Selected Acquisition Report (SAR)

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

F-35 Joint Strike Fighter Aircraft (F-35)

As of FY 2017 President's Budget

Defense Acquisition Management
Information Retrieval
(DAMIR)

Table of Contents

Common Acronyms and Abbreviations for MDAP Programs

Acq O&M - Acquisition-Related Operations and Maintenance
ACAT - Acquisition Category
ADM - Acquisition Decision Memorandum
APB - Acquisition Program Baseline
APPN - Appropriation
APUC - Average Procurement Unit Cost
$B - Billions of Dollars
BA - Budget Authority/Budget Activity
Blk - Block
BY - Base Year
CAPE - Cost Assessment and Program Evaluation
CARD - Cost Analysis Requirements Description
CDD - Capability Development Document
CLIN - Contract Line Item Number
CPD - Capability Production Document
CY - Calendar Year
DAB - Defense Acquisition Board
DAE - Defense Acquisition Executive
DAMIR - Defense Acquisition Management Information Retrieval
DoD - Department of Defense
DSN - Defense Switched Network
EMD - Engineering and Manufacturing Development
EVM - Earned Value Management
FOC - Full Operational Capability
FMS - Foreign Military Sales
FRP - Full Rate Production
FY - Fiscal Year
FYDP - Future Years Defense Program
ICE - Independent Cost Estimate
IOC - Initial Operational Capability
Inc - Increment
JROC - Joint Requirements Oversight Council
$K - Thousands of Dollars
KPP - Key Performance Parameter
LRIP - Low Rate Initial Production
$M - Millions of Dollars
MDA - Milestone Decision Authority
MDAP - Major Defense Acquisition Program
MILCON - Military Construction
N/A - Not Applicable
O&M - Operations and Maintenance
ORD - Operational Requirements Document
OSD - Office of the Secretary of Defense
O&S - Operating and Support
PAUC - Program Acquisition Unit Cost

PB - President's Budget
PE - Program Element
PEO - Program Executive Officer
PM - Program Manager
POE - Program Office Estimate
RDT&E - Research, Development, Test, and Evaluation
SAR - Selected Acquisition Report
SCP - Service Cost Position
TBD - To Be Determined
TY - Then Year
UCR - Unit Cost Reporting
U.S. - United States
USD(AT&L) - Under Secretary of Defense (Acquisition, Technology and Logistics)

Program Information

Program Name

F-35 Joint Strike Fighter Aircraft (F-35)

DoD Component

DoD

Joint Participants

United States Navy; United States Air Force; United States Marine Corps; United Kingdom; Italy; The Netherlands; Turkey; Canada; Australia; Denmark; Norway

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

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Date Assigned: December 6, 2012

References

F-35 Aircraft

SAR Baseline (Development Estimate)

Defense Acquisition Executive (DAE) Approved Acquisition Program Baseline (APB) dated March 26, 2012

Approved APB

Defense Acquisition Executive (DAE) Approved Acquisition Program Baseline (APB) dated June 18, 2014

F-35 Engine

SAR Baseline (Development Estimate)

Defense Acquisition Executive (DAE) Approved Acquisition Program Baseline (APB) dated March 26, 2012

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Mission and Description

The F-35 Joint Strike Fighter Aircraft (F-35) Program will develop and field an affordable, highly common family of next-generation strike aircraft for the U.S. Navy, Air Force, Marine Corps, and allies. The three variants are the F-35A; F-35B; and the F-35C. The F-35A will be a stealthy multi-role aircraft, primarily air-to-ground, for the Air Force to replace the F-16 and A-10 and complement the F-22. The F-35B variant will be a multi-role strike fighter aircraft to replace the AV-8B and F/A -18A/C/D for the Marine Corps. The F-35C will provide the U.S. Navy a multi-role, stealthy strike fighter aircraft to complement the F/A-18E/F. The planned DoD F-35 Fleet will replace the joint services' legacy fleets. The transition from multiple type/model/series to a common platform will result in a smaller total force over time and operational and overall cost efficiencies.

Executive Summary

The F-35 remains the DoD's largest cooperative acquisition program, with eight International Partners participating with the U.S. under Memorandums of Understanding for System Development and Demonstration (SDD) and Production, Sustainment and Follow-on Development. Additionally, the program currently has three FMS customers. The F-35 program is executing well across the entire spectrum of acquisition, to include development and design, flight test, production, fielding and base stand-up, sustainment of fielded aircraft, and building a global sustainment enterprise.

The program is transitioning from slow and steady progress to a rapidly growing and accelerating Program. However, the Program is not without risks and challenges. The completion of Mission Systems Software development and Autonomic Logistics Information System (ALIS) development are the most prominent, current technical risks. The ability to standup four separate Reprogramming Labs, complete all weapons envelope testing for Block 3F, and start Operational Test (OT) on time, constitute the main schedule risks. Program leadership remains confident that it will deliver the full F-35 capability as promised.

Successes and challenges in 2015: The F-35 Program closed out 2015 by executing the plan for test flights, total test points and baseline test points. The test teams at Edwards Air Force Base (AFB) and Naval Air Station, Patuxent River, MD completed 1374 actual flights (plan: 1286), 9582 total test points (plan: 9427) and 7798 baseline test points (plan: 7786).

The Program also met the production goal for the year by accepting its 45th aircraft delivery. This represented a 25 percent increase from last year's goal that was also met: the most aircraft delivered in one year in program history. These deliveries included the first international delivery from the Italian Final Assembly and Check Out (FACO), and bring the overall operational delivery total to 157 (146 U.S. aircraft as reflected in the Deliveries and Expenditure Section of the SAR, and 11 International Partner Aircraft) as of February 3, 2016. Along with Italy, Norway took its first delivery in 2015. Five partner nations: Australia, Italy, the Netherlands, Norway and the United Kingdom, along with the Air Force, Marine Corps and Navy, now fly the F-35. Israel and Japan will take their first deliveries in 2016.

Block 3i software was released for flight test in May 2015, to support the U.S. Air Force IOC declaration later in 2016. Coding for the final development software block 3F, was completed in June 2015 and the software has been released for flight testing. Additional updates are planned throughout the year with 3F tracking for completion by the end of the SDD in the fall of 2017, to support U.S. Navy IOC in 2018 and the start of Initial Operational Test and Evaluation (IOT&E). Throughout testing, interim software test builds are provided to both the developmental test and operational test teams, allowing them to experience the software as early as possible and provide feedback. As of December 31, 2015, the program completed 80 percent of SDD test points and is on track for completion in the fourth quarter of 2017.

At the completion of the F-35 SDD program, the objective is to deliver full Block 3F capabilities (Mission Systems, Weapons & Flight Envelope) for the Services and International customers. The F-35 program will continue to coordinate closely with the JSF Operational Test Team and Director, Operational Test and Evaluation, on key test planning and priorities to successfully meet significant SDD program milestones and objectives.

Currently, mission systems software and the ALIS system, are the program's top technical risks. Disciplined systems engineering processes, addressing the complexity of writing, testing, and integrating mission systems and ALIS software, have improved the delivery of capability, although challenges remain.

F-35 Total Program Cost:
The BY dollar increase in RDT&E of approximately $300M is the result of a transfer of money from the Procurement account to the RDT&E account to fund the modification of 24 OT aircraft for IOT&E. This transfer out of Procurement into RDT&E had a zero net effect on Total Program Cost.

The BY dollar reduction in the estimated $7.5B Procurement Costs through the life of the program was the result of a combination of increases and decreases within the Procurement account. Elements of the account that increased when compared to last year's SAR estimate included increased labor rates, the addition of Electronic Warfare Band 2/5 capability

and updating the quantity profile. Elements in the account that decreased included; updated actuals for aircraft and engine cost, and a change in inflation indices.

The net BY dollar increase in the estimated O&S of $23B (CAPE) and $43.3B (Joint Program Office (JPO)) were the result of both increases and decreases within the O&S account, with U.S. Services' changes in aircraft life expectancy and bed down plans overshadowing real reductions in O&S costs.

Business perspective: The price of the F-35 variants continues to decline steadily. For example, the price (including airframe, engine and profit) of an LRIP Lot 8 aircraft was approximately 3.6 percent less than an LRIP Lot 7 aircraft, and an LRIP Lot 7 aircraft, was 4.2 percent lower than an LRIP Lot 6 aircraft. LRIP Lots 9 and 10 contract negotiations are nearing completion and the contract award is anticipated by late spring of this year.

The F-35 JPO is exploring the possibility of entering into a Block Buy Contract, for LRIP Lots 12-14 (FY 2018- FY2020). A block buy would enable the JPO to save a significant amount of money by allowing the contractors to use Economic Order Quantity purchases; enabling manufacturers to maximize production economies of scale, through bulk orders.

Earlier this year, the program reached agreement with Pratt & Whitney on the next two lots of F135 propulsion systems. The LRIP Lots 9 and 10 will continue the price improvements realized on previous lots and the F135 engine is meeting War on Cost commitments. For calendar year 2015, F135 production deliveries met contract requirements. However, recurring manufacturing quality issues continue to hamper consistent engine deliveries. Recent quality escapes on turbine blades and electronic control systems resulted in maintenance activity to remove suspect hardware from the operational fleet. Pratt & Whitney has taken action to improve quality surveillance within their manufacturing processes and program office manufacturing quality experts have engaged to ensure quality improvements are in place to meet production ramp requirements.

Sustainment: Last year the JPO provided information regarding its efforts toward the establishment of the Global Sustainment posture across Europe, Asia-Pacific and North America. In 2015, the F-35's strong international team made marked progress in delivering this capability to F-35 users and the program is on track to standing up regional Maintenance, Repair, Overhaul, and Upgrade (MRO&U) capabilities for airframes and engines, for both the European and Pacific Regions. These initial MRO&U assignments will support near-term F-35 airframe and engine overseas operations and maintenance and will be reviewed and updated approximately every five years.

In the European region, Italy will provide F-35 initial airframe MRO&U capability in 2018. Also in 2018, engine heavy maintenance in the European region will initially be provided by Turkey. The Netherlands and Norway will provide additional engine heavy maintenance approximately two-to-three years after Turkey's initial capability.

In the Pacific region, F-35 airframe MRO&U capability will be provided by Japan for the Northern Pacific and in the Southern Pacific by Australia, with both capabilities required by early 2018. For F-35 engine heavy maintenance in the Pacific, the initial capability will be provided by Australia by early 2018, with Japan providing additional capability five-to-seven years later.

In 2015, the program also kicked-off initial planning efforts for expansion of component repair into the European and Pacific regions. Working through the F-35 Regional Capabilities Working Group forum, efforts began to identify 'best value' repair sources in each region for approximately 18 key depot-level repairable items. Early program analysis indicates that grouping certain components by common repair, test set and skills, can yield life cycle cost savings. Partners and their industries will be requested to propose groupings, that leverage their strongest industrial competencies, to deliver optimum repair capability at best cost to the global sustainment solution.

International and FMS: International participation in the program remains strong and the program is now training International Partner pilots at Luke AFB.

In 2015, the first Royal Norwegian Air Force, F-35 rolled out and had its first flight from the Fort Worth Texas assembly facility. The first Italian Air Force, F-35A rolled out of the production facility in Cameri Italy, and a few months later completed the first F-35 transatlantic flight, landing at Naval Air Station, Patuxent River, Maryland. Additionally, the program began F-35A aerial refueling flight testing with a Royal Australian Air Force KC-30A tanker and completed F-35A aerial refueling flight testing with an Italian Air Force KC-767 tanker.

Initial site planning for the standup of maintenance capabilities in Norway, the Netherlands, Turkey, United Kingdom, Israel, Japan and Korea commenced in 2015. The Japanese FACO assembly facility is now complete with both Electronic Mate Assembly Stations, tools installed and accepted and the first Japanese F-35A is scheduled to rollout of the facility in November 2016. Finally, construction and installation activities remain on schedule, with major components currently being shipped.

In March 2012, in conjunction with the Milestone B decision, certification was made pursuant to section 2366b of title 10, United States Code (U.S.C.). However, at that time, the MDA waived provision (3)(C) (now 3(G)), which certifies that the JROC has accomplished its duties pursuant to section 181(b) of title 10, U.S.C., including an analysis of the operational requirements for the program. The JROC accomplished the bulk of its duties under section 181(b); however, because at that time, the IOC dates remained "TBD" by the Services, a waiver had been in place. In June 2013, the Services sent a joint report to the U.S. Congress detailing their IOC requirements and dates. On April 22, 2015, the USD(AT&L) certified that this provision has been satisfied because IOC Objective and Threshold dates for each of the three Services, Air Force, Marine Corps, and Navy, have now been established.

Threshold Breaches

F-35 Aircraft

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

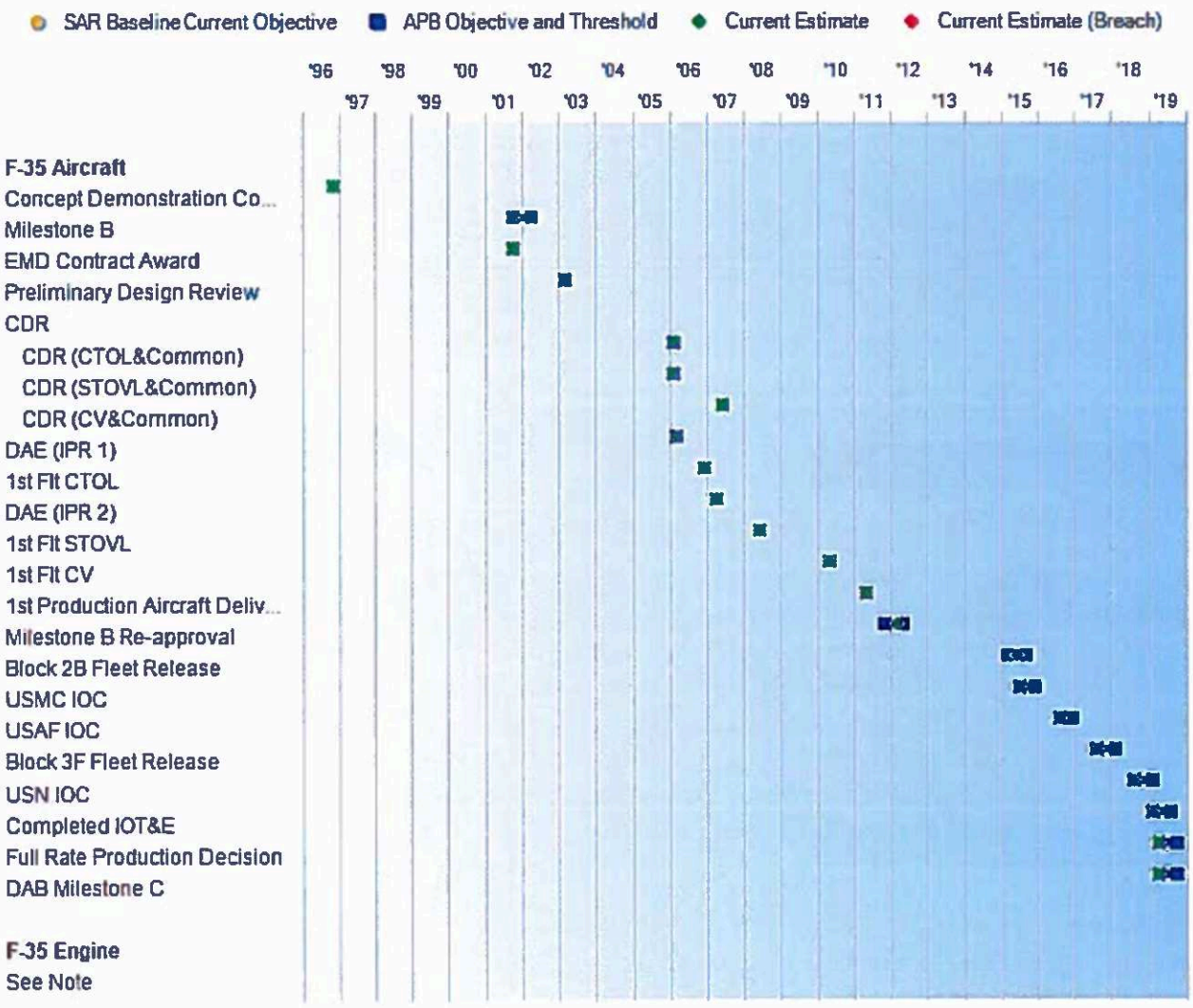
Nunn-McCurdy Breaches		
Current UCR Baseline		
	PAUC	None
	APUC	None
Original UCR Baseline		
	PAUC	None
	APUC	None

