and Vertical Landing (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 Sea Harrier and GR-7 for the United Kingdom Royal Navy and Royal Air Force, respectively. The CV will provide the Navy a multi-role, stealthy strike fighter aircraft to complement the F/A-18E/F. The cornerstone of the JSF Program is affordability -- reducing the development cost, production cost, and cost of ownership of the JSF family of aircraft. The program was structured from the beginning to be a model of acquisition reform, with an emphasis on jointness, technology maturation and concept demonstrations, and early cost and performance trades integral to the weapon system requirements definition process.

Executive Summary

The Department of Defense established the F-35 Joint Strike Fighter Program, originally named Joint Advanced Strike Technology (JAST) Program, in 1993. Fiscal Year (FY) 1995 legislation merged the Defense Advanced Research Projects Agency (DARPA) Advanced Short Take-Off and Landing (ASTOVL) program with the then-JAST Program. Facilitated by the JSF Program Office, the Services evolved weapon system requirements based on extensive cost and performance trades emphasizing Cost As an Independent Variable (CAIV). The process culminated in the Services' Joint Operational Requirements Document in March 2000, revalidated by the Joint Requirements Oversight Council (JROC) in October 2001.The Concept Demonstration Phase (CDP) commenced in November 1996 with competitive contract awards to Boeing and Lockheed Martin, with Pratt and Whitney providing propulsion hardware and engineering support. The Milestone B Defense Acquisition Board (DAB) review was held on October 24, 2001. On October 25, 2001 the Secretary of Defense provided certification to Congress (in accordance with Section 212 of the FY 2001 Defense Authorization Act) that the JSF program successfully completed the CDP exit criteria and demonstrated sufficient technical maturity to enter System Development and Demonstration(SDD). On October 26, 2001 SDD contracts were awarded to Lockheed Martin and Pratt and Whitney. General Electric continued technical efforts related to development of a second engine source for competition in production.

The program completed its fifth year of SDD in October 2006. Execution of the approved replan continues, based around sequential development of each Service variant and phased (block) implementation of software intensive mission systems capabilities. No known technical issues preclude achievement of Service IOCs. The Critical Design Review for the CTOL and STOVL variants was conducted in February 2006. A March 2006 DAB review approved award of Low Rate Initial Production (LRIP) I advanced procurement contracts in April 2006. Detailed design work continued for the production representative CTOL and CV variants. Manufacture of the initial CTOL flight test aircraft, AA-1, completed and first flight occurred on December 15, 2006. Prior to removal from flight status January 31 for a planned maintenance period and Flight Test Software update, it made a total of seven flights for a total of 6.8 hours and experienced no major problems. Performance envelope expansion included altitude of 23,000ft, Mach 0.8, 16 degrees Angle-of-Attack, and full afterburner. AA-1 greatly contributed to validation of the program's design and production processes by demonstrating the following: actual weight within 0.1% of predicted; no fuel leaks during ground tests (unprecedented); high level of quality in manufacturing and assembly; and a high frequency of flights. Ten SDD aircraft are currently in production flow, with an additional unit starting every month. Deliveries of SDD aircraft are approximately 4 months behind planned, resulting in delays to first flights. Mitigation plans are in place and reflected in the updated Master Schedule (Version 5). Challenges remain, but development is on track, and DoD closely monitors program progress on technical issues and risk mitigation. Extensive use of digital design and development tools, ground test laboratories, modeling and simulation techniques and flying test beds continued to mature designs and burn-down development risk far in advance of flight testing. The Critical Design Review for the Autonomic Logistics Information System (ALIS) was conducted in November 2006. The Cooperative Avionics Test Bed (CATB) successfully completed six airworthiness flights since its inaugural flight on January 23, 2007. As of January 9, 2007 the program completed 7,050 test hours on twelve F135 Pratt and Whitney propulsion systems, with 261 test hours completed on two F136 engines.

The FY 2008 President's Budget request (PB-08) reduced annual procurement quantities due to procurement cost increases and constrained Service resources. Procurement of the CV variant is delayed to LRIP IV to lessen schedule

pressures for design maturation. PB-08 omits funding for continued F136 engine development in FY 2008 and beyond. As directed by the FY 2007 Defense Authorization Act, three independent studies are underway to assess alternative propulsion acquisition strategies and various cost implications. The General Accounting Office (GAO), the Office of the Secretary of Defense Cost Analysis Improvement Group (CAIG) and the Institute for Defense Analysis (IDA) are performing the studies. Finalization of the capability block plan, including software, continues to progress according to plan.

The F-35 remains the Department of Defense's largest cooperative program (see "track-to-Budget"). Israel and Singapore are Security Cooperation Participants with specific case scope outside the cooperative development partnership. In February 2007, the US and eight SDD international partners completed signature of the Production Sustainment and Follow-on Development Memorandum of Understanding.

The Department designated F-35 "Lightning II" in July 2006.

The Undersecretary of Defense for Acquisition, Technology and Logistics [USD (AT&L)] approved a revised APB on March 30, 2007.

There are no significant software issues for the program at this time.

Threshold Breaches

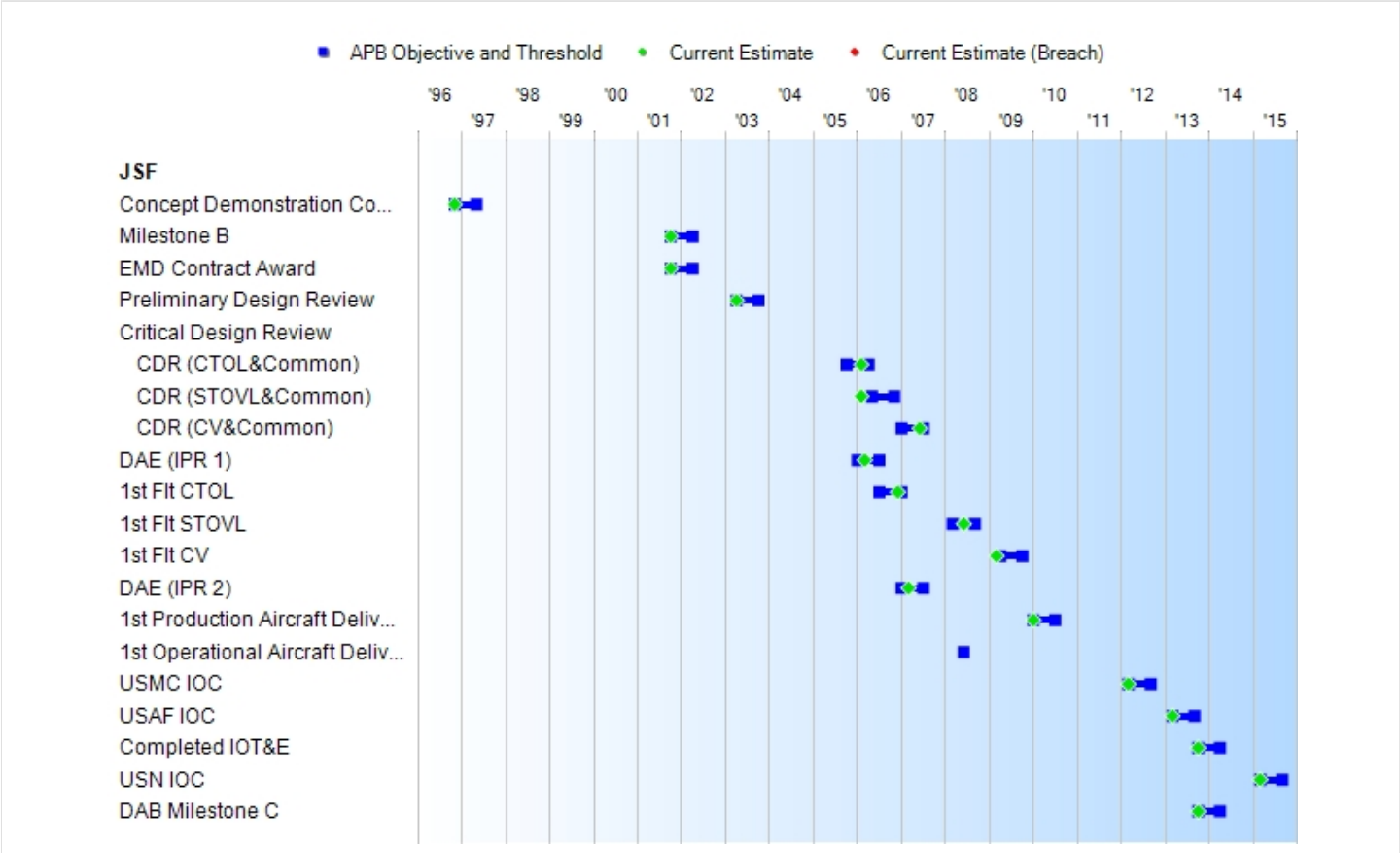
APB Breaches		
Schedule		☐
Performance		☐
Cost	RDT&E	☐
	Procurement	☐
	MILCON	☐
	Acq O&M	☐
Unit Cost	PAUC	☐
	APUC	☐

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

Explanation of Breach

This program reflects a significant Nunn-McCurdy breach to the original baseline that was first reported in the December 2005 SAR. The supporting breach information and explanations can be found in the Unit Cost Report section of that SAR.

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
'13
'14
'15
JSF
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 Deliv...
USMC IOC
USAF IOC
Completed IOT&E
USN IOC
DAB Milestone C

Milestones	SAR Baseline Dev Est	Current APB Development Objective/Threshold		Current Estimate
Concept Demonstration Contract Award	NOV 1996	NOV 1996	MAY 1997	NOV 1996
Milestone B	OCT 2001	OCT 2001	APR 2002	OCT 2001
EMD Contract Award	OCT 2001	OCT 2001	APR 2002	OCT 2001
Preliminary Design Review	APR 2003	APR 2003	OCT 2003	APR 2003
Critical Design Review				
CDR (CTOL&Common)	APR 2004	OCT 2005	APR 2006	FEB 2006
CDR (STOVL&Common)	OCT 2004	MAY 2006	NOV 2006	FEB 2006
CDR (CV&Common)	JUL 2005	JAN 2007	JUL 2007	JUN 2007
DAE (IPR 1)	APR 2005	JAN 2006	JUL 2006	MAR 2006
1st Flt CTOL	NOV 2005	JUL 2006	JAN 2007	DEC 2006
1st Flt STOVL	APR 2006	MAR 2008	SEP 2008	JUN 2008
1st Flt CV	JAN 2007	APR 2009	OCT 2009	MAR 2009
DAE (IPR 2)	APR 2006	JAN 2007	JUL 2007	MAR 2007
1st Production Aircraft Delivered	N/A	JAN 2010	JUL 2010	JAN 2010
1st Operational Aircraft Delivered	JUN 2008	N/A	N/A	N/A
USMC IOC	APR 2010	MAR 2012	SEP 2012	MAR 2012
USAF IOC	JUN 2011	MAR 2013	SEP 2013	MAR 2013
Completed IOT&E	MAR 2012	OCT 2013	APR 2014	OCT 2013
USN IOC	APR 2012	MAR 2015	SEP 2015	MAR 2015
DAB Milestone C	APR 2012	OCT 2013	APR 2014	OCT 2013

Acronyms

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

None

Memo

Change Explanations:
The current estimate reflects F-35 replan schedule refinements. Estimates have changed from the December 2005 report as follows:

