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Selected Acquisition Report (SAR)

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



F-35 Lightning II Joint Strike Fighter (JSF) Program (F-35)

As of FY 2020 President's Budget

Defense Acquisition Management
Information Retrieval
(DAMIR)

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Sensitivity Originator

No originator information is available at this time.

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)
USD(A&S) - Under Secretary of Defense (Acquisition and Sustainment)

Program Information

Program Name

F-35 Lightning II Joint Strike Fighter (JSF) Program (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 (DAF), and currently resides with the DAF.

Responsible Office

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Date Assigned: May 25, 2017

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 March 22, 2019

F-35 Engine

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 March 22, 2019

Mission and Description

The F-35 Lightning II 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 2018 National Defense Strategy (NDS) identifies several challenges to continued U.S. prosperity and security. Among them are building a more lethal Joint force, strengthening alliances and attracting new partnerships, and reforming business practices for greater performance and affordability. Our Joint and Coalition Forces will need the capabilities and capacities of technologically superior weapon systems to out-think, out-maneuver and out-innovate high-end adversaries as well as rogue regimes, violent extremist organizations and other global actors that challenge our military advantage and national security interests. The F-35 Lightning II program aligns to and directly enables the implementation of the NDS.

The F-35 Lightning II is the Department of Defense's largest cooperative acquisition program bringing together three U.S. military services - Air Force (USAF), Marine Corps (USMC), and Navy (USN)) with eight partner nations (United Kingdom, Italy, Netherlands, Turkey, Canada, Australia, Denmark, and Norway) to develop, produce, and sustain this combat proven fifth-generation strike fighter weapon system. In addition to these foundational partners, the program currently has four FMS customers: Israel, Korea, Japan, and Belgium (new for 2018) with several additional FMS customers showing strong interest.

SAR 18 is baselined from the March 2019 APB which was updated to include the Block 4 2018 Program Office Cost Estimate, Block 4 prior year actuals, Deployability and Suitability (D&S), Autonomic Logistics Information System (ALIS), and Dual Capable Aircraft (DCA) in the RDT&E baseline. The updated APB includes an aircraft quantity increase from 2443 to 2456, and Block 4 modification costs in the Procurement baseline. Finally, the updated APB includes the CAPE 2018 cost estimate in the O&S baseline.

The F-35 program continues to move at a full sprint across three interdependent lines of effort - development, production, and sustainment - to develop, deliver, and sustain the F-35 air system. With an estimated \$1.6 trillion (TY\$) life cycle cost through the year 2077, the investments by the services, partner nations, and FMS customers constitutes a substantial portion of each of their defense budgets. As a result, the shared accountability and responsibility between the U.S. Government, partner nations, and industry partners to perform to plan cannot be emphasized enough.

This shared accountability drives a requirement for seamless collaboration and proactive engagement between the industry partners and the F-35 Joint Program Office (JPO) for expeditious deliveries, quality products, accountability, and long-term growth of the program. The JPO needs positive engagement with all industry partners to slash timelines for technical resolutions, program plan generation, contract actions/awards, production deliveries, and sustainment solutions. The JPO will continue to work with its industry partners and incentivize them to embrace innovative and bold acquisition approaches to rapidly deliver advanced capabilities, aggressively drive down the production costs and restructure the sustainment and ownership framework to ensure our warfighters can afford to own and operate their F-35 fleets well into the future.

2018 was a very productive year for the program. First aircraft arrivals occurred for F-35A aircraft to Australia and Japan, and F-35B arrivals occurred in the United Kingdom. The delivery of the Block 3F software enabled the completion of the System Development and Demonstration (SDD) phase of flight test in April 2018 and the beginning of initial operational test and evaluation (IOT&E) in December 2018. Successful completion of IOT&E will enable the Milestone C and related Full-Rate Production Decision currently targeted for October 2019.

Additional goals for 2019 include the delivery of 131 aircraft, achievement of the Secretary's mandate for 80% mission capable rate, and initial operating capability for the USN with the F-35C aircraft.

Development

Delivery of the complete Block 3F software package and subsequent entry into IOT&E signifies a major development team milestone. In fact, the USMC successfully executed an airstrike in support of Operation INHERENT RESOLVE with their F-35Bs in September 2018. There is no better proof that an aircraft is ready for combat operations than usage in combat.

Block 4 and Continuous Capability Development and Delivery (C2D2) development is continuing to address the advancing threat and to expand and improve mission capabilities. For the first time ever, SAR 18 incorporates the full Block 4 program plan. The U.S. Services demonstrated confidence in the plan by fully funding to the JPO Block 4 cost estimate. Since the C2D2 framework leverages the tenets of agile development and is relatively new within the F-35 program, it will require the development and use of new or alternative cost estimating methodologies and approaches. Generated with legacy cost estimating methods, the program's estimates still possess a high degree of fidelity with regard to required near-term Block 4 activities. As the C2D2 approach and our new cost estimating methodologies mature over time, the JPO in partnership with CAPE, will continuously evaluate the program cost impact and update the cost estimate(s) so that subsequent updates will continue to include a full, high fidelity cost estimate(s) across the FYDP and beyond.

As this methodology evolves, the program will communicate 'real time' with the Congressional Defense Committee staffs through quarterly PEO and DAE engagements, and provide the annual Follow-on Modernization report required by Section 224(b) of the National Defense Authorization Act for FY 2017 (Public Law 114-328).

Production

The program delivered 91 aircraft and achieved its planned delivery goal for 2018. In 2019, the goal is to deliver a total of 131 aircraft. The JPO continues to experience slow negotiation behaviors from the prime contractor that unnecessarily extends the timeline to contract award. As production ramps up, the JPO has concerns with the prime contractor's ability to negotiate in a timely manner to meet required delivery schedules with the required quality and performance. The JPO is incentivizing the prime contractor's behavior through appropriate contracts and other methods to improve production systems, reduce span times, improve quality, and reduce costs.

A multi-agency cost deep dive by experts from OSD, the services, and industry completed in December 2018, identifying several actionable initiatives that will be implemented to reach our production goals. Savings will be realized over the PB 2020 FYDP as the team is able to continue their work.

The total procurement quantity reflected in the SAR for the United States service requirements remains at 2456; USAF – 1763 F-35A; USMC – 353 F-35B, 67 – F-35C; and USN 273 F-35C. This procurement quantity and breakout by service is the same as the PB 2019 submission and last year's SAR.

Sustainment

The O&S section of the SAR reflects the 2018 CAPE ICE update. The F-35 JPO has updated the program office portion of the narrative in the O&S section with its current estimates. The updated Fiscal Years in Service are FY 2011 - FY 2077.

The F-35 Enterprise is in full stride standing up the Global Support Solution (GSS) to provide cost effective, safe and timely Maintenance, Repair, Overhaul and Upgrade within a three-region framework (Europe, Pacific, and North America) for airframe, engine, component, warehousing, and distribution. The global sustainability posture (including both readiness and cost) relies on a common pool of spares and support equipment, common pilot and maintainer training, and common engineering support. Unique country-specific requirements and capabilities are provided via Afloat and Deployable Spares Packages requirements at U.S. Service, Partner nations, and FMS-unique cost.

At current estimates, the projected F-35 sustainment outlays based upon given planned fleet growth will strain future service O&S budgets. The prime contractor must embrace much-needed supply chain management affordability initiatives, optimize priorities across the supply chain for spare and new production parts, and enable the exchange of necessary data rights to implement the required stand-up of planned government organic software capabilities. The program is establishing and validating affordability goals and required actionable initiatives to realize them; focusing on cost reduction efforts, capacity tradeoffs, reallocation of Industry/Government workshare and alignment within services' Budgets.

Achieving these goals will require updates to product support and sustainment strategies, including the Life-Cycle Support Plan and supporting Business Case Analyses to address fielding and sustainment performance improvements. The Program is using Performance Based Logistics principles, manifested in GSS and related enterprise capabilities, to maximize warfighter performance while working within participant resource constraints.

The objective will be to meet warfighter operational requirements at Continental U.S. and forward deployed locations by

delivering: affordable sustainment for the F-35 within the U.S. Services budgets; stabilized Autonomic Logistics Information System and Information Technology architecture that is protected from cybersecurity threats; increased transparency; and expanded warfighter roles to enable frequent and detailed discussions to align with U.S. Service priorities and link budgetary decisions to F-35 sustainment strategies.

Summary

Our F-35 Enterprise goals and milestones for 2019 are challenging. These goals and milestones are what our warfighter needs from us in 2019. We intend to deliver more warfighting capability and drive down production and sustainment costs. We anticipate another three IOCs (USN, Japan, and Norway) and three First Aircraft Arrivals (the Netherlands, Turkey and ROK). Our warfighters will continue to accept F-35 air systems establishing new bed down sites, both land based and maritime, as they continue to mature their warfighting concept of operations to be prepared to fight the fight when called upon. The F-35 is providing the combat-proven capabilities our warfighter demands, and the JPO is working daily to ensure the F-35 remains an affordable, lethal and effective war-winning platform in support of our NDS.

Threshold Breaches

F-35 Aircraft

APB Breaches

Schedule		<input type="checkbox"/>
Performance		<input type="checkbox"/>
Cost	RDT&E	<input type="checkbox"/>
	Procurement	<input type="checkbox"/>
	MILCON	<input type="checkbox"/>
	Acq O&M	<input type="checkbox"/>
O&S Cost		<input type="checkbox"/>
Unit Cost	PAUC	<input type="checkbox"/>
	APUC	<input type="checkbox"/>

Nunn-McCurdy Breaches

Current UCR Baseline		
	PAUC	None
	APUC	None
Original UCR Baseline		
	PAUC	None
	APUC	None

F-35 Engine

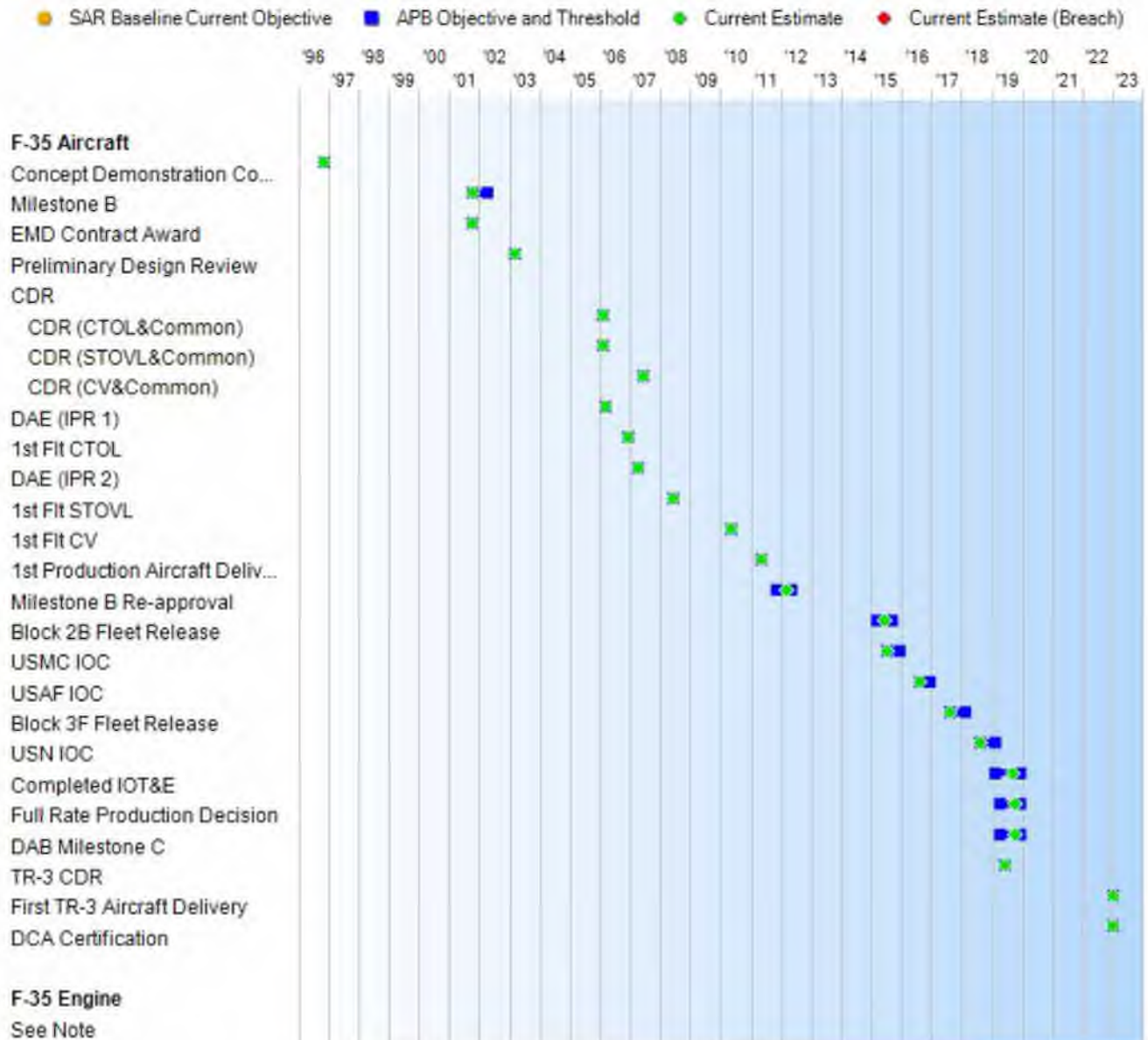
APB Breaches

Schedule		<input type="checkbox"/>
Performance		<input type="checkbox"/>
Cost	RDT&E	<input type="checkbox"/>
	Procurement	<input type="checkbox"/>
	MILCON	<input type="checkbox"/>
	Acq O&M	<input type="checkbox"/>
O&S Cost		<input type="checkbox"/>
Unit Cost	PAUC	<input type="checkbox"/>
	APUC	<input type="checkbox"/>