F-35 Engine

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

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

Schedule


SAR Baseline Current Objective
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
'16
'17
'18
'19
F-35 Aircraft
Concept Demonstration Co...
Milestone B
EMD Contract Award
Preliminary Design Review
CDR
CDR (CTOL&Common)
CDR (STOVL&Common)
CDR (CV&Common)
DAE (IPR 1)
1st Flt CTOL
DAE (IPR 2)
1st Flt STOVL
1st Flt CV
1st Production Aircraft Deliv...
Milestone B Re-approval
Block 2B Fleet Release
USMC IOC
USAF IOC
Block 3F Fleet Release
USN IOC
Completed IOT&E
Full Rate Production Decision
DAB Milestone C
F-35 Engine
See Note

F-35 Aircraft

Schedule Events				
Events	SAR Baseline Development Estimate	Current APB Development Objective/Threshold		Current Estimate
Concept Demonstration Contract Award	Nov 1996	Nov 1996	Nov 1996	Nov 1996
Milestone B	Oct 2001	Oct 2001	Apr 2002	Oct 2001
EMD Contract Award	Oct 2001	Oct 2001	Oct 2001	Oct 2001
Preliminary Design Review	Apr 2003	Mar 2003	Mar 2003	Mar 2003
CDR				
CDR (CTOL&Common)	Feb 2006	Feb 2006	Feb 2006	Feb 2006
CDR (STOVL&Common)	Feb 2006	Feb 2006	Feb 2006	Feb 2006
CDR (CV&Common)	Jun 2007	Jun 2007	Jun 2007	Jun 2007
DAE (IPR 1)	Mar 2006	Mar 2006	Mar 2006	Mar 2006
1st Flt CTOL	Dec 2006	Dec 2006	Dec 2006	Dec 2006
DAE (IPR 2)	Apr 2007	Apr 2007	Apr 2007	Apr 2007
1st Flt STOVL	Jun 2008	Jun 2008	Jun 2008	Jun 2008
1st Flt CV	Jun 2010	May 2010	May 2010	May 2010
1st Production Aircraft Delivered	May 2011	May 2011	May 2011	May 2011
Milestone B Re-approval	Mar 2012	Nov 2011	May 2012	Mar 2012
Block 2B Fleet Release	Mar 2015	Mar 2015	Sep 2015	Jun 2015
USMC IOC	TBD	Jul 2015	Dec 2015	Jul 2015
USAF IOC	TBD	Aug 2016	Dec 2016	Aug 2016
Block 3F Fleet Release	Aug 2017	Aug 2017	Feb 2018	Aug 2017
USN IOC	TBD	Aug 2018	Feb 2019	Aug 2018
Completed IOT&E	Feb 2019	Feb 2019	Aug 2019	Feb 2019
Full Rate Production Decision	Apr 2019	Apr 2019	Oct 2019	Apr 2019
DAB Milestone C	Apr 2019	Apr 2019	Oct 2019	Apr 2019

Change Explanations

None

Acronyms and Abbreviations

CDR - Critical Design Review
CTOL - Conventional Takeoff and Landing
CV - Aircraft Carrier Suitable Variant
Flt - Flight
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

F-35 Engine

Schedule Events				
Events	SAR Baseline Development Estimate	Current APB Development Objective/Threshold		Current Estimate
See Note	N/A	N/A	N/A	N/A

Change Explanations

None

Notes

Schedule milestones for the F-35 Engine subprogram are captured as part of the system-level schedule milestones reflected in the F-35 Aircraft subprogram.

Performance

F-35 Aircraft

Performance Characteristics					
SAR Baseline Development Estimate	Current APB Development Objective/Threshold		Demonstrated Performance	Current Estimate	
STOVL Mission Performance - STO Distance Flat Deck					
With four 1000# JDAMs and two internal AIM-120s, full expendables, execute a 600 foot (450 UK STOVL) STO from LHA, LHD, and aircraft carriers (sea level, tropical day, 10 kts operational WOD) and with a combat radius of 550 nm (STOVL profile). Also must perform STOVL vertical landing with two 1000# JDAMs and two internal AIM-120s, full expendables, and fuel to fly the STOVL Recovery profile.	With four 1000# JDAMs and two internal AIM-120s, full expendables, execute a 600 foot (450 UK STOVL) STO from LHA, LHD, and aircraft carriers (sea level, tropical day, 10 kts operational WOD) and with a combat radius of 550 nm (STOVL profile). Also must perform STOVL vertical landing with two 1000# JDAMs and two internal AIM-120s, full expendables, and fuel to fly the STOVL Recovery profile.	With two 1000# JDAMs and two internal AIM-120s, full expendables, execute a 600 foot (450 UK STOVL) STO from LHA, LHD, and aircraft carriers (sea level, tropical day, 10 kts operational WOD) and with a combat radius of 450 nm (STOVL profile). Also must perform STOVL vertical landing with two 1000# JDAMs and two internal AIM-120s, full expendables, and fuel to fly the STOVL Recovery profile.	TBD	Execute 558 ft. STO with 2 JDAM (internal), 2 AIM-120 (internal), fuel to fly 467nm	(Ch-1)
Combat Radius NM -CTOL Variant					
690	690	590	TBD	625	(Ch-1)
Combat Radius NM -STOVL Variant					
550	550	450	TBD	467	(Ch-1)
Combat Radius NM -CV Variant					
730	730	600	TBD	630	(Ch-1)
Mission Reliability - CTOL Variant					
98%	98%	93%	TBD	97%	
Mission Reliability - CV Variant					
98%	98%	95%	TBD	98%	
Mission Reliability - STOVL Variant					
98%	98%	95%	TBD	98%	
Logistics Footprint - CTOL Variant					
Less than or equal to 6 C-17 equivalents	Less than or equal to 6 C -17 equivalents	Less than or equal to 8 C -17 equivalent loads	TBD	Less than or equal to 8 C-17 equivalents	(Ch-2)

Logistics Footprint - CV Variant					
Less than or equal to 34,000 cu ft., 183 ST	Less than or equal to 34,000 cu ft., 183 ST	Less than or equal to 46,000 cu ft., 243 ST	TBD	Less than or equal to 38,800 cu ft., 217 ST	(Ch-2)
Logistics Footprint - STOVL Variant					
Less than or equal to 4 C-17 equivalents	Less than or equal to 4 C -17 equivalents	Less than or equal to 8 C -17 equivalent loads	TBD	Less than or equal to 7 C-17 equivalents	(Ch-2)
Logistics Footprint - STOVL Variant L-Class					
Less than or equal to 15,000 cu ft, 104 ST	Less than or equal to 15,000 cu ft, 104 ST	Less than or equal to 21,000 cu ft, 136 ST	TBD	Less than or equal to 17,400 cu ft, 100 ST	(Ch-2)
Sortie Generation Rates - CTOL Variant					
4.0/3.0/2.0 2.5 ASD	4.0/3.0/2.0 2.5 ASD	3.0/2.0/1.0 2.5 ASD	TBD	3.4/3.0/2.0 2.5 ASD	(Ch-2)
Sortie Generation Rates - CV Variant					
4.0/3.0/1.0 1.8 ASD	4.0/3.0/1.0 1.8 ASD	3.0/2.0/1.0 1.8 ASD	TBD	3.0/3.0/1.0 1.8 ASD	(Ch-2)
Sortie Generation Rates - STOVL Variant (USMC)					
6.0/4.0/2.0 1.1 ASD	6.0/4.0/2.0 1.1 ASD	4.0/3.0/1.0 1.1 ASD	TBD	5.2/4.0/2.0 1.1 ASD	(Ch-2)
CV Recovery Performance (Vpa)					
Vpa. Maximum approach speed (Vpa) at required carrier landing weight (RCLW) of less than 140 knots.	Vpa at required carrier landing weight (RCLW) of less than 140 knots.	Vpa at required carrier landing weight (RCLW) of less than 145 knots.	TBD	Vpa. Maximum approach speed (Vpa) at required carrier landing weight (RCLW) of less than 144 knots.	

Classified Performance information is provided in the classified annex to this submission.

Requirements Reference

Operational Requirements Document (ORD) Change 3 dated August 19, 2008 as modified by Joint Requirements Oversight Council Memorandum 040-12 dated March 16, 2012

Change Explanations

(Ch-1) Performance characteristic current estimate updated to reflect a change in the Combat Radius and STOVL Mission Performance characteristics. Fuel use margin was reduced from 4% to 3% based on refined understanding of drag and installed propulsion performance. Program anticipates further margin reduction and concomitant performance improvements as flight test draws to a conclusion over the next 18 months.
(Ch-2) The PEO completed the initial portion of a more comprehensive and accurate assessment of the SGR and Log Footprint KPPs. This update more accurately reflects the capability of the design when operated in accordance with current fleet policies and procedures. This differs from the prior, contractual analysis by capturing the demonstrated and predicted performance of the air system design (vice modeled) and adding operationally representative fleet policies and procedures (in the SGR case).

Notes

The F-35 Program is currently in developmental testing, and will provide demonstrated performance with the Block 3F full capability aircraft.

Acronyms and Abbreviations

ASD - Average Sortie Duration
CTOL - Conventional Takeoff and Landing
CU FT - Cubic Feet
CV - Aircraft Carrier Suitable Variant
JDAM - Joint Direct Attack Munitions
KTS - Knots
NM - Nautical Miles
RCLW - Required Carrier Landing Weight
SGR - Sortie Generation Rate
ST - Short Tons
STO - Short Takeoff
STOVL - Short Takeoff and Vertical Landing
Vpa - Max Approach Speed
WOD - Wind Over the Deck

F-35 Engine

Performance Characteristics				
SAR Baseline Development Estimate	Current APB Development Objective/Threshold		Demonstrated Performance	Current Estimate
See Note				
N/A	N/A	N/A	TBD	N/A

Requirements Reference

Operational Requirements Document (ORD) Change 3 dated August 19, 2008 as modified by Joint Requirements Oversight Council Memorandum 040-12 dated March 16, 2012

Change Explanations

None

Notes

Performance characteristics for the F-35 Engine subprogram are captured as part of the system-level performance characteristics reflected in the F-35 Aircraft subprogram.

Track to Budget

F-35 Aircraft

General Notes

F-35 is DoD's largest cooperative development program. In addition to DoD's funding lines, eight International Partners are providing funding in the System Development and Demonstration (SDD) Phase under a Memorandum of Understanding (MOU): United Kingdom, Italy, The Netherlands, Turkey, Canada, Australia, Denmark, and Norway. All but Turkey and Australia were partners in the prior phase. Associated financial contributions are reflected in the Annual Funding section as Appropriation 9999, RDT&E Non-Treasury Funds. RDT&E cost excludes Follow-on Modernization Funding: F-35A/B/C Follow-on Development (FOD); F-35B/C Sustainment/Capability Enhancements; F-35A Deployability and Suitability Enhancements; and F-35A Dual Capable Aircraft Enhancements.

RDT&E

Appn		BA	PE	
Navy	1319	04	0603800N	
	Project		Name	
	2209		RDT&E, Navy CDP	(Sunk)
Navy	1319	05	0604800M	
	Project		Name	
	2262		Joint Strike Fighter - EMD	
Navy	1319	05	0604800N	
	Project		Name	
	2261		JT Strike Fighter - EMD	
	3194		RDT&E, Navy EMD/Joint Reprogramming Center	(Sunk)
Air Force	3600	04	0603800F	
	Project		Name	
	2025		RDT&E, Air Force CDP	(Sunk)
Air Force	3600	05	0604800F	
	Project		Name	
	3831		F-35 - EMD	
Defense-Wide	0400	03	0603800E	
	Project		Name	
			RDT&E, DARPA	(Sunk)

Procurement

Appn		BA	PE
Navy	1506	01	0204146N
	Line Item		Name
	0147		Joint Strike Fighter CV
Navy	1506	01	0204146M
	Line Item		Name

	0152	JSF STOVL	
Navy	1506 05	0204146M	
	Line Item	Name	
	0592	F-35 STOVL Series	
Navy	1506 05	0204146N	
	Line Item	Name	
	0593	F-35 CV Series	
Navy	1506 06	0204146M	
	Line Item	Name	
	0605	Spares and Repair Parts	(Shared)
Navy	1506 06	0204146N	
	Line Item	Name	
	0605	Spares and Repair Parts	(Shared)
Air Force	3010 06	0207142F	
	Line Item	Name	
	000999	Initial Spares/Repair Parts	(Shared)
Air Force	3010 01	0207142F	
	Line Item	Name	
	ATA000	F-35	
Air Force	3010 05	0207142F	
	Line Item	Name	
	F03500	F-35 Modifications	

MILCON

Appn	BA	PE		
Navy	1205	01	0212576N	
	Project		Name	
			MILCON, USN	(Shared)
Navy	1205	01	0216496M	
	Project		Name	
			MILCON, USN	(Shared)
Navy	1205	01	0816376N	
	Project		Name	
			MILCON, USN	(Shared) (Sunk)
Air Force	3300	01	0052635F	
	Project		Name	
			MILCON, AF	(Shared)
Air Force	3300	01	0207142F	
	Project		Name	
			MILCON, AF	(Shared)
Air Force	3300	01	0207597F	
	Project		Name	
			MILCON, AF	(Shared)

F-35 Engine

General Notes

F-35 is DoD's largest cooperative development program. In addition to DoD's funding lines, eight International Partners are providing funding in the System Development and Demonstration (SDD) Phase under a Memorandum of Understanding (MOU): United Kingdom, Italy, The Netherlands, Turkey, Canada, Australia, Denmark, and Norway. All but Turkey and Australia were partners in the prior phase. Associated financial contributions are reflected in the Annual Funding section as Appropriation 9999, RDT&E Non-Treasury Funds. RDT&E cost excludes Follow-on Modernization funding: F-35A/B/C Follow-on Development (FOD); F-35B/C Sustainment/Capability Enhancements; F-35A Deployability and Suitability Enhancements; and F-35A Dual Capable Aircraft Enhancements.

RDT&E

Appn		BA	PE	
Navy	1319	04	0603800N	
	Project		**Name**	
	2209		RDT&E, Navy CDP	(Sunk)
Navy	1319	05	0604800M	
	Project		**Name**	
	2262		RDT&E, Marine Corps	
Navy	1319	05	0604800N	
	Project		**Name**	
	2261		RDT&E, Navy EMD/JSF	
	3194		RDT&E, Navy EMD/Joint Reprogramming Center	(Sunk)
	9999		RDT&E, Navy EMD/Congressional Adds	(Sunk)
Air Force	3600	04	0603800F	
	Project		**Name**	
	2025		RDT&E, Air Force CDP	(Sunk)
Air Force	3600	05	0604800F	
	Project		**Name**	
	3831		RDT&E, Air Force EMD/Joint Strike Fighter Quantity of RDT&E Articles	
Defense-Wide	0400	03	0603800E	
	Project		**Name**	
			RDT&E, DARPA	(Sunk)

Procurement

Appn		BA	PE
Navy	1506	01	0204146N
	Line Item		**Name**
	0147		JSF (Navy)
Navy	1506	01	0204146M
	Line Item		**Name**
	0152		JSF (Marine Corps)

Navy	1506	06	0204146M	
	Line Item		Name	
	0605		Initial Spares (Marine Corps)	(Shared)
Navy	1506	06	0204146N	
	Line Item		Name	
	0605		Initial Spares (Navy)	(Shared)
Air Force	3010	06	0207142F	
	Line Item		Name	
	000999		Initial Spares (Air Force)	(Shared)
Air Force	3010	01	0207142F	
	Line Item		Name	
	ATA000		JSF (Air Force)	
Air Force	3010	05	0207142F	
	Line Item		Name	
	F03500		Mods (Air Force)	

Cost and Funding

Cost Summary - Total Program

Total Acquisition Cost - Total Program							
Appropriation	BY 2012 $M			BY 2012 $M	TY $M		
	SAR Baseline Development Estimate	Current APB Development Objective/Threshold		Current Estimate	SAR Baseline Development Estimate	Current APB Development Objective	Current Estimate
RDT&E	59677.3	59398.1	--	59491.2	55233.8	55182.9	55133.0
Procurement	266665.8	266665.8	--	249667.8	335680.7	335680.7	319115.7
Flyaway	--	--	--	222668.7	--	--	286951.9
Recurring	--	--	--	197002.0	--	--	255294.7
Non Recurring	--	--	--	25666.7	--	--	31657.2
Support	--	--	--	26999.1	--	--	32163.8
Other Support	--	--	--	16223.6	--	--	19225.3
Initial Spares	--	--	--	10775.5	--	--	12938.5
MILCON	4168.0	4168.0	--	4101.4	4797.3	4797.3	4793.3
Acq O&M	0.0	0.0	--	0.0	0.0	0.0	0.0
Total	330511.1	330231.9	N/A	313260.4	395711.8	395660.9	379042.0

Cost and Funding

Cost Summary - F-35 Aircraft

Total Acquisition Cost - F-35 Aircraft							
Appropriation	BY 2012 $M			BY 2012 $M	TY $M		
	SAR Baseline Development Estimate	Current APB Development Objective/Threshold		Current Estimate	SAR Baseline Development Estimate	Current APB Development Objective	Current Estimate
RDT&E	47982.1	46457.5	51103.3	46368.6	44410.1	43360.7	43170.1
Procurement	224332.9	224332.9	246766.2	211290.9	282647.8	282647.8	270427.5
Flyaway	--	--	--	189120.8	--	--	244057.7
Recurring	--	--	--	166222.4	--	--	215735.2
Non Recurring	--	--	--	22898.4	--	--	28322.5
Support	--	--	--	22170.1	--	--	26369.8
Other Support	--	--	--	14549.0	--	--	17248.4
Initial Spares	--	--	--	7621.1	--	--	9121.4
MILCON	4168.0	4168.0	4584.8	4101.4	4797.3	4797.3	4793.3
Acq O&M	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	276483.0	274958.4	N/A	261760.9	331855.2	330805.8	318390.9

Current APB Cost Estimate Reference

Cost Assessment and Program Evaluation (CAPE) Independent Cost Estimate (ICE) dated March 09, 2012

Confidence Level

Confidence Level of cost estimate for current APB: 50%

This estimate, like all previous Cost Analysis Improvement Group (CAIG) and Cost Assessment and Program Evaluation (CAPE) estimates, is built upon a product-oriented work breakdown structure; is based on historical actual cost information to the maximum extent possible; and, most importantly, is based on conservative assumptions that are consistent with actual demonstrated contractor and government performance for a series of acquisition programs in which the Department has been successful.