Performance

Characteristics	SAR Baseline Dev Est	Current APB Development 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	Execute 550 ft. STO with 4 JDAM (2 external & 2 internal), 2 AIM-120 (internal), fuel to fly 550nm	Execute 550 ft. STO with 2 JDAM (internal), 2 AIM-120 (internal), fuel to fly 450nm	TBD	Execute 515 ft. STO with 2 JDAM (internal), 2 AIM-120 (internal), fuel to fly 450nm
Combat Radius NM - CTOL Variant	690	690	590	TBD	625
Combat Radius NM - STOVL Variant	550	550	450	TBD	498
Combat Radius NM -CV Variant	730	730	600	TBD	642
Internal Weapons Carriage - CTOL Variant	Sufficient bay volume to load, c arry & employ objective Annex A weapons	Sufficient bay volume to load, carry & employ objective Annex A weapons	Sufficient bay volume to load, carry & employ threshold Annex A weapons	TBD	Sufficient bay volume to load, carry & employ threshold Annex A weapons
Internal Weapons Carriage - STOVL Variant	Sufficient bay volume to load, c arry & employ objective Annex A weapons	Sufficient bay volume to load, carry & employ objective Annex A weapons	Sufficient bay volume to load, carry & employ threshold Annex A weapons	TBD	Sufficient bay volume to load, carry & employ threshold Annex A weapons
Internal Weapons Carriage - CV Variant	Sufficient bay volume to load, c arry & employ objective Annex A weapons	Sufficient bay volume to load, carry & employ objective Annex A weapons	Sufficient bay volume to load, carry & employ threshold Annex A weapons	TBD	Sufficient bay volume to load, carry & employ threshold Annex A weapons
Radio Frequency (RF) Signature	See Classified Extract	See Classified Extract	See Classified Extract	TBD	Classified
Logistic Footprint -CTOL Variant	Less than or equal to 6 C-17 equivalent	Less than or equal to 6 C-17	Less than or equal to 8 C-17 equivalent	TBD	Less than or equal to 6.78 C-17

	loads	equivalent loads	loads		equivale n t loads
Logistic Footprint -STOVL Variant	Less than or equal to 4 C-17 equivalent loads	Less than or equal to 4 C-17 equivalent loads	Less than or equal to 8 C-17 equivalent loads	TBD	Less than or equal to 5.28 C-17 equivale n t loads
Logistic Footprint -CV Variant	Less than or equal to 46,000 cu ft, 183 Short Tons	Less than or equal to 34,000 cu ft, 183 Short Tons	Less than or equal to 46,000 cu ft, 243 Short Tons	TBD	Less than or equal to 15,310 cu ft, 109.2 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	4/day initial surge; 3/day sustained surge; 2/day Wartime Sustained based on ASD of 2.5	3/day initial surge; 2/day sustained surge; 1/day Wartime Sustained based on ASD of 2.5	TBD	3.68/day initial surge; 3.37/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	4/day initial surge; 3/day sustained surge; 1/day Wartime Sustained based on ASD of 1.8	3/day initial surge; 2/day sustained surge; 1/day Wartime Sustained based on ASD of 1.8	TBD	4.05/day initial surge; 3.01/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	6/day initial surge; 4/day sustained surge; 2/day Wartime Sustained based on ASD of 1.1	4/day initial surge; 3/day sustained surge; 1/day Wartime Sustained based on ASD of 1.1	TBD	6.51/day initial surge; 5.89/day sustained surge; 1/day Wartime sustained based on ASD of 1.1
Interoperability	100% of all top level IE Rs	100% of all top level IERs	100% of critical top level IERs	TBD	Less than 100 % of critical top level IERs
Mission Reliability	98% for all variants at ASD's listed in Table 13	98% for all variants at ASD's listed in Table 13	95% for CV & STOVL & 93% for CTOL at ASD's listed in Table 13.	TBD	97.8% for CV, 98.3 % for STOVL & 97.6% for CTOL at ASD's listed in Table 13

CV Recovery Performance, Approach Speed	Max approach speed (Vpa) at Required Carrier Landing Weight (RCLW) of less than 140 kts	Max approach speed (Vpa)at Required Carrier Landing Weight (RCLW) of less than 140 kts	Max approach speed (Vpa) at Required Carrier Landing Weight (RCLW) of less than 145 kts w/15 kts WOD at RCLW	TBD	Max approach speed (Vpa) at Required Carrier Landing Weight (RCLW) of less than approxim a tely 142.6 kts w/15 kts WOD at RCLW

Acronyms

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
WOD - Wind Over the Deck

Change Explanations

None

Memo

Change Explanations:
The current estimate changed from the December 2005 report as follows due to design maturation:

Track To Budget

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

Procurement					
APPN 1506	BA 06	(Navy)	ICN 0605	(Shared)	
	Initial Spares (Navy)				
APPN 3010	BA 06	(Air Force)	ICN ATA000	(Shared)	
	Initial Spares (Air Force)				
APPN 3010	BA 01	(Air Force)			Invalid item control number (P-1) removed.
	JSF (Air Force)				
APPN 1506	BA 06	(Navy)		(Shared)	Invalid item control number (P-55) removed.
	Initial Spares (Navy)				
APPN 1506	BA 01	(Navy)			Invalid item control number (P-6) removed.
	JSF (Navy)				

MILCON		
APPN 1205	PE 0204146N	(Navy)
	MILCON, USN	
APPN 3300	PE 0207142F	(Air Force)
	MILCON, AF	

General Memo

F-35 is DoD's largest cooperative development program. In addition to the above DoD funding lines, eight other partner countries 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 Funding & Cost section.

Cost and Funding

Cost Summary

Total Acquisition Cost and Quantity

	BY2002 $M				TY $M		
Appropriation	SAR Baseline Dev Est	Current APB Development Objective/Threshold		Current Estimate	SAR Baseline Dev Est	Current APB Development Objective	Current Estimate
RDT&E	32300.0	42100.0	46310.0	39987.8	34400.0	44800.0	44194.1
Procurement	143300.0	168980.8	185878.9	168980.8	196600.0	231735.5	255096.9
Flyaway	121215.5	--	--	135678.0	166349.7	--	205189.8
Recurring	116093.6	--	--	129582.1	159390.4	--	196299.4
Non Recurring	5121.9	--	--	6095.9	6959.3	--	8890.4
Support	22084.5	--	--	33302.8	30250.3	--	49907.1
Other Support	15403.5	--	--	21219.2	21109.3	--	31543.6
Initial Spares	6681.0	--	--	12083.6	9141.0	--	18363.5
MILCON	1500.0	1500.0	1700.0	433.0	2000.0	2000.0	533.1
Acq O&M	--	--	--	--	--	--	--
Total	177100.0	212580.8	N/A	209401.6	233000.0	278535.5	299824.1

Quantity	SAR Baseline Dev Est	Current APB Development	Current Estimate
RDT&E	14	15	15
Procurement	2852	2443	2443
Total	2866	2458	2458

Funding Summary

Appropriation and Quantity Summary

FY2008 President's Budget / December 2006 SAR (TY$ M)

Appropriation	Prior	FY2007	FY2008	FY2009	FY2010	FY2011	FY2012	FY2013	To Complete	Total
RDT&E	24443.3	4997.9	3966.8	3311.5	2357.3	1991.4	1727.3	1398.6	0.0	44194.1
Procurement	117.4	773.0	2778.8	3715.3	6065.3	6966.8	10589.8	10869.8	213220.7	255096.9
MILCON	55.1	0.0	74.3	64.5	98.4	128.9	34.0	77.9	0.0	533.1
Acq O&M	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PB2008 Total	24615.8	5770.9	6819.9	7091.3	8521.0	9087.1	12351.1	12346.3	213220.7	299824.1
PB2007 Total	24796.7	6090.9	7267.1	9863.0	9469.4	8997.7	14278.1	15834.0	179862.0	276458.9
Delta	-180.9	-320.0	-447.2	-2771.7	-948.4	89.4	-1927.0	-3487.7	33358.7	23365.2

Quantity	Prior	FY2007	FY2008	FY2009	FY2010	FY2011	FY2012	FY2013	To Complete	Total
Development	0	0	0	0	0	0	0	0	0	15
Production	0	2	12	16	30	43	82	90	2168	2443
PB2008 Total	0	2	12	16	30	43	82	90	2168	2458
PB2007 Total	0	5	16	47	56	64	103	135	2017	2458
Delta	0	-3	-4	-31	-26	-21	-21	-45	151	0

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	--	--	--	--	--	--	2163.9
2008	--	--	--	--	--	--	1707.4
2009	--	--	--	--	--	--	1548.9
2010	--	--	--	--	--	--	1045.3
2011	--	--	--	--	--	--	1065.9
2012	--	--	--	--	--	--	745.6
2013	--	--	--	--	--	--	663.7
Subtotal	**7**	**--**	**--**	**--**	**--**	**--**	**19605.8**

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	--	--	--	--	--	--	1980.1
2005	--	--	--	--	--	--	1931.2
2006	--	--	--	--	--	--	1971.8
2007	--	--	--	--	--	--	1904.4
2008	--	--	--	--	--	--	1468.3
2009	--	--	--	--	--	--	1302.8
2010	--	--	--	--	--	--	860.8
2011	--	--	--	--	--	--	860.1
2012	--	--	--	--	--	--	589.8
2013	--	--	--	--	--	--	514.8
Subtotal	**7**	**--**	**--**	**--**	**--**	**--**	**17722.5**

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	--	--	--	--	--	--	2132.9
2008	--	--	--	--	--	--	1780.9
2009	--	--	--	--	--	--	1541.7
2010	--	--	--	--	--	--	1146.0
2011	--	--	--	--	--	--	789.0
2012	--	--	--	--	--	--	975.2
2013	--	--	--	--	--	--	734.9
Subtotal	**8**	**--**	**--**	**--**	**--**	**--**	**19695.8**

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	--	--	--	--	--	--	1921.6
2005	--	--	--	--	--	--	1927.8
2006	--	--	--	--	--	--	2041.8
2007	--	--	--	--	--	--	1877.2
2008	--	--	--	--	--	--	1531.5
2009	--	--	--	--	--	--	1296.8
2010	--	--	--	--	--	--	943.7
2011	--	--	--	--	--	--	636.7
2012	--	--	--	--	--	--	771.5
2013	--	--	--	--	--	--	570.0
Subtotal	**8**	**--**	**--**	**--**	**--**	**--**	**17771.1**

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	--	--	--	--	--	--	758.6
2006	--	--	--	--	--	--	802.5
2007	--	--	--	--	--	--	701.1
2008	--	--	--	--	--	--	478.5
2009	--	--	--	--	--	--	220.9
2010	--	--	--	--	--	--	166.0
2011	--	--	--	--	--	--	136.5
2012	--	--	--	--	--	--	6.5
Subtotal	**--**	**--**	**--**	**--**	**--**	**--**	**4774.5**

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	--	--	--	--	--	--	703.1
2006	--	--	--	--	--	--	723.5
2007	--	--	--	--	--	--	617.0
2008	--	--	--	--	--	--	411.5
2009	--	--	--	--	--	--	185.8
2010	--	--	--	--	--	--	136.7
2011	--	--	--	--	--	--	110.1
2012	--	--	--	--	--	--	5.1
Subtotal	**--**	**--**	**--**	**--**	**--**	**--**	**4369.9**

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	1038.3	--	69.7	1108.0	209.1	1317.1
2009	8	1403.1	--	129.3	1532.4	276.6	1809.0
2010	18	2633.5	--	163.8	2797.3	810.7	3608.0
2011	19	2454.7	--	225.9	2680.6	742.1	3422.7
2012	40	4457.3	--	292.9	4750.2	925.5	5675.7
2013	42	4329.6	--	215.1	4544.7	1102.5	5647.2
2014	50	4724.4	--	264.4	4988.8	1417.3	6406.1
2015	50	4462.8	--	125.6	4588.4	1355.2	5943.6
2016	50	4336.7	--	124.5	4461.2	1325.7	5786.9
2017	50	4251.9	--	123.7	4375.6	1306.5	5682.1
2018	50	4215.9	--	124.0	4339.9	1299.9	5639.8
2019	50	4223.9	--	126.3	4350.2	1304.7	5654.9
2020	50	4256.1	--	128.8	4384.9	1316.0	5700.9
2021	50	4294.3	--	130.9	4425.2	1328.7	5753.9
2022	50	4334.2	--	133.4	4467.6	1328.3	5795.9
2023	49	4111.9	--	133.0	4244.9	1307.6	5552.5
2024	25	2350.8	--	93.4	2444.2	679.5	3123.7
2025	23	2004.0	--	88.8	2092.8	631.3	2724.1
Subtotal	**680**	**64007.9**	**--**	**2693.5**	**66701.4**	**18667.2**	**85368.6**