Nunn-McCurdy Breaches

Current UCR Baseline		
	PAUC	None
	APUC	None
Original UCR Baseline		
	PAUC	None
	APUC	None

Schedule



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	Dec 2019	Sep 2019 (Ch-1)
Full Rate Production Decision	Apr 2019	Apr 2019	Dec 2019	Oct 2019 (Ch-2)
DAB Milestone C	Apr 2019	Apr 2019	Dec 2019	Oct 2019 (Ch-2)
TR-3 CDR	N/A	Jun 2019	Jun 2019	Jun 2019 (Ch-3)
First TR-3 Aircraft Delivery	N/A	Jan 2023	Jan 2023	Jan 2023 (Ch-3)
DCA Certification	N/A	Jan 2023	Jan 2023	Jan 2023 (Ch-3)

Change Explanations

(Ch-1) 1/ IOT&E completion date threshold has been updated from August 2019 to December 2019 based on March 2019 assessment of IOT&E, and DAE direction received during March 2019 APB update.

(Ch-2) 2/ Full Rate Production Decision and Milestone C dates threshold has been updated from October 2019 to December 2019 based on IOT&E completion date, and DAE direction received during March 2019 APB update.

(Ch-3) 3/ Update includes major milestone dates for Block 4 as of March 2019. Threshold dates will be updated in the next APB update prior to Milestone C approval.

Notes

The program has added three Block 4 milestones (TR-3 CDR, First TR-3 Aircraft Delivery, DCA Certification) as reflected in the March 2019 APB update.

Acronyms and Abbreviations

CDR - Critical Design Review

CTOL - Conventional Takeoff and Landing

CV - Aircraft Carrier Suitable Variant

DCA - Dual Capable Aircraft

Flt - Flight

IOT&E - Initial Operational Test and Evaluation

IPR - Interim Progress Review

STOVL - Short Takeoff and Vertical Landing

TR - Technical Refresh

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.	Execute 471 ft. STO with 2 JDAM (internal), 2 AIM-120 (internal), fuel to fly 450nm	Execute 471 ft. STO with 2 JDAM (internal), 2 AIM-120 (internal), fuel to fly 450nm
Combat Radius NM -CTOL Variant				
690	690	590	669	669
Combat Radius NM -STOVL Variant				
550	550	450	505	505
Combat Radius NM -CV Variant				
730	730	600	670	670
Mission Reliability - CTOL Variant				
98%	98%	93%	93%	93%
Mission Reliability - CV Variant				
98%	98%	95%	95%	95%
Mission Reliability - STOVL Variant				
98%	98%	95%	97%	97%
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	Less than or equal to 8 C-17 equivalents	Less than or equal to 8 C-17 equivalents

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	Less than or equal to 44,900 cu ft., 222 ST	Less than or equal to 44,900 cu ft., 222 ST
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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	Less than or equal to 8 C-17 equivalents	Less than or equal to 8 C-17 equivalents
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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	Less than or equal to 18,400 cu ft, 105 ST	Less than or equal to 18,400 cu ft, 105 ST
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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	3.4/3.0/2.0 2.5 ASD	3.4/3.0/2.0 2.5 ASD
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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	3.9/3.0/1.0 1.8 ASD	3.9/3.0/1.0 1.8 ASD
---------------------	---------------------	---------------------	---------------------	---------------------

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	5.5/4.0/2.0 1.1 ASD	5.5/4.0/2.0 1.1 ASD
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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.	Vpa. Maximum approach speed (Vpa) at required carrier landing weight (RCLW) of less than 143 knots.	Vpa. Maximum approach speed (Vpa) at required carrier landing weight (RCLW) of less than 143 knots.
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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

None

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 includes Continuous Capability Development and Delivery (C2D2) Block 4 Funding; 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	
	3350		F-35B Suitability and Deployability	(Sunk)
Navy	1319	05	0604800N	
	Project		Name	
	2261		JT Strike Fighter - EMD	
	3194		RDT&E, Navy EMD/Joint Reprogramming Center	(Sunk)
	3352		F-35C Suitability and Deployability	(Sunk)
Navy	1319	05	0604810M	
	Project		Name	
	2935		Joint Strike Fighter Follow On Mod (FoM) - MC	
Navy	1319	05	0604810N	
	Project		Name	
	2936		Joint Strike Fighter Follow On Mod (FoM) Navy	(Sunk)
Navy	1319	07	0604840M	
	Project		Name	
	3410		F-35B C2D2	
Navy	1319	07	0604840N	
	Project		Name	
	2936		F-35 C2D2, JSF Follow-on-Modernization	
Air Force	3600	07	0207142F	
	Project		Name	
	5346		F-35 Squadrons, F-35	

	5349		F-35 Squadrons, HPSI	
	6011		F-35 Squadrons, Dual Capable Aircraft (DCA)	
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	
	3832		JSF Deployability and Suitability (D&S)	(Sunk)
Air Force	3600	07	0604840F	
	Project		Name	
	5346		F-35A C2D2	
Defense-Wide	0400	03	0603800E	
	Project		Name	
			RDT&E, DARPA	(Sunk)
Defense-Wide	9999	05		
	Project		Name	
			RDT&E, Non-Treasury Funds	

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	(Shared)
Navy	1506	05	0204146N	
	Line Item		Name	
	0593		F-35 CV Series	(Shared)
Navy	1506	06	0204146N	
	Line Item		Name	
	0605		Spares and Repair Parts	(Shared)
Navy	1506	06	0204146M	
	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 (Shared)	
MILCON				
	Appn	BA	PE	
Navy	1205	01	0202176M	
	Project		Name	
	VARIOUS		MILCON, USN (Shared)	
Navy	1205	01	0212176N	
	Project		Name	
	VARIOUS		MILCON, USN (Shared)	
Navy	1205	01	0216496M	
	Project		Name	
	VARIOUS		MILCON, USN (Shared)	
Navy	1205	01	0703676N	
	Project		Name	
	VARIOUS		MILCON, USN (Shared)	
Navy	1205	01	0712876N	
	Project		Name	
	VARIOUS		MILCON, USN (Shared)	
Navy	1205	01	0815976N	
	Project		Name	
	VARIOUS		MILCON, USN (Shared)	
Air Force	3300	01	0207142F	
	Project		Name	
	VARIOUS		MILCON, AF (Shared)	
Air Force	3300	01	0207597F	
	Project		Name	
	VARIOUS		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 includes Continuous Capability Development and Delivery (C2D2) Block 4 funding; 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
	3350		F-35B Suitability and Deployability (Sunk)
Navy	1319	05	0604800N
			Project Name
	2261		RDT&E, Navy EMD/JSF
	3194		RDT&E, Navy EMD/Joint Reprogramming Center (Sunk)
	3352		F-35C Suitability and Deployability (Sunk)
	9999		RDT&E, Navy EMD/Congressional Adds (Sunk)
Navy	1319	05	0604810M
			Project Name
	2935		Joint Strike Fighter Follow On Mod (FoM) - MC
Navy	1319	05	0604810N
			Project Name
	2936		Joint Strike Fighter Follow On Mod (FoM) Navy (Sunk)
Navy	1319	07	0604840M
			Project Name
	3410		F-35B C2D2
Navy	1319	07	0604840N
			Project Name
	2936		F-35 C2D2, JSF Follow-on-Modernization
Air Force	3600	07	0207142F
			Project Name
	5346		F-35A C2D2
	6011		F-35 Squadrons, Dual Capable Aircraft (DCA)
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
	3832		JSF Deployability and Suitability (D&S) (Sunk)
Air Force	3600	07	0604840F
			Project Name

	5346		F-35A C2D2	
Defense-Wide	0400	03	0603800E	
	Project		Name	
			RDT&E, DARPA	(Sunk)
Defense-Wide	9999	05		
	Project		Name	
			RDT&E, Non-Treasury Funds	

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	05	0204146M	
	Line Item		Name	
	0592		F-35 STOVL Series	(Shared)
Navy	1506	05	0204146N	
	Line Item		Name	
	0593		F-35 CV Series	(Shared)
Navy	1506	06	0204146N	
	Line Item		Name	
	0605		Initial Spares (Navy)	(Shared)
Navy	1506	06	0204146M	
	Line Item		Name	
	0605		Initial Spares (Marine Corps)	(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)	(Shared)

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	70501.2	--	70301.7	55233.8	68246.0	67874.9
Procurement	266665.8	271899.2	--	265627.6	335680.7	363058.3	355283.2
Flyaway	--	--	--	234152.9	--	--	316665.7
Recurring	--	--	--	207562.6	--	--	281695.8
Non Recurring	--	--	--	26590.3	--	--	34969.9
Support	--	--	--	31474.7	--	--	38617.5
Other Support	--	--	--	20554.6	--	--	25481.3
Initial Spares	--	--	--	10920.1	--	--	13136.2
MILCON	4168.0	4168.0	--	4525.7	4797.3	4797.3	5224.6
Acq O&M	0.0	0.0	--	0.0	0.0	0.0	0.0
Total	330511.1	346568.4	N/A	340455.0	395711.8	436101.6	428382.7

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	57155.8	62871.4	56768.3	44410.1	55948.7	55406.3
Procurement	224332.9	230886.4	253975.0	225144.5	282647.8	308976.5	301816.4
Flyaway	--	--	--	199155.9	--	--	269876.9
Recurring	--	--	--	175449.5	--	--	238581.5
Non Recurring	--	--	--	23706.4	--	--	31295.4
Support	--	--	--	25988.6	--	--	31939.5
Other Support	--	--	--	18267.8	--	--	22679.7
Initial Spares	--	--	--	7720.8	--	--	9259.8
MILCON	4168.0	4168.0	4584.8	4525.7	4797.3	4797.3	5224.6
Acq O&M	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	276483.0	292210.2	N/A	286438.5	331855.2	369722.5	362447.3

Current APB Cost Estimate Reference

RDT&E = July 2018 Program Office Estimate for Block 4; Procurement = June 2018 Program Office Estimate for Production dated December 20, 2018

Cost Notes

The F-35 Program cost estimate does not have any risk dollars or risk items specifically priced into the estimate.

Total Quantity - F-35 Aircraft			
Quantity	SAR Baseline Development Estimate	Current APB Development	Current Estimate
RDT&E	14	14	14
Procurement	2443	2456	2456
Total	2457	2470	2470

Quantity Notes

The current estimate for F-35 total procurement quantity increase from 2443 to 2456 has not changed from SAR 2017 to SAR 2018.

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	13345.4	14234.7	13533.4	10823.7	12297.3	12468.6
Procurement	42332.9	41012.8	46566.2	40483.1	53032.9	54081.8	53466.8
Flyaway	--	--	--	34997.0	--	--	46788.8
Recurring	--	--	--	32113.1	--	--	43114.3
Non Recurring	--	--	--	2883.9	--	--	3674.5
Support	--	--	--	5486.1	--	--	6678.0
Other Support	--	--	--	2286.8	--	--	2801.6
Initial Spares	--	--	--	3199.3	--	--	3876.4
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	54358.2	N/A	54016.5	63856.6	66379.1	65935.4

Current APB Cost Estimate Reference

RDT&E = July 2018 Program Office Estimate for Block 4; Procurement = June 2018 Program Office Estimate for Production dated December 20, 2018

Cost Notes

The F-35 Program cost estimate does not have any risk dollars or risk items specifically priced into the estimate.