It is difficult to calculate mathematically the precise confidence levels associated with life-cycle cost estimates prepared for Major Defense Acquisition program (MDAPs). Based on the rigor in methods used in building estimates, the strong adherence to the collection and use of historical cost information, and the review of applied assumptions, we project that it is about equally likely that the estimates will prove too low or too high for execution of the program described.

Total Quantity - F-35 Aircraft			
Quantity	SAR Baseline Development Estimate	Current APB Development	Current Estimate
RDT&E	14	14	14
Procurement	2443	2443	2443
Total	2457	2457	2457

Cost Summary - F-35 Engine

Total Acquisition Cost - F-35 Engine							
Appropriation	BY 2012 $M			BY 2012 $M	TY $M		
	SAR Baseline Development Estimate	Current APB Development Objective/Threshold		Current Estimate	SAR Baseline Development Estimate	Current APB Development Objective	Current Estimate
RDT&E	11695.2	12940.6	14234.7	13122.6	10823.7	11822.2	11962.9
Procurement	42332.9	42332.9	46566.2	38376.9	53032.9	53032.9	48688.2
Flyaway	--	--	--	33547.9	--	--	42894.2
Recurring	--	--	--	30779.6	--	--	39559.5
Non Recurring	--	--	--	2768.3	--	--	3334.7
Support	--	--	--	4829.0	--	--	5794.0
Other Support	--	--	--	1674.6	--	--	1976.9
Initial Spares	--	--	--	3154.4	--	--	3817.1
MILCON	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
Total	54028.1	55273.5	N/A	51499.5	63856.6	64855.1	60651.1

Current APB Cost Estimate Reference

Cost Assessment and Program Evaluation (CAPE) Independent Cost Estimate (ICE) dated March 09, 2012

Confidence Level

Confidence Level of cost estimate for current APB: 50%

This estimate, like all previous Cost Analysis Improvement Group (CAIG) and Cost Assessment and Program Evaluation (CAPE) estimates, is built upon a product-oriented work breakdown structure; is based on historical actual cost information to the maximum extent possible; and, most importantly, is based on conservative assumptions that are consistent with actual demonstrated contractor and government performance for a series of acquisition programs in which the Department has been successful.

It is difficult to calculate mathematically the precise confidence levels associated with life-cycle cost estimates prepared for Major Defense Acquisition program (MDAPs). Based on the rigor in methods used in building estimates, the strong adherence to the collection and use of historical cost information, and the review of applied assumptions, we project that it is about equally likely that the estimates will prove too low or too high for execution of the program described.

Total Quantity - F-35 Engine			
Quantity	SAR Baseline Development Estimate	Current APB Development	Current Estimate
RDT&E	14	14	14
Procurement	2443	2443	2443
Total	2457	2457	2457

Cost and Funding

Funding Summary - Total Program

Appropriation Summary FY 2017 President's Budget / December 2015 SAR (TY$ M)									
Appropriation	Prior	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	To Complete	Total
RDT&E	51881.1	1506.2	1436.9	273.3	14.9	11.2	9.4	0.0	55133.0
Procurement	46173.0	9876.8	8703.0	10593.3	10402.1	11278.6	13107.0	208981.9	319115.7
MILCON	1489.6	292.7	571.7	165.7	183.5	135.7	116.2	1838.2	4793.3
Acq O&M	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PB 2017 Total	99543.7	11675.7	10711.6	11032.3	10600.5	11425.5	13232.6	210820.1	379042.0
PB 2016 Total	99532.9	10959.5	11586.7	12093.5	12034.6	11906.9	12358.6	220662.0	391134.7
Delta	10.8	716.2	-875.1	-1061.2	-1434.1	-481.4	874.0	-9841.9	-12092.7

Cost and Funding

Funding Summary - F-35 Aircraft

Appropriation Summary FY 2017 President's Budget / December 2015 SAR (TY$ M)									
Appropriation	Prior	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	To Complete	Total
RDT&E	40174.4	1306.6	1380.3	273.3	14.9	11.2	9.4	0.0	43170.1
Procurement	39405.5	8625.9	7194.4	8784.0	8627.7	9366.7	10866.2	177557.1	270427.5
MILCON	1489.6	292.7	571.7	165.7	183.5	135.7	116.2	1838.2	4793.3
Acq O&M	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PB 2017 Total	81069.5	10225.2	9146.4	9223.0	8826.1	9513.6	10991.8	179395.3	318390.9
PB 2016 Total	81040.1	9508.6	10072.4	10305.4	10076.7	9893.0	10216.9	183008.2	324121.3
Delta	29.4	716.6	-926.0	-1082.4	-1250.6	-379.4	774.9	-3612.9	-5730.4

Quantity Summary FY 2017 President's Budget / December 2015 SAR (TY$ M)										
Quantity	Undistributed	Prior	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	To Complete	Total
Development	14	0	0	0	0	0	0	0	0	14
Production	0	217	68	63	70	80	86	105	1754	2443
PB 2017 Total	14	217	68	63	70	80	86	105	1754	2457
PB 2016 Total	14	217	57	66	88	90	92	100	1733	2457
Delta	0	0	11	-3	-18	-10	-6	5	21	0

Funding Summary - F-35 Engine

Appropriation Summary FY 2017 President's Budget / December 2015 SAR (TY$ M)									
Appropriation	Prior	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	To Complete	Total
RDT&E	11706.7	199.6	56.6	0.0	0.0	0.0	0.0	0.0	11962.9
Procurement	6767.5	1250.9	1508.6	1809.3	1774.4	1911.9	2240.8	31424.8	48688.2
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
PB 2017 Total	18474.2	1450.5	1565.2	1809.3	1774.4	1911.9	2240.8	31424.8	60651.1
PB 2016 Total	18492.8	1450.9	1514.3	1788.1	1957.9	2013.9	2141.7	37653.8	67013.4
Delta	-18.6	-0.4	50.9	21.2	-183.5	-102.0	99.1	-6229.0	-6362.3

Quantity Summary FY 2017 President's Budget / December 2015 SAR (TY$ M)										
Quantity	Undistributed	Prior	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	To Complete	Total
Development	14	0	0	0	0	0	0	0	0	14
Production	0	217	68	63	70	80	86	105	1754	2443
PB 2017 Total	14	217	68	63	70	80	86	105	1754	2457
PB 2016 Total	14	217	57	66	88	90	92	100	1733	2457
Delta	0	0	11	-3	-18	-10	-6	5	21	0

Cost and Funding

Annual Funding By Appropriation - F-35 Aircraft

Annual Funding - F-35 Aircraft 0400 | RDT&E | Research, Development, Test, and Evaluation, Defense-Wide							
		TY $M					
Fiscal Year	Quantity	End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
1996	--	--	--	--	--	--	23.2
1997	--	--	--	--	--	--	54.8
1998	--	--	--	--	--	--	16.9
Subtotal	--	--	--	--	--	--	94.9

Annual Funding - F-35 Aircraft 0400 | RDT&E | Research, Development, Test, and Evaluation, Defense-Wide							
		BY 2012 $M					
Fiscal Year	Quantity	End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
1996	--	--	--	--	--	--	30.1
1997	--	--	--	--	--	--	70.2
1998	--	--	--	--	--	--	21.5
Subtotal	--	--	--	--	--	--	121.8

Annual Funding - F-35 Aircraft 3600 | RDT&E | Research, Development, Test, and Evaluation, Air Force							
		TY $M					
Fiscal Year	Quantity	End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
1995	--	--	--	--	--	--	67.5
1996	--	--	--	--	--	--	65.4
1997	--	--	--	--	--	--	202.3
1998	--	--	--	--	--	--	357.2
1999	--	--	--	--	--	--	366.5
2000	--	--	--	--	--	--	200.3
2001	--	--	--	--	--	--	274.3
2002	--	--	--	--	--	--	302.6
2003	--	--	--	--	--	--	1210.1
2004	--	--	--	--	--	--	1584.1
2005	--	--	--	--	--	--	1465.8
2006	--	--	--	--	--	--	1678.6
2007	--	--	--	--	--	--	1632.4
2008	--	--	--	--	--	--	1359.0
2009	--	--	--	--	--	--	1197.5
2010	--	--	--	--	--	--	1567.4
2011	--	--	--	--	--	--	715.4
2012	--	--	--	--	--	--	1262.2
2013	--	--	--	--	--	--	972.1
2014	--	--	--	--	--	--	553.6
2015	--	--	--	--	--	--	479.8
2016	--	--	--	--	--	--	457.1
2017	--	--	--	--	--	--	389.0
2018	--	--	--	--	--	--	113.6
2019	--	--	--	--	--	--	5.3
2020	--	--	--	--	--	--	5.4
2021	--	--	--	--	--	--	5.5
Subtotal	5	--	--	--	--	--	18490.0

Annual Funding - F-35 Aircraft 3600 | RDT&E | Research, Development, Test, and Evaluation, Air Force							
		BY 2012 $M					
Fiscal Year	Quantity	End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
1995	--	--	--	--	--	--	89.1
1996	--	--	--	--	--	--	84.9
1997	--	--	--	--	--	--	259.5
1998	--	--	--	--	--	--	454.5
1999	--	--	--	--	--	--	460.9
2000	--	--	--	--	--	--	248.3
2001	--	--	--	--	--	--	335.4
2002	--	--	--	--	--	--	366.3
2003	--	--	--	--	--	--	1443.6
2004	--	--	--	--	--	--	1838.4
2005	--	--	--	--	--	--	1657.5
2006	--	--	--	--	--	--	1840.8
2007	--	--	--	--	--	--	1747.3
2008	--	--	--	--	--	--	1428.6
2009	--	--	--	--	--	--	1242.9
2010	--	--	--	--	--	--	1602.8
2011	--	--	--	--	--	--	714.5
2012	--	--	--	--	--	--	1240.0
2013	--	--	--	--	--	--	945.1
2014	--	--	--	--	--	--	530.7
2015	--	--	--	--	--	--	454.2
2016	--	--	--	--	--	--	425.8
2017	--	--	--	--	--	--	355.9
2018	--	--	--	--	--	--	101.9
2019	--	--	--	--	--	--	4.7
2020	--	--	--	--	--	--	4.7
2021	--	--	--	--	--	--	4.7
Subtotal	5	--	--	--	--	--	19883.0

Annual Funding - F-35 Aircraft 1319 | RDT&E | Research, Development, Test, and Evaluation, Navy							
		TY $M					
Fiscal Year	Quantity	End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
1994	--	--	--	--	--	--	23.7
1995	--	--	--	--	--	--	78.7
1996	--	--	--	--	--	--	64.6
1997	--	--	--	--	--	--	195.6
1998	--	--	--	--	--	--	360.4
1999	--	--	--	--	--	--	378.9
2000	--	--	--	--	--	--	191.7
2001	--	--	--	--	--	--	274.3
2002	--	--	--	--	--	--	366.8
2003	--	--	--	--	--	--	1090.1
2004	--	--	--	--	--	--	1548.2
2005	--	--	--	--	--	--	1510.3
2006	--	--	--	--	--	--	1657.3
2007	--	--	--	--	--	--	1470.7
2008	--	--	--	--	--	--	1285.0
2009	--	--	--	--	--	--	1271.2
2010	--	--	--	--	--	--	1440.5
2011	--	--	--	--	--	--	987.9
2012	--	--	--	--	--	--	960.1
2013	--	--	--	--	--	--	1081.5
2014	--	--	--	--	--	--	683.6
2015	--	--	--	--	--	--	773.2
2016	--	--	--	--	--	--	832.5
2017	--	--	--	--	--	--	969.3
2018	--	--	--	--	--	--	132.2
2019	--	--	--	--	--	--	9.6
2020	--	--	--	--	--	--	5.8
2021	--	--	--	--	--	--	3.9
Subtotal	9	--	--	--	--	--	19647.6

Annual Funding - F-35 Aircraft 1319 | RDT&E | Research, Development, Test, and Evaluation, Navy							
		BY 2012 $M					
Fiscal Year	Quantity	End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
1994	--	--	--	--	--	--	31.9
1995	--	--	--	--	--	--	103.9
1996	--	--	--	--	--	--	83.9
1997	--	--	--	--	--	--	250.9
1998	--	--	--	--	--	--	458.6
1999	--	--	--	--	--	--	476.5
2000	--	--	--	--	--	--	237.6
2001	--	--	--	--	--	--	335.4
2002	--	--	--	--	--	--	444.0
2003	--	--	--	--	--	--	1300.4
2004	--	--	--	--	--	--	1796.8
2005	--	--	--	--	--	--	1707.8
2006	--	--	--	--	--	--	1817.4
2007	--	--	--	--	--	--	1574.3
2008	--	--	--	--	--	--	1350.8
2009	--	--	--	--	--	--	1319.4
2010	--	--	--	--	--	--	1473.0
2011	--	--	--	--	--	--	986.6
2012	--	--	--	--	--	--	943.2
2013	--	--	--	--	--	--	1051.5
2014	--	--	--	--	--	--	655.3
2015	--	--	--	--	--	--	731.9
2016	--	--	--	--	--	--	775.5
2017	--	--	--	--	--	--	886.7
2018	--	--	--	--	--	--	118.6
2019	--	--	--	--	--	--	8.4
2020	--	--	--	--	--	--	5.0
2021	--	--	--	--	--	--	3.3
Subtotal	9	--	--	--	--	--	20928.6

Annual Funding - F-35 Aircraft 9999 | RDT&E | Non Treasury Funds							
		TY $M					
Fiscal Year	Quantity	End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
1996	--	--	--	--	--	--	11.3
1997	--	--	--	--	--	--	67.1
1998	--	--	--	--	--	--	72.1
1999	--	--	--	--	--	--	49.0
2000	--	--	--	--	--	--	25.2
2001	--	--	--	--	--	--	9.5
2002	--	--	--	--	--	--	255.8
2003	--	--	--	--	--	--	298.7
2004	--	--	--	--	--	--	486.7
2005	--	--	--	--	--	--	734.8
2006	--	--	--	--	--	--	801.3
2007	--	--	--	--	--	--	635.4
2008	--	--	--	--	--	--	574.0
2009	--	--	--	--	--	--	236.0
2010	--	--	--	--	--	--	133.2
2011	--	--	--	--	--	--	171.3
2012	--	--	--	--	--	--	124.2
2013	--	--	--	--	--	--	148.5
2014	--	--	--	--	--	--	22.0
2015	--	--	--	--	--	--	15.0
2016	--	--	--	--	--	--	17.0
2017	--	--	--	--	--	--	22.0
2018	--	--	--	--	--	--	27.5
Subtotal	--	--	--	--	--	--	4937.6