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	--	107.9	--	--	107.9	--	107.9
2008	6	880.1	--	59.1	939.2	177.2	1116.4
2009	8	1164.0	--	107.3	1271.3	229.4	1500.7
2010	18	2140.0	--	133.1	2273.1	658.8	2931.9
2011	19	1955.1	--	179.9	2135.0	591.1	2726.1
2012	40	3480.5	--	228.7	3709.2	722.7	4431.9
2013	42	3314.5	--	164.7	3479.2	844.0	4323.2
2014	50	3545.8	--	198.4	3744.2	1063.8	4808.0
2015	50	3283.8	--	92.4	3376.2	997.2	4373.4
2016	50	3128.5	--	89.8	3218.3	956.3	4174.6
2017	50	3007.1	--	87.5	3094.6	924.1	4018.7
2018	50	2923.2	--	86.0	3009.2	901.3	3910.5
2019	50	2871.3	--	85.9	2957.2	886.9	3844.1
2020	50	2836.5	--	85.8	2922.3	877.1	3799.4
2021	50	2805.8	--	85.5	2891.3	868.2	3759.5
2022	50	2776.4	--	85.5	2861.9	850.8	3712.7
2023	49	2582.3	--	83.5	2665.8	821.3	3487.1
2024	25	1447.4	--	57.5	1504.9	418.4	1923.3
2025	23	1209.7	--	53.6	1263.3	381.0	1644.3
Subtotal	**680**	**45459.9**	**--**	**1964.2**	**47424.1**	**13169.6**	**60593.7**

Cost Quantity Information
1506 | Procurement | Aircraft Procurement, Navy

Fiscal Year	Quantity	End Item Recurring Flyaway (Aligned with Quantity) BY 2002 $M
2007	--	--
2008	6	778.5
2009	8	1098.0
2010	18	2075.5
2011	19	2007.7
2012	40	3442.5
2013	42	3290.3
2014	50	3623.4
2015	50	3438.6
2016	50	3132.0
2017	50	3010.0
2018	50	2925.4
2019	50	2873.4
2020	50	2839.7
2021	50	2805.4
2022	50	2776.9
2023	49	2616.5
2024	25	1504.6
2025	23	1221.5
Subtotal	**680**	**45459.9**

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	409.1	--	10.2	419.3	229.2	648.5
2008	6	1065.9	--	158.3	1224.2	237.5	1461.7
2009	8	1180.5	--	226.3	1406.8	499.5	1906.3
2010	12	1690.4	--	202.1	1892.5	564.8	2457.3
2011	24	2579.2	--	247.2	2826.4	717.7	3544.1
2012	42	3636.2	--	289.2	3925.4	988.7	4914.1
2013	48	3895.1	--	362.1	4257.2	965.4	5222.6
2014	60	4356.0	--	508.2	4864.2	1093.5	5957.7
2015	80	5396.1	--	190.9	5587.0	1317.0	6904.0
2016	80	5274.2	--	189.4	5463.6	1293.8	6757.4
2017	80	5218.4	--	188.8	5407.2	1285.0	6692.2
2018	80	5214.9	--	189.1	5404.0	1287.0	6691.0
2019	80	5284.1	--	193.1	5477.2	1305.9	6783.1
2020	80	5338.9	--	195.8	5534.7	1321.8	6856.5
2021	80	5405.5	--	198.5	5604.0	1339.5	6943.5
2022	80	5502.1	--	202.3	5704.4	1354.6	7059.0
2023	80	5602.5	--	205.7	5808.2	1370.0	7178.2
2024	80	5710.1	--	210.5	5920.6	1320.4	7241.0
2025	80	5799.5	--	213.0	6012.5	1330.6	7343.1
2026	80	5942.1	--	219.3	6161.4	1269.9	7431.3
2027	80	6045.7	--	222.5	6268.2	1270.7	7538.9
2028	80	6180.0	--	228.4	6408.4	1299.6	7708.0
2029	80	6277.7	--	231.5	6509.2	1320.8	7830.0
2030	80	6377.2	--	234.5	6611.7	1342.6	7954.3
2031	80	6479.1	--	237.9	6717.0	1364.7	8081.7
2032	80	6584.0	--	241.1	6825.1	1378.3	8203.4
2033	80	6391.2	--	244.6	6635.8	1381.6	8017.4
2034	41	3338.4	--	156.4	3494.8	789.8	4284.6
Subtotal	**1763**	**132291.5**	**--**	**6196.9**	**138488.4**	**31239.9**	**169728.3**

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	--	104.2	--	--	104.2	--	104.2
2007	2	354.7	--	8.8	363.5	198.7	562.2
2008	6	903.5	--	134.2	1037.7	201.3	1239.0
2009	8	979.3	--	187.7	1167.0	414.4	1581.4
2010	12	1373.6	--	164.2	1537.8	459.0	1996.8
2011	24	2054.3	--	196.9	2251.2	571.6	2822.8
2012	42	2839.4	--	225.8	3065.2	772.0	3837.2
2013	48	2981.9	--	277.2	3259.1	739.1	3998.2
2014	60	3269.3	--	381.4	3650.7	820.8	4471.5
2015	80	3970.6	--	140.5	4111.1	969.0	5080.1
2016	80	3804.8	--	136.6	3941.4	933.3	4874.7
2017	80	3690.7	--	133.5	3824.2	908.8	4733.0
2018	80	3615.9	--	131.1	3747.0	892.4	4639.4
2019	80	3592.1	--	131.3	3723.4	887.6	4611.0
2020	80	3558.1	--	130.5	3688.6	880.9	4569.5
2021	80	3531.9	--	129.7	3661.6	875.2	4536.8
2022	80	3524.5	--	129.6	3654.1	867.7	4521.8
2023	80	3518.5	--	129.2	3647.7	860.3	4508.0
2024	80	3515.7	--	129.6	3645.3	813.0	4458.3
2025	80	3500.7	--	128.6	3629.3	803.2	4432.5
2026	80	3516.5	--	129.8	3646.3	751.5	4397.8
2027	80	3507.7	--	129.1	3636.8	737.2	4374.0
2028	80	3515.3	--	129.9	3645.2	739.2	4384.4
2029	80	3500.8	--	129.1	3629.9	736.6	4366.5
2030	80	3486.6	--	128.2	3614.8	734.0	4348.8
2031	80	3472.8	--	127.5	3600.3	731.5	4331.8
2032	80	3459.9	--	126.7	3586.6	724.2	4310.8
2033	80	3292.7	--	126.0	3418.7	711.8	4130.5
2034	41	1686.2	--	79.0	1765.2	398.9	2164.1
Subtotal	**1763**	**84122.2**	**--**	**4131.7**	**88253.9**	**20133.2**	**108387.1**

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	330.1
2008	6	911.0
2009	8	888.4
2010	12	1181.7
2011	24	1938.8
2012	42	2786.0
2013	48	3059.6
2014	60	3547.6
2015	80	3976.9
2016	80	3809.6
2017	80	3694.5
2018	80	3619.5
2019	80	3595.9
2020	80	3560.9
2021	80	3533.8
2022	80	3524.1
2023	80	3514.1
2024	80	3517.1
2025	80	3506.1
2026	80	3525.3
2027	80	3686.9
2028	80	3515.3
2029	80	3500.8
2030	80	3486.6
2031	80	3472.8
2032	80	3459.9
2033	80	3292.7
2034	41	1686.2
Subtotal	**1763**	**84122.2**

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

Fiscal Year	Total Program TY $M
2004	24.4
Subtotal	**24.4**

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

Fiscal Year	Total Program BY 2002 $M
2004	22.7
Subtotal	**22.7**

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	64.5
2010	98.4
2011	128.9
2012	34.0
2013	77.9
Subtotal	**508.7**

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	62.5
2009	53.0
2010	79.3
2011	101.8
2012	26.3
2013	59.1
Subtotal	**410.3**

Low Rate Initial Production

None

Foreign Military Sales

None

Nuclear Cost

None

Unit Cost

Unit Cost Report

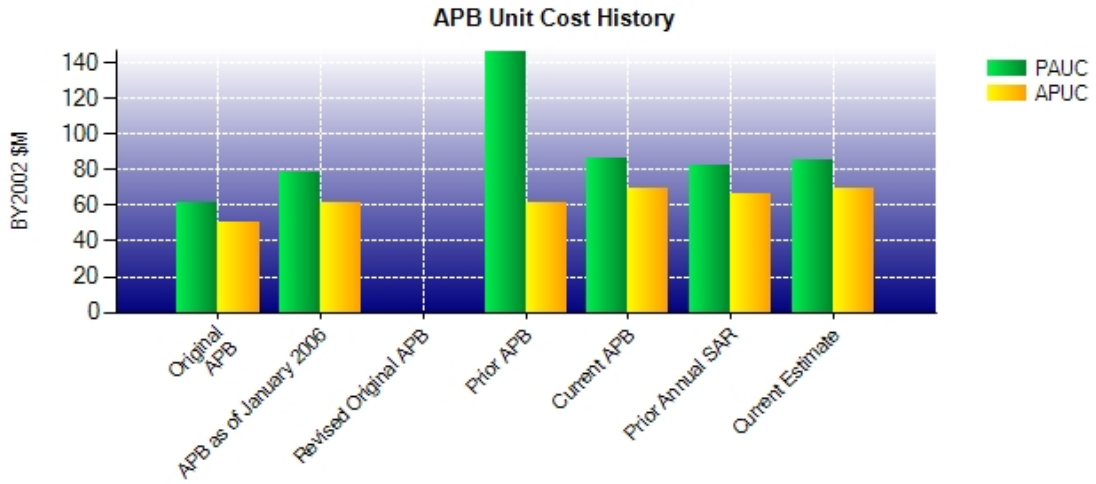
	BY2002 $M		
Unit Cost	**Current UCR Baseline (MAR 2007 APB)**	**Current Estimate (DEC 2006 SAR)**	**BY % Change**
Program Acquisition Unit Cost (PAUC)			
Cost	212580.8	209401.6	
Quantity	2458	2458	
Unit Cost	86.485	85.192	-1.50
Average Procurement Unit Cost (APUC)			
Cost	168980.8	168980.8	
Quantity	2443	2443	
Unit Cost	69.169	69.169	+0.00

	BY2002 $M		
Unit Cost	**Original UCR Baseline (OCT 2001 APB)**	**Current Estimate (DEC 2006 SAR)**	**BY % Change**
Program Acquisition Unit Cost (PAUC)			
Cost	177100.0	209401.6	
Quantity	2866	2458	
Unit Cost	61.793	85.192	**+37.87** [1]
Average Procurement Unit Cost (APUC)			
Cost	143300.0	168980.8	
Quantity	2852	2443	
Unit Cost	50.245	69.169	**+37.66** [1]

[1] **Nunn-McCurdy Breach**

This program reflects a significant Nunn-McCurdy breach to the original baseline that was first reported in the December 2005 SAR. The supporting breach information and explanations can be found in the Unit Cost Report section of that SAR.

Unit Cost History



		BY2002 $M		TY $M	
	Date	PAUC	APUC	PAUC	APUC
Original APB	OCT 2001	61.793	50.245	81.298	68.934
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	146.461	61.195	100.407	81.826
Current APB	MAR 2007	86.485	69.169	113.318	94.857
Prior Annual SAR	DEC 2005	82.071	65.964	112.473	94.857
Current Estimate	DEC 2006	85.192	69.169	121.979	104.420

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	2.956	3.147	12.048	5.203	9.636	0.000	7.691	40.681	121.979

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	2.455	1.130	8.902	3.853	11.408	0.000	7.738	35.486	104.420

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	OCT 2013
IOC	TBD	APR 2010	N/A	MAR 2012
Total Cost (TY $M)	24800.0	233000.0	N/A	299824.1
Total Quantity	N/A	2866	N/A	2458
Prog. Acq. Unit Cost (PAUC)	N/A	81.298	N/A	121.979

Pursuant to 10 USC 2432, SAR Planning Estimate reflected RDT&E cost only.