Total Quantity - F-35 Engine			
Quantity	SAR Baseline Development Estimate	Current APB Development	Current Estimate
RDT&E	14	14	14
Procurement	2443	2456	2456
Total	2457	2470	2470

Quantity Notes

The current estimate for F-35 total procurement quantity increase from 2443 to 2456 has not changed from SAR 2017 to SAR 2018.

Cost and Funding

Funding Summary - Total Program

Appropriation Summary									
FY 2020 President's Budget / December 2018 SAR (TY\$ M)									
Appropriation	Prior	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
RDT&E	56930.9	1510.8	2316.3	2266.6	1777.4	1572.2	1500.7	0.0	67874.9
Procurement	78233.4	11169.5	10328.1	10482.3	11417.2	11571.4	11714.5	210366.8	355283.2
MILCON	2415.6	589.7	403.0	447.7	611.1	366.8	390.7	0.0	5224.6
Acq O&M	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PB 2020 Total	137579.9	13270.0	13047.4	13196.6	13805.7	13510.4	13605.9	210366.8	428382.7
PB 2019 Total	133008.5	10075.0	10568.3	12110.9	12011.6	12739.1	13873.5	201744.1	406131.0
Delta	4571.4	3195.0	2479.1	1085.7	1794.1	771.3	-267.6	8622.7	22251.7

Cost and Funding

Funding Summary - F-35 Aircraft

Appropriation Summary									
FY 2020 President's Budget / December 2018 SAR (TY\$ M)									
Appropriation	Prior	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
RDT&E	45007.7	1362.0	2218.9	2170.6	1705.3	1507.8	1434.0	0.0	55406.3
Procurement	66310.0	9180.9	8688.7	8723.6	9506.7	9570.7	9646.8	180189.0	301816.4
MILCON	2415.6	589.7	403.0	447.7	611.1	366.8	390.7	0.0	5224.6
Acq O&M	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PB 2020 Total	113733.3	11132.6	11310.6	11341.9	11823.1	11445.3	11471.5	180189.0	362447.3
PB 2019 Total	109516.6	8438.2	8809.3	10090.5	9987.0	10603.4	11481.9	172565.4	341492.3
Delta	4216.7	2694.4	2501.3	1251.4	1836.1	841.9	-10.4	7623.6	20955.0

Quantity Summary										
FY 2020 President's Budget / December 2018 SAR (TY\$ M)										
Quantity	Undistributed	Prior	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Development	14	0	0	0	0	0	0	0	0	14
Production	0	449	93	78	81	94	95	94	1472	2456
PB 2020 Total	14	449	93	78	81	94	95	94	1472	2470
PB 2019 Total	14	429	77	84	98	98	99	105	1466	2470
Delta	0	20	16	-6	-17	-4	-4	-11	6	0

Funding Summary - F-35 Engine

Appropriation Summary									
FY 2020 President's Budget / December 2018 SAR (TY\$ M)									
Appropriation	Prior	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
RDT&E	11923.2	148.8	97.4	96.0	72.1	64.4	66.7	0.0	12468.6
Procurement	11923.4	1988.6	1639.4	1758.7	1910.5	2000.7	2067.7	30177.8	53466.8
MILCON	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Acq O&M	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PB 2020 Total	23846.6	2137.4	1736.8	1854.7	1982.6	2065.1	2134.4	30177.8	65935.4
PB 2019 Total	23491.9	1636.8	1759.0	2020.4	2024.6	2135.7	2391.6	29178.7	64638.7
Delta	354.7	500.6	-22.2	-165.7	-42.0	-70.6	-257.2	999.1	1296.7

Quantity Summary										
FY 2020 President's Budget / December 2018 SAR (TY\$ M)										
Quantity	Undistributed	Prior	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Development	14	0	0	0	0	0	0	0	0	14
Production	0	449	93	78	81	94	95	94	1472	2456
PB 2020 Total	14	449	93	78	81	94	95	94	1472	2470
PB 2019 Total	14	429	77	84	98	98	99	105	1466	2470
Delta	0	20	16	-6	-17	-4	-4	-11	6	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							
Fiscal Year	Quantity	TY \$M					
		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							
Fiscal Year	Quantity	BY 2012 \$M					
		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							
Fiscal Year	Quantity	TY \$M					
		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	--	--	--	--	--	--	1271.2
2013	--	--	--	--	--	--	986.2
2014	--	--	--	--	--	--	567.5
2015	--	--	--	--	--	--	545.2
2016	--	--	--	--	--	--	593.1
2017	--	--	--	--	--	--	461.5
2018	--	--	--	--	--	--	592.0
2019	--	--	--	--	--	--	523.3
2020	--	--	--	--	--	--	761.9
2021	--	--	--	--	--	--	878.2
2022	--	--	--	--	--	--	589.3
2023	--	--	--	--	--	--	463.5
2024	--	--	--	--	--	--	510.7
Subtotal	5	--	--	--	--	--	22990.0

Annual Funding - F-35 Aircraft							
3600 RDT&E Research, Development, Test, and Evaluation, Air Force							
Fiscal Year	Quantity	BY 2012 \$M					
		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	--	--	--	--	--	--	1248.9
2013	--	--	--	--	--	--	958.8
2014	--	--	--	--	--	--	543.9
2015	--	--	--	--	--	--	516.2
2016	--	--	--	--	--	--	551.6
2017	--	--	--	--	--	--	421.5
2018	--	--	--	--	--	--	529.8
2019	--	--	--	--	--	--	459.1
2020	--	--	--	--	--	--	655.3
2021	--	--	--	--	--	--	740.6
2022	--	--	--	--	--	--	487.2
2023	--	--	--	--	--	--	375.7
2024	--	--	--	--	--	--	405.8
Subtotal	5	--	--	--	--	--	23709.7

SAR 18 includes Concept Demonstration Phase (CDP), System Development and Demonstration (SDD), Deployability and Suitability (D&S), Continuous Capability Development and Delivery (C2D2) (Block 4, USAF Unique), Dual Capable Aircraft (DCA).

Annual Funding - F-35 Aircraft							
1319 RDT&E Research, Development, Test, and Evaluation, Navy							
Fiscal Year	Quantity	TY \$M					
		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	--	--	--	--	--	--	370.8
2003	--	--	--	--	--	--	1090.1
2004	--	--	--	--	--	--	1548.2
2005	--	--	--	--	--	--	1511.3
2006	--	--	--	--	--	--	1657.3
2007	--	--	--	--	--	--	1470.7
2008	--	--	--	--	--	--	1285.0
2009	--	--	--	--	--	--	1271.2
2010	--	--	--	--	--	--	1440.5
2011	--	--	--	--	--	--	987.9
2012	--	--	--	--	--	--	960.1
2013	--	--	--	--	--	--	1082.0
2014	--	--	--	--	--	--	719.3
2015	--	--	--	--	--	--	827.5
2016	--	--	--	--	--	--	956.2
2017	--	--	--	--	--	--	1039.6
2018	--	--	--	--	--	--	528.8
2019	--	--	--	--	--	--	507.5
2020	--	--	--	--	--	--	769.3
2021	--	--	--	--	--	--	689.4
2022	--	--	--	--	--	--	548.6
2023	--	--	--	--	--	--	510.2
2024	--	--	--	--	--	--	491.0
Subtotal	9	--	--	--	--	--	23830.4

Annual Funding - F-35 Aircraft							
1319 RDT&E Research, Development, Test, and Evaluation, Navy							
Fiscal Year	Quantity	BY 2012 \$M					
		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	--	--	--	--	--	--	448.8
2003	--	--	--	--	--	--	1300.4
2004	--	--	--	--	--	--	1796.8
2005	--	--	--	--	--	--	1709.0
2006	--	--	--	--	--	--	1817.4
2007	--	--	--	--	--	--	1574.3
2008	--	--	--	--	--	--	1350.8
2009	--	--	--	--	--	--	1319.4
2010	--	--	--	--	--	--	1473.0
2011	--	--	--	--	--	--	986.6
2012	--	--	--	--	--	--	943.2
2013	--	--	--	--	--	--	1051.9
2014	--	--	--	--	--	--	689.4
2015	--	--	--	--	--	--	783.4
2016	--	--	--	--	--	--	889.3
2017	--	--	--	--	--	--	949.5
2018	--	--	--	--	--	--	473.2
2019	--	--	--	--	--	--	445.2
2020	--	--	--	--	--	--	661.7
2021	--	--	--	--	--	--	581.4
2022	--	--	--	--	--	--	453.5
2023	--	--	--	--	--	--	413.5
2024	--	--	--	--	--	--	390.2
Subtotal	9	--	--	--	--	--	24480.6

SAR-18 includes CDP, SDD, D&S, C2D2 (Block 4)

Annual Funding - F-35 Aircraft 9999 RDT&E Non Treasury Funds							
Fiscal Year	Quantity	TY \$M					
		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	--	--	--	--	--	--	27.7
2001	--	--	--	--	--	--	7.0
2002	--	--	--	--	--	--	258.0
2003	--	--	--	--	--	--	299.0
2004	--	--	--	--	--	--	494.9
2005	--	--	--	--	--	--	733.3
2006	--	--	--	--	--	--	813.4
2007	--	--	--	--	--	--	680.3
2008	--	--	--	--	--	--	607.3
2009	--	--	--	--	--	--	267.5
2010	--	--	--	--	--	--	141.2
2011	--	--	--	--	--	--	176.9
2012	--	--	--	--	--	--	104.9
2013	--	--	--	--	--	--	169.2
2014	--	--	--	--	--	--	12.9
2015	--	--	--	--	--	--	46.0
2016	--	--	--	--	--	--	83.6
2017	--	--	--	--	--	--	84.6
2018	--	--	--	--	--	--	128.1
2019	--	--	--	--	--	--	331.2
2020	--	--	--	--	--	--	687.7
2021	--	--	--	--	--	--	603.0
2022	--	--	--	--	--	--	567.4
2023	--	--	--	--	--	--	534.1
2024	--	--	--	--	--	--	432.3
Subtotal	--	--	--	--	--	--	8491.0

Annual Funding - F-35 Aircraft 9999 RDT&E Non Treasury Funds							
Fiscal Year	Quantity	BY 2012 \$M					
		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	--	--	--	--	--	--	34.3
2001	--	--	--	--	--	--	8.6
2002	--	--	--	--	--	--	312.3
2003	--	--	--	--	--	--	356.7
2004	--	--	--	--	--	--	574.4
2005	--	--	--	--	--	--	829.2
2006	--	--	--	--	--	--	892.0
2007	--	--	--	--	--	--	728.2
2008	--	--	--	--	--	--	638.4
2009	--	--	--	--	--	--	277.6
2010	--	--	--	--	--	--	144.4
2011	--	--	--	--	--	--	176.7
2012	--	--	--	--	--	--	103.1
2013	--	--	--	--	--	--	164.5
2014	--	--	--	--	--	--	12.4
2015	--	--	--	--	--	--	43.5
2016	--	--	--	--	--	--	77.8
2017	--	--	--	--	--	--	77.3
2018	--	--	--	--	--	--	114.6
2019	--	--	--	--	--	--	290.6
2020	--	--	--	--	--	--	591.5
2021	--	--	--	--	--	--	508.5
2022	--	--	--	--	--	--	469.1
2023	--	--	--	--	--	--	432.9
2024	--	--	--	--	--	--	343.5
Subtotal	--	--	--	--	--	--	8456.2