Annual Funding - F-35 Aircraft 9999 | RDT&E | Non Treasury Funds							
		BY 2012 $M					
Fiscal Year	Quantity	End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
1996	--	--	--	--	--	--	14.7
1997	--	--	--	--	--	--	86.1
1998	--	--	--	--	--	--	91.7
1999	--	--	--	--	--	--	61.6
2000	--	--	--	--	--	--	31.2
2001	--	--	--	--	--	--	11.6
2002	--	--	--	--	--	--	309.6
2003	--	--	--	--	--	--	356.3
2004	--	--	--	--	--	--	564.8
2005	--	--	--	--	--	--	830.9
2006	--	--	--	--	--	--	878.7
2007	--	--	--	--	--	--	680.1
2008	--	--	--	--	--	--	603.4
2009	--	--	--	--	--	--	244.9
2010	--	--	--	--	--	--	136.2
2011	--	--	--	--	--	--	171.1
2012	--	--	--	--	--	--	122.0
2013	--	--	--	--	--	--	144.4
2014	--	--	--	--	--	--	21.1
2015	--	--	--	--	--	--	14.2
2016	--	--	--	--	--	--	15.8
2017	--	--	--	--	--	--	20.1
2018	--	--	--	--	--	--	24.7
Subtotal	--	--	--	--	--	--	5435.2

Annual Funding - F-35 Aircraft 3010 | Procurement | Aircraft Procurement, Air Force							
		TY $M					
Fiscal Year	Quantity	End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
2006	--	107.6	--	--	107.6	--	107.6
2007	2	428.5	--	80.8	509.3	91.1	600.4
2008	6	983.1	--	172.3	1155.4	131.5	1286.9
2009	7	1009.2	--	277.6	1286.8	175.8	1462.6
2010	10	1471.2	--	355.7	1826.9	277.7	2104.6
2011	22	2751.2	--	569.1	3320.3	679.6	3999.9
2012	18	2041.5	--	375.7	2417.2	773.0	3190.2
2013	19	2074.6	--	76.6	2151.2	528.9	2680.1
2014	19	2034.6	--	617.8	2652.4	433.0	3085.4
2015	28	2715.8	--	625.0	3340.8	605.0	3945.8
2016	47	4076.0	--	561.5	4637.5	626.3	5263.8
2017	43	3339.3	--	649.7	3989.0	488.5	4477.5
2018	44	3584.0	--	1070.4	4654.4	559.4	5213.8
2019	48	3247.9	--	1079.3	4327.2	566.2	4893.4
2020	48	3473.2	--	886.9	4360.1	638.0	4998.1
2021	60	4300.8	--	709.3	5010.1	802.1	5812.2
2022	80	6091.5	--	640.6	6732.1	748.4	7480.5
2023	80	5332.8	--	609.7	5942.5	648.7	6591.2
2024	80	5462.0	--	620.7	6082.7	717.2	6799.9
2025	80	6101.5	--	634.5	6736.0	605.3	7341.3
2026	80	6961.8	--	647.4	7609.2	818.1	8427.3
2027	80	6472.7	--	598.4	7071.1	648.5	7719.6
2028	80	5901.4	--	607.9	6509.3	599.3	7108.6
2029	80	5990.1	--	616.6	6606.7	487.4	7094.1
2030	80	6622.5	--	634.0	7256.5	547.0	7803.5
2031	80	7570.5	--	649.8	8220.3	699.2	8919.5
2032	80	7465.0	--	676.1	8141.1	645.3	8786.4
2033	80	6998.0	--	694.7	7692.7	571.2	8263.9
2034	80	7179.5	--	698.4	7877.9	75.3	7953.2
2035	80	7878.9	--	711.8	8590.7	32.9	8623.6
2036	80	8035.0	--	722.5	8757.5	29.1	8786.6
2037	80	8150.0	--	676.7	8826.7	20.7	8847.4
2038	62	6604.9	--	552.2	7157.1	6.2	7163.3
Subtotal	1763	152456.6	--	19099.7	171556.3	15275.9	186832.2

Annual Funding - F-35 Aircraft 3010 | Procurement | Aircraft Procurement, Air Force							
		BY 2012 $M					
Fiscal Year	Quantity	End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
2006	--	116.8	--	--	116.8	--	116.8
2007	2	452.5	--	85.4	537.9	96.2	634.1
2008	6	1022.9	--	179.3	1202.2	136.8	1339.0
2009	7	1035.7	--	284.7	1320.4	180.5	1500.9
2010	10	1478.8	--	357.6	1836.4	279.1	2115.5
2011	22	2711.7	--	561.0	3272.7	669.8	3942.5
2012	18	1983.8	--	365.1	2348.9	751.1	3100.0
2013	19	1994.5	--	73.6	2068.1	508.5	2576.6
2014	19	1930.9	--	586.3	2517.2	411.0	2928.2
2015	28	2539.2	--	584.4	3123.6	565.6	3689.2
2016	47	3746.2	--	516.1	4262.3	575.6	4837.9
2017	43	3011.8	--	586.0	3597.8	440.6	4038.4
2018	44	3170.3	--	946.7	4117.0	494.9	4611.9
2019	48	2816.6	--	936.1	3752.7	491.0	4243.7
2020	48	2953.0	--	754.1	3707.1	542.4	4249.5
2021	60	3584.9	--	591.2	4176.1	668.6	4844.7
2022	80	4978.0	--	523.5	5501.5	611.6	6113.1
2023	80	4272.5	--	488.5	4761.0	519.7	5280.7
2024	80	4290.2	--	487.6	4777.8	563.3	5341.1
2025	80	4698.6	--	488.6	5187.2	466.1	5653.3
2026	80	5255.9	--	488.7	5744.6	617.7	6362.3
2027	80	4790.9	--	442.9	5233.8	480.0	5713.8
2028	80	4282.4	--	441.2	4723.6	434.8	5158.4
2029	80	4261.5	--	438.6	4700.1	346.8	5046.9
2030	80	4619.0	--	442.2	5061.2	381.5	5442.7
2031	80	5176.7	--	444.3	5621.0	478.1	6099.1
2032	80	5004.5	--	453.2	5457.7	432.6	5890.3
2033	80	4599.4	--	456.6	5056.0	375.4	5431.4
2034	80	4626.2	--	450.0	5076.2	48.5	5124.7
2035	80	4935.2	--	445.8	5381.0	20.6	5401.6
2036	80	4934.3	--	443.6	5377.9	17.9	5395.8
2037	80	4906.7	--	407.4	5314.1	12.5	5326.6
2038	62	3898.5	--	325.9	4224.4	3.7	4228.1
Subtotal	1763	114080.1	--	15076.2	129156.3	12622.5	141778.8

Cost Quantity Information - F-35 Aircraft 3010 | Procurement | Aircraft Procurement, Air Force		
Fiscal Year	Quantity	End Item Recurring Flyaway (Aligned With Quantity) BY 2012 $M
2006	--	--
2007	2	452.5
2008	6	1022.9
2009	7	1035.7
2010	10	1478.8
2011	22	2711.7
2012	18	1983.8
2013	19	1994.5
2014	19	1930.9
2015	28	2539.2
2016	47	3746.2
2017	43	3011.8
2018	44	3170.3
2019	48	2816.6
2020	48	2953.0
2021	60	3584.9
2022	80	4978.0
2023	80	4272.5
2024	80	4290.2
2025	80	4698.6
2026	80	5255.9
2027	80	4790.9
2028	80	4282.4
2029	80	4261.5
2030	80	4619.0
2031	80	5176.7
2032	80	5004.5
2033	80	4599.4
2034	80	4626.2
2035	80	4935.2
2036	80	4934.3
2037	80	4906.7
2038	62	4015.3
Subtotal	1763	114080.1

Annual Funding - F-35 Aircraft 1506 | Procurement | Aircraft Procurement, Navy							
		TY $M					
Fiscal Year	Quantity	End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
2007	--	96.9	--	--	96.9	--	96.9
2008	6	923.2	--	38.6	961.8	10.7	972.5
2009	7	1062.0	--	182.0	1244.0	206.1	1450.1
2010	20	2681.2	--	305.4	2986.6	560.9	3547.5
2011	10	1494.8	--	251.0	1745.8	431.8	2177.6
2012	13	1477.7	--	330.2	1807.9	746.7	2554.6
2013	10	1107.3	--	44.1	1151.4	557.3	1708.7
2014	10	1205.5	--	406.3	1611.8	642.3	2254.1
2015	10	1115.0	--	650.9	1765.9	414.1	2180.0
2016	21	2130.3	--	601.9	2732.2	629.9	3362.1
2017	20	1867.2	--	422.9	2290.1	426.8	2716.9
2018	26	2555.1	--	668.2	3223.3	346.9	3570.2
2019	32	2648.5	--	603.2	3251.7	482.6	3734.3
2020	38	3242.8	--	501.5	3744.3	624.3	4368.6
2021	45	3731.8	--	535.4	4267.2	786.8	5054.0
2022	45	4015.2	--	396.9	4412.1	644.6	5056.7
2023	45	3511.2	--	377.5	3888.7	533.7	4422.4
2024	45	3566.7	--	368.0	3934.7	490.6	4425.3
2025	45	3896.6	--	377.9	4274.5	400.8	4675.3
2026	45	4396.8	--	381.4	4778.2	441.8	5220.0
2027	45	4131.9	--	358.6	4490.5	335.6	4826.1
2028	45	3834.2	--	364.0	4198.2	369.0	4567.2
2029	45	3721.1	--	356.9	4078.0	260.7	4338.7
2030	28	2685.4	--	373.5	3058.9	388.6	3447.5
2031	24	2180.2	--	326.5	2506.7	361.3	2868.0
Subtotal	680	63278.6	--	9222.8	72501.4	11093.9	83595.3

Annual Funding - F-35 Aircraft 1506 | Procurement | Aircraft Procurement, Navy							
		BY 2012 $M					
Fiscal Year	Quantity	End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
2007	--	102.3	--	--	102.3	--	102.3
2008	6	960.6	--	40.2	1000.8	11.1	1011.9
2009	7	1089.8	--	186.8	1276.6	211.5	1488.1
2010	20	2695.1	--	307.0	3002.1	563.8	3565.9
2011	10	1473.3	--	247.4	1720.7	425.6	2146.3
2012	13	1435.9	--	320.9	1756.8	725.6	2482.4
2013	10	1064.5	--	42.4	1106.9	535.8	1642.7
2014	10	1144.1	--	385.6	1529.7	609.5	2139.2
2015	10	1042.5	--	608.5	1651.0	387.2	2038.2
2016	21	1957.9	--	553.2	2511.1	578.9	3090.0
2017	20	1684.1	--	381.4	2065.5	385.0	2450.5
2018	26	2260.2	--	591.0	2851.2	306.9	3158.1
2019	32	2296.8	--	523.2	2820.0	418.5	3238.5
2020	38	2757.1	--	426.4	3183.5	530.8	3714.3
2021	45	3110.6	--	446.3	3556.9	655.8	4212.7
2022	45	3281.2	--	324.3	3605.5	526.8	4132.3
2023	45	2813.1	--	302.4	3115.5	427.6	3543.1
2024	45	2801.5	--	289.1	3090.6	385.3	3475.9
2025	45	3000.6	--	291.1	3291.7	308.6	3600.3
2026	45	3319.4	--	287.9	3607.3	333.6	3940.9
2027	45	3058.3	--	265.4	3323.7	248.4	3572.1
2028	45	2782.3	--	264.2	3046.5	267.7	3314.2
2029	45	2647.3	--	253.8	2901.1	185.5	3086.6
2030	28	1873.0	--	260.4	2133.4	271.1	2404.5
2031	24	1490.8	--	223.3	1714.1	247.0	1961.1
Subtotal	680	52142.3	--	7822.2	59964.5	9547.6	69512.1

Cost Quantity Information - F-35 Aircraft 1506 | Procurement | Aircraft Procurement, Navy		
Fiscal Year	Quantity	End Item Recurring Flyaway (Aligned With Quantity) BY 2012 $M
2007	--	--
2008	6	960.6
2009	7	1089.8
2010	20	2695.1
2011	10	1473.3
2012	13	1435.9
2013	10	1064.5
2014	10	1144.1
2015	10	1042.5
2016	21	1957.9
2017	20	1684.1
2018	26	2260.2
2019	32	2296.8
2020	38	2757.1
2021	45	3110.6
2022	45	3281.2
2023	45	2813.1
2024	45	2801.5
2025	45	3000.6
2026	45	3319.4
2027	45	3058.3
2028	45	2782.3
2029	45	2647.3
2030	28	1873.0
2031	24	1593.1
Subtotal	680	52142.3

Annual Funding - F-35 Aircraft 1205 | MILCON | Military Construction, Navy and Marine Corps	
Fiscal Year	TY $M Total Program
2004	24.4
2005	--
2006	0.1
2007	--
2008	0.2
2009	0.7
2010	34.1
2011	377.9
2012	172.2
2013	94.9
2014	--
2015	131.9
2016	94.4
2017	230.9
2018	64.7
2019	122.0
2020	119.8
2021	116.2
2022	75.9
2023	101.3
2024	145.0
2025	--
2026	61.9
2027	75.0
2028	65.1
2029	2.0
Subtotal	2110.6

Annual Funding - F-35 Aircraft 1205 | MILCON | Military Construction, Navy and Marine Corps	
Fiscal Year	BY 2012 $M
	Total Program
2004	27.8
2005	--
2006	0.1
2007	--
2008	0.2
2009	0.7
2010	34.1
2011	369.3
2012	165.9
2013	90.2
2014	--
2015	121.5
2016	85.4
2017	204.9
2018	56.3
2019	104.0
2020	100.2
2021	95.2
2022	61.0
2023	79.8
2024	112.0
2025	--
2026	46.0
2027	54.6
2028	46.5
2029	1.4
Subtotal	1857.1

All DoN MILCON funding is reflected in the Aircraft subprogram.

Annual Funding - F-35 Aircraft 3300 | MILCON | Military Construction, Air Force	
Fiscal Year	TY $M Total Program
2004	1.7
2005	10.0
2006	--
2007	--
2008	100.3
2009	116.0
2010	125.1
2011	139.6
2012	24.3
2013	13.5
2014	56.0
2015	66.7
2016	198.3
2017	340.8
2018	101.0
2019	61.5
2020	15.9
2021	--
2022	123.7
2023	167.0
2024	142.3
2025	122.1
2026	118.4
2027	129.9
2028	101.8
2029	102.7
2030	94.6
2031	71.7
2032	71.2
2033	37.5
2034	24.8
2035	4.3
Subtotal	2682.7

Annual Funding - F-35 Aircraft 3300 | MILCON | Military Construction, Air Force	
Fiscal Year	BY 2012 $M Total Program
2004	1.9
2005	11.1
2006	--
2007	--
2008	104.1
2009	118.8
2010	125.0
2011	136.4
2012	23.4
2013	12.8
2014	52.5
2015	61.5
2016	179.4
2017	302.4
2018	87.9
2019	52.4
2020	13.3
2021	--
2022	99.4
2023	131.6
2024	109.9
2025	92.5
2026	87.9
2027	94.5
2028	72.6
2029	71.8
2030	64.4
2031	47.9
2032	46.6
2033	24.0
2034	15.6
2035	2.7
Subtotal	2244.3

All Air Force F-35 MILCON funding is reflected in the Aircraft subprogram.