Note: IOC reflects Marine Corps IOC

Cost Variance

Summary Then Year $M				
	RDT&E	Proc	MILCON	Total
SAR Baseline (Dev Est)	34400.0	196600.0	2000.0	233000.0
Previous Changes				
Economic	+1021.7	+6578.6	+7.5	+7607.8
Quantity	0.0	-25434.9	0.0	-25434.9
Schedule	+7866.9	+10539.4	0.0	+18406.3
Engineering	+2427.8	+8087.6	+252.8	+10768.2
Estimating	-1213.8	+22884.6	-2039.5	+19631.3
Other	0.0	0.0	0.0	0.0
Support	0.0	+12480.2	0.0	+12480.2
Subtotal	+10102.6	+35135.5	-1779.2	+43458.9
Current Changes				
Economic	+236.3	-581.6	+3.2	-342.1
Quantity	--	--	--	--
Schedule	--	+11207.8	--	+11207.8
Engineering	+694.7	+1326.4	--	+2021.1
Estimating	-1239.5	+4985.6	+309.1	+4055.2
Other	--	--	--	--
Support	--	+6423.2	--	+6423.2
Subtotal	-308.5	+23361.4	+312.3	+23365.2
Total Changes	+9794.1	+58496.9	-1466.9	+66824.1
CE - Cost Variance	44194.1	255096.9	533.1	299824.1
CE - Cost & Funding	44194.1	255096.9	533.1	299824.1

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	0.0	0.0	0.0	0.0
Quantity	0.0	-16249.1	0.0	-16249.1
Schedule	+6779.4	+1428.5	0.0	+8207.9
Engineering	+2231.0	+5820.5	+227.3	+8278.8
Estimating	-922.0	+18795.2	-1535.5	+16337.7
Other	0.0	0.0	0.0	0.0
Support	0.0	+8054.1	0.0	+8054.1
Subtotal	+8088.4	+17849.2	-1308.2	+24629.4
Current Changes				
Economic	--	--	--	--
Quantity	--	--	--	--
Schedule	--	+589.2	--	+589.2
Engineering	+583.6	+824.3	--	+1407.9
Estimating	-984.2	+3253.9	+241.2	+2510.9
Other	--	--	--	--
Support	--	+3164.2	--	+3164.2
Subtotal	-400.6	+7831.6	+241.2	+7672.2
Total Changes	+7687.8	+25680.8	-1067.0	+32301.6
CE - Cost Variance	39987.8	168980.8	433.0	209401.6
CE - Cost & Funding	39987.8	168980.8	433.0	209401.6

Previous Estimate: December 2005

RDT&E	$M	
Current Change Explanations	**Base Year**	**Then Year**
Increase due to escalation indices (Economic)	N/A	+236.3
Increase for multiple earmarks for technical scope in FY07 Appropriation (Engineering)	+8.0	+9.2
Increase for F-136 funds restoration in FY07 Appropriation (Engineering)	+294.8	+340.0
Increase for scope additions for Joint Reprogramming Center, Small Diameter Bomb-I and Net Ready Key Performance Parameter (Engineering)	+280.8	+345.5
Adjustment for Current and Prior Inflation (Estimating)	-0.2	-0.2
Decrease for reserve Award Fee funds reduction in FY07 Appropriation (Estimating)	-55.5	-64.0
Decrease due to adjustments for prior years accounting updates (Estimating)	-33.0	-33.7
Decrease due to revised assessment of required risk funding (Estimating)	-895.5	-1141.6
RDT&E Subtotal	-400.6	-308.5

Procurement	$M	
Current Change Explanations	**Base Year**	**Then Year**
Decrease due to revised escalation indices (Economic)	N/A	-581.6
Increase due to lowered DoD annual procurement quantities which extended procurement completion from FY27 to FY34 (Schedule)	+589.2	+11207.8
Increase for design maturation to reflect government assesssment based on LM 240-4.3,4,5 configuration (Engineering)	+824.3	+1326.4
Adjustment for Current and Prior Inflation (Estimating)	-14.5	-16.6
Revised estimate for increased cost of materials for airframe largely due to metals commodity markets increases (Estimating)	+3611.5	+5472.8
Decrease due to revised assumptions for prime and subcontractor labor rates (Estimating)	-2341.2	-3576.3
Decrease due to revised assumptions for subcontractor cost (Estimating)	-3414.7	-5201.4
Increase due to revised assumptions based on contractor LRIP I proposals and methodology refinements (Estimating)	+5412.8	+8307.1
Increase due to aircraft configuration update, revised procurement profiles, and methodology changes (Support)	+3164.2	+6423.2
Procurement Subtotal	+7831.6	+23361.4

MILCON	$M	
Current Change Explanations	**Base Year**	**Then Year**
Increase due to revised escalation indices (Economic)	N/A	+3.2
Adjustment for Current and Prior Inflation (Estimating)	-0.1	-0.1
Decrease for revised USAF estimates for planned sites (Estimating)	-25.0	-30.0
Increase due to USAF estimates for additional sites (Estimating)	+266.3	+339.2
MILCON Subtotal	+241.2	+312.3

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	25873.2	N/A	15	25873.2	25873.2

	Cost Variance	Schedule Variance
Previous Cumulative Variances	-111.7	-102.6
Cumulative Variances To Date (12/25/2006)	-219.7	-239.7
Net Change	-108.0	-137.1

Cost And Schedule Variance Explanations

The net unfavorable change in cost variance was primarily due to delays in Build-to-Packages for Airframe.

The net unfavorable change in schedule variance was primarily due to delays in Airframe Build-to-Packages which also caused delays in Production Operations efforts.

Contract Comments

The Price At Completion increased from $25,704 to $25,873 primarily due to contract modifications to add scope for (1) Small Diameter Bomb and (2) integration efforts for the United Kingdom's future aircraft carrier, a country-unique effort that is separately funded by the United Kingdom.

The flight test aircraft quantity changed from 14 to 15 as part of earlier program replan refinements; risk funding was reallocated to the additional flight test aircraft.

Appropriation: RDT&E	
Contract Name	**Propulsion JSF F135 SDD**
Contractor	Pratt and Whitney
Contractor Location	East Hartford , CT 06057
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	5848.6	N/A	33	6080.9	6276.3

	Cost Variance	Schedule Variance
Previous Cumulative Variances	-106.3	-27.2
Cumulative Variances To Date	-176.2	-103.1
Net Change	-69.9	-75.9

Cost And Schedule Variance Explanations

The net unfavorable change in cost variance was primarily due to inefficiencies and unplanned lift system design activities, hardware and test cost increases, and engine control system modifications.

The net unfavorable change in schedule variance was primarily due to late flight qualification efforts, hardware deliveries and testing.

Contract Comments

The contract price increased from $5819M to $5849M due to scope increases for common exhaust hardware synchronization, test cell modifications required for additional test facilities, and gearbox and roll post redesigns driven by unexpected aircraft changes.

The revised Program Manager's Estimated Price At Completion reflects recognized cost growth due to inefficiences, specialty metals cost increases, exchange rate increases and recognition of new risks.

The Contractor's revised Estimate at Completion reflects recognized cost growth and new risks.

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	2486.2	N/A	6	2486.2	777.2

	Cost Variance	Schedule Variance
Previous Cumulative Variances	+1.7	-2.4
Cumulative Variances To Date (11/30/2006)	-4.0	-2.4
Net Change	-5.7	+0.0

Cost And Schedule Variance Explanations

The net unfavorable change in cost variance is primarily due to Electrical and Sensing Systems, Product Integration, Control Systems Requirements Integration, and Dynamics.

There is no change in the schedule variance.

Contract Comments

The Program Manager's Estimate at Completion reflects inclusion of $340 million appropriated in FY 2007, and lack of F136 funding budgeted in FY08 and subsequent years.

Deliveries and Expenditures

Deliveries To Date	Plan	Actual	Total Quantity	Percent Delivered
Development	0	0	15	0.00%
Production	0	0	2443	0.00%
Total Program Quantities Delivered	0	0	2458	0.00%

Expenditures and Appropriations (TY $M)			
Total Acquisition Cost	299824.1	Years Appropriated	14
Expenditures To Date	23791.4	Percent Years Appropriated	34.15%
Percent Expended	7.94%	Appropriated to Date	30386.7
Total Funding Years	41	Percent Appropriated	10.13%

Operating and Support Cost

Assumptions and Ground Rules

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.

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-35 CTOL costs reflect 24-aircraft squadrons operating at 300 flying hours per aircraft per year. F-16 costs have been normalized to the same groundrules as were used in estimating the F-35 CTOL costs. The F-16 costs are reconciled numbers developed in a joint effort by the F-35 Program Office and the Air Force, and reflected in F-35 Milestone B briefings in Fall 2001.

"Total O&S Cost" ($ in Millions) below reflects total O&S costs for all three 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	JSF Cost per Flying Hour ($)	F-16C/D Cost per Flying Hour ($)
Mission Pay & Allowance	3.889	5.360
Unit Level Consumption	6.574	5.829
Intermediate Maintenance	0.000	0.003
Depot Maintenance	0.723	0.978
Contractor Support	0.542	0.089
Sustaining Support	2.116	0.630
Indirect	1.430	0.848
Other	--	--
Total Unitized Cost (Base Year 2002 $)	15.274	13.737

Total O&S Costs $M	JSF	F-16C/D
Base Year	282519.0	--
Then Year	650295.9	--

Defense Acquisition Management
Information Retrieval
(DAMIR)

Selected Acquisition Report (SAR)

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

F-35 (JSF)

As of December 31, 2007

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Program Information

Designation And Nomenclature (Popular Name)

F-35 Lightning II (previously Joint Strike Fighter)

DoD Component

DoD

Joint Participants

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

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 Navy.

Responsible Office

Responsible Office

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200 12th St South
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Arlington, VA 22202-5402
charles.davis@jsf.mil

Phone 703-602-7640
Fax 703-602-7649
DSN Phone 332-7640
DSN Fax --

Date Assigned July 10, 2006

References

SAR Baseline (Development Estimate)

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

Approved APB

DAE Approved Acquisition Program Baseline (APB) dated March 30, 2007

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/A-22. The Short Takeoff and Vertical Landing (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 Sea Harrier and GR-7 for the United Kingdom Royal Navy and Royal Air Force, respectively. The CV will provide the Navy a multi-role, stealthy strike fighter aircraft to complement the F/A-18E/F. The cornerstone of the JSF Program is affordability -- reducing the development cost, production cost, and cost of ownership of the JSF family of aircraft. The program was structured from the beginning to be a model of acquisition reform, with an emphasis on jointness, technology maturation and concept demonstrations, and early cost and performance trades integral to the weapon system requirements definition process.

Executive Summary

The Department of Defense established the F-35 Joint Strike Fighter Program, originally named Joint Advanced Strike Technology (JAST) Program, in 1993. Fiscal Year (FY) 1995 legislation merged the Defense Advanced Research Projects Agency (DARPA) Advanced Short Take-Off and Landing (ASTOVL) program with the then-JAST Program. Facilitated by the JSF Program Office, the Services evolved weapon system requirements based on extensive cost and performance trades emphasizing Cost As an Independent Variable (CAIV). The process culminated in the Services' Joint Operational Requirements Document in March 2000, revalidated by the Joint Requirements Oversight Council (JROC) in October 2001. The Concept Demonstration Phase (CDP) commenced in November 1996 with competitive contract awards to Boeing and Lockheed Martin, with Pratt and Whitney providing propulsion hardware and engineering support. The Milestone B Defense Acquisition Board (DAB) review was held on October 24, 2001. On October 25, 2001 the Secretary of Defense provided certification to Congress (in accordance with Section 212 of the FY 2001 Defense Authorization Act) that the JSF program successfully completed the CDP exit criteria and demonstrated sufficient technical maturity to enter System Development and Demonstration (SDD). On October 26, 2001 SDD contracts were awarded to Lockheed Martin and Pratt and Whitney. General Electric continued technical efforts related to development of a second engine source for competition in production.

The program completed its sixth year of the System Development and Demonstration (SDD) phase in October 2007, based around sequential development of each Service variant and phased (block) implementation of software intensive mission systems capabilities. Impressive technical progress continued across the development program. All variants are projected to meet their respective Key Performance Parameters, and no known technical issues preclude achievement of Service Initial Operational Capability dates. Critical Design Reviews (CDR) for the Aircraft Carrier suitable Variant (CV) and Training Systems successfully completed in 2007. The SDD jets are taking longer to build than anticipated but setting new standards for quality, and manufacturing efficiencies improve with each jet. In flight testing, the initial Conventional Takeoff and Landing Variant (CTOL) aircraft (AA-1) continued to demonstrate superb performance and reduce program risk, with 31 sorties flown through mid-February 2008. In addition, the flying avionics test bed flew ninety-one hours through mid-February 2008 and accomplished significant risk reduction on the avionics systems. All mission systems hardware/software components are flying on AA-1 or other hosts, and maturing as planned. Approximately forty-eight percent of all F-35 software is completed, and fifty percent of total airborne software is in the air.