Annual Funding - F-35 Aircraft 3010 Procurement Aircraft Procurement, Air Force							
Fiscal Year	Quantity	TY \$M					
		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	--	586.7	2621.3	433.0	3054.3
2015	28	2715.8	--	542.0	3257.8	623.0	3880.8
2016	47	4076.0	--	503.5	4579.5	624.2	5203.7
2017	48	3799.3	--	213.8	4013.1	606.9	4620.0
2018	56	4457.0	--	746.8	5203.8	774.6	5978.4
2019	56	3772.9	--	544.8	4317.7	629.6	4947.3
2020	48	3442.0	--	674.9	4116.9	716.6	4833.5
2021	48	3532.8	--	475.7	4008.5	879.9	4888.4
2022	48	3294.4	--	548.8	3843.2	697.4	4540.6
2023	48	3827.1	--	132.1	3959.2	695.8	4655.0
2024	48	3672.1	--	116.1	3788.2	743.0	4531.2
2025	60	4358.8	--	806.3	5165.1	817.8	5982.9
2026	60	4403.5	--	769.6	5173.1	441.3	5614.4
2027	60	4831.1	--	820.9	5652.0	436.4	6088.4
2028	60	5624.8	--	823.8	6448.6	543.1	6991.7
2029	60	5372.2	--	798.8	6171.0	389.1	6560.1
2030	60	4906.1	--	886.2	5792.3	459.7	6252.0
2031	60	5249.8	--	659.9	5909.7	378.5	6288.2
2032	60	6063.1	--	759.3	6822.4	579.2	7401.6
2033	60	7018.7	--	742.5	7761.2	339.9	8101.1
2034	60	6658.2	--	614.8	7273.0	499.0	7772.0
2035	60	6056.4	--	621.8	6678.2	520.7	7198.9
2036	60	6169.0	--	631.3	6800.3	394.6	7194.9
2037	60	6753.1	--	684.2	7437.3	473.0	7910.3
2038	60	7648.3	--	698.0	8346.3	421.1	8767.4
2039	60	7265.9	--	711.8	7977.7	587.4	8565.1
2040	60	6630.6	--	718.9	7349.5	212.0	7561.5
2041	60	6761.3	--	728.1	7489.4	53.1	7542.5
2042	60	7410.8	--	738.4	8149.2	46.6	8195.8
2043	60	7516.0	--	668.6	8184.6	52.0	8236.6
2044	45	6273.5	--	538.8	6812.3	52.7	6865.0
Subtotal	1763	172462.1	--	21415.0	193877.1	17778.8	211655.9

Annual Funding - F-35 Aircraft 3010 Procurement Aircraft Procurement, Air Force							
Fiscal Year	Quantity	BY 2012 \$M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
2006	--	116.3	--	--	116.3	--	116.3
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	--	560.9	3272.6	669.8	3942.4
2012	18	1983.6	--	365.0	2348.6	751.2	3099.8
2013	19	1994.2	--	73.6	2067.8	508.5	2576.3
2014	19	1930.5	--	556.7	2487.2	410.9	2898.1
2015	28	2538.6	--	506.7	3045.3	582.3	3627.6
2016	47	3732.7	--	461.1	4193.8	571.6	4765.4
2017	48	3410.4	--	191.9	3602.3	544.8	4147.1
2018	56	3921.3	--	657.0	4578.3	681.5	5259.8
2019	56	3254.3	--	469.9	3724.2	543.1	4267.3
2020	48	2910.7	--	570.7	3481.4	606.0	4087.4
2021	48	2928.9	--	394.4	3323.3	729.4	4052.7
2022	48	2677.7	--	446.1	3123.8	566.8	3690.6
2023	48	3049.7	--	105.3	3155.0	554.4	3709.4
2024	48	2868.8	--	90.7	2959.5	580.4	3539.9
2025	60	3338.5	--	617.6	3956.1	626.3	4582.4
2026	60	3306.6	--	578.0	3884.6	331.3	4215.9
2027	60	3556.5	--	604.4	4160.9	321.2	4482.1
2028	60	4059.7	--	594.5	4654.2	392.0	5046.2
2029	60	3801.3	--	565.3	4366.6	275.3	4641.9
2030	60	3403.4	--	614.8	4018.2	318.9	4337.1
2031	60	3570.5	--	448.8	4019.3	257.4	4276.7
2032	60	4042.7	--	506.3	4549.0	386.2	4935.2
2033	60	4588.1	--	485.4	5073.5	222.2	5295.7
2034	60	4267.1	--	394.1	4661.2	319.8	4981.0
2035	60	3805.4	--	390.7	4196.1	327.1	4523.2
2036	60	3800.1	--	388.9	4189.0	243.1	4432.1
2037	60	4078.3	--	413.3	4491.6	285.6	4777.2
2038	60	4528.4	--	413.2	4941.6	249.4	5191.0
2039	60	4217.6	--	413.3	4630.9	340.9	4971.8
2040	60	3773.4	--	409.2	4182.6	120.6	4303.2
2041	60	3772.3	--	406.3	4178.6	29.6	4208.2
2042	60	4053.6	--	403.9	4457.5	25.5	4483.0
2043	60	4030.6	--	358.5	4389.1	27.9	4417.0
2044	45	3298.3	--	283.3	3581.6	27.7	3609.3
Subtotal	1763	121311.7	--	15646.8	136958.5	14121.3	151079.8

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	1983.6
2013	19	1994.2
2014	19	1930.5
2015	28	2538.6
2016	47	3732.7
2017	48	3410.4
2018	56	3921.3
2019	56	3254.3
2020	48	2910.7
2021	48	2928.9
2022	48	2677.7
2023	48	3049.7
2024	48	2868.8
2025	60	3338.5
2026	60	3306.6
2027	60	3556.5
2028	60	4059.7
2029	60	3801.3
2030	60	3403.4
2031	60	3570.5
2032	60	4042.7
2033	60	4588.1
2034	60	4267.1
2035	60	3805.4
2036	60	3800.1
2037	60	4078.3
2038	60	4528.4
2039	60	4217.6
2040	60	3773.4
2041	60	3772.3
2042	60	4053.6
2043	60	4030.6
2044	45	3414.6

Subtotal	1763	121311.7
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Annual Funding - F-35 Aircraft 1506 Procurement Aircraft Procurement, Navy							
Fiscal Year	Quantity	TY \$M					
		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	--	375.6	1581.1	642.3	2223.4
2015	10	1115.0	--	636.3	1751.3	410.1	2161.4
2016	21	2130.3	--	573.1	2703.4	644.9	3348.3
2017	26	2502.2	--	264.8	2767.0	623.9	3390.9
2018	34	3264.7	--	421.5	3686.2	822.4	4508.6
2019	37	3045.1	--	440.8	3485.9	747.7	4233.6
2020	30	2681.0	--	320.9	3001.9	853.3	3855.2
2021	33	3051.0	--	167.6	3218.6	616.6	3835.2
2022	46	3973.5	--	354.3	4327.8	638.3	4966.1
2023	47	4060.0	--	273.1	4333.1	582.6	4915.7
2024	46	4113.6	--	327.2	4440.8	674.8	5115.6
2025	45	3773.7	--	519.4	4293.1	578.8	4871.9
2026	45	3772.1	--	524.1	4296.2	454.0	4750.2
2027	45	4118.1	--	565.2	4683.3	466.3	5149.6
2028	45	4496.2	--	583.9	5080.1	497.2	5577.3
2029	45	4434.8	--	564.2	4999.0	391.3	5390.3
2030	45	4007.5	--	1086.6	5094.1	1004.4	6098.5
2031	17	1532.0	--	730.5	2262.5	998.3	3260.8
Subtotal	693	66119.4	--	9880.4	75999.8	14160.7	90160.5

Annual Funding - F-35 Aircraft 1506 Procurement Aircraft Procurement, Navy							
Fiscal Year	Quantity	BY 2012 \$M					
		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	1435.8	--	320.8	1756.6	725.6	2482.2
2013	10	1064.4	--	42.4	1106.8	535.7	1642.5
2014	10	1143.8	--	356.4	1500.2	609.5	2109.7
2015	10	1042.2	--	594.8	1637.0	383.4	2020.4
2016	21	1950.9	--	524.8	2475.7	590.6	3066.3
2017	26	2246.1	--	237.7	2483.8	560.0	3043.8
2018	34	2872.3	--	370.8	3243.1	723.6	3966.7
2019	37	2626.5	--	380.2	3006.7	645.0	3651.7
2020	30	2267.1	--	271.4	2538.5	721.6	3260.1
2021	33	2529.4	--	138.9	2668.3	511.3	3179.6
2022	46	3229.7	--	288.0	3517.7	518.7	4036.4
2023	47	3235.3	--	217.6	3452.9	464.2	3917.1
2024	46	3213.7	--	255.6	3469.3	527.2	3996.5
2025	45	2890.3	--	397.9	3288.2	443.3	3731.5
2026	45	2832.5	--	393.5	3226.0	340.9	3566.9
2027	45	3031.6	--	416.1	3447.7	343.3	3791.0
2028	45	3245.1	--	421.4	3666.5	358.9	4025.4
2029	45	3138.0	--	399.3	3537.3	276.8	3814.1
2030	45	2780.1	--	753.8	3533.9	696.7	4230.6
2031	17	1041.9	--	496.8	1538.7	679.0	2217.7
Subtotal	693	54137.8	--	8059.6	62197.4	11867.3	74064.7

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	1435.8
2013	10	1064.4
2014	10	1143.8
2015	10	1042.2
2016	21	1950.9
2017	26	2246.1
2018	34	2872.3
2019	37	2626.5
2020	30	2267.1
2021	33	2529.4
2022	46	3229.7
2023	47	3235.3
2024	46	3213.7
2025	45	2890.3
2026	45	2832.5
2027	45	3031.6
2028	45	3245.1
2029	45	3138.0
2030	45	2780.1
2031	17	1144.2
Subtotal	693	54137.8

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	1.2	
2015	118.4	
2016	64.7	
2017	66.7	
2018	15.7	
2019	274.6	
2020	346.4	
2021	178.0	
2022	357.3	
2023	288.5	
2024	109.7	
Subtotal	2525.7	

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		165.8
2013		90.1
2014		1.1
2015		107.9
2016		57.8
2017		58.4
2018		13.5
2019		231.2
2020		286.0
2021		144.1
2022		283.5
2023		224.4
2024		83.7
Subtotal		2179.7

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		201.3
2017		336.3
2018		253.6
2019		315.1
2020		56.6
2021		269.7
2022		253.8
2023		78.3
2024		281.0
Subtotal		2698.9

Annual Funding - F-35 Aircraft 3300 MILCON Military Construction, Air Force		
Fiscal Year	BY 2012 \$M	
	Total Program	
2004		1.9
2005		11.0
2006		--
2007		--
2008		104.1
2009		118.8
2010		125.0
2011		136.4
2012		23.4
2013		12.8
2014		52.4
2015		60.8
2016		179.9
2017		294.7
2018		217.8
2019		265.4
2020		46.7
2021		218.3
2022		201.4
2023		60.9
2024		214.3
Subtotal		2346.0

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							
Fiscal Year	Quantity	TY \$M					
		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	--	--	--	--	--	--	53.7
2016	--	--	--	--	--	--	36.7
2017	--	--	--	--	--	--	46.3
2018	--	--	--	--	--	--	15.4
2019	--	--	--	--	--	--	49.6
2020	--	--	--	--	--	--	40.1
2021	--	--	--	--	--	--	46.2
2022	--	--	--	--	--	--	31.0
2023	--	--	--	--	--	--	24.4
2024	--	--	--	--	--	--	26.9
Subtotal	5	--	--	--	--	--	5752.7

Annual Funding - F-35 Engine							
3600 RDT&E Research, Development, Test, and Evaluation, Air Force							
Fiscal Year	Quantity	BY 2012 \$M					
		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	--	--	--	--	--	--	50.8
2016	--	--	--	--	--	--	34.1
2017	--	--	--	--	--	--	42.3
2018	--	--	--	--	--	--	13.8
2019	--	--	--	--	--	--	43.5
2020	--	--	--	--	--	--	34.5
2021	--	--	--	--	--	--	39.0
2022	--	--	--	--	--	--	25.6
2023	--	--	--	--	--	--	19.8
2024	--	--	--	--	--	--	21.4
Subtotal	5	--	--	--	--	--	6259.4

Includes CDP, SDD, D&S, C2D2 (Block 4 and USAF Unique) and DCA.