Annual Funding By Appropriation - F-35 Engine

Annual Funding - F-35 Engine 3600 | RDT&E | Research, Development, Test, and Evaluation, Air Force							
		TY $M					
Fiscal Year	Quantity	End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
1995	--	--	--	--	--	--	16.4
1996	--	--	--	--	--	--	15.9
1997	--	--	--	--	--	--	49.3
1998	--	--	--	--	--	--	87.1
1999	--	--	--	--	--	--	89.4
2000	--	--	--	--	--	--	48.8
2001	--	--	--	--	--	--	66.9
2002	--	--	--	--	--	--	409.8
2003	--	--	--	--	--	--	400.5
2004	--	--	--	--	--	--	435.8
2005	--	--	--	--	--	--	614.3
2006	--	--	--	--	--	--	586.3
2007	--	--	--	--	--	--	441.6
2008	--	--	--	--	--	--	596.0
2009	--	--	--	--	--	--	544.6
2010	--	--	--	--	--	--	466.1
2011	--	--	--	--	--	--	216.2
2012	--	--	--	--	--	--	101.8
2013	--	--	--	--	--	--	143.6
2014	--	--	--	--	--	--	52.0
2015	--	--	--	--	--	--	54.5
2016	--	--	--	--	--	--	58.4
2017	--	--	--	--	--	--	14.5
Subtotal	5	--	--	--	--	--	5509.8

Annual Funding - F-35 Engine 3600 | RDT&E | Research, Development, Test, and Evaluation, Air Force							
		BY 2012 $M					
Fiscal Year	Quantity	End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
1995	--	--	--	--	--	--	21.7
1996	--	--	--	--	--	--	20.6
1997	--	--	--	--	--	--	63.2
1998	--	--	--	--	--	--	110.8
1999	--	--	--	--	--	--	112.4
2000	--	--	--	--	--	--	60.5
2001	--	--	--	--	--	--	81.8
2002	--	--	--	--	--	--	496.0
2003	--	--	--	--	--	--	477.8
2004	--	--	--	--	--	--	505.8
2005	--	--	--	--	--	--	694.7
2006	--	--	--	--	--	--	643.0
2007	--	--	--	--	--	--	472.7
2008	--	--	--	--	--	--	626.5
2009	--	--	--	--	--	--	565.2
2010	--	--	--	--	--	--	476.6
2011	--	--	--	--	--	--	215.9
2012	--	--	--	--	--	--	100.0
2013	--	--	--	--	--	--	139.6
2014	--	--	--	--	--	--	49.8
2015	--	--	--	--	--	--	51.6
2016	--	--	--	--	--	--	54.4
2017	--	--	--	--	--	--	13.3
Subtotal	5	--	--	--	--	--	6053.9

Annual Funding - F-35 Engine 1319 | RDT&E | Research, Development, Test, and Evaluation, Navy							
		TY $M					
Fiscal Year	Quantity	End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
1994	--	--	--	--	--	--	5.8
1995	--	--	--	--	--	--	19.3
1996	--	--	--	--	--	--	15.8
1997	--	--	--	--	--	--	47.7
1998	--	--	--	--	--	--	87.8
1999	--	--	--	--	--	--	92.4
2000	--	--	--	--	--	--	46.7
2001	--	--	--	--	--	--	66.9
2002	--	--	--	--	--	--	350.4
2003	--	--	--	--	--	--	550.8
2004	--	--	--	--	--	--	533.2
2005	--	--	--	--	--	--	573.5
2006	--	--	--	--	--	--	528.1
2007	--	--	--	--	--	--	639.1
2008	--	--	--	--	--	--	563.9
2009	--	--	--	--	--	--	433.1
2010	--	--	--	--	--	--	445.7
2011	--	--	--	--	--	--	252.9
2012	--	--	--	--	--	--	187.6
2013	--	--	--	--	--	--	199.2
2014	--	--	--	--	--	--	116.1
2015	--	--	--	--	--	--	173.7
2016	--	--	--	--	--	--	141.2
2017	--	--	--	--	--	--	42.1
Subtotal	9	--	--	--	--	--	6113.0

Annual Funding - F-35 Engine 1319 | RDT&E | Research, Development, Test, and Evaluation, Navy							
		BY 2012 $M					
Fiscal Year	Quantity	End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
1994	--	--	--	--	--	--	7.8
1995	--	--	--	--	--	--	25.5
1996	--	--	--	--	--	--	20.5
1997	--	--	--	--	--	--	61.2
1998	--	--	--	--	--	--	111.7
1999	--	--	--	--	--	--	116.2
2000	--	--	--	--	--	--	57.9
2001	--	--	--	--	--	--	81.8
2002	--	--	--	--	--	--	424.1
2003	--	--	--	--	--	--	657.1
2004	--	--	--	--	--	--	618.8
2005	--	--	--	--	--	--	648.5
2006	--	--	--	--	--	--	579.1
2007	--	--	--	--	--	--	684.1
2008	--	--	--	--	--	--	592.8
2009	--	--	--	--	--	--	449.5
2010	--	--	--	--	--	--	455.8
2011	--	--	--	--	--	--	252.6
2012	--	--	--	--	--	--	184.3
2013	--	--	--	--	--	--	193.7
2014	--	--	--	--	--	--	111.3
2015	--	--	--	--	--	--	164.4
2016	--	--	--	--	--	--	131.5
2017	--	--	--	--	--	--	38.5
Subtotal	9	--	--	--	--	--	6668.7

Annual Funding - F-35 Engine 0400 | RDT&E | Research, Development, Test, and Evaluation, Defense-Wide							
		TY $M					
Fiscal Year	Quantity	End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
1994	--	--	--	--	--	--	5.7
1995	--	--	--	--	--	--	13.4
1996	--	--	--	--	--	--	4.0
Subtotal	--	--	--	--	--	--	23.1

Annual Funding - F-35 Engine 0400 | RDT&E | Research, Development, Test, and Evaluation, Defense-Wide							
		BY 2012 $M					
Fiscal Year	Quantity	End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
1994	--	--	--	--	--	--	7.7
1995	--	--	--	--	--	--	17.7
1996	--	--	--	--	--	--	5.2
Subtotal	--	--	--	--	--	--	30.6

Annual Funding - F-35 Engine 9999 | RDT&E | Non Treasury Funds							
		TY $M					
Fiscal Year	Quantity	End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
1996	--	--	--	--	--	--	2.7
1997	--	--	--	--	--	--	3.9
1998	--	--	--	--	--	--	5.1
1999	--	--	--	--	--	--	5.7
2000	--	--	--	--	--	--	1.8
2001	--	--	--	--	--	--	0.5
2002	--	--	--	--	--	--	43.3
2003	--	--	--	--	--	--	124.3
2004	--	--	--	--	--	--	54.1
2005	--	--	--	--	--	--	0.3
2006	--	--	--	--	--	--	--
2007	--	--	--	--	--	--	75.0
2008	--	--	--	--	--	--	--
2009	--	--	--	--	--	--	--
2010	--	--	--	--	--	--	--
2011	--	--	--	--	--	--	--
2012	--	--	--	--	--	--	--
2013	--	--	--	--	--	--	0.3
Subtotal	--	--	--	--	--	--	317.0

Annual Funding - F-35 Engine 9999 | RDT&E | Non Treasury Funds							
		BY 2012 $M					
Fiscal Year	Quantity	End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
1996	--	--	--	--	--	--	3.5
1997	--	--	--	--	--	--	5.0
1998	--	--	--	--	--	--	6.5
1999	--	--	--	--	--	--	7.2
2000	--	--	--	--	--	--	2.2
2001	--	--	--	--	--	--	0.6
2002	--	--	--	--	--	--	52.4
2003	--	--	--	--	--	--	148.3
2004	--	--	--	--	--	--	62.8
2005	--	--	--	--	--	--	0.3
2006	--	--	--	--	--	--	--
2007	--	--	--	--	--	--	80.3
2008	--	--	--	--	--	--	--
2009	--	--	--	--	--	--	--
2010	--	--	--	--	--	--	--
2011	--	--	--	--	--	--	--
2012	--	--	--	--	--	--	--
2013	--	--	--	--	--	--	0.3
Subtotal	--	--	--	--	--	--	369.4

Annual Funding - F-35 Engine 3010 | Procurement | Aircraft Procurement, Air Force							
		TY $M					
Fiscal Year	Quantity	End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
2006	--	9.8	--	--	9.8	--	9.8
2007	2	47.5	--	6.9	54.4	27.7	82.1
2008	6	123.6	--	35.0	158.6	30.9	189.5
2009	7	127.0	--	63.9	190.9	33.3	224.2
2010	10	176.7	--	72.6	249.3	59.1	308.4
2011	22	353.2	--	91.6	444.8	136.6	581.4
2012	18	275.3	--	65.7	341.0	123.0	464.0
2013	19	262.5	--	11.9	274.4	89.6	364.0
2014	19	282.1	--	31.2	313.3	47.5	360.8
2015	28	386.7	--	15.5	402.2	116.2	518.4
2016	47	606.1	--	23.2	629.3	126.7	756.0
2017	43	606.7	--	48.9	655.6	116.7	772.3
2018	44	651.2	--	80.6	731.8	135.8	867.6
2019	48	590.1	--	81.2	671.3	145.4	816.7
2020	48	631.1	--	66.8	697.9	153.6	851.5
2021	60	781.4	--	53.4	834.8	172.1	1006.9
2022	80	1066.3	--	48.2	1114.5	178.5	1293.0
2023	80	976.1	--	45.9	1022.0	189.3	1211.3
2024	80	997.2	--	46.7	1043.9	177.6	1221.5
2025	80	1094.6	--	47.8	1142.4	184.4	1326.8
2026	80	1123.6	--	48.7	1172.3	218.3	1390.6
2027	80	1068.0	--	45.0	1113.0	135.7	1248.7
2028	80	977.9	--	45.8	1023.7	130.3	1154.0
2029	80	996.6	--	46.4	1043.0	119.0	1162.0
2030	80	1091.1	--	47.7	1138.8	122.4	1261.2
2031	80	1237.8	--	48.9	1286.7	153.9	1440.6
2032	80	1185.7	--	50.9	1236.6	143.0	1379.6
2033	80	1090.4	--	52.3	1142.7	137.1	1279.8
2034	80	1110.8	--	52.6	1163.4	18.8	1182.2
2035	80	1219.4	--	53.6	1273.0	3.7	1276.7
2036	80	1241.5	--	54.4	1295.9	3.2	1299.1
2037	80	1243.9	--	50.9	1294.8	2.3	1297.1
2038	62	902.2	--	41.6	943.8	0.5	944.3
Subtotal	1763	24534.1	--	1575.8	26109.9	3432.2	29542.1

Annual Funding - F-35 Engine 3010 | Procurement | Aircraft Procurement, Air Force							
		BY 2012 $M					
Fiscal Year	Quantity	End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
2006	--	10.6	--	--	10.6	--	10.6
2007	2	50.2	--	7.3	57.5	29.2	86.7
2008	6	128.6	--	36.4	165.0	32.2	197.2
2009	7	130.3	--	65.6	195.9	34.2	230.1
2010	10	177.6	--	73.0	250.6	59.4	310.0
2011	22	348.1	--	90.3	438.4	134.7	573.1
2012	18	267.5	--	63.8	331.3	119.6	450.9
2013	19	252.4	--	11.4	263.8	86.1	349.9
2014	19	267.7	--	29.6	297.3	45.1	342.4
2015	28	361.6	--	14.5	376.1	108.6	484.7
2016	47	557.1	--	21.3	578.4	116.4	694.8
2017	43	547.2	--	44.1	591.3	105.3	696.6
2018	44	576.0	--	71.3	647.3	120.1	767.4
2019	48	511.7	--	70.4	582.1	126.2	708.3
2020	48	536.6	--	56.8	593.4	130.6	724.0
2021	60	651.3	--	44.5	695.8	143.5	839.3
2022	80	871.4	--	39.4	910.8	145.8	1056.6
2023	80	782.0	--	36.8	818.8	151.7	970.5
2024	80	783.3	--	36.7	820.0	139.4	959.4
2025	80	842.9	--	36.8	879.7	142.0	1021.7
2026	80	848.3	--	36.8	885.1	164.8	1049.9
2027	80	790.5	--	33.3	823.8	100.4	924.2
2028	80	709.6	--	33.2	742.8	94.6	837.4
2029	80	709.0	--	33.0	742.0	84.7	826.7
2030	80	761.0	--	33.3	794.3	85.4	879.7
2031	80	846.4	--	33.4	879.8	105.3	985.1
2032	80	794.9	--	34.1	829.0	95.9	924.9
2033	80	716.7	--	34.4	751.1	90.0	841.1
2034	80	715.8	--	33.9	749.7	12.1	761.8
2035	80	763.8	--	33.6	797.4	2.3	799.7
2036	80	762.4	--	33.4	795.8	2.0	797.8
2037	80	748.9	--	30.6	779.5	1.4	780.9
2038	62	532.5	--	24.6	557.1	0.3	557.4
Subtotal	1763	18353.9	--	1277.6	19631.5	2809.3	22440.8

Cost Quantity Information - F-35 Engine 3010 | Procurement | Aircraft Procurement, Air Force		
Fiscal Year	Quantity	End Item Recurring Flyaway (Aligned With Quantity) BY 2012 $M
2006	--	--
2007	2	50.2
2008	6	128.6
2009	7	130.3
2010	10	177.6
2011	22	348.1
2012	18	267.5
2013	19	252.4
2014	19	267.7
2015	28	361.6
2016	47	557.1
2017	43	547.2
2018	44	576.0
2019	48	511.7
2020	48	536.6
2021	60	651.3
2022	80	871.4
2023	80	782.0
2024	80	783.3
2025	80	842.9
2026	80	848.3
2027	80	790.5
2028	80	709.6
2029	80	709.0
2030	80	761.0
2031	80	846.4
2032	80	794.9
2033	80	716.7
2034	80	715.8
2035	80	763.8
2036	80	762.4
2037	80	748.9
2038	62	543.1
Subtotal	1763	18353.9

Annual Funding - F-35 Engine 1506 | Procurement | Aircraft Procurement, Navy							
		TY $M					
Fiscal Year	Quantity	End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
2007	--	27.4	--	--	27.4	--	27.4
2008	6	246.1	--	1.3	247.4	1.2	248.6
2009	7	298.0	--	54.3	352.3	65.6	417.9
2010	20	599.0	--	118.5	717.5	127.6	845.1
2011	10	400.5	--	112.5	513.0	122.3	635.3
2012	13	191.4	--	57.7	249.1	62.0	311.1
2013	10	236.9	--	26.6	263.5	169.8	433.3
2014	10	227.1	--	21.6	248.7	142.4	391.1
2015	10	259.5	--	27.6	287.1	68.0	355.1
2016	21	362.7	--	22.3	385.0	109.9	494.9
2017	20	568.4	--	87.3	655.7	80.6	736.3
2018	26	742.3	--	138.0	880.3	61.4	941.7
2019	32	750.5	--	124.6	875.1	82.6	957.7
2020	38	840.1	--	103.6	943.7	116.7	1060.4
2021	45	937.1	--	110.6	1047.7	186.2	1233.9
2022	45	994.1	--	82.0	1076.1	117.3	1193.4
2023	45	910.7	--	76.0	986.7	117.0	1103.7
2024	45	926.6	--	89.5	1016.1	93.2	1109.3
2025	45	1012.3	--	85.4	1097.7	93.6	1191.3
2026	45	1006.6	--	89.5	1096.1	104.3	1200.4
2027	45	970.3	--	61.5	1031.8	82.5	1114.3
2028	45	910.7	--	57.4	968.1	90.6	1058.7
2029	45	865.2	--	60.8	926.0	67.5	993.5
2030	28	442.9	--	71.8	514.7	95.9	610.6
2031	24	299.0	--	78.5	377.5	103.6	481.1
Subtotal	680	15025.4	--	1758.9	16784.3	2361.8	19146.1

Annual Funding - F-35 Engine 1506 | Procurement | Aircraft Procurement, Navy							
		BY 2012 $M					
Fiscal Year	Quantity	End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
2007	--	28.9	--	--	28.9	--	28.9
2008	6	256.1	--	1.4	257.5	1.2	258.7
2009	7	305.8	--	55.8	361.6	67.3	428.9
2010	20	602.1	--	119.2	721.3	128.2	849.5
2011	10	394.8	--	110.8	505.6	120.6	626.2
2012	13	186.0	--	56.0	242.0	60.3	302.3
2013	10	227.8	--	25.6	253.4	163.2	416.6
2014	10	215.5	--	20.5	236.0	135.2	371.2
2015	10	242.6	--	25.8	268.4	63.6	332.0
2016	21	333.4	--	20.5	353.9	101.0	454.9
2017	20	512.7	--	78.7	591.4	72.7	664.1
2018	26	656.6	--	122.1	778.7	54.3	833.0
2019	32	650.8	--	108.1	758.9	71.6	830.5
2020	38	714.3	--	88.1	802.4	99.2	901.6
2021	45	781.1	--	92.2	873.3	155.2	1028.5
2022	45	812.4	--	67.0	879.4	95.8	975.2
2023	45	729.6	--	60.9	790.5	93.8	884.3
2024	45	727.8	--	70.3	798.1	73.2	871.3
2025	45	779.5	--	65.8	845.3	72.1	917.4
2026	45	759.9	--	67.7	827.6	78.7	906.3
2027	45	718.2	--	45.5	763.7	61.1	824.8
2028	45	660.9	--	41.7	702.6	65.6	768.2
2029	45	615.5	--	43.3	658.8	48.0	706.8
2030	28	308.9	--	50.1	359.0	66.9	425.9
2031	24	204.5	--	53.6	258.1	70.9	329.0
Subtotal	680	12425.7	--	1490.7	13916.4	2019.7	15936.1

Cost Quantity Information - F-35 Engine 1506 | Procurement | Aircraft Procurement, Navy		
Fiscal Year	Quantity	End Item Recurring Flyaway (Aligned With Quantity) BY 2012 $M
2007	--	--
2008	6	256.1
2009	7	305.8
2010	20	602.1
2011	10	394.8
2012	13	186.0
2013	10	227.8
2014	10	215.5
2015	10	242.6
2016	21	333.4
2017	20	512.7
2018	26	656.6
2019	32	650.8
2020	38	714.3
2021	45	781.1
2022	45	812.4
2023	45	729.6
2024	45	727.8
2025	45	779.5
2026	45	759.9
2027	45	718.2
2028	45	660.9
2029	45	615.5
2030	28	308.9
2031	24	233.4
Subtotal	680	12425.7

Low Rate Initial Production

F-35 Aircraft

Item	Initial LRIP Decision	Current Total LRIP
Approval Date	10/26/2001	5/23/2015
Approved Quantity	465	518
Reference	Milestone B ADM	LRIP Approval ADM
Start Year	2006	2006
End Year	2015	2019

The Current Total LRIP Quantity is more than 10% of the total production quantity due to the necessity to prevent a break in production and to ramp up to FRP.