Roll-out of the STOVL variant (BF-1) occurred in December 2007, as planned, with excellent correlation between predicted weight and actual weight. The F135 engine development completed 9000+ test hours on 12 engines through mid-February 2008. F135 engine test failures in August 2007 and February 2008 occurred in nearly identical STOVL operating modes. Root causes are understood and mitigation plans will minimize program schedule impacts. All remaining SDD and LRIP I jets are in assembly. Schedule pressures, negative cost variances and contractor management reserve shortfalls led to a Mid-Course Risk Reduction plan, approved by the Defense Acquisition Executive in Fall 2007. Key components of the plan are deletion of two SDD flight test articles consistent with refined/optimized flight test plans and contractor staffing reductions. The LRIP 1 contract for two CTOL aircraft was awarded in 2007, as was the LRIP II Long Lead contract for 6 CTOLs and 6 Short Takeoff and Vertical Landing (STOVL) aircraft. The F136 engine CDR successfully completed in February 2008.

The FY 2009 President’s Budget request omits funding for continued F136 engine development in FY 2009 and beyond. As directed by the FY 2007 Defense Authorization Act, the General Accounting Office (GAO), the Office of the Secretary of Defense Cost Analysis Improvement Group (CAIG) and the Institute for Defense Analysis (IDA) performed independent studies to assess alternative propulsion acquisition strategies and various cost implications, and briefed their conclusions to congressional committees in Spring 2007.

The F-35 remains the Department of Defense's largest cooperative program, with eight other countries participating with the U.S. under Memorandums of Understanding for SDD and for Production, Sustainment and Follow-on Development (see "track-to-Budget"). Israel and Singapore are Security Cooperation Participants with specific case scope outside the cooperative development partnership. A small Foreign Military Sales case with Spain is in place for a study.

There are no significant software issues for the program at this time.

Threshold Breaches

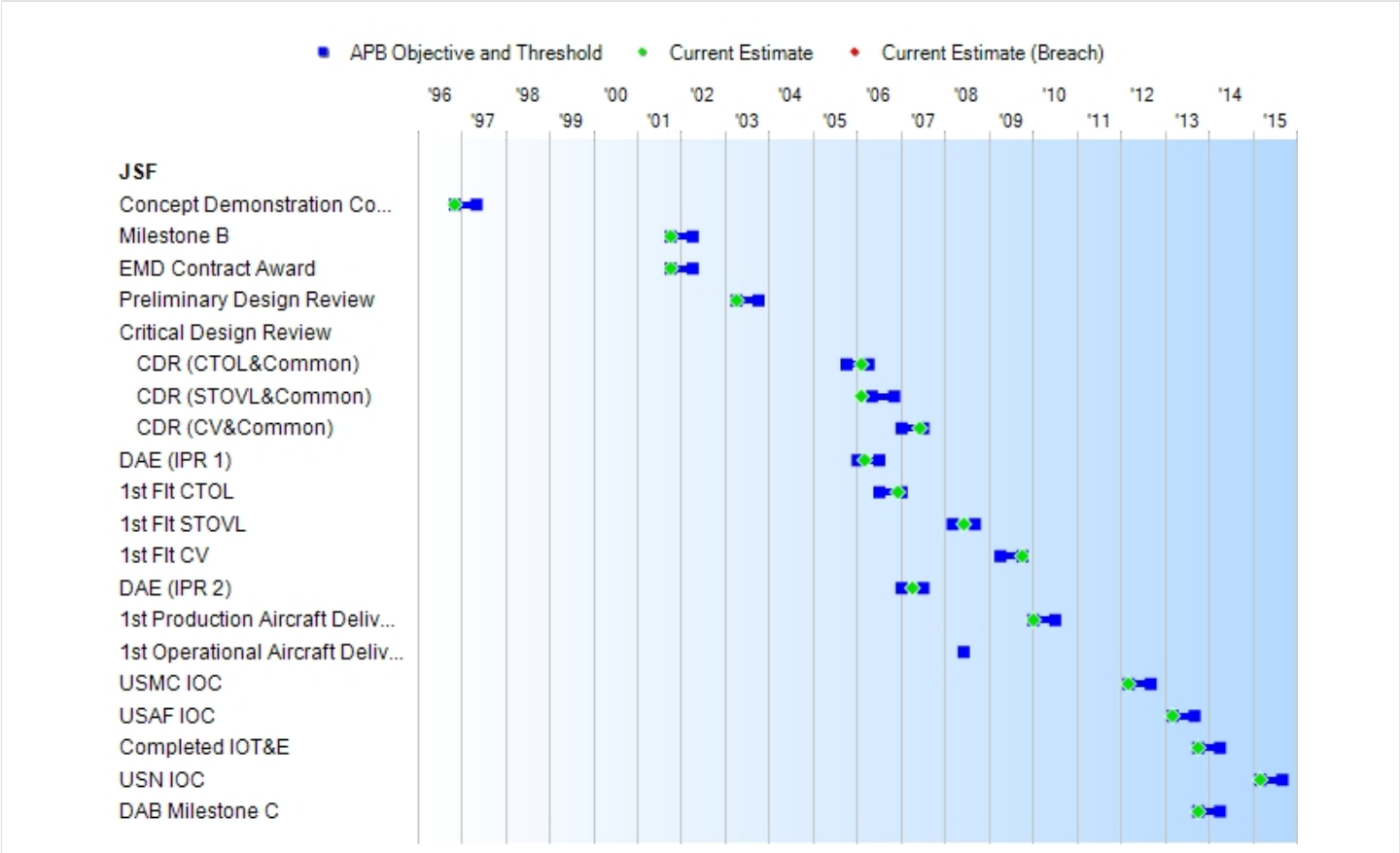
APB Breaches		
Schedule		☐
Performance		☐
Cost	RDT&E	☐
	Procurement	☐
	MILCON	☐
	Acq O&M	☐
Unit Cost	PAUC	☐
	APUC	☐

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

Explanation of Breach

<p><p>This program reflects a significant Nunn-McCurdy breach to the original baseline that was first reported in the December 2005 SAR. The supporting breach information and explanations can be found in the Unit Cost Report section of that SAR.</p></p>

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
'13
'14
'15
JSF
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 Deliv...
USMC IOC
USAF IOC
Completed IOT&E
USN IOC
DAB Milestone C

Milestones	SAR Baseline Dev Est	Current APB Development Objective/Threshold		Current Estimate	
Concept Demonstration Contract Award	NOV 1996	NOV 1996	MAY 1997	NOV 1996	
Milestone B	OCT 2001	OCT 2001	APR 2002	OCT 2001	
EMD Contract Award	OCT 2001	OCT 2001	APR 2002	OCT 2001	
Preliminary Design Review	APR 2003	APR 2003	OCT 2003	APR 2003	
Critical Design Review					
CDR (CTOL&Common)	APR 2004	OCT 2005	APR 2006	FEB 2006	
CDR (STOVL&Common)	OCT 2004	MAY 2006	NOV 2006	FEB 2006	
CDR (CV&Common)	JUL 2005	JAN 2007	JUL 2007	JUN 2007	
DAE (IPR 1)	APR 2005	JAN 2006	JUL 2006	MAR 2006	
1st Flt CTOL	NOV 2005	JUL 2006	JAN 2007	DEC 2006	
1st Flt STOVL	APR 2006	MAR 2008	SEP 2008	JUN 2008	
1st Flt CV	JAN 2007	APR 2009	OCT 2009	OCT 2009	(Ch-1)
DAE (IPR 2)	APR 2006	JAN 2007	JUL 2007	APR 2007	(Ch-2)
1st Production Aircraft Delivered	N/A	JAN 2010	JUL 2010	JAN 2010	
1st Operational Aircraft Delivered	JUN 2008	N/A	N/A	N/A	
USMC IOC	APR 2010	MAR 2012	SEP 2012	MAR 2012	
USAF IOC	JUN 2011	MAR 2013	SEP 2013	MAR 2013	
Completed IOT&E	MAR 2012	OCT 2013	APR 2014	OCT 2013	
USN IOC	APR 2012	MAR 2015	SEP 2015	MAR 2015	
DAB Milestone C	APR 2012	OCT 2013	APR 2014	OCT 2013	

Acronyms

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 CV changed from March 2009 to October 2009 due to manufacturing schedule revisions.

(Ch-2) DAE (IPR 2) changed from March 2007 to April 2007 to reflect actual date of occurrence.

Memo

None

Performance

Characteristics	SAR Baseline Dev Est	Current APB Development 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	Execute 550 ft. STO with 4 JDAM (2 external & 2 internal), 2 AIM-120 (internal), fuel to fly 550nm	Execute 550 ft. STO with 2 JDAM (internal), 2 AIM-120 (internal), fuel to fly 450nm	TBD	Execute 511 ft. STO with 2 JDAM (internal), 2 AIM-120 (internal), fuel to fly 450nm	(Ch-1)
Combat Radius NM - CTOL Variant	690	690	590	TBD	606	(Ch-1)
Combat Radius NM - STOVL Variant	550	550	450	TBD	503	(Ch-1)
Combat Radius NM -CV Variant	730	730	600	TBD	641	(Ch-1)
Internal Weapons Carriage - CTOL Variant	Sufficient bay volume to load, c arry & employ objective Annex A weapons	Sufficient bay volume to load, carry & employ objective Annex A weapons	Sufficient bay volume to load, carry & employ threshold Annex A weapons	TBD	Sufficient bay volume to load, carry & employ threshold Annex A weapons	
Internal Weapons Carriage - STOVL Variant	Sufficient bay volume to load, c arry & employ objective Annex A weapons	Sufficient bay volume to load, carry & employ objective Annex A weapons	Sufficient bay volume to load, carry & employ threshold Annex A weapons	TBD	Sufficient bay volume to load, carry & employ threshold Annex A weapons	
Internal Weapons Carriage - CV Variant	Sufficient bay volume to load, c arry & employ objective Annex A weapons	Sufficient bay volume to load, carry & employ objective Annex A weapons	Sufficient bay volume to load, carry & employ threshold Annex A weapons	TBD	Sufficient bay volume to load, carry & employ threshold Annex A weapons	
Radio Frequency (RF) Signature	See Classified Extract	See Classified Extract	See Classified Extract	TBD	Classified	
Logistic Footprint -CTOL Variant	Less than or equal to 6 C-17 equivalent	Less than or equal to 6 C-17	Less than or equal to 8 C-17 equivalent	TBD	Less than or equal to 6.23 C-17	(Ch-1)

	loads	equivalent loads	loads		equivale n t loads	
Logistic Footprint -STOVL Variant	Less than or equal to 4 C-17 equivalent loads	Less than or equal to 4 C-17 equivalent loads	Less than or equal to 8 C-17 equivalent loads	TBD	Less than or equal to 5.11 C-17 equivale n t loads	(Ch-1)
Logistic Footprint -CV Variant	Less than or equal to 46,000 cu ft, 183 Short Tons	Less than or equal to 34,000 cu ft, 183 Short Tons	Less than or equal to 46,000 cu ft, 243 Short Tons	TBD	Less than or equal to 15,310 cu ft, 165.4.2 Short Tons	(Ch-1)
Sortie Generation Rate - CTOL Variant	4/day initial surge; 3/day sustained surge; 2/day Wartime Sustained based on ASD of 2.5	4/day initial surge; 3/day sustained surge; 2/day Wartime Sustained based on ASD of 2.5	3/day initial surge; 2/day sustained surge; 1/day Wartime Sustained based on ASD of 2.5	TBD	3.64/day initial surge; 3.42/day sustained surge; 1/day Wartime Sustained based on ASD of 2.5	(Ch-1)
Sortie Generation Rate - CV Variant	4/day initial surge; 3/day sustained surge; 1/day Wartime Sustained based on ASD of 1.8	4/day initial surge; 3/day sustained surge; 1/day Wartime Sustained based on ASD of 1.8	3/day initial surge; 2/day sustained surge; 1/day Wartime Sustained based on ASD of 1.8	TBD	3.53/day initial surge; 2.69/day sustained surge; 1/day Wartime Sustained based on ASD of 1.8	(Ch-1)
Sortie Generation Rate - STOVL Variant	6/day initial surge; 4/day sustained surge; 2/day Wartime Sustained based on ASD of 1.1	6/day initial surge; 4/day sustained surge; 2/day Wartime Sustained based on ASD of 1.1	4/day initial surge; 3/day sustained surge; 1/day Wartime Sustained based on ASD of 1.1	TBD	6.25/day initial surge; 5.80/day sustained surge; 1/day Wartime sustained based on ASD of 1.1	(Ch-1)
Interoperability	100% of all top level IE Rs	100% of all top level IERs	100% of critical top level IERs	TBD	Less than 100 % of critical top level IERs	(Ch-1)
Mission Reliability	98% for all variants at ASD's listed in Table 13	98% for all variants at ASD's listed in Table 13	95% for CV & STOVL & 93% for CTOL at ASD's listed in Table 13.	TBD	97.8% for CV, 98.3 % for STOVL & 97.6% for CTOL at ASD's listed in Table 13	