Annual Funding - F-35 Engine 1319 RDT&E Research, Development, Test, and Evaluation, Navy							
Fiscal Year	Quantity	TY \$M					
		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	--	--	--	--	--	--	572.5
2006	--	--	--	--	--	--	528.1
2007	--	--	--	--	--	--	639.1
2008	--	--	--	--	--	--	563.9
2009	--	--	--	--	--	--	433.1
2010	--	--	--	--	--	--	445.7
2011	--	--	--	--	--	--	252.9
2012	--	--	--	--	--	--	187.2
2013	--	--	--	--	--	--	199.2
2014	--	--	--	--	--	--	116.1
2015	--	--	--	--	--	--	172.9
2016	--	--	--	--	--	--	100.6
2017	--	--	--	--	--	--	48.7
2018	--	--	--	--	--	--	11.6
2019	--	--	--	--	--	--	69.2
2020	--	--	--	--	--	--	40.5
2021	--	--	--	--	--	--	36.3
2022	--	--	--	--	--	--	28.9
2023	--	--	--	--	--	--	26.9
2024	--	--	--	--	--	--	25.8
Subtotal	9	--	--	--	--	--	6316.0

Annual Funding - F-35 Engine 1319 RDT&E Research, Development, Test, and Evaluation, Navy							
Fiscal Year	Quantity	BY 2012 \$M					
		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	--	--	--	--	--	--	647.4
2006	--	--	--	--	--	--	579.1
2007	--	--	--	--	--	--	684.1
2008	--	--	--	--	--	--	592.8
2009	--	--	--	--	--	--	449.5
2010	--	--	--	--	--	--	455.8
2011	--	--	--	--	--	--	252.6
2012	--	--	--	--	--	--	183.9
2013	--	--	--	--	--	--	193.7
2014	--	--	--	--	--	--	111.3
2015	--	--	--	--	--	--	163.7
2016	--	--	--	--	--	--	93.6
2017	--	--	--	--	--	--	44.5
2018	--	--	--	--	--	--	10.4
2019	--	--	--	--	--	--	60.7
2020	--	--	--	--	--	--	34.8
2021	--	--	--	--	--	--	30.6
2022	--	--	--	--	--	--	23.9
2023	--	--	--	--	--	--	21.8
2024	--	--	--	--	--	--	20.5
Subtotal	9	--	--	--	--	--	6837.3

Includes CDP, SDD, D&S, C2D2 (Block 4)

Annual Funding - F-35 Engine							
0400 RDT&E Research, Development, Test, and Evaluation, Defense-Wide							
Fiscal Year	Quantity	TY \$M					
		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							
Fiscal Year	Quantity	BY 2012 \$M					
		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								
Fiscal Year	Quantity	TY \$M						
		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	--	--	--	--	--	--	--	55.7
2003	--	--	--	--	--	--	--	79.8
2004	--	--	--	--	--	--	--	44.8
2005	--	--	--	--	--	--	--	0.2
2006	--	--	--	--	--	--	--	--
2007	--	--	--	--	--	--	--	75.0
2008	--	--	--	--	--	--	--	0.5
2009	--	--	--	--	--	--	--	--
2010	--	--	--	--	--	--	--	--
2011	--	--	--	--	--	--	--	0.7
2012	--	--	--	--	--	--	--	0.2
2013	--	--	--	--	--	--	--	0.6
2014	--	--	--	--	--	--	--	--
2015	--	--	--	--	--	--	--	--
2016	--	--	--	--	--	--	--	--
2017	--	--	--	--	--	--	--	--
2018	--	--	--	--	--	--	--	--
2019	--	--	--	--	--	--	--	30.0
2020	--	--	--	--	--	--	--	16.8
2021	--	--	--	--	--	--	--	13.5
2022	--	--	--	--	--	--	--	12.2
2023	--	--	--	--	--	--	--	13.1
2024	--	--	--	--	--	--	--	14.0
Subtotal	--	--	--	--	--	--	--	376.8

Annual Funding - F-35 Engine 9999 RDT&E Non Treasury Funds							
Fiscal Year	Quantity	BY 2012 \$M					
		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	--	--	--	--	--	--	67.4
2003	--	--	--	--	--	--	95.2
2004	--	--	--	--	--	--	52.0
2005	--	--	--	--	--	--	0.2
2006	--	--	--	--	--	--	--
2007	--	--	--	--	--	--	80.3
2008	--	--	--	--	--	--	0.5
2009	--	--	--	--	--	--	--
2010	--	--	--	--	--	--	--
2011	--	--	--	--	--	--	0.7
2012	--	--	--	--	--	--	0.2
2013	--	--	--	--	--	--	0.6
2014	--	--	--	--	--	--	--
2015	--	--	--	--	--	--	--
2016	--	--	--	--	--	--	--
2017	--	--	--	--	--	--	--
2018	--	--	--	--	--	--	--
2019	--	--	--	--	--	--	26.3
2020	--	--	--	--	--	--	14.5
2021	--	--	--	--	--	--	11.4
2022	--	--	--	--	--	--	10.1
2023	--	--	--	--	--	--	10.6
2024	--	--	--	--	--	--	11.1
Subtotal	--	--	--	--	--	--	406.1

Annual Funding - F-35 Engine 3010 Procurement Aircraft Procurement, Air Force							
Fiscal Year	Quantity	TY \$M					
		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	118.2	520.4
2016	47	606.1	--	23.2	629.3	126.7	756.0
2017	48	641.5	--	1.1	642.6	298.3	940.9
2018	56	711.9	--	56.2	768.1	179.7	947.8
2019	56	714.8	--	41.0	755.8	153.9	909.7
2020	48	618.0	--	49.7	667.7	173.2	840.9
2021	48	635.9	--	35.8	671.7	174.2	845.9
2022	48	606.2	--	41.3	647.5	155.3	802.8
2023	48	710.3	--	9.9	720.2	155.8	876.0
2024	48	698.2	--	8.7	706.9	177.6	884.5
2025	60	777.6	--	60.7	838.3	183.1	1021.4
2026	60	785.1	--	57.9	843.0	86.9	929.9
2027	60	854.8	--	61.8	916.6	82.4	999.0
2028	60	978.0	--	62.0	1040.0	102.4	1142.4
2029	60	924.1	--	60.1	984.2	79.7	1063.9
2030	60	839.2	--	66.7	905.9	95.4	1001.3
2031	60	867.8	--	49.7	917.5	75.9	993.4
2032	60	957.0	--	57.1	1014.1	111.2	1125.3
2033	60	1082.7	--	55.9	1138.6	73.1	1211.7
2034	60	1027.1	--	46.3	1073.4	102.0	1175.4
2035	60	936.4	--	46.8	983.2	99.3	1082.5
2036	60	953.7	--	47.5	1001.2	88.3	1089.5
2037	60	1043.2	--	51.5	1094.7	93.6	1188.3
2038	60	1179.8	--	52.6	1232.4	90.4	1322.8
2039	60	1120.6	--	53.6	1174.2	112.0	1286.2
2040	60	1022.4	--	54.1	1076.5	54.8	1131.3
2041	60	1042.8	--	54.8	1097.6	5.9	1103.5
2042	60	1142.7	--	55.6	1198.3	5.2	1203.5
2043	60	1149.0	--	50.3	1199.3	5.8	1205.1
2044	45	806.9	--	40.6	847.5	5.9	853.4
Subtotal	1763	27478.2	--	1746.8	29225.0	3813.9	33038.9

Annual Funding - F-35 Engine 3010 Procurement Aircraft Procurement, Air Force							
Fiscal Year	Quantity	BY 2012 \$M					
		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	134.6	573.0
2012	18	267.5	--	63.8	331.3	119.5	450.8
2013	19	252.3	--	11.4	263.7	86.2	349.9
2014	19	267.7	--	29.5	297.2	45.1	342.3
2015	28	361.5	--	14.5	376.0	110.4	486.4
2016	47	555.1	--	21.2	576.3	116.0	692.3
2017	48	575.8	--	1.0	576.8	267.8	844.6
2018	56	626.3	--	49.4	675.7	158.2	833.9
2019	56	616.5	--	35.4	651.9	132.8	784.7
2020	48	522.6	--	42.0	564.6	146.5	711.1
2021	48	527.2	--	29.7	556.9	144.4	701.3
2022	48	492.7	--	33.6	526.3	126.2	652.5
2023	48	566.0	--	7.9	573.9	124.1	698.0
2024	48	545.5	--	6.8	552.3	138.7	691.0
2025	60	595.6	--	46.5	642.1	140.2	782.3
2026	60	589.5	--	43.5	633.0	65.3	698.3
2027	60	629.3	--	45.4	674.7	60.7	735.4
2028	60	705.9	--	44.7	750.6	73.9	824.5
2029	60	653.9	--	42.5	696.4	56.4	752.8
2030	60	582.2	--	46.2	628.4	66.2	694.6
2031	60	590.2	--	33.8	624.0	51.6	675.6
2032	60	638.1	--	38.1	676.2	74.1	750.3
2033	60	707.8	--	36.5	744.3	47.8	792.1
2034	60	658.3	--	29.7	688.0	65.3	753.3
2035	60	588.4	--	29.4	617.8	62.4	680.2
2036	60	587.5	--	29.3	616.8	54.3	671.1
2037	60	630.0	--	31.1	661.1	56.5	717.6
2038	60	698.5	--	31.1	729.6	53.6	783.2
2039	60	650.5	--	31.1	681.6	65.0	746.6
2040	60	581.8	--	30.8	612.6	31.2	643.8
2041	60	581.8	--	30.6	612.4	3.3	615.7
2042	60	625.0	--	30.5	655.5	2.8	658.3
2043	60	616.2	--	27.0	643.2	3.1	646.3
2044	45	424.2	--	21.4	445.6	3.1	448.7
Subtotal	1763	19356.8	--	1318.0	20674.8	3042.3	23717.1

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	252.3
2014	19	267.7
2015	28	361.5
2016	47	555.1
2017	48	575.8
2018	56	626.3
2019	56	616.5
2020	48	522.6
2021	48	527.2
2022	48	492.7
2023	48	566.0
2024	48	545.5
2025	60	595.6
2026	60	589.5
2027	60	629.3
2028	60	705.9
2029	60	653.9
2030	60	582.2
2031	60	590.2
2032	60	638.1
2033	60	707.8
2034	60	658.3
2035	60	588.4
2036	60	587.5
2037	60	630.0
2038	60	698.5
2039	60	650.5
2040	60	581.8
2041	60	581.8
2042	60	625.0
2043	60	616.2
2044	45	434.8

Subtotal	1763	19356.8
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Annual Funding - F-35 Engine 1506 Procurement Aircraft Procurement, Navy							
Fiscal Year	Quantity	TY \$M					
		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	--	38.0	297.5	68.0	365.5
2016	21	362.7	--	22.3	385.0	109.9	494.9
2017	26	648.5	--	19.8	668.3	233.5	901.8
2018	34	799.5	--	86.3	885.8	216.3	1102.1
2019	37	815.7	--	90.3	906.0	172.9	1078.9
2020	30	555.3	--	75.6	630.9	167.6	798.5
2021	33	715.6	--	40.8	756.4	156.4	912.8
2022	46	875.1	--	86.2	961.3	146.4	1107.7
2023	47	948.2	--	66.4	1014.6	110.1	1124.7
2024	46	991.3	--	79.6	1070.9	112.3	1183.2
2025	45	933.5	--	117.4	1050.9	101.2	1152.1
2026	45	940.9	--	122.9	1063.8	75.9	1139.7
2027	45	1026.6	--	97.0	1123.6	96.6	1220.2
2028	45	1102.1	--	92.0	1194.1	89.2	1283.3
2029	45	1071.0	--	96.0	1167.0	56.9	1223.9
2030	45	964.2	--	220.1	1184.3	132.3	1316.6
2031	17	400.0	--	184.5	584.5	127.7	712.2
Subtotal	693	15636.1	--	1927.7	17563.8	2864.1	20427.9

Annual Funding - F-35 Engine 1506 Procurement Aircraft Procurement, Navy							
Fiscal Year	Quantity	BY 2012 \$M					
		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	394.7	--	110.9	505.6	120.6	626.2
2012	13	186.0	--	56.0	242.0	60.3	302.3
2013	10	227.7	--	25.6	253.3	163.2	416.5
2014	10	215.5	--	20.5	236.0	135.1	371.1
2015	10	242.6	--	35.5	278.1	63.6	341.7
2016	21	332.2	--	20.4	352.6	100.6	453.2
2017	26	582.1	--	17.8	599.9	209.6	809.5
2018	34	703.4	--	75.9	779.3	190.3	969.6
2019	37	703.6	--	77.9	781.5	149.1	930.6
2020	30	469.6	--	63.9	533.5	141.7	675.2
2021	33	593.3	--	33.8	627.1	129.7	756.8
2022	46	711.3	--	70.1	781.4	118.9	900.3
2023	47	755.6	--	52.9	808.5	87.7	896.2
2024	46	774.4	--	62.2	836.6	87.8	924.4
2025	45	715.0	--	89.9	804.9	77.5	882.4
2026	45	706.5	--	92.3	798.8	57.0	855.8
2027	45	755.8	--	71.4	827.2	71.1	898.3
2028	45	795.4	--	66.4	861.8	64.4	926.2
2029	45	757.8	--	67.9	825.7	40.3	866.0
2030	45	668.9	--	152.6	821.5	91.8	913.3
2031	17	272.0	--	125.6	397.6	86.8	484.4
Subtotal	693	12756.3	--	1565.9	14322.2	2443.8	16766.0

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	394.7
2012	13	186.0
2013	10	227.7
2014	10	215.5
2015	10	242.6
2016	21	332.2
2017	26	582.1
2018	34	703.4
2019	37	703.6
2020	30	469.6
2021	33	593.3
2022	46	711.3
2023	47	755.6
2024	46	774.4
2025	45	715.0
2026	45	706.5
2027	45	755.8
2028	45	795.4
2029	45	757.8
2030	45	668.9
2031	17	300.9
Subtotal	693	12756.3

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
Belgium	10/27/2018	34	5100.0	All 34 aircraft will be the F-35A.
Japan	9/14/2015	28	5277.7	Japan signed Amendment # 5 on October 19, 2017. This amendment added 6 F-35A's, Japan has option to purchase 14 additional F-35A aircraft.
Israel	2/15/2015	50	7800.3	Israel signed Letter of Offer and Acceptance Amendment on August 25, 2017 to exercise their option to purchase an additional 17 F-35A aircraft, bringing planned fleet total to 50 F-35A aircraft.
Korea	9/14/2014	40	6277.0	All 40 aircraft will be the F-35A aircraft.