F-35 Engine

Item	Initial LRIP Decision	Current Total LRIP
Approval Date	10/26/2001	5/23/2015
Approved Quantity	465	518
Reference	Milestone B ADM	LRIP Approval ADM
Start Year	2006	2006
End Year	2015	2019

The Current Total LRIP Quantity is more than 10% of the total production quantity due to the necessity to prevent a break in production and to ramp up to FRP.

Foreign Military Sales

F-35 Aircraft

Country	Date of Sale	Quantity	Total Cost $M	Description
Japan				
Israel				
Korea				

Notes

F-35 Engine

Notes

FMS information for the F-35 Engine subprogram are reflected in the F-35 Aircraft subprogram.

Nuclear Costs

F-35 Aircraft

None

F-35 Engine

None

Unit Cost

F-35 Aircraft

Unit Cost Report

Item	BY 2012 $M Current UCR Baseline (Jun 2014 APB)	BY 2012 $M Current Estimate (Dec 2015 SAR)	% Change
Program Acquisition Unit Cost			
Cost	274958.4	261760.9	
Quantity	2457	2457	
Unit Cost	111.908	106.537	-4.80
Average Procurement Unit Cost			
Cost	224332.9	211290.9	
Quantity	2443	2443	
Unit Cost	91.827	86.488	-5.81

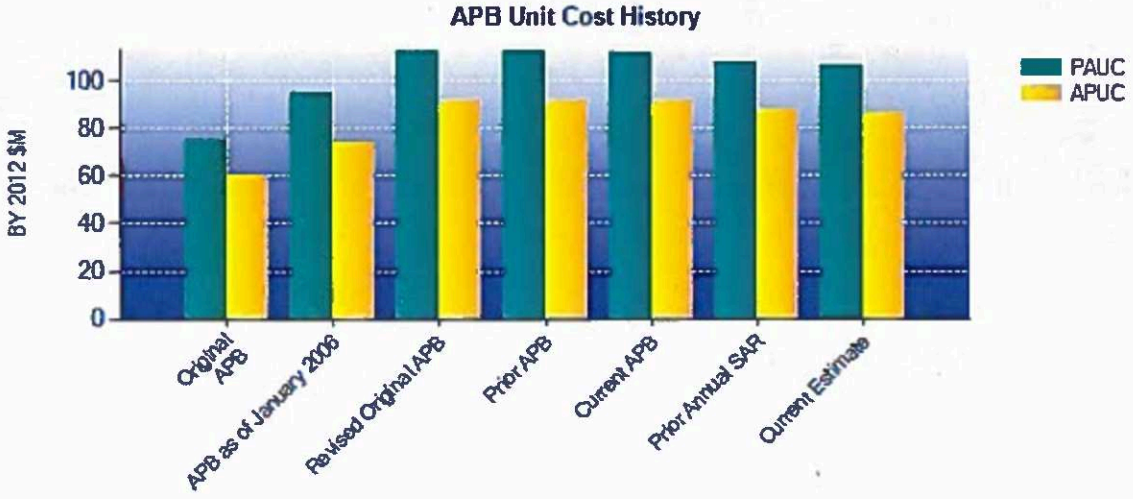
Item	BY 2012 $M Revised Original UCR Baseline (Mar 2012 APB)	BY 2012 $M Current Estimate (Dec 2015 SAR)	% Change
Program Acquisition Unit Cost			
Cost	276482.2	261760.9	
Quantity	2458	2457	
Unit Cost	112.483	106.537	-5.29
Average Procurement Unit Cost			
Cost	224333.7	211290.9	
Quantity	2443	2443	
Unit Cost	91.827	86.488	-5.81

The DoD average F-35 Aircraft Unit Recurring Flyaway (URF) Cost consists of the Hardware (Airframe, Vehicle Systems, Mission Systems, and Engineering Change Order) costs over the life of the program. The URF assumes the quantity benefits of 115 FMS aircraft and 612 International Partner aircraft.

F-35A (Conventional Take Off and Landing) URF - $65.7 M (BY 2012)
F-35B (Short Takeoff and Vertical Landing) URF - $77.3M (BY 2012)
F-35C (Carrier Variant) URF - $78 M (BY 2012)

F-35 Aircraft

Unit Cost History



Item	Date	BY 2012 $M		TY $M	
		PAUC	APUC	PAUC	APUC
Original APB	Oct 2001	74.567	60.632	81.298	68.934
APB as of January 2006	Mar 2004	94.837	73.845	100.407	81.826
Revised Original APB	Mar 2012	112.529	91.827	135.065	115.697
Prior APB	Mar 2012	112.529	91.827	135.065	115.697
Current APB	Jun 2014	111.908	91.827	134.638	115.697
Prior Annual SAR	Dec 2014	107.755	87.889	131.918	113.208
Current Estimate	Dec 2015	106.537	86.488	129.585	110.695

SAR Unit Cost History

Current SAR Baseline to Current Estimate (TY $M)									
Initial PAUC Development Estimate	Changes								PAUC Current Estimate
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
135.065	0.422	0.000	1.592	0.744	-4.257	0.000	-3.981	-5.480	129.585

Current SAR Baseline to Current Estimate (TY $M)									
Initial APUC Development Estimate	Changes								APUC Current Estimate
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
115.697	0.427	0.000	1.602	0.748	-3.775	0.000	-4.004	-5.002	110.695

SAR Baseline History				
Item	SAR Planning Estimate	SAR Development Estimate	SAR Production Estimate	Current Estimate
Milestone I	N/A	Nov 1996	N/A	Nov 1996
Milestone B	Mar 2001	Mar 2012	N/A	Mar 2012
Milestone C	TBD	Apr 2019	N/A	Apr 2019
IOC	TBD	TBD	N/A	Jul 2015
Total Cost (TY $M)	24800.0	331855.2	N/A	318390.9
Total Quantity	N/A	2457	N/A	2457
PAUC	N/A	135.065	N/A	129.585

The Service IOC reflected in the above table is the U.S. Marine Corps Objective date. In addition, the U.S. Air Force IOC objective date is August 2016, and the U.S. Navy IOC objective date is August 2018.

F-35 Engine

Unit Cost Report

Item	BY 2012 $M Current UCR Baseline (Jun 2014 APB)	BY 2012 $M Current Estimate (Dec 2015 SAR)	% Change
Program Acquisition Unit Cost			
Cost	55273.5	51499.5	
Quantity	2457	2457	
Unit Cost	22.496	20.960	-6.83
Average Procurement Unit Cost			
Cost	42332.9	38376.9	
Quantity	2443	2443	
Unit Cost	17.328	15.709	-9.34

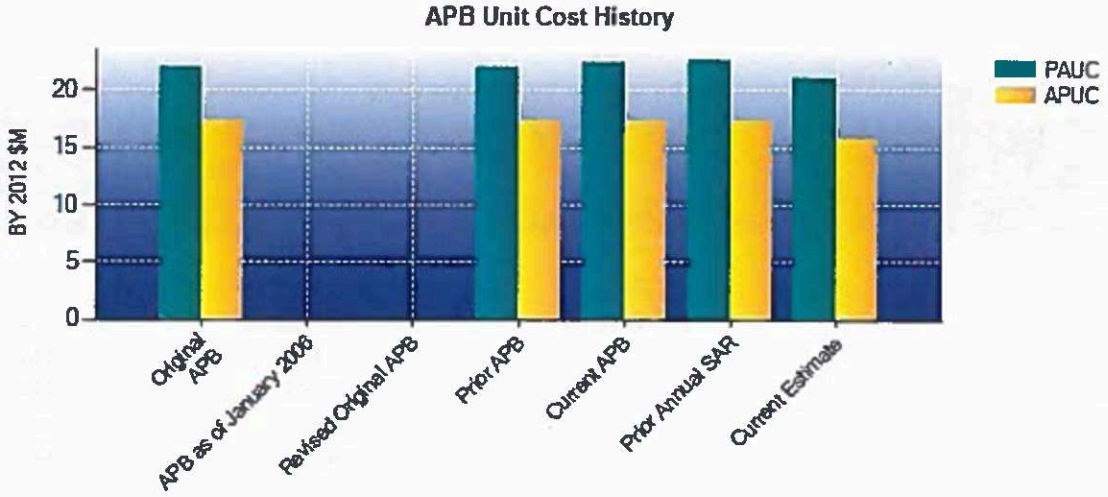
Item	BY 2012 $M Original UCR Baseline (Mar 2012 APB)	BY 2012 $M Current Estimate (Dec 2015 SAR)	% Change
Program Acquisition Unit Cost			
Cost	53916.4	51499.5	
Quantity	2458	2457	
Unit Cost	21.935	20.960	-4.44
Average Procurement Unit Cost			
Cost	42332.9	38376.9	
Quantity	2443	2443	
Unit Cost	17.328	15.709	-9.34

The DoD average F-35 Engine Unit Recurring Flyaway (URF) Cost consists of the Hardware (Propulsion and Engineering Change Order) costs over the life of the program. The URF assumes the quantity benefits of 115 FMS engines and 612 International Partner engines.

F-35A (Conventional Take Off and Landing) URF - $11 M (BY 2012)
F-35B (Short Takeoff and Vertical Landing) URF - $27.7 M (BY 2012)
F-35C (Carrier Variant) URF - $10.9 M (BY 2012)

F-35 Engine

Unit Cost History



Item	Date	BY 2012 $M		TY $M	
		PAUC	APUC	PAUC	APUC
Original APB	Mar 2012	21.989	17.328	25.990	21.708
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	Mar 2012	21.989	17.328	25.990	21.708
Current APB	Jun 2014	22.496	17.328	26.396	21.708
Prior Annual SAR	Dec 2014	22.626	17.378	27.274	22.526
Current Estimate	Dec 2015	20.960	15.709	24.685	19.930

SAR Unit Cost History

Current SAR Baseline to Current Estimate (TY $M)									
Initial PAUC Development Estimate	Changes								PAUC Current Estimate
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
25.990	0.054	0.000	0.303	0.000	-0.501	0.000	-1.161	-1.305	24.685

Current SAR Baseline to Current Estimate (TY $M)									
Initial APUC Development Estimate	Changes								APUC Current Estimate
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
21.708	0.048	0.000	0.305	0.000	-0.963	0.000	-1.167	-1.777	19.930

SAR Baseline History				
Item	SAR Planning Estimate	SAR Development Estimate	SAR Production Estimate	Current Estimate
Milestone A	N/A	N/A	N/A	N/A
Milestone B	N/A	N/A	N/A	N/A
Milestone C	N/A	N/A	N/A	N/A
IOC	N/A	N/A	N/A	N/A
Total Cost (TY $M)	N/A	63856.6	N/A	60651.1
Total Quantity	N/A	2457	N/A	2457
PAUC	N/A	25.990	N/A	24.685

Cost Variance

F-35 Aircraft

Summary TY $M				
Item	RDT&E	Procurement	MILCON	Total
SAR Baseline (Development Estimate)	44410.1	282647.8	4797.3	331855.2
Previous Changes				
Economic	+24.6	+2886.2	+29.5	+2940.3
Quantity	--	--	--	--
Schedule	--	+3425.5	--	+3425.5
Engineering	--	--	--	--
Estimating	-1507.9	-7348.4	-199.7	-9056.0
Other	--	--	--	--
Support	--	-5043.7	--	-5043.7
Subtotal	-1483.3	-6080.4	-170.2	-7733.9
Current Changes				
Economic	-36.7	-1842.6	-25.2	-1904.5
Quantity	--	--	--	--
Schedule	--	+487.2	--	+487.2
Engineering	--	+1826.8	--	+1826.8
Estimating	+280.0	-1873.1	+191.4	-1401.7
Other	--	--	--	--
Support	--	-4738.2	--	-4738.2
Subtotal	+243.3	-6139.9	+166.2	-5730.4
Total Changes	-1240.0	-12220.3	-4.0	-13464.3
Current Estimate	43170.1	270427.5	4793.3	318390.9

Summary BY 2012 $M				
Item	RDT&E	Procurement	MILCON	Total
SAR Baseline (Development Estimate)	47982.1	224332.9	4168.0	276483.0
Previous Changes				
Economic	--	--	--	--
Quantity	--	--	--	--
Schedule	--	--	--	--
Engineering	--	--	--	--
Estimating	-1870.0	-5117.6	-238.6	-7226.2
Other	--	--	--	--
Support	--	-4502.9	--	-4502.9
Subtotal	-1870.0	-9620.5	-238.6	-11729.1
Current Changes				
Economic	--	--	--	--
Quantity	--	--	--	--
Schedule	--	--	--	--
Engineering	--	+1346.4	--	+1346.4
Estimating	+256.5	-1349.7	+172.0	-921.2
Other	--	--	--	--
Support	--	-3418.2	--	-3418.2
Subtotal	+256.5	-3421.5	+172.0	-2993.0
Total Changes	-1613.5	-13042.0	-66.6	-14722.1
Current Estimate	46368.6	211290.9	4101.4	261760.9

Previous Estimate: December 2014

RDT&E	$M	
Current Change Explanations	Base Year	Then Year
Revised escalation indices. (Economic)	N/A	-36.7
Adjustment for current and prior escalation. (Estimating)	+26.7	+27.8
Realignment of cost between the aircraft subprogram and engine subprogram (Air Force (AF)). (Estimating)	+60.5	+64.3
Realignment of cost between the aircraft subprogram and engine subprogram (Navy). (Estimating)	-44.4	-46.2
Revised estimate for Small Business Innovation Research in FY 2015 (Navy). (Estimating)	-24.1	-25.4
Revised estimate for additional operational testing requirements (AF). (Estimating)	+74.3	+81.2
Revised estimate for additional operational testing requirements (Navy). (Estimating)	+147.7	+161.7
Revised estimate to reflect application of new outyear inflation indices (Non- Treasury Funds). (Estimating)	+1.3	+0.8
Increase due to realignment of program funding, congressional addition, and actual funding investment (AF). (Estimating)	+8.6	+9.1
Decrease due to realignment of program funding, congressional reductions, and actual funding investment (AF). (Estimating)	-0.8	-0.8
Increase due to realignment of program funding, congressional addition, and actual funding investment (Navy). (Estimating)	+6.7	+7.5
RDT&E Subtotal	+256.5	+243.3