CV Recovery Performance, Approach Speed	Max approach speed (Vpa) at Required Carrier Landing Weight (RCLW) of less than 140 kts	Max approach speed (Vpa)at Required Carrier Landing Weight (RCLW) of less than 140 kts	Max approach speed (Vpa) at Required Carrier Landing Weight (RCLW) of less than 145 kts w/15 kts WOD at RCLW	TBD	Max approach speed (Vpa) at Required Carrier Landing Weight (RCLW) of less than approxim a tely 143.4kts w/15 kts WOD at RCLW	(Ch-1)

Acronyms

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
WOD - Wind Over the Deck

Change Explanations

(Ch-1) The current estimates changed from the December 2006 SAR due to design maturation.
Mission Performance changed from 515ft. to 511ft.
Combat Radius NM-CTOL Variant changed from 625 to 606
Combat Radius NM - STOVL Variant changed from 498 to 503
Combat Radius NM - CV Variant changed from 642 to 641
Logistic Footprint - CTOL Variant changed from 6.78 equivalent loads to 6.23 equivalent loads
Logistic Footprint - STOVL Variant changed from 5.28 equivalent loads to 5.11 equivalent loads
Logistic Footprint - CV Variant changed from 109.2 short tons to 165.4 short tons
Sortie Generation Rate - CTOL Variant changed from 3.68/day initial surge; 3.37/day sustained surge to 3.64/day initial surge; 3.42/day sustained surge.
Sortie Generation Rate - CV Variant changed from 4.05/day initial surge; 3.01/day sustained surge to 3.53/day initial surge; 2.69/day sustained surge.
Sortie Generation Rate - STOVL Variant changed from 6.51/day initial surge; 5.89/day sustained surge to 6.25/day initial surge; 5.80/day sustained surge.
Interoperability Key Performance Parameter has transitioned to "Net Ready KPP," IAW an ORD change in staffing.
CV Recovery Performance, Approach Speed changed from 142.6kts ri 143.4kts.

Memo

None

Track To Budget

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

Procurement					
APPN 1506	BA 06	(Navy)	ICN 0605	(Shared)	
	Initial Spares (Navy)				
APPN 3010	BA 06	(Air Force)	ICN ATA000	(Shared)	
	Initial Spares (Air Force)				
APPN 3010	BA 01	(Air Force)			Invalid item control number (P-1) removed.
	JSF (Air Force)				
APPN 1506	BA 06	(Navy)		(Shared)	Invalid item control number (P-55) removed.
	Initial Spares (Navy)				
APPN 1506	BA 01	(Navy)			Invalid item control number (P-6) removed.
	JSF (Navy)				

MILCON			
APPN 1205		PE 0204146N	(Navy)
	MILCON, USN		
APPN 3300		PE 0207142F	(Air Force)
	MILCON, AF		

General Memo

F-35 is DoD's largest cooperative development program. In addition to the above DoD funding lines, eight other partner countries 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 Funding & Cost section.

Cost and Funding

Cost Summary

Total Acquisition Cost and Quantity

Appropriation	BY2002 $M				TY $M		
	SAR Baseline Dev Est	Current APB Development Objective/Threshold		Current Estimate	SAR Baseline Dev Est	Current APB Development Objective	Current Estimate
RDT&E	32300.0	42100.0	46310.0	40189.4	34400.0	44800.0	44369.9
Procurement	143300.0	168980.8	185878.9	169401.2	196600.0	231735.5	253951.7
Flyaway	121215.5	--	--	147376.4	166349.7	--	221283.7
Recurring	116093.6	--	--	133092.3	159390.4	--	200339.0
Non Recurring	5121.9	--	--	14284.1	6959.3	--	20944.7
Support	22084.5	--	--	22024.8	30250.3	--	32668.0
Other Support	15403.5	--	--	10186.8	21109.3	--	14714.9
Initial Spares	6681.0	--	--	11838.0	9141.0	--	17953.1
MILCON	1500.0	1500.0	1700.0	423.9	2000.0	2000.0	521.2
Acq O&M	--	--	--	--	--	--	--
Total	177100.0	212580.8	N/A	210014.5	233000.0	278535.5	298842.8

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 Memorandum of Understanding.

Since the Services have not yet fully established F-35 basing plans, the Milestone B and approved APB MILCON estimates reflect a top-level parametric estimate, not discrete estimates for specific sites. The Current Estimate reflects specific MILCON requirements identified in the FY 2009 President's Budget Future Years Defense Program (FYDP). The MILCON Current Estimate will continue to be updated as the Services identify additional specific MILCON requirements identified in future budget submissions.

Quantity	SAR Baseline Dev Est	Current APB Development	Current Estimate
RDT&E	14	15	13
Procurement	2852	2443	2443
Total	2866	2458	2456

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

The October 2001 Milestone B procurement baseline for the Department of Navy (DoN) reflected 609 STOVL variants for United States Marine Corps (USMC) and 480 CV variants for United States Navy (USN) (DoN total of 1089). Subsequently, the DoN Navy/Marine Corps Tactical Aviation (TACAIR) Integration Plan reduced total JSF CV/STOVL procurement quantities to 680. The annual and total quantity mix (and definitive related procurement estimates), of STOVL and CV variants in FY 2014 and beyond remain To Be Determined pending further assessment by the Services. Procurement estimates will continue to be refined in future budget cycles.

The flight test aircraft quantity changed from 15 to 13 in accordance with the Fall 2007 Mid-Course Risk Reduction plan approved by USD (AT&L).

Funding Summary

Appropriation and Quantity Summary

FY2009 President's Budget / December 2007 SAR (TY$ M)

Appropriation	Prior	FY2008	FY2009	FY2010	FY2011	FY2012	FY2013	To Complete	Total
RDT&E	29327.1	4338.7	3279.8	2332.7	1977.2	1719.6	1394.8	0.0	44369.9
Procurement	889.7	2673.0	3792.3	6002.5	6890.9	10512.3	10791.6	212399.4	253951.7
MILCON	55.1	74.3	22.1	95.7	164.8	33.3	75.9	0.0	521.2
Acq O&M	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PB2009 Total	30271.9	7086.0	7094.2	8430.9	9032.9	12265.2	12262.3	212399.4	298842.8
PB2008 Total	30386.7	6819.9	7091.3	8521.0	9087.1	12351.1	12346.3	213220.7	299824.1
Delta	-114.8	266.1	2.9	-90.1	-54.2	-85.9	-84.0	-821.3	-981.3

"RDT&E Non Treasury Funds" reflects financial contributions under international cooperative agreements with the following countries: United Kingdom, Canada, Denmark, The Netherlands, Norway, Italy, Turkey, and Australia.

Quantity	Prior	FY2008	FY2009	FY2010	FY2011	FY2012	FY2013	To Complete	Total
Development	0	0	0	0	0	0	0	0	13
Production	2	12	16	30	43	82	90	2168	2443
PB2009 Total	2	12	16	30	43	82	90	2168	2456
PB2008 Total	2	12	16	30	43	82	90	2168	2458
Delta	0	0	0	0	0	0	0	0	-2

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	--	--	--	--	--	--	1868.0
2009	--	--	--	--	--	--	1532.7
2010	--	--	--	--	--	--	1028.7
2011	--	--	--	--	--	--	1053.9
2012	--	--	--	--	--	--	736.7
2013	--	--	--	--	--	--	657.5
Subtotal	**6**	**--**	**--**	**--**	**--**	**--**	**19652.0**

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	--	--	--	--	--	--	32.6
1995	--	--	--	--	--	--	106.6
1996	--	--	--	--	--	--	85.7
1997	--	--	--	--	--	--	256.3
1998	--	--	--	--	--	--	468.1
1999	--	--	--	--	--	--	486.3
2000	--	--	--	--	--	--	242.4
2001	--	--	--	--	--	--	342.1
2002	--	--	--	--	--	--	715.8
2003	--	--	--	--	--	--	1604.5
2004	--	--	--	--	--	--	1979.7
2005	--	--	--	--	--	--	1930.7
2006	--	--	--	--	--	--	1966.3
2007	--	--	--	--	--	--	1854.8
2008	--	--	--	--	--	--	1610.8
2009	--	--	--	--	--	--	1295.7
2010	--	--	--	--	--	--	852.6
2011	--	--	--	--	--	--	856.3
2012	--	--	--	--	--	--	586.8
2013	--	--	--	--	--	--	513.5
Subtotal	**6**	**--**	**--**	**--**	**--**	**--**	**17787.6**

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	--	--	--	--	--	--	1991.5
2009	--	--	--	--	--	--	1524.0
2010	--	--	--	--	--	--	1132.5
2011	--	--	--	--	--	--	779.3
2012	--	--	--	--	--	--	966.0
2013	--	--	--	--	--	--	728.0
Subtotal	**7**	**--**	**--**	**--**	**--**	**--**	**19790.5**

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	--	--	--	--	--	--	90.9
1996	--	--	--	--	--	--	86.7
1997	--	--	--	--	--	--	265.0
1998	--	--	--	--	--	--	464.0
1999	--	--	--	--	--	--	470.7
2000	--	--	--	--	--	--	253.3
2001	--	--	--	--	--	--	342.1
2002	--	--	--	--	--	--	706.9
2003	--	--	--	--	--	--	1574.9
2004	--	--	--	--	--	--	1921.2
2005	--	--	--	--	--	--	1927.3
2006	--	--	--	--	--	--	2036.2
2007	--	--	--	--	--	--	1823.7
2008	--	--	--	--	--	--	1717.3
2009	--	--	--	--	--	--	1288.3
2010	--	--	--	--	--	--	938.6
2011	--	--	--	--	--	--	633.2
2012	--	--	--	--	--	--	769.5
2013	--	--	--	--	--	--	568.5
Subtotal	**7**	**--**	**--**	**--**	**--**	**--**	**17878.3**

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	--	--	--	--	--	--	71.8
1998	--	--	--	--	--	--	21.8
Subtotal	**--**	**--**	**--**	**--**	**--**	**--**	**124.4**

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	--	--	--	--	--	--	425.9
2004	--	--	--	--	--	--	517.8
2005	--	--	--	--	--	--	758.6
2006	--	--	--	--	--	--	802.5
2007	--	--	--	--	--	--	700.3
2008	--	--	--	--	--	--	479.2
2009	--	--	--	--	--	--	223.1
2010	--	--	--	--	--	--	171.5
2011	--	--	--	--	--	--	144.0
2012	--	--	--	--	--	--	16.9
2013	--	--	--	--	--	--	9.3
Subtotal	**--**	**--**	**--**	**--**	**--**	**--**	**4809.4**

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	--	--	--	--	--	--	74.8
1998	--	--	--	--	--	--	80.6
1999	--	--	--	--	--	--	56.4
2000	--	--	--	--	--	--	35.1
2001	--	--	--	--	--	--	2.5
2002	--	--	--	--	--	--	304.0
2003	--	--	--	--	--	--	416.4
2004	--	--	--	--	--	--	492.5
2005	--	--	--	--	--	--	702.9
2006	--	--	--	--	--	--	721.5
2007	--	--	--	--	--	--	615.8
2008	--	--	--	--	--	--	413.2
2009	--	--	--	--	--	--	188.6
2010	--	--	--	--	--	--	142.1
2011	--	--	--	--	--	--	117.0
2012	--	--	--	--	--	--	13.5
2013	--	--	--	--	--	--	7.3
Subtotal	**--**	**--**	**--**	**--**	**--**	**--**	**4399.1**