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

Current UCR Baseline and Current Estimate (Base-Year Dollars)			
Item	BY 2012 \$M	BY 2012 \$M	% Change
	Current UCR Baseline (Mar 2019 APB)	Current Estimate (Dec 2018 SAR)	
Program Acquisition Unit Cost			
Cost	292210.2	286438.5	
Quantity	2470	2470	
Unit Cost	118.304	115.967	-1.98
Average Procurement Unit Cost			
Cost	230886.4	225144.5	
Quantity	2456	2456	
Unit Cost	94.009	91.671	-2.49

Original UCR Baseline and Current Estimate (Base-Year Dollars)			
Item	BY 2012 \$M	BY 2012 \$M	% Change
	Revised Original UCR Baseline (Mar 2012 APB)	Current Estimate (Dec 2018 SAR)	
Program Acquisition Unit Cost			
Cost	276482.2	286438.5	
Quantity	2458	2470	
Unit Cost	112.483	115.967	+3.10
Average Procurement Unit Cost			
Cost	224333.7	225144.5	
Quantity	2443	2456	
Unit Cost	91.827	91.671	-0.17

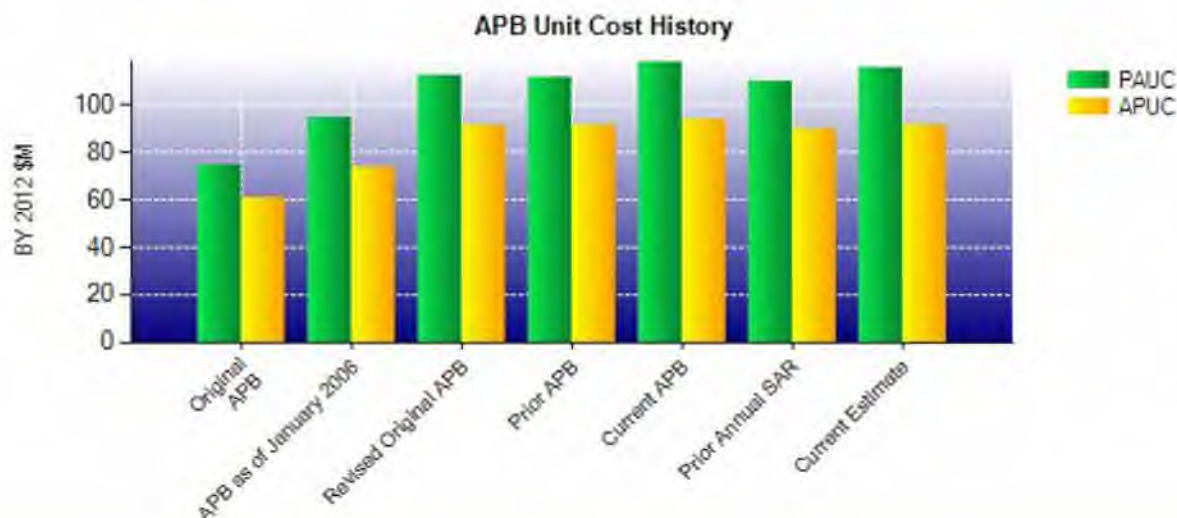
The DoD average F-35 Aircraft Unit Recurring Flyaway (URF) Cost consists of the Hardware (Airframe, Vehicle Systems, Mission Systems, and Engineering Change Order) costs over the life of the program. The URF assumes the quantity benefits of 132 FMS aircraft and 632 International Partner aircraft.

The current estimate for F-35 total procurement quantity increase from 2443 to 2456 has not changed from SAR 2017 to SAR 2018.

F-35A (Conventional Take Off and Landing) URF - \$69.5M (BY 2012)

F-35B (Short Takeoff and Vertical Landing) URF - \$80.0M (BY 2012)

F-35C (Carrier Variant) URF - \$79.5M (BY 2012)



APB 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	Jun 2014	111.908	91.827	134.638	115.697
Current APB	Mar 2019	118.304	94.009	149.685	125.805
Prior Annual SAR	Dec 2017	110.006	89.821	138.256	119.189
Current Estimate	Dec 2018	115.967	91.671	146.740	122.889

SAR Unit Cost History

Current SAR Baseline to Current Estimate (TY \$M)									
PAUC Development Estimate	Changes								PAUC Current Estimate
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
135.065	0.858	-0.222	8.430	7.123	-2.764	0.000	-1.750	11.675	146.740

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	0.846	-0.123	8.478	2.438	-2.688	0.000	-1.759	7.192	122.889

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	Oct 2019
IOC	TBD	TBD	N/A	Jul 2015
Total Cost (TY \$M)	24800.0	331855.2	N/A	362447.3
Total Quantity	N/A	2457	N/A	2470
PAUC	N/A	135.065	N/A	146.740

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 was August 2016, and the U.S. Navy IOC objective date is August 2018.

F-35 Engine

Current UCR Baseline and Current Estimate (Base-Year Dollars)			
Item	BY 2012 \$M	BY 2012 \$M	% Change
	Current UCR Baseline (Mar 2019 APB)	Current Estimate (Dec 2018 SAR)	
Program Acquisition Unit Cost			
Cost	54358.2	54016.5	
Quantity	2470	2470	
Unit Cost	22.007	21.869	-0.63
Average Procurement Unit Cost			
Cost	41012.8	40483.1	
Quantity	2456	2456	
Unit Cost	16.699	16.483	-1.29

Original UCR Baseline and Current Estimate (Base-Year Dollars)			
Item	BY 2012 \$M	BY 2012 \$M	% Change
	Original UCR Baseline (Mar 2012 APB)	Current Estimate (Dec 2018 SAR)	
Program Acquisition Unit Cost			
Cost	53916.4	54016.5	
Quantity	2458	2470	
Unit Cost	21.935	21.869	-0.30
Average Procurement Unit Cost			
Cost	42332.9	40483.1	
Quantity	2443	2456	
Unit Cost	17.328	16.483	-4.88

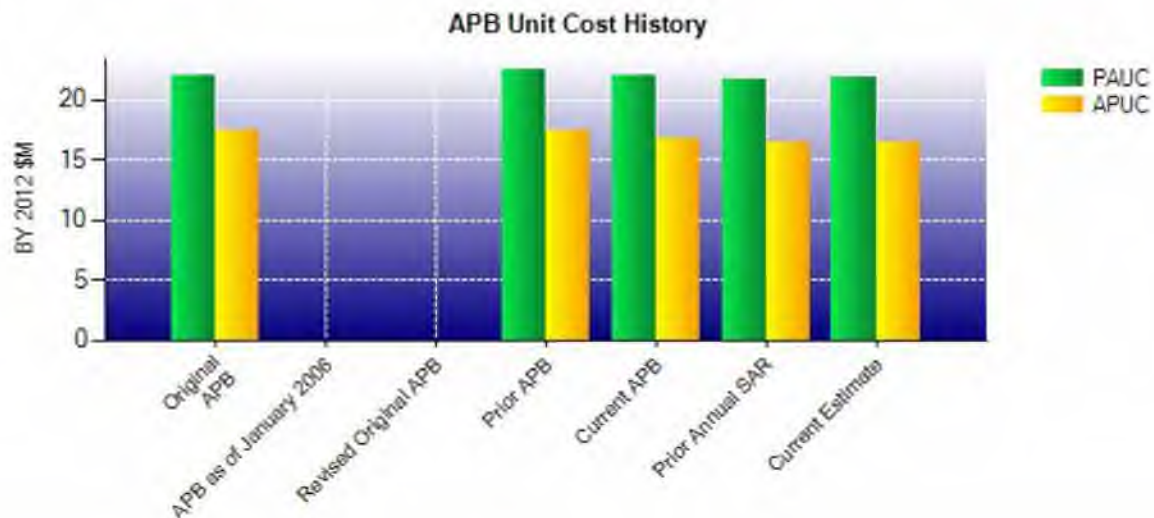
The DoD average F-35 Engine Unit Recurring Flyaway (URF) Cost consists of the Hardware (Propulsion and Engineering Change Order) costs over the life of the program. The URF assumes the quantity benefits of 132 FMS engines and 632 International Partner engines.

The current estimate for F-35 total procurement quantity increase from 2443 to 2456 has not changed from SAR 2017 to SAR 2018.

F-35A (Conventional Take Off and Landing) URF - \$11.1M (BY 2012)

F-35B (Short Takeoff and Vertical Landing) URF - \$27.0M (BY 2012)

F-35C (Carrier Variant) URF - \$11.2M (BY 2012)



APB 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	Jun 2014	22.496	17.328	26.396	21.708
Current APB	Mar 2019	22.007	16.699	26.874	22.020
Prior Annual SAR	Dec 2017	21.611	16.394	26.170	21.450
Current Estimate	Dec 2018	21.869	16.483	26.694	21.770

SAR Unit Cost History

Current SAR Baseline to Current Estimate (TY \$M)									
PAUC Development Estimate	Changes								PAUC Current Estimate
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
25.990	0.137	-0.048	1.008	0.221	0.193	0.000	-0.807	0.704	26.694

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	0.131	-0.024	1.014	0.000	-0.247	0.000	-0.812	0.062	21.770

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	65935.4
Total Quantity	N/A	2457	N/A	2470
PAUC	N/A	25.990	N/A	26.694

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	-19.1	-355.4	+14.1	-360.4
Quantity	--	+1204.0	--	+1204.0
Schedule	--	+20893.4	--	+20893.4
Engineering	+11.7	+2606.6	--	+2618.3
Estimating	-896.0	-7517.4	+447.2	-7966.2
Other	--	--	--	--
Support	--	-6752.0	--	-6752.0
Subtotal	-903.4	+10079.2	+461.3	+9637.1
Current Changes				
Economic	+12.5	+2434.1	+33.8	+2480.4
Quantity	--	--	--	--
Schedule	--	-70.5	--	-70.5
Engineering	+11596.4	+3379.9	--	+14976.3
Estimating	+290.7	+915.2	-67.8	+1138.1
Other	--	--	--	--
Support	--	+2430.7	--	+2430.7
Subtotal	+11899.6	+9089.4	-34.0	+20955.0
Total Changes	+10996.2	+19168.6	+427.3	+30592.1
CE - Cost Variance	55406.3	301816.4	5224.6	362447.3
CE - Cost & Funding	55406.3	301816.4	5224.6	362447.3

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	--	+817.9	--	+817.9
Schedule	--	+5683.1	--	+5683.1
Engineering	+10.3	+1922.0	--	+1932.3
Estimating	-1319.3	-6151.9	+273.3	-7197.9
Other	--	--	--	--
Support	--	-6002.8	--	-6002.8
Subtotal	-1309.0	-3731.7	+273.3	-4767.4
Current Changes				
Economic	--	--	--	--
Quantity	--	--	--	--
Schedule	--	-150.1	--	-150.1
Engineering	+9806.1	+2421.7	--	+12227.8
Estimating	+289.1	+371.5	+84.4	+745.0
Other	--	--	--	--
Support	--	+1900.2	--	+1900.2
Subtotal	+10095.2	+4543.3	+84.4	+14722.9
Total Changes	+8786.2	+811.6	+357.7	+9955.5
CE - Cost Variance	56768.3	225144.5	4525.7	286438.5
CE - Cost & Funding	56768.3	225144.5	4525.7	286438.5