Procurement	$M	
Current Change Explanations	Base Year	Then Year
Revised escalation indices. (Economic)	N/A	-1842.6
Adjustment for current and prior escalation. (Estimating)	+120.5	+128.9
Stretch-out of procurement buy profile in FY 2016 to FY 2038 (Aircraft Procurement, AF (APAF)). (Schedule)	0.0	+1446.0
Acceleration of procurement buy profile in FY 2016 to FY 2031 (Aircraft Procurement, Navy (APN)). (Schedule)	0.0	-958.8
Revised estimate for International procurement quantity profile adjustments (APAF). (Estimating)	-128.1	-160.6
Revised estimate for International procurement quantity profile adjustments (APN). (Estimating)	-18.1	-23.7
Revised estimate of Airframe cost due to the incorporation of the latest prime and subcontractor actuals and labor/exchange rates (APAF). (Estimating)	+11.7	+131.1
Revised estimate of Airframe cost due to the incorporation of the latest prime and subcontractor actuals and labor/exchange rates (APN). (Estimating)	+572.8	+676.1
Update for fact of life changes for prior years/lots 2006-2016 (APAF). (Estimating)	-266.9	-291.1
Update for fact of life changes for prior years/lots 2006-2016 (APN). (Estimating)	-71.4	-75.5
Decrease based on revised estimating assumptions for Block Buy and Multi-Year Procurement (APN). (Estimating)	-733.8	-922.1
Decrease based on revised estimating assumptions for Block Buy and Multi-Year Procurement (APAF). (Estimating)	-1259.9	-1713.6
Revised estimate of non-recurring costs (APAF). (Estimating)	+224.3	+254.6
Revised estimate of non-recurring costs (APN). (Estimating)	+199.2	+122.8

Additional funding for Band 2/5 requirements (APAF) (Engineering)	+945.2	+1313.8
Additional funding for Band 2/5 requirements (APN). (Engineering)	+401.2	+513.0
Revised estimate for Other Support due to maturation of technical baseline, definition of customer requirements, and further definition of Service beddown plans (APAF). (Support)	+1.8	+92.0
Adjustment for current and prior escalation. (Support)	+25.7	+27.1
Revised estimate for Other Support due to maturation of technical baseline, definition of customer requirements, and further definition of Service beddown plans (APN). (Support)	-494.5	-544.4
Revised estimate for Initial Spares due to maturation of technical baseline, definition of customer requirements, and further definition of Service beddown plans (APAF). (Support)	-2480.8	-3648.8
Revised estimate for Initial Spares due to maturation of technical baseline, definition of customer requirements, and further definition of Service beddown plans (APN). (Support)	-470.4	-664.1
Procurement Subtotal	-3421.5	-6139.9

MILCON	$M	
Current Change Explanations	Base Year	Then Year
Revised escalation indices. (Economic)	N/A	-25.2
Adjustment for current and prior escalation. (Estimating)	+5.1	+5.4
Revised estimate as a result of refined requirements (AF). (Estimating)	+313.1	+361.9
Revised estimate as a result of refined requirements (AF). (Estimating)	-153.8	-185.3
Revised estimate as a result of refined requirements (Navy). (Estimating)	+7.6	+9.4
MILCON Subtotal	+172.0	+166.2

Cost Variance

F-35 Engine

Summary TY $M				
Item	RDT&E	Procurement	MILCON	Total
SAR Baseline (Development Estimate)	10823.7	53032.9	--	63856.6
Previous Changes				
Economic	+21.2	+489.3	--	+510.5
Quantity	--	--	--	--
Schedule	--	+645.6	--	+645.6
Engineering	--	--	--	--
Estimating	+1136.7	+1695.7	--	+2832.4
Other	--	--	--	--
Support	--	-831.7	--	-831.7
Subtotal	+1157.9	+1998.9	--	+3156.8
Current Changes				
Economic	-4.7	-373.1	--	-377.8
Quantity	--	--	--	--
Schedule	--	+98.5	--	+98.5
Engineering	--	--	--	--
Estimating	-14.0	-4048.7	--	-4062.7
Other	--	--	--	--
Support	--	-2020.3	--	-2020.3
Subtotal	-18.7	-6343.6	--	-6362.3
Total Changes	+1139.2	-4344.7	--	-3205.5
Current Estimate	11962.9	48688.2	--	60651.1

Summary BY 2012 $M				
Item	RDT&E	Procurement	MILCON	Total
SAR Baseline (Development Estimate)	11695.2	42332.9	--	54028.1
Previous Changes				
Economic	--	--	--	--
Quantity	--	--	--	--
Schedule	--	--	--	--
Engineering	--	--	--	--
Estimating	+1440.8	+888.6	--	+2329.4
Other	--	--	--	--
Support	--	-766.3	--	-766.3
Subtotal	+1440.8	+122.3	--	+1563.1
Current Changes				
Economic	--	--	--	--
Quantity	--	--	--	--
Schedule	--	--	--	--
Engineering	--	--	--	--
Estimating	-13.4	-2670.3	--	-2683.7
Other	--	--	--	--
Support	--	-1408.0	--	-1408.0
Subtotal	-13.4	-4078.3	--	-4091.7
Total Changes	+1427.4	-3956.0	--	-2528.6
Current Estimate	13122.6	38376.9	--	51499.5

Previous Estimate: December 2014

RDT&E	$M	
Current Change Explanations	Base Year	Then Year
Revised escalation indices. (Economic)	N/A	-4.7
Adjustment for current and prior escalation. (Estimating)	+4.3	+4.3
Realignment of cost between the engine subprogram and aircraft subprogram (AF). (Estimating)	-60.9	-64.3
Realignment of cost between the engine subprogram and aircraft subprogram (Navy). (Estimating)	+43.4	+46.2
Decrease due to realignment of program funding, congressional reductions, and actual funding investment (AF). (Estimating)	-0.2	-0.2
RDT&E Subtotal	-13.4	-18.7

Procurement	$M	
Current Change Explanations	Base Year	Then Year
Revised escalation indices. (Economic)	N/A	-373.1
Adjustment for current and prior escalation. (Estimating)	+17.8	+19.0
Stretch-out of procurement buy profile in FY 2016 to FY 2038 (Engine Procurement, AF). (Schedule)	0.0	+293.2
Acceleration of procurement buy profile in FY 2016 to FY 2031 (Engine Procurement, Navy). (Schedule)	0.0	-194.7
Revised estimate for International procurement quantity adjustments (Engine Procurement, AF). (Estimating)	-9.2	-12.5
Revised estimate for International procurement quantity adjustments (Engine Procurement, Navy). (Estimating)	-3.8	-5.1
Revised estimate to reflect actuals (Engine Procurement, AF). (Estimating)	-1445.7	-2326.2
Revised estimate to reflect actuals (Engine Procurement, Navy). (Estimating)	-330.6	-547.2
Decrease based on revised estimating assumptions for Block Buy and Multi-Year Procurement (Engine Procurement, AF). (Estimating)	-457.1	-643.3
Decrease based on revised estimating assumptions for Block Buy and Multi-Year Procurement (Engine Procurement, Navy). (Estimating)	-266.8	-343.0
Update for fact of life changes for prior years/lots 2006-2016 (Engine Procurement, AF). (Estimating)	-47.9	-52.1
Update for fact of life changes for prior years/lots 2006-2016 (Engine Procurement, Navy). (Estimating)	-127.0	-138.3
Adjustment for current and prior escalation. (Support)	+4.8	+5.0
Revised estimate for Other Support due to maturation of technical baseline, definition of customer requirements, and further definition of Service beddown plans (Engine Procurement, AF). (Support)	-17.7	-11.6
Revised estimate for Other Support due to maturation of technical baseline, definition of customer requirements, and further definition of Service beddown plans (Engine Procurement, Navy). (Support)	-85.3	-96.7
Revised estimate for Initial Spares due to maturation of technical baseline, definition of customer requirements, and further definition of Service beddown plans (Engine Procurement, AF). (Support)	-1143.5	-1680.7
Revised estimate for Initial Spares due to maturation of technical baseline, definition of	-166.3	-236.3

customer requirements, and further definition of Service beddown plans (Engine Procurement, Navy). (Support)		
Procurement Subtotal	-4078.3	-6343.6

Contracts

General Notes

The Israel System Development and Demonstration and F135 LRIP 7 contracts no longer meet the threshold for the six largest contracts.

Contract Identification

Appropriation: Procurement
Contract Name: F-35 LRIP 6
Contractor: Lockheed Martin
Contractor Location: 1 Lockheed Boulevard
Ft. Worth, TX 76108
Contract Number: N00019-11-C-0083
Contract Type: Fixed Price Incentive(Firm Target) (FPIF), Cost Plus Incentive Fee (CPIF)
Award Date: December 28, 2012
Definitization Date: September 27, 2013

Contract Price							
Initial Contract Price ($M)			Current Contract Price ($M)			Estimated Price At Completion ($M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
4392.1	N/A	36	7233.6	N/A	36	7093.6	7233.6

Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to definitization of Production Non Recurring, Annualized Sustainment, Non-Annualized Sustainment, Depot, and Spares scope.

Contract Variance		
Item	Cost Variance	Schedule Variance
Cumulative Variances To Date (12/31/2015)	-131.2	-203.4
Previous Cumulative Variances	-183.0	-193.0
Net Change	+51.8	-10.4

Cost and Schedule Variance Explanations

The favorable net change in the cost variance is due to sustainment supplier rate underruns, staffing shortfalls and material procurement efficiencies.

The unfavorable net change in the schedule variance is due to the remaining two Italian aircraft performing behind schedule and due to tooling delays.

Notes

As a whole, the CLIN consist of multiple contract types including Fixed Price Incentive Fee as well as Cost Plus Incentive Fee and Cost Plus Fixed-Fee. For this reason, the overall contract type is mixed and there is not a true contract ceiling.

Contract Identification

Appropriation: Procurement
Contract Name: F135 LRIP 6
Contractor: Pratt & Whitney
Contractor Location: 400 Aircraft Road
Middletown, CT 06457
Contract Number: N00019-12-C-0090
Contract Type: Fixed Price Incentive(Firm Target) (FPIF), Cost Plus Incentive Fee (CPIF)
Award Date: January 06, 2012
Definitization Date: February 15, 2013

Contract Price							
Initial Contract Price ($M)			Current Contract Price ($M)			Estimated Price At Completion ($M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
1122.0	1128.8	38	1131.9	1139.0	38	1099.3	1091.6

Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to the incorporaton of a contract modification that extended the period of performance for CLIN 12 Service Specific Site Activation and added some additional support equipment.

Contract Variance		
Item	Cost Variance	Schedule Variance
Cumulative Variances To Date (12/31/2015)	-10.9	-36.5
Previous Cumulative Variances	-8.6	-31.0
Net Change	-2.3	-5.5

Cost and Schedule Variance Explanations

The unfavorable net change in the cost variance is due to general and administrative rate changes, additional costs with design changes with Low Observables Advanced Baseline Acceptance Radar Inspection System work and the Low Pressure Turbine Rotor hardware is over cost due to not enough cost reduction initiatives or engineering changes implemented or better pricing from suppliers to support the baseline cost targets.

The unfavorable net change in the schedule variance is due to to the Low Pressure Turbine and High Pressure Turbine casting tools are late and the initial spares deliveries are late as the contractor is managing the demand requirements and prioritizing the deliveries between the production requirements and spares.

Notes

The contract is a combination if Fixed Price Incentive Fee and Cost Plus Incentive Fee CLINs. For this reason, the overall contract type is mixed and there is not a true contract ceiling. This contract includes both engines and Sustainment work scope. All engines have been delivered and the remaining work is for tooling, support equipment and spare parts.

The Current Contract Ceiling Price is estimated based on the FPIF and CPIF CLINs.

Total Quantity includes aircraft engines and spare engines = 36 installs and two whole spares.

The earned value completion date and Contractor Performance Report reporting will be determined as the contract nears completion.

Pratt & Whitney's EVM System was decertified on September 30, 2013 due to sixteen significant deficiencies that affect four of the 32 EVMS Guidelines. In accordance with Defense Federal Acquisition Regulation Supplement, 5% of each request for payment is being withheld until all significant deficiencies have been corrected.

This contract is more than 90% complete; therefore, this is the final report for this contract.

Contract Identification

Appropriation: Procurement
Contract Name: F-35 LRIP 7
Contractor: Lockheed Martin
Contractor Location: 1 Lockheed Boulevard
Ft. Worth, TX 76108
Contract Number: N00019-12-C-0004
Contract Type: Fixed Price Incentive(Firm Target) (FPIF), Cost Plus Incentive Fee (CPIF)
Award Date: September 27, 2013
Definitization Date: September 27, 2013

Contract Price							
Initial Contract Price ($M)			Current Contract Price ($M)			Estimated Price At Completion ($M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
4447.1	N/A	35	5640.4	N/A	35	5547.1	5640.4

Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to definitization of Tech Assist, Non-Annualized Sustainment and Depot scope.

Contract Variance		
Item	Cost Variance	Schedule Variance
Cumulative Variances To Date (12/31/2015)	-78.6	-84.8
Previous Cumulative Variances	-10.0	-46.0
Net Change	-68.6	-38.8

Cost and Schedule Variance Explanations

The unfavorable net change in the cost variance is due to Wing and Mate through Delivery due to part shortages driving out-of-station work and labor inefficiencies. Unfavorable assembly cost performance is somewhat offset by Sustainment due to supplier rate underruns, staffing shortfalls and material procurement efficiencies.

The unfavorable net change in the schedule variance is due to multiple late Fire Control and Stores deliveries.

Notes

As a whole, the CLIN consist of multiple contract types including Fixed Price Incentive Fee as well as Cost Plus Incentive Fee and Cost Plus Fixed-Fee. For this reason, the overall contract type is mixed and there is not a true contract ceiling.

Contract Identification

Appropriation: Procurement
Contract Name: F135 LRIP 8
Contractor: Pratt & Whitney
Contractor Location: 400 Aircraft Road
Middletown, CT 06457
Contract Number: N00019-13-C-0016
Contract Type: Fixed Price Incentive(Firm Target) (FPIF), Cost Plus Incentive Fee (CPIF)
Award Date: August 27, 2013
Definitization Date: October 30, 2014

Contract Price							
Initial Contract Price ($M)			Current Contract Price ($M)			Estimated Price At Completion ($M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
1009.1	1011.9	48	1185.1	1191.4	48	1141.7	1185.1

Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to the incorporation of many contract modifications relating to tooling, Sustainment, extra long lead hardware options, operations and maintenance work scope and unit and depot support equipment.

Contract Variance		
Item	Cost Variance	Schedule Variance
Cumulative Variances To Date (12/31/2015)	-68.9	-9.5
Previous Cumulative Variances	--	--
Net Change	-68.9	-9.5

Cost and Schedule Variance Explanations

The unfavorable cumulative cost variance is due to general & administrative rate changes, higher costs with the Fan Integrally Bladed Rotors and Externals Systems due to not enough cost reduction initiatives or engineering changes implemented or better pricing from suppliers to support the baseline cost targets.

The unfavorable cumulative schedule variance is due to Fan, Externals and Turbine Exhaust hardware delivering late to baseline plan due to quality issue.

Notes

The contract is a combination if Fixed Price Incentive Fee, Cost Plus Incentive Fee and Firm Fixed Priced CLINs. For this reason, the overall contract type is mixed and there is not a true contract ceiling.

This contract includes both engines and Sustainment work scope. All engines have been delivered and the remaining work is for tooling, support equipment and spare parts.

The Current Contract Ceiling Price is estimated based on the FPIF and CPIF CLINs.

Total Quantity includes aircraft engines and spare engines = 45 installs and three whole spares.

The earned value completion date and Contractor Performance Report reporting will be determined as the contract nears completion. Pratt & Whitney's EVM System was decertified on September 30, 2013 due to sixteen significant deficiencies that affect four of the 32 EVMS Guidelines. In accordance with Defense Federal Acquisition Regulation Supplement, 5% of each request for payment is being withheld until all significant deficiencies have been corrected.

Contract Identification

Appropriation: Procurement
Contract Name: F-35 LRIP 8
Contractor: Lockheed Martin
Contractor Location: 1 Lockheed Boulevard
Ft Worth, TX 76108
Contract Number: N00019-13-C-0008
Contract Type: Fixed Price Incentive(Firm Target) (FPIF), Cost Plus Incentive Fee (CPIF)
Award Date: February 28, 2013
Definitization Date: November 21, 2014

Contract Price							
Initial Contract Price ($M)			Current Contract Price ($M)			Estimated Price At Completion ($M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
5153.5	N/A	43	5171.3	N/A	43	5162.2	5171.3

Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to authorization of Reprogramming Center West Prime Mission Equipment.