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	1198.9	--	13.1	1212.0	11.9	1223.9
2009	8	1500.7	--	261.0	1761.7	134.2	1895.9
2010	18	2753.5	--	371.5	3125.0	440.3	3565.3
2011	19	2824.7	--	236.0	3060.7	315.4	3376.1
2012	40	4513.3	--	533.3	5046.6	593.7	5640.3
2013	42	4239.4	--	549.4	4788.8	824.6	5613.4
2014	50	4467.2	--	777.4	5244.6	1277.6	6522.2
2015	50	4293.3	--	626.6	4919.9	1117.4	6037.3
2016	50	4163.4	--	490.9	4654.3	937.7	5592.0
2017	50	4119.7	--	486.4	4606.1	916.3	5522.4
2018	50	4120.4	--	478.3	4598.7	941.6	5540.3
2019	50	4164.7	--	472.4	4637.1	947.4	5584.5
2020	50	4229.6	--	462.4	4692.0	962.6	5654.6
2021	50	4287.4	--	463.3	4750.7	784.6	5535.3
2022	50	4337.9	--	461.3	4799.2	772.5	5571.7
2023	49	4096.1	--	451.3	4547.4	640.1	5187.5
2024	25	2233.0	--	225.4	2458.4	309.4	2767.8
2025	23	1891.8	--	209.5	2101.3	291.1	2392.4
Subtotal	**680**	**63559.5**	**--**	**7569.5**	**71129.0**	**12218.4**	**83347.4**

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	--	108.1	--	--	108.1	--	108.1
2008	6	1021.0	--	11.2	1032.2	10.1	1042.3
2009	8	1253.0	--	217.9	1470.9	112.0	1582.9
2010	18	2253.9	--	304.0	2557.9	360.4	2918.3
2011	19	2266.8	--	189.4	2456.2	253.1	2709.3
2012	40	3550.9	--	419.5	3970.4	467.1	4437.5
2013	42	3270.0	--	423.7	3693.7	636.1	4329.8
2014	50	3378.1	--	587.9	3966.0	966.1	4932.1
2015	50	3183.0	--	464.5	3647.5	828.4	4475.9
2016	50	3026.1	--	356.8	3382.9	681.6	4064.5
2017	50	2935.7	--	346.6	3282.3	652.9	3935.2
2018	50	2878.6	--	334.1	3212.7	657.8	3870.5
2019	50	2852.5	--	323.6	3176.1	648.8	3824.9
2020	50	2840.1	--	310.5	3150.6	646.4	3797.0
2021	50	2822.5	--	305.0	3127.5	516.5	3644.0
2022	50	2799.7	--	297.8	3097.5	498.6	3596.1
2023	49	2591.8	--	285.6	2877.4	405.0	3282.4
2024	25	1385.2	--	139.9	1525.1	191.9	1717.0
2025	23	1150.6	--	127.3	1277.9	177.1	1455.0
Subtotal	**680**	**45567.6**	**--**	**5445.3**	**51012.9**	**8709.9**	**59722.8**

Cost Quantity Information
1506 | Procurement | Aircraft Procurement, Navy

Fiscal Year	Quantity	End Item Recurring Flyaway (Aligned with Quantity) BY 2002 $M
2007	--	--
2008	6	1028.0
2009	8	1138.1
2010	18	2279.6
2011	19	2120.0
2012	40	3566.5
2013	42	3259.5
2014	50	3371.5
2015	50	3199.9
2016	50	3035.8
2017	50	2942.0
2018	50	2881.4
2019	50	2853.7
2020	50	2841.9
2021	50	2824.3
2022	50	2806.8
2023	49	2743.5
2024	25	1397.1
2025	23	1278.0
Subtotal	**680**	**45567.6**

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	469.6	--	39.4	509.0	138.8	647.8
2008	6	1165.3	--	134.5	1299.8	149.3	1449.1
2009	8	1267.3	--	389.5	1656.8	239.6	1896.4
2010	12	1664.3	--	435.5	2099.8	337.4	2437.2
2011	24	2835.9	--	293.6	3129.5	385.3	3514.8
2012	42	3772.5	--	510.1	4282.6	589.4	4872.0
2013	48	4020.5	--	541.9	4562.4	615.8	5178.2
2014	60	4305.1	--	720.5	5025.6	843.8	5869.4
2015	80	5420.1	--	657.5	6077.6	967.0	7044.6
2016	80	5284.2	--	524.6	5808.8	914.7	6723.5
2017	80	5254.6	--	521.7	5776.3	861.8	6638.1
2018	80	5280.0	--	515.1	5795.1	839.8	6634.9
2019	80	5378.4	--	516.9	5895.3	965.7	6861.0
2020	80	5478.0	--	509.8	5987.8	979.4	6967.2
2021	80	5562.1	--	516.7	6078.8	946.1	7024.9
2022	80	5654.9	--	524.6	6179.5	940.2	7119.7
2023	80	5774.2	--	535.1	6309.3	955.1	7264.4
2024	80	5900.3	--	480.7	6381.0	853.6	7234.6
2025	80	6002.0	--	487.4	6489.4	856.6	7346.0
2026	80	6186.9	--	500.3	6687.2	815.9	7503.1
2027	80	6303.4	--	508.5	6811.9	830.3	7642.2
2028	80	6463.1	--	520.6	6983.7	847.6	7831.3
2029	80	6571.4	--	528.3	7099.7	861.8	7961.5
2030	80	6681.0	--	536.2	7217.2	876.3	8093.5
2031	80	6793.2	--	544.3	7337.5	891.1	8228.6
2032	80	6908.6	--	539.7	7448.3	731.9	8180.2
2033	80	6718.0	--	526.7	7244.7	744.5	7989.2
2034	41	3547.2	--	315.5	3862.7	470.8	4333.5
Subtotal	**1763**	**136779.5**	**--**	**13375.2**	**150154.7**	**20449.6**	**170604.3**

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	407.8	--	34.2	442.0	120.6	562.6
2008	6	992.4	--	114.6	1107.0	127.1	1234.1
2009	8	1058.1	--	325.1	1383.2	200.1	1583.3
2010	12	1362.3	--	356.4	1718.7	276.2	1994.9
2011	24	2275.8	--	235.6	2511.4	309.2	2820.6
2012	42	2968.0	--	401.4	3369.4	463.7	3833.1
2013	48	3101.1	--	418.0	3519.1	475.0	3994.1
2014	60	3255.5	--	544.9	3800.4	638.1	4438.5
2015	80	4018.3	--	487.5	4505.8	716.9	5222.7
2016	80	3840.8	--	381.3	4222.1	664.8	4886.9
2017	80	3744.4	--	371.7	4116.1	614.1	4730.2
2018	80	3688.7	--	359.8	4048.5	586.7	4635.2
2019	80	3683.8	--	354.0	4037.8	661.4	4699.2
2020	80	3678.4	--	342.4	4020.8	657.6	4678.4
2021	80	3661.7	--	340.1	4001.8	622.8	4624.6
2022	80	3649.7	--	338.6	3988.3	606.9	4595.2
2023	80	3653.7	--	338.6	3992.3	604.3	4596.6
2024	80	3660.3	--	298.2	3958.5	529.5	4488.0
2025	80	3650.3	--	296.4	3946.7	521.0	4467.7
2026	80	3689.0	--	298.3	3987.3	486.5	4473.8
2027	80	3684.8	--	297.3	3982.1	485.3	4467.4
2028	80	3704.1	--	298.4	4002.5	485.7	4488.2
2029	80	3692.3	--	296.8	3989.1	484.2	4473.3
2030	80	3680.3	--	295.4	3975.7	482.6	4458.3
2031	80	3668.7	--	294.0	3962.7	481.2	4443.9
2032	80	3657.9	--	285.8	3943.7	387.4	4331.1
2033	80	3487.2	--	273.4	3760.6	386.5	4147.1
2034	41	1805.2	--	160.6	1965.8	239.5	2205.3
Subtotal	**1763**	**87524.7**	**--**	**8838.8**	**96363.5**	**13314.9**	**109678.4**

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	430.6
2008	6	969.2
2009	8	1048.3
2010	12	1286.9
2011	24	2178.1
2012	42	2967.5
2013	48	3027.4
2014	60	3214.2
2015	80	4036.9
2016	80	3850.8
2017	80	3750.5
2018	80	3689.2
2019	80	3684.2
2020	80	3680.1
2021	80	3663.1
2022	80	3649.4
2023	80	3652.8
2024	80	3661.9
2025	80	3645.9
2026	80	3689.7
2027	80	3682.5
2028	80	3705.3
2029	80	3693.5
2030	80	3681.5
2031	80	3669.8
2032	80	3658.6
2033	80	3651.5
2034	41	2005.3
Subtotal	**1763**	**87524.7**

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

Fiscal Year	Total Program TY $M
2004	24.4
Subtotal	**24.4**

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

Fiscal Year	Total Program BY 2002 $M
2004	22.7
Subtotal	**22.7**

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	22.1
2010	95.7
2011	164.8
2012	33.3
2013	75.9
Subtotal	**496.8**

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	62.7
2009	18.3
2010	77.5
2011	130.7
2012	25.9
2013	57.8
Subtotal	**401.2**

Low Rate Initial Production

The Defense Acquisition Executive (DAE) approved the Low Rate Initial Procurement (LRIP) quantity of 465 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 275 based on Department decisions on program replan refinements. It also exceeds 10% for the reasons cited above.

Foreign Military Sales

None

Nuclear Cost

None

Unit Cost

Unit Cost Report

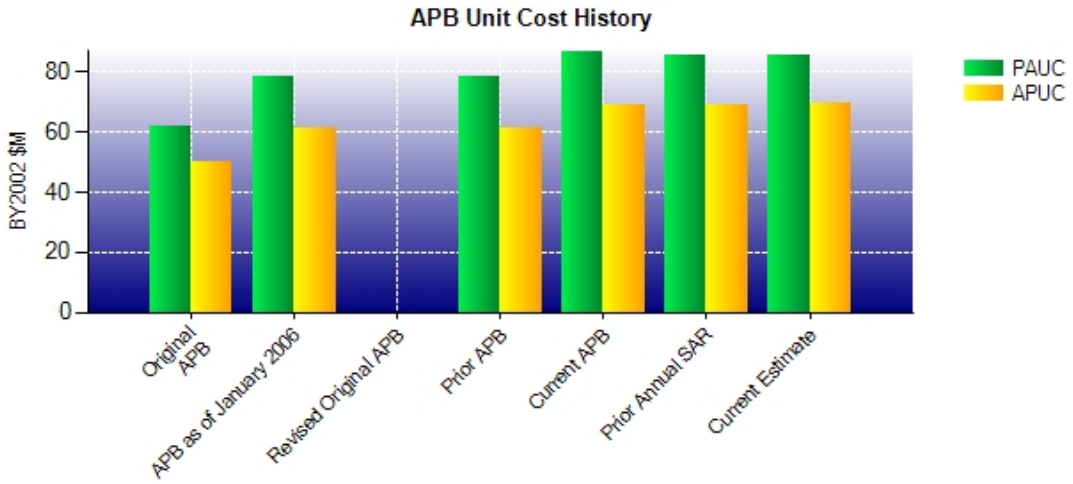
	BY2002 $M		
Unit Cost	**Current UCR Baseline (MAR 2007 APB)**	**Current Estimate (DEC 2007 SAR)**	**BY % Change**
Program Acquisition Unit Cost (PAUC)			
Cost	212580.8	210014.5	
Quantity	2458	2456	
Unit Cost	86.485	85.511	-1.13
Average Procurement Unit Cost (APUC)			
Cost	168980.8	169401.2	
Quantity	2443	2443	
Unit Cost	69.169	69.341	+0.25

	BY2002 $M		
Unit Cost	**Original UCR Baseline (OCT 2001 APB)**	**Current Estimate (DEC 2007 SAR)**	**BY % Change**
Program Acquisition Unit Cost (PAUC)			
Cost	177100.0	210014.5	
Quantity	2866	2456	
Unit Cost	61.793	85.511	**+38.38** [1]
Average Procurement Unit Cost (APUC)			
Cost	143300.0	169401.2	
Quantity	2852	2443	
Unit Cost	50.245	69.341	**+38.01** [1]

[1] **Nunn-McCurdy Breach**

This program reflects a significant Nunn-McCurdy breach to the original baseline that was first reported in the December 2005 SAR. The supporting breach information and explanations can be found in the Unit Cost Report section of that SAR.