Previous Estimate: December 2017

RDT&E		\$M	
Current Change Explanations		Base Year	Then Year
Revised escalation indices. (Economic)		N/A	+12.5
Adjustment to include Block 4 Development Prior Year actuals and Program Office Cost Estimate (USAF) (Engineering)		+2979.5	+3533.0
Adjustment to include Non-Block 4 Development Prior Year actuals (USAF) (Engineering)		+726.6	+827.1
Adjustment to include Block 4 Development Prior Year actuals and Program Office Cost Estimate (DoN) (Engineering)		+3183.6	+3775.3
Adjustment to include Non-Block 4 Development Prior Year actuals (DON) (Engineering)		+190.3	+204.7
Adjustment to include Block 4 Development Prior Year actuals and Program Office Cost Estimate (Partners) (Engineering)		+2726.1	+3256.3
Adjustment for current and prior escalation. (Estimating)		-11.3	-12.3
Adjustment to include Non-Block 4 Development Prior Year actuals (Partners) (Estimating)		+294.5	+296.6
Adjustment to SDD Prior Year actuals (USAF) (Estimating)		+7.6	+8.4
Adjustment to include SDD Development Prior Year actuals (DoN) (Estimating)		-1.7	-2.0
RDT&E Subtotal		+10095.2	+11899.6

Procurement		\$M	
Current Change Explanations		Base Year	Then Year
Revised escalation indices. (Economic)		N/A	+2434.1
Stretch-out of procurement buy profile in FY 2024 to FY 2044 (Aircraft Procurement, Air Force (APAF)). (Schedule)		0.0	+363.1
Additional schedule variance for procurement quantity profile adjustments (APAF). (Schedule)		-69.1	-105.2
Acceleration of procurement buy profile in FY 2018 to FY 2032 (Aircraft Procurement, Navy (APN)). (Schedule)		0.0	-178.9
Additional schedule variance for procurement quantity profile adjustments (APN). (Schedule)		-81.0	-149.5
Additional funding for Block 4 modifications (APAF). (Engineering)		+1632.5	+2279.5
Additional funding for Block 4 modifications (APN). (Engineering)		+789.2	+1100.4
Adjustment for current and prior escalation. (Estimating)		-191.0	-214.8
Revised estimate to reflect the application of new outyear escalation indices (APAF). (Estimating)		-920.5	-1348.2
Revised estimate to reflect the application of new outyear escalation indices (APN). (Estimating)		-396.5	-507.5
Revised funding due to updated estimating assumptions (APN). (Estimating)		-296.5	-379.0
Revised estimate of Airframe cost due to the incorporation of the latest prime and subcontractor actuals and labor/exchange rates (APAF). (Estimating)		+1030.2	+1864.8
Revised estimate of Airframe cost due to the incorporation of the latest prime and subcontractor actuals and labor/exchange rates (APN). (Estimating)		+679.4	+973.1
Revised estimate of non-recurring costs (APAF). (Estimating)		-49.1	-64.5
Revised estimate of non-recurring costs (APN). (Estimating)		+10.8	+12.3
Update for fact-of-life changes for prior years/lots FY 2006- FY 2019 (APAF). (Estimating)		+118.6	+133.4
Update for fact-of-life changes for prior years/lots FY 2006- FY 2019 (APN). (Estimating)		+386.1	+445.6

Adjustment for current and prior escalation. (Support)	-33.8	-38.3
Increase in Other Support due to maturation of technical baseline, definition of customer requirements, and further definition of Service beddown plans (APAF). (Support)	+579.1	+813.9
Decrease in Initial Spares due to maturation of technical baseline, definition of customer requirements, and further definition of Service beddown plans (APAF). (Support)	-232.2	-356.4
Increase in Other Support due to maturation of technical baseline, definition of customer requirements, and further definition of Service beddown plans (APN). (Support)	+1206.4	+1581.1
Increase in Initial Spares due to maturation of technical baseline, definition of customer requirements, and further definition of Service beddown plans (APN). (Support)	+380.7	+430.4
Procurement Subtotal	+4543.3	+9089.4

MILCON	\$M	
Current Change Explanations	Base Year	Then Year
Revised escalation indices. (Economic)	N/A	+33.8
Adjustment for current and prior escalation. (Estimating)	-12.0	-13.6
Revised estimate as a result of refined requirements (Navy) (Estimating)	+659.8	+806.9
Revised estimate based on funded requirements received from Service MILCON estimates (Navy) (Estimating)	-486.6	-669.8
Revised estimate as a result of refined requirements (USAF). (Estimating)	+479.9	+610.6
Revised estimate due to funding actuals for prior years (USAF) (Estimating)	+2.6	+3.0
Revised estimate based on funded requirements received from Service MILCON estimates (USAF) (Estimating)	-559.3	-804.9
MILCON Subtotal	+84.4	-34.0

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	+16.0	-118.4	--	-102.4
Quantity	--	+221.3	--	+221.3
Schedule	--	+2427.5	--	+2427.5
Engineering	--	--	--	--
Estimating	+1118.0	-610.0	--	+508.0
Other	--	--	--	--
Support	--	-2272.3	--	-2272.3
Subtotal	+1134.0	-351.9	--	+782.1
Current Changes				
Economic	+1.0	+440.9	--	+441.9
Quantity	--	--	--	--
Schedule	--	+62.3	--	+62.3
Engineering	+545.4	--	--	+545.4
Estimating	-35.5	+3.4	--	-32.1
Other	--	--	--	--
Support	--	+279.2	--	+279.2
Subtotal	+510.9	+785.8	--	+1296.7
Total Changes	+1644.9	+433.9	--	+2078.8
CE - Cost Variance	12468.6	53466.8	--	65935.4
CE - Cost & Funding	12468.6	53466.8	--	65935.4

Summary BY 2012 \$M				
Item	RDT&E	Procurement	MILCON	Total
SAR Baseline (Development Estimate)	11695.2	42332.9	--	54028.1
Previous Changes				
Economic	--	--	--	--
Quantity	--	+150.3	--	+150.3
Schedule	--	+274.4	--	+274.4
Engineering	--	--	--	--
Estimating	+1421.7	-729.8	--	+691.9
Other	--	--	--	--
Support	--	-1764.5	--	-1764.5
Subtotal	+1421.7	-2069.6	--	-647.9
Current Changes				
Economic	--	--	--	--
Quantity	--	--	--	--
Schedule	--	-10.0	--	-10.0
Engineering	+460.1	--	--	+460.1
Estimating	-43.6	-17.5	--	-61.1
Other	--	--	--	--
Support	--	+247.3	--	+247.3
Subtotal	+416.5	+219.8	--	+636.3
Total Changes	+1838.2	-1849.8	--	-11.6
CE - Cost Variance	13533.4	40483.1	--	54016.5
CE - Cost & Funding	13533.4	40483.1	--	54016.5

Previous Estimate: December 2017

RDT&E		\$M	
Current Change Explanations		Base Year	Then Year
Revised escalation indices. (Economic)		N/A	+1.0
Adjustment to include Block 4 Development Prior Year actuals and Program Office Cost Estimate (USAF) (Engineering)		+183.8	+218.2
Adjustment to include Block 4 Development Prior Year actuals and Program Office Cost Estimate (DoN) (Engineering)		+192.3	+227.6
Adjustment to include Block 4 Development Prior Year actuals and Program Office Cost Estimate (Partners) (Engineering)		+84.0	+99.6
Adjustment for current and prior escalation. (Estimating)		-1.0	-1.0
Adjustment to include non-Block 4 Development Prior Year actuals (USAF) (Estimating)		+1.8	+1.9
Adjustment to include SDD Development Prior Year actuals (DoN) (Estimating)		+5.1	+5.4
Adjustment to include non-Block 4 Development Prior Year actuals (Partners) (Estimating)		-49.5	-41.8
RDT&E Subtotal		+416.5	+510.9

Procurement		\$M	
Current Change Explanations		Base Year	Then Year
Revised escalation indices. (Economic)		N/A	+440.9
Stretch-out of procurement buy profile in FY 2024 to FY 2044 (Engine Procurement, Air Force (EPAF)). (Schedule)		0.0	+64.5
Additional schedule variance for procurement quantity profile adjustments (EPAF). (Schedule)		-10.1	-16.1
Acceleration of procurement buy profile in FY 2018 to FY 2032 (Engine Procurement, Navy (EPN)). (Schedule)		0.0	-31.6
Additional schedule variance for procurement quantity profile adjustments (EPN). (Schedule)		+0.1	+45.5
Adjustment for current and prior escalation. (Estimating)		-36.5	-41.1
Revised estimate to reflect the application of new outyear escalation indices (EPAF). (Estimating)		-195.9	-284.9
Revised estimate to reflect the application of new outyear escalation indices (EPN). (Estimating)		-119.3	-152.5
Revised funding due to updated estimating assumptions (EPN). (Estimating)		-45.7	-59.3
Revised estimate due to the incorporation of the latest actuals and labor/exchange rates (Engine EPAF). (Estimating)		+190.2	+274.0
Revised estimate due to the incorporation of the latest actuals and labor/exchange rates (EPN). (Estimating)		+141.0	+209.7
Revised estimate of non-recurring costs (EPAF). (Estimating)		-3.7	-5.0
Revised estimate of non-recurring costs (EPN). (Estimating)		+1.9	+2.3
Update for fact-of-life changes for prior years/lots FY 2006- FY 2019 (EPAF). (Estimating)		+4.3	+5.7
Update for fact-of-life changes for prior years/lots FY 2006- FY 2019 (EPN). (Estimating)		+46.2	+54.5
Adjustment for current and prior escalation. (Support)		-9.0	-10.3
Increase in Other Support due to maturation of technical baseline, definition of customer requirements, and further definition of Service beddown plans (EPAF). (Support)		+65.3	+91.0
Decrease in Initial Spares due to maturation of technical baseline, definition of customer requirements, and further definition of Service beddown plans (EPAF). (Support)		-105.0	-160.3

Increase in Other Support due to maturation of technical baseline, definition of customer requirements, and further definition of Service beddown plans (EPN). (Support)	+133.1	+174.3
Increase in Initial Spares due to maturation of technical baseline, definition of customer requirements, and further definition of Service beddown plans (EPN). (Support)	+162.9	+184.5
Procurement Subtotal	+219.8	+785.8

Contracts

General Notes

The FY 2015 Annualized Sustainment contract no longer meets the threshold for the six largest contracts.

Contract Identification

Appropriation: Procurement
Contract Name: F-35 LRIP 9
Contractor: Lockheed Martin
Contractor Location: 1 Lockheed Boulevard
Fort Worth, TX 76101
Contract Number: N00019-14-C-0002
Contract Type: Fixed Price Incentive(Firm Target) (FPIF), Cost Plus Incentive Fee (CPIF)
Award Date: July 29, 2013
Definitization Date: November 02, 2016

Contract Price							
Initial Contract Price (\$M)			Current Contract Price (\$M)			Estimated Price At Completion (\$M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
738.0	N/A	57	7041.4	N/A	57	6997.9	7041.4

Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to driven by definitization of the LRIP 9 Production effort. Initial Contract Price consisted primarily of Long Lead material and Production Non-Recurring (PNR) Tooling.

Contract Variance		
Item	Cost Variance	Schedule Variance
Cumulative Variances To Date (12/31/2018)	-4.0	-69.0
Previous Cumulative Variances	-52.0	-141.0
Net Change	+48.0	+72.0

Cost and Schedule Variance Explanations

The favorable net change in the cost variance is due to the completion of aircraft deliveries in early 2018. Remaining tasks include Production Tooling and Diminishing Manufacturing Source redesign effort, which is performing favorably.

The favorable net change in the schedule variance is due to schedule recovery for previously late aircraft delivery tasks.

Notes

This contract is more than 90% complete; therefore, this is the final report for this contract. To date, 57 of 57 aircraft have been delivered. The final jet delivered in December 2017.

Contract Identification

Appropriation: Procurement
Contract Name: F-35 LRIP 10
Contractor: Lockheed Martin
Contractor Location: 1 Lockheed Boulevard
Fort Worth, TX 76101
Contract Number: N00019-15-C-0003
Contract Type: Fixed Price Incentive(Firm Target) (FPIF), Cost Plus Fixed Fee (CPFF)
Award Date: February 28, 2013
Definitization Date: June 01, 2017

Contract Price

Initial Contract Price (\$M)			Current Contract Price (\$M)			Estimated Price At Completion (\$M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
25.4	N/A	94	8898.5	N/A	90	9093.1	8898.5

Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to definitization of the LRIP 10 Production effort. Initial Contract Price consisted primarily of Long Lead material.

Contract Variance

Item	Cost Variance	Schedule Variance
Cumulative Variances To Date (12/31/2018)	-147.0	-142.0
Previous Cumulative Variances	-114.0	+5.0
Net Change	-33.0	-147.0

Cost and Schedule Variance Explanations

The unfavorable net change in the cost variance is due to assembly labor due to higher than anticipated volumes of out of station work, part shortages, and inefficiencies associated with the influx of new employees and the associated learning curve.

The unfavorable net change in the schedule variance is due to delays within Final Assembly (staffing shortages, missing hole primer rework, non-conformance issues requiring rework) and late delivery of Gen III Helmet Display Units.

Notes

This contract is more than 90% complete; therefore, this is the final report for this contract. To date, 90 of 94 aircraft have delivered.

Contract Identification

Appropriation: Procurement
Contract Name: F135 LRIP 9
Contractor: Pratt & Whitney
Contractor Location: 400 Aircraft Road
Middletown, CT 06457
Contract Number: N00019-14-C-0004
Contract Type: Fixed Price Incentive(Firm Target) (FPIF), Cost Plus Incentive Fee (CPIF)
Award Date: May 02, 2014
Definitization Date: October 30, 2015

Contract Price

Initial Contract Price (\$M)			Current Contract Price (\$M)			Estimated Price At Completion (\$M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
110.1	N/A	67	1571.0	1571.0	67	1520.7	1540.9

Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to definitization of the Production and Sustainment Initial Spares and non-recurring work scope. Initial Contract Price consisted primarily of long lead production hardware.

Contract Variance

Item	Cost Variance	Schedule Variance
Cumulative Variances To Date (12/31/2018)	-130.0	-33.0
Previous Cumulative Variances	-137.0	-59.0
Net Change	+7.0	+26.0

Cost and Schedule Variance Explanations

The favorable net change in the cost variance is due to Estimate to Complete (ETC) updates to General & Administrative rates, program labor and Short Takeoff and Vertical Landing propulsion systems for the United Kingdom and United States Marine Corps.

The favorable net change in the schedule variance is due to schedule recovery with Initial Spare Power Modules, Fan Modules and 3 Bearing Swivel Module deliveries. Additionally, schedule recovery with several tasks U.S. Services Non-Annualized Depot Activation work and Non-Recurring, Non-Annualized (U.S. Services Only).

Notes

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

Contract Identification

Appropriation: Procurement
Contract Name: F135 LRIP 10
Contractor: Pratt & Whitney
Contractor Location: 400 Aircraft Road
Middletown, CT 06457
Contract Number: N00019-15-C-0004
Contract Type: Fixed Price Incentive(Firm Target) (FPIF), Cost Plus Incentive Fee (CPIF)
Award Date: April 30, 2015
Definitization Date: November 25, 2015

Contract Price

Initial Contract Price (\$M)			Current Contract Price (\$M)			Estimated Price At Completion (\$M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
157.0	N/A	104	2204.2	2259.0	104	2207.0	2206.2

Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to definitization of the Production and Sustainment work scope. Initial Contract Price consisted primarily of long lead production hardware.

Contract Variance

Item	Cost Variance	Schedule Variance
Cumulative Variances To Date (12/31/2018)	-218.0	-64.0
Previous Cumulative Variances	-163.0	-137.0
Net Change	-55.0	+73.0

Cost and Schedule Variance Explanations

The unfavorable net change in the cost variance is due to Estimate to Complete (ETC) updates to Conventional Takeoff and Landing (CTOL) and Short Takeoff and Vertical Landing propulsion systems, Initial Spares Modules and General & Administrative rates.

The favorable net change in the schedule variance is due to schedule recovery with CTOL and Carrier Variant propulsion systems, Initial Global Spare Engines, Common Replenishment Spares and Depot Activation Training Assets deliveries that was offset by delays in U.S. Services Depot Activation work, Initial Spares and propulsion systems for partner countries.

Notes

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

Contract Identification

Appropriation: Procurement
Contract Name: F135 LRIP 11
Contractor: Pratt & Whitney
Contractor Location: 400 Aircraft Road
Middletown, CT 06457
Contract Number: N00019-17-C-0020
Contract Type: Fixed Price Incentive(Firm Target) (FPIF), Cost Plus Incentive Fee (CPIF)
Award Date: November 06, 2016
Definitization Date: May 31, 2018

Contract Price

Initial Contract Price (\$M)			Current Contract Price (\$M)			Estimated Price At Completion (\$M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
180.9	N/A	143	2642.1	N/A	143	1520.7	2642.1

Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to definitization of the Production and Initial Spare Sustainment work scope. Initial Contract Price consisted long lead production hardware.

Contract Variance

Item	Cost Variance	Schedule Variance
Cumulative Variances To Date (12/31/2018)	-39.0	+51.0
Previous Cumulative Variances	--	--
Net Change	-39.0	+51.0

Cost and Schedule Variance Explanations

The unfavorable cumulative cost variance is due to the Conventional Takeoff and Landing (CTOL), Carrier Variant (CV) and Short Takeoff and Vertical Landing (STOVL) propulsion system hardware is costing more than planned due to delays with incorporating enough engineering changes, affordability initiatives to lower the manufacturing costs, and the supply chain team being unable to negotiate lower pricing from the supply base. Additionally, the General & Administrative rates actual costs are higher than plan.

The favorable cumulative schedule variance is due to early CTOL, CV and STOVL propulsion system hardware deliveries for the U.S. Air Force, Partner Countries and FMS customers.

Notes

This is the first time this contract is being reported.

Contract Identification

Appropriation: Procurement
Contract Name: F-35 LRIP 11
Contractor: 1 Lockheed Boulevard
Contractor Location: Fort Worth, TX 76101
Contract Number: N00019-16-C-0033
Contract Type: Fixed Price Incentive(Firm Target) (FPIF), Cost Plus Incentive Fee (CPIF)
Award Date: February 15, 2015
Definitization Date: September 25, 2018

Contract Price							
Initial Contract Price (\$M)			Current Contract Price (\$M)			Estimated Price At Completion (\$M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
11.8	N/A	141	12146.5	N/A	141	12296.1	12146.5

Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to definitization of the LRIP 11 Production effort. Initial Contract Price consisted primarily of Long Lead material.

Contract Variance		
Item	Cost Variance	Schedule Variance
Cumulative Variances To Date (12/31/2018)	-135.0	-227.0
Previous Cumulative Variances	--	--
Net Change	-135.0	-227.0

Cost and Schedule Variance Explanations

The unfavorable cumulative cost variance is due to production operation overruns due to part shortages, supplier non-conformance, seam validation non-conformance, and new employee ramp-up and transition.

The unfavorable cumulative schedule variance is due to late issuance of Radar, Electronic Warfare, Electro-Optical Targeting System, and Integrated Core Processor parts due to assembly-related delays.

Notes

This is the first time this contract is being reported.

The first Undefinitized Contract Action (UCA) Integrated Program Management Report (IPMR) submittal was received in month-end September 2017. To date, no aircraft have been delivered.

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	359	278	2456	11.32%
Total Program Quantity Delivered	373	292	2470	11.82%

Expended and Appropriated (TY \$M)

Total Acquisition Cost	362447.3	Years Appropriated	26
Expended to Date	100306.5	Percent Years Appropriated	50.98%
Percent Expended	27.67%	Appropriated to Date	124865.9
Total Funding Years	51	Percent Appropriated	34.45%

The above data is current as of March 11, 2019.

Notes

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	359	278	2456	11.32%
Total Program Quantity Delivered	373	292	2470	11.82%

Expended and Appropriated (TY \$M)

Total Acquisition Cost	65935.4	Years Appropriated	26
Expended to Date	20544.8	Percent Years Appropriated	50.98%
Percent Expended	31.16%	Appropriated to Date	25984.0
Total Funding Years	51	Percent Appropriated	39.41%

The above data is current as of March 11, 2019.

Notes

Engines planned and actual to date only include production installs.

Operating and Support Cost

F-35 Aircraft

Cost Estimate Details

Date of Estimate:	December 20, 2018
Source of Estimate:	CAPE ICE
Quantity to Sustain:	2456
Unit of Measure:	Flying Hour
Service Life per Unit:	30.00 Years
Fiscal Years in Service:	FY 2011 - FY 2077

The 14 developmental aircraft will not be sustained.

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 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 2,456 total aircraft currently planned for U.S. forces.

The F-16C/D CPFH figures were developed in a joint effort between OSD CAPE and the Air Force Cost Analysis Agency (AFCAA). 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	8.797	10.042
Unit Operations	5.134	5.632
Maintenance	10.295	5.501
Sustaining Support	3.748	2.075
Continuing System Improvements	2.163	2.291
Indirect Support	0.000	0.000
Other	0.000	0.000
Total	30.137	25.541

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	630534.5	693588.0	630534.5	N/A
Then Year	1196415.1	N/A	1196415.0	N/A

The Total O&S Cost figures reflect the CAPE ICE O&S cost estimate updated at the request of the CAPE Deputy Director for Cost Assessment. 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 @ 250 hrs./yr.; F-35B @ 300 hrs./yr.; and F-35C @ 316 hrs./yr. The O&S cost estimate is not a simple extrapolation of the F-35A flying hour cost shown in the unitized O&S cost table. The CAPE ICE uses FY 2017 inflation indices, and includes 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 2018 update to the CAPE estimate of F-35 total life cycle O&S cost incorporates new data regarding several key cost elements relative to the CAPE O&S cost estimate prepared for the 2017 SAR. This includes: updated fuel burn rates for all aircraft variants; an increase in the assumed fuel price per gallon for both JP-5 and JP-8; a revised cost per induction for the F-135 engine; new military Service bed down plans for all aircraft variants; updated depot-level repairable (DLR) costs based on actual Fleet reliability data and reliability growth projections; revised unit-level manpower headcounts; and, other miscellaneous updates. As shown in Table 2 above, the updated information results in increased cost forecasts for certain cost elements, and decreased cost forecasts for other elements. The 2018 CAPE total O&S cost estimate is approximately 1.6% higher in constant FY12 dollars (and 6.5% higher in then-year dollars) than the total O&S

cost estimate shown in the 2017 SAR.

In PB19, the Department of the Navy (DoN) funded the development and implementation of intermediate level (I-Level) repair capabilities and therefore changed the program of record (POR). The CAPE ICE currently does not include I-Level maintenance costs for the DoN. However, once the concept of operations is codified by the program office, CAPE will quantify the associated costs and/or savings in a future update of the ICE.

The CAPE 2018 update of the F-35 O&S cost estimate incorporates actual information on component reliabilities obtained from ongoing F-35 flight operations, including flight testing and field operations. The Joint Program Office provided CAPE F-35 fleet maintenance data, comprised of all component repairs and failures on 212 F-35 aircraft (excluding System Development and Demonstration (SDD) and Lot 1 aircraft) from January 2015 through July 2018. These data enabled CAPE to independently estimate the reliability and reliability growth for all three U.S. F-35 variants, as well as the component level reliability based on approximately 95,000 flight hours of operations. Because the data reveal improvement in reliability with later Lots, the CAPE 2018 F-35 O&S estimate incorporates these trends through reliability growth curves, which reflect the changing composition of the Fleet in future years. The higher reliability Lots will comprise a larger and growing fraction of the fleet which decreases the anticipated maintenance cost (per aircraft) over time. As a result, CAPE's F-35 O&S estimate reflects a decrease in Air Vehicle Depot Level Repairable (DLR) costs relative to the 2017 SAR.

CAPE will continue to work with government stakeholders and contractors to improve the processes and methods used to incorporate actual data and information into the CAPE ICE. Future iterations of the CAPE ICE will: provide updated reliability estimates as more data are collected, especially after IOT&E; incorporate actual repair costs by part as they become available; and, inform unit-level manpower projections with actual headcount data. This information will be used to update the O&S cost estimates as the program proceeds to and beyond the upcoming Full Rate Production decision. In the future, the incorporation of additional actual data and information could result in substantial changes in CAPE O&S estimates.

Affordability remains a priority for the F-35 Program Office. The program received new Cost Per Tail