Contract Variance		
Item	Cost Variance	Schedule Variance
Cumulative Variances To Date (12/31/2015)	-65.0	-136.1
Previous Cumulative Variances	--	--
Net Change	-65.0	-136.1

Cost and Schedule Variance Explanations

The unfavorable cumulative cost variance is due to overruns within quality labor and material allocations. In addition, unfavorable performance is due to ongoing part shortages within Forward Fuselage and Wing driving out-of-station work and labor inefficiencies.

The unfavorable cumulative schedule variance is due to late spares and tool deliveries as well as assembly delays.

Notes

As a whole, the CLIN consist of multiple contract types including Fixed Price Incentive Fee as well as Cost Plus Incentive Fee and Cost Plus Fixed-Fee. For this reason, the overall contract type is mixed and there is not a true contract ceiling.

Contract Identification

Appropriation: Procurement
Contract Name: FY15 Annualized Sustainment
Contractor: Lockheed Martin
Contractor Location: 1 Lockheed Boulevard
Ft Worth, TX 76108
Contract Number: N00019-15-C-0031
Contract Type: Cost Plus Incentive Fee (CPIF)
Award Date: October 28, 2014
Definitization Date: November 01, 2014

Contract Price							
Initial Contract Price ($M)			Current Contract Price ($M)			Estimated Price At Completion ($M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
5153.5	N/A	43	5171.3	N/A	43	5162.2	5171.3

Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to Delta driven by authorization of Reprogramming Center West Prime Mission Equipment.

Contract Variance		
Item	Cost Variance	Schedule Variance
Cumulative Variances To Date (12/31/2015)	-65.0	-136.1
Previous Cumulative Variances	--	--
Net Change	-65.0	-136.1

Cost and Schedule Variance Explanations

The unfavorable cumulative cost variance is due to overruns within quality labor and material allocations. In addition, unfavorable performance is due to ongoing part shortages within Forward Fuselage and Wing driving out-of-station work and labor inefficiencies.

The unfavorable cumulative schedule variance is due to late spares and tool deliveries as well as assembly delays.

Notes

As a whole, the CLIN consist of multiple contract types including Fixed Price Incentive Fee as well as Cost Plus Incentive Fee and Cost Plus Fixed-Fee. For this reason, the overall contract type is mixed and there is not a true contract ceiling.

Deliveries and Expenditures

F-35 Aircraft

Deliveries				
Delivered to Date	Planned to Date	Actual to Date	Total Quantity	Percent Delivered
Development	14	14	14	100.00%
Production	148	146	2443	5.98%
Total Program Quantity Delivered	162	160	2457	6.51%

Expended and Appropriated (TY $M)			
Total Acquisition Cost	318390.9	Years Appropriated	23
Expended to Date	66171.9	Percent Years Appropriated	51.11%
Percent Expended	20.78%	Appropriated to Date	91294.7
Total Funding Years	45	Percent Appropriated	28.67%

The above data is current as of February 03, 2016.

Totals reflect U.S. aircraft only-no International Partner aircraft.

F-35 Engine

Deliveries				
Delivered to Date	Planned to Date	Actual to Date	Total Quantity	Percent Delivered
Development	14	14	14	100.00%
Production	148	146	2443	5.98%
Total Program Quantity Delivered	162	160	2457	6.51%

Expended and Appropriated (TY $M)			
Total Acquisition Cost	60651.1	Years Appropriated	23
Expended to Date	17008.4	Percent Years Appropriated	51.11%
Percent Expended	28.04%	Appropriated to Date	19924.7
Total Funding Years	45	Percent Appropriated	32.85%

The above data is current as of February 03, 2016.

Engines planned and actual to date only include production installs.

Operating and Support Cost

F-35 Aircraft

Cost Estimate Details

Date of Estimate:	March 07, 2016
Source of Estimate:	CAPE ICE
Quantity to Sustain:	2443
Unit of Measure:	Flying Hour
Service Life per Unit:	32.00 Years
Fiscal Years in Service:	FY 2011 - FY 2070

Quantity to Sustain 2443 does not include 14 development aircraft.

Sustainment Strategy

The F-35 Product Support Manager (PSM) has developed and is executing a Sustainment Strategy that is consistent with warfighter requirements, technical specifications, extant contracts, government policies, and best practices. The F-35 Sustainment Strategy expressly states that the F-35 Program will:

- Design, develop, deliver and sustain a single, integrated, and global system of sustainment products, processes, and business practices. These actions will enable the F-35 Air System to achieve a high degree of effectiveness at an affordable cost.

- Tailor the global system to meet warfighter-defined and PSM-supported readiness and cost objectives. This action will ensure that the global system is responsive and flexible as operational needs vary over time.

- Maintain life-cycle focus, including the reduction of costs. This action will provide critical affordability benefits and further supports a high degree of effectiveness as Air System maturity grows.

- Create a mutually-beneficial enterprise that – with relevant metrics and incentives – operates, manages, and supports the global system. This action further improves responsiveness and enhances affordability.

- Leverage the global resource base – government and commercial – to take advantage of stakeholder capabilities, human capital, best practices, and similar critical contributions. This action increases robustness and scalability as the F-35 fleet grows and matures.

Antecedent Information

The F-35 family of aircraft variants will replace the following current aircraft: F-16C/D, A-10, F/A-18C/D, and AV-8B. The F-35 O&S estimate is based on legacy fleet history only when F-35 specific data is not available.

Comparing the costs of the 5th Generation F-35 to legacy aircraft is challenging. The cost table above compares an adjusted F-16C/D Cost per Flying Hour (CPFH) to a forecast of the CPFH for the F-35A variant. The F-35A CPFH figure is based on the Conventional Takeoff and Landing (CTOL) variant only. The F-35A CTOL variant will make up the majority of the DoD F-35 aircraft procurement, accounting for 1,763 of 2,443 total aircraft currently planned for U.S. forces.

The F-16C/D CPFH figures were developed in a joint effort between CAPE and the Air Force Cost Analysis Agency. The

figures have been normalized for comparison to the F-35A CPFH forecast. The starting point for the F-16C/D CPFH is an average of actual cost incurred for this fleet during FY 2008 through FY 2010. In order to enable the direct comparison of the CPFH figures, the actual F-16C/D CPFH is adjusted to reflect the cost of fuel, the number of flight hours forecast for the F-35A, and FY 2013 inflation indices. The F-16C/D figures include costs that F-16 shares with other Air Force platforms: Systems Engineering/Program Management (SEPM), maintenance training costs, certain software development efforts, and information systems. Costs for mission planning are included in the F-35A CPFH figure, but equivalent costs for the F-16C/D are not available, and no adjustment was made for this element of cost. Finally, the F-16C/D figures assume full funding of requirements consistent with the F-35A CPFH figures.

Annual O&S Costs BY2012 $K		
Cost Element	F-35 Aircraft Average Annual Cost Per Flying Hour	F-16C/D (Antecedent) Cost Per Flying Hour ($)
Unit-Level Manpower	8.470	10.042
Unit Operations	4.923	5.632
Maintenance	11.126	5.501
Sustaining Support	3.179	2.075
Continuing System Improvements	2.108	2.291
Indirect Support	0.000	0.000
Other	0.000	0.000
Total	29.806	25.541

The F-35A CTOL unitized cost figure shown in the table above decreased slightly relative to the comparable 2014 SAR figure. There are three considerations that result in a slight decrease for the F-35A unitized cost shown above: 1) a decrease in the assumed cost per gallon of JP-8 fuel; 2) a decrease in the fuel burn rate for the F-35A variant; and 3) a revised cost estimating relationship for hardware modifications.

Given the significant increase in military capabilities provided, it is reasonable to expect F-35A to cost more to operate and sustain than 4th generation legacy aircraft.

Item	Total O&S Cost $M			
	F-35 Aircraft			F-16C/D (Antecedent)
	Current Development APB Objective/Threshold		Current Estimate	
Base Year	617000.0	678700.0	620805.4	N/A
Then Year	1113272.6	N/A	1123844.0	N/A

The Total O&S Cost figures above reflect the CAPE ICE estimate of O&S costs updated in 2015 in accordance with tasking from Congress. The O&S cost estimate includes all three U.S. aircraft variants, is based on a forecast 30-year service-life, and is based on planned usage rates provided by each relevant military service. The planned F-35 usage rates, in terms of aircraft flight hours per year, are as follows: F-35A CTOL @ 250 hrs./yr.; F-35B STOVL @ 302 hrs./yr.; and F-35C CV @ 316 hrs./yr. The total life-cycle cost estimate is not a simple extrapolation of the F-35A flying hour cost shown in the unitized O&S cost table above. Total O&S costs are updated using FY 2015 inflation indices, and include revised forecasts of labor escalation rates for military, civilian, and contractor personnel. A comparable total cost figure for the antecedent system (i.e., F-16C/D) is not available.

The 2015 CAPE estimate of F-35 total life cycle O&S costs incorporates updated information regarding several key cost

elements relative to the CAPE O&S cost estimate shown in the 2014 SAR. This includes updated fuel burn rates for all variants, a reduction in the assumed price per gallon of both JP-5 and JP-8, use of updated escalation forecasts for government personnel, a revised cost estimating relationship for hardware modifications, new Service bed down plans for all variants, and updated depot-level repairable (DLR) costs. The updated information results in increased cost forecasts for certain cost elements, and decreased cost forecasts for other elements. The 2015 CAPE total O&S estimate is approximately 3.8% higher (in BY 2012 $) than the total O&S cost estimate in the 2014 SAR.

Not included in the 2015 CAPE estimate are the intermediate maintenance costs for the Marine Corps as observed with the operational squadron at Marine Corps Air Station Yuma. Although the program of record (POR) acknowledges only unit and depot levels of maintenance, it appears that the Department of Navy (DoN) is moving towards incorporating some form of intermediate maintenance for its squadrons. However, the DoN has not made the decision to change the POR at this point. While the extent of the additional maintenance level is currently unclear, a change in F-35 maintenance strategy appears to be likely for at least the DoN. CAPE recommends that the Services develop business case analyses to determine the impact of intermediate maintenance levels on the respective F-35 variants, in terms of both cost and readiness.

As in 2014, the CAPE O&S cost estimate incorporates actual information on component reliabilities obtained from the ongoing F-35 flight operations, including flight test and field operations. This program information is provided from the DoD test community, through Director, Operational Test and Evaluation, and includes actual reliability information on many F-35 components based on data collected during approximately 31,000 hours of flight operations. The data include all variants and flight operations through May 2015.

The reliability information has been compared to expected reliabilities for this stage of the program, for all variants, based on reliability growth curves. The 2015 CAPE O&S estimate continues to reflect the increased DLR costs present in the 2014 SAR estimate, because component reliability information obtained from actual flight operations data remains inconsistent with expectations.

CAPE will continue to work with the DoD operational test community to improve the processes and methods used to incorporate actual data and information on component reliabilities and removal rates, obtained from ongoing flight operations, into the CAPE life-cycle O&S cost estimate for the F-35 program. This information will be used, together with reliability improvement forecasts, to update the O&S cost estimates as the program proceeds to and beyond IOC. In the future, the use of actual flight operations information could result in substantial changes in forecasts of DLR costs in CAPE O&S estimates.

Affordability remains the F-35 program office number one priority. As such, the F-35 program team is focused on reducing sustainment costs across the program. The program continues to target O&S cost avoidance through the Cost War Room (CWR) and Reliability and Maintainability Improvement Program (RMIP). Concurrent to CWR activity, the program office has taken strides to transition from analogy and parametric estimating approaches toward contracted values to improve the O&S cost estimate's accuracy. As a result of CWR affordability initiatives, requirement refinement, and improved cost data quality, the program has reduced the program's annual cost per flight hour.

The 2015 O&S POE of $579.1B BY 2012$ ($1.026 Trillion TY$) has been updated to reflect the latest technical baseline for the program and incorporates revised stakeholder requirements. Primary updates to the 2015 POE include service requirements, JP-5 and JP-8 fuel prices and consumption, hardware modification, and government/contractor manpower. Note: values below in parentheses represent the change from the 2014 POE to the 2015 POE.

- U.S. Air Force extended the program's life cycle by six years. In total, DoD assumes an additional 1.6 million flight hour (11% increase) for F-35 operations (+$54.3B CY 2012 $)

- JP-5 and JP-8 fuel prices reflect Defense Logistics Agency catalog with consumption rates updated to reflect actuals (-$24.6B CY 2012 $)

- Hardware modifications removed costs associated with capability updates as stated in 2014 CAPE guidance (-$14.9B CY 2012 $)

- Government / contractor manpower underwent a thorough assessment based on current LRIP requirements (+$3.7B CY 2012 $)

The CAPE estimate incorporates the program office updates while adjusting reliability metrics and military personnel compensation real price change. The program office does not support the CAPE's use of actual reliability data from ongoing flight operations. The reliability data used in the CAPE estimate is based on a mix of aircraft configurations and represent only 9% of the hours required to reach Reliability and Maintainability maturity of the F-35 fleet. The CAPE estimate accounted for the real price change of military personnel compensation. The program office does not have a position on military personnel real price change and will incorporate once it becomes DoD guidance.

The F-35 PEO believes that the inherent differences between the F-35 and the F-16 estimates, such as mission planning costs being included in F-35 but not F-16 and the fact that the F-16 is a mature weapons system with many reliability and maintenance costs "leaned out" over the years, result in an overstating of the differences in cost per flying hour between the two. Regardless of the difference, the F-35 program office is committed to, and has enacted multiple programs to drive the O&S costs of the F-35 down.

Equation to Translate Annual Cost to Total Cost

The F-35 steady state cost per flying hour reflected in the annual O&S cost section does not easily translate to the Total O&S value for the program because the total O&S costs reflect costs for all three variants of the F-35 for the U.S. Air Force, U.S. Marine Corps, and U.S. Navy, whereas the CPFH reflects the U.S. Air Force F-35A only.

O&S Cost Variance		
Category	BY 2012 $M	Change Explanations
Prior SAR Total O&S Estimates - Dec 2015 SAR	597773.6	
Programmatic/Planning Factors	41742.1	Service beddown plans updated and CTOL Manpower Estimate Report revised.
Cost Estimating Methodology	-21304.7	Hardware modification cost estimating relationship revised.
Cost Data Update	4768.5	Spare Parts Unit Database updated.
Labor Rate	7369.2	Escalation rates revised and inflation guidance updated.
Energy Rate	-30858.6	Revised JP-5/JP-8 costs per gallon.
Technical Input	-5568.8	Increased fuel efficiency.
Other	26884.1	Predicted cost per air vehicle induction increased and indirect costs revised.
Total Changes	23031.8	
Current Estimate	620805.4	

Disposal Estimate Details

Date of Estimate:

Source of Estimate:

Disposal/Demilitarization Total Cost (BY 2012 $M):

Program maturity is not at a point where disposal costs can be estimated within an acceptable margin of error.

F-35 Engine

Cost Estimate Details

Date of Estimate:

Source of Estimate:

Quantity to Sustain:

Unit of Measure:

Service Life per Unit:

Fiscal Years in Service:

O&S costs for the engine subprogram are included in the overall program costs that are shown in the F-35 Aircraft subprogram.

Sustainment Strategy

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Antecedent Information

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Annual O&S Costs BY2012 $K		
Cost Element	F-35 Engine	No Antecedent (Antecedent)
Unit-Level Manpower	0.000	0.000
Unit Operations	0.000	0.000
Maintenance	0.000	0.000
Sustaining Support	0.000	0.000
Continuing System Improvements	0.000	0.000
Indirect Support	0.000	0.000
Other	0.000	0.000
Total	--	--

Item	Total O&S Cost $M			
	F-35 Engine			No Antecedent (Antecedent)
	Current Development APB Objective/Threshold		Current Estimate	
Base Year	N/A	N/A	N/A	N/A
Then Year	N/A	N/A	N/A	0.0

O&S Cost Variance		
Category	BY 2012 $M	Change Explanations
Prior SAR Total O&S Estimates - Dec 2015 SAR	0.0	

Programmatic/Planning Factors	0.0
Cost Estimating Methodology	0.0
Cost Data Update	0.0
Labor Rate	0.0
Energy Rate	0.0
Technical Input	0.0
Other	0.0
Total Changes	0.0
Current Estimate	0.0

Disposal Estimate Details

Date of Estimate:

Source of Estimate:

Disposal/Demilitarization Total Cost (BY 2012 $M):