Unit Cost History



		BY2002 $M		TY $M	
	Date	PAUC	APUC	PAUC	APUC
Original APB	OCT 2001	61.793	50.245	81.298	68.934
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	MAR 2007	86.485	69.169	113.318	94.857
Prior Annual SAR	DEC 2006	85.192	69.169	121.979	104.420
Current Estimate	DEC 2007	85.511	69.341	121.679	103.951

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	2.162	3.216	12.058	5.207	16.909	0.000	0.829	40.381	121.679

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	1.680	1.130	8.902	3.853	18.619	0.000	0.833	35.017	103.951

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	OCT 2013
IOC	TBD	APR 2010	N/A	MAR 2012
Total Cost (TY $M)	24800.0	233000.0	N/A	298842.8
Total Quantity	N/A	2866	N/A	2456
Prog. Acq. Unit Cost (PAUC)	N/A	81.298	N/A	121.679

<p>Pursuant to 10 USC 2432, SAR Planning Estimate reflected RDT&E cost only.</p><p>Note: IOC reflects Marine Corps IOC for the STOVL variant.</p>

Cost Variance

Summary Then Year $M				
	RDT&E	Proc	MILCON	Total
SAR Baseline (Dev Est)	34400.0	196600.0	2000.0	233000.0
Previous Changes				
Economic	+1258.0	+5997.0	+10.7	+7265.7
Quantity	0.0	-25434.9	0.0	-25434.9
Schedule	+7866.9	+21747.2	0.0	+29614.1
Engineering	+3122.5	+9414.0	+252.8	+12789.3
Estimating	-2453.3	+27870.2	-1730.4	+23686.5
Other	0.0	0.0	0.0	0.0
Support	0.0	+18903.4	0.0	+18903.4
Subtotal	+9794.1	+58496.9	-1466.9	+66824.1
Current Changes				
Economic	-60.3	-1893.7	-1.8	-1955.8
Quantity	--	--	--	--
Schedule	--	--	--	--
Engineering	--	--	--	--
Estimating	+236.1	+17615.8	-10.1	+17841.8
Other	--	--	--	--
Support	--	-16867.3	--	-16867.3
Subtotal	+175.8	-1145.2	-11.9	-981.3
Total Changes	+9969.9	+57351.7	-1478.8	+65842.8
CE - Cost Variance	44369.9	253951.7	521.2	298842.8
CE - Cost & Funding	44369.9	253951.7	521.2	298842.8

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	0.0	0.0	0.0	0.0
Quantity	0.0	-16249.1	0.0	-16249.1
Schedule	+6779.4	+2017.7	0.0	+8797.1
Engineering	+2814.6	+6644.8	+227.3	+9686.7
Estimating	-1906.2	+22049.1	-1294.3	+18848.6
Other	0.0	0.0	0.0	0.0
Support	0.0	+11218.3	0.0	+11218.3
Subtotal	+7687.8	+25680.8	-1067.0	+32301.6
Current Changes				
Economic	--	--	--	--
Quantity	--	--	--	--
Schedule	--	--	--	--
Engineering	--	--	--	--
Estimating	+201.6	+11696.4	-9.1	+11888.9
Other	--	--	--	--
Support	--	-11276.0	--	-11276.0
Subtotal	+201.6	+420.4	-9.1	+612.9
Total Changes	+7889.4	+26101.2	-1076.1	+32914.5
CE - Cost Variance	40189.4	169401.2	423.9	210014.5
CE - Cost & Funding	40189.4	169401.2	423.9	210014.5

Previous Estimate: December 2006

RDT&E	$M	
Current Change Explanations	**Base Year**	**Then Year**
Revised escalation indices. (Economic)	N/A	-60.3
Increase for F-136 funds restoration in FY2008 Appropriation. (Navy) (Estimating)	+206.8	+240.0
Increase for F-136 funds restoration in FY2008 Appropriation. (Air Force) (Estimating)	+207.0	+240.0
Decrease due to revised assessment of required risk funding. (Navy) (Estimating)	-132.4	-153.8
Decrease due to revised assessment of required risk funding. (Air Force) (Estimating)	-90.2	-104.7
Decrease for reserve Award Fee funds reduction in FY2008 Appropriation.(Navy) (Estimating)	-7.3	-8.5
Decrease for reserve Award Fee funds reduction in FY2008 Appropriation. (Air Force) (Estimating)	-7.3	-8.5
Revised International funding profile. (Estimating)	+30.8	+38.0
Adjustment for current and prior escalation. (Estimating)	-5.8	-6.4
RDT&E Subtotal	+201.6	+175.8

Procurement	$M	
Current Change Explanations	**Base Year**	**Then Year**
Revised escalation indices. (Economic)	N/A	-1893.7
Revised estimate for non-recurring tooling price increases, ancillary equipment price increases and realignment of Diminishing Manufacturing Sources and Tech Refresh scope from Support to Non-Recurring. (Navy) (Estimating)	+3854.9	+5323.7
Revised estimate for non-recurring tooling price increases, ancillary equipment price increases and realignment of Diminishing Manufacturing Sources and Tech Refresh scope from Support to Non-Recurring. (Air Force) (Estimating)	+5326.1	+8130.9
Decrease for latest design maturation assessment. (Navy) (Estimating)	-844.6	-1193.6
Increase for latest design maturation of assessment. (Air Force) (Estimating)	+144.0	+239.4
Adjustment for manufacturing actuals for the SDD flight test articles. (Navy) (Estimating)	-45.5	-65.2
Adjustment for manufacturing actuals for the SDD flight test articles. (Air Force) (Estimating)	+2351.6	+3915.1
Decrease due to incorporation of latest prime and subcontractor labor rates. (Navy) (Estimating)	-90.7	-130.4
Decrease due to incorporation of latest prime and subcontractor labor rates. (Air Force) (Estimating)	-432.8	-749.0
Decrease due to prime's longterm material agreements. (Navy) (Estimating)	-455.2	-652.2
Decrease due to prime's longterm material agreements. (Air Force) (Estimating)	-576.9	-998.4
Adjustment for latest actual manufacturing performance for the radar. (Navy) (Estimating)	+211.9	+297.0
Adjustment for latest actual manufacturing performance for the radar. (Air Force) (Estimating)	+431.0	+717.5
Revised propulsion estimate to include additional hardware, and increased lift fan cost. (Navy) (Estimating)	+952.4	+1336.3
Revised propulsion estimate to include additional hardware, and increased lift fan cost. (Air Force) (Estimating)	+860.1	+1432.8
Adjustment for current and prior escalation. (Estimating)	+10.1	+11.9
Adjustment for current and prior escalation. (Support)	+2.0	+2.4
Change due to aircraft configuration update, estimate maturity and methodology refinements and realignment of Diminishing Manufacturing Sources and Tech Refresh	-4416.0	-6272.2

scope from Support to Non-Recurring. (Navy) (Support)		
Change due to aircraft configuration update, estimate maturity and methodology refinements and realignment of Diminishing Manufacturing Sources and Tech Refresh scope from Support to Non-Recurring. (Air Force) (Support)	-6616.4	-10323.4
Initial spares decrease due to estimate maturity, methodology refinements, Congressional and Service adjustments. (Navy) (Support)	-43.7	-38.1
Initial spares decrease due to estimate maturity, methodology refinements and service adjustments. (Air Force) (Support)	-201.9	-236.0
Procurement Subtotal	+420.4	-1145.2

MILCON	**$M**	
Current Change Explanations	**Base Year**	**Then Year**
Revised escalation indices. (Economic)	N/A	-1.8
Decrease for revised USAF estimates for planned sites (Estimating)	-9.3	-10.2
Adjustment for current and prior escalation. (Estimating)	+0.2	+0.1
MILCON Subtotal	-9.1	-11.9

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	25904.3	N/A	13	25904.3	25904.3

	Cost Variance	Schedule Variance
Previous Cumulative Variances	-219.7	-239.7
Cumulative Variances To Date (12/25/2007)	-369.3	-304.5
Net Change	-149.6	-64.8

Cost And Schedule Variance Explanations

The net unfavorable change in cost variance was primarily due to late supplier parts, rework, tooling and foreign exhange rates. The net unfavorable change in schedule variance was primarily due to delays in Build-to-Packages and late parts in the Bulkheads and Wing Components which also caused delays in Production Operations efforts.

Contract Comments

The SDD contract price has increased since initial contract award primarily due to schedule extension and scope adjustments in accordance with the approved program Replan that was definitized in 2005, and includes an Over Target Baseline.

Appropriation: RDT&E	
Contract Name	**Propulsion JSF F135 SDD**
Contractor	Pratt and Whitney
Contractor Location	East Hartford , CT 06057
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	5919.7	N/A	32	6225.6	6300.0

	Cost Variance	Schedule Variance
Previous Cumulative Variances	-176.2	-103.1
Cumulative Variances To Date (12/31/2007)	-205.6	-20.1
Net Change	-29.4	+83.0

Cost And Schedule Variance Explanations

The net unfavorable change in cost variance was primarily due to inefficiencies and unplanned lift system design activities, hardware and test cost increases, and engine control system modifications. The net favorable change in schedule varaince was primarily a result of two revisions to the Contractor's propulsion test plan.

Contract Comments

The SDD contract price has increased since initial contract award primarily due to schedule extension and added scope in accordance with the approved program Replan that was definitized in 2005. Estimates at Completion reflect planned implementation of an Over Target Baseline.

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	2486.2	N/A	6	2441.9	1257.0

	Cost Variance	Schedule Variance
Previous Cumulative Variances	-4.0	-2.4
Cumulative Variances To Date (12/30/2007)	-26.3	-13.7
Net Change	-22.3	-11.3

Cost And Schedule Variance Explanations

The net unfavorable change in cost variance is primarily due to greater than planned costs in Controls and Actuation, Augmentor Module, and High Pressure Compressor areas. The net unfavorable change in schedule variance is primarily in Controls and Actuation, Systems Engineering, and High Pressure Turbine Nozzle areas.

Contract Comments

The Program Manager's Estimate at Completion reflects appropriated funds through FY 2008, and lack of F136 funding budgeted in FY 2009 and subsequent years.

Deliveries and Expenditures

Deliveries To Date	Plan	Actual	Total Quantity	Percent Delivered
Development	0	0	13	0.00%
Production	0	0	2443	0.00%
Total Program Quantities Delivered	0	0	2456	0.00%

Expenditures and Appropriations (TY $M)			
Total Acquisition Cost	298842.8	Years Appropriated	15
Expenditures To Date	28905.2	Percent Years Appropriated	36.59%
Percent Expended	9.67%	Appropriated to Date	37357.9
Total Funding Years	41	Percent Appropriated	12.50%

Operating and Support Cost

Assumptions and Ground Rules

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.

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-35 CTOL costs reflect 24-aircraft squadrons operating at 300 flying hours per aircraft per year. F-16 costs have been normalized to the same groundrules as were used in estimating the F-35 CTOL costs. The F-16 costs are reconciled numbers developed in a joint effort by the F-35 Program Office and the Air Force, and reflected in F-35 Milestone B briefings in Fall 2001. JSF "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 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	JSF Cost per Flying Hour ($)	F-16C/D Cost per Flying Hour ($)
Mission Pay & Allowance	3.952	5.260
Unit Level Consumption	6.052	5.529
Intermediate Maintenance	0.000	0.003
Depot Maintenance	0.739	0.962
Contractor Support	0.436	0.017
Sustaining Support	2.298	0.618
Indirect	1.849	0.828
Other	--	--
Total Unitized Cost (Base Year 2002 $)	15.326	13.217

Total O&S Costs $M	JSF	F-16C/D
Base Year	305463.4	--
Then Year	764074.8	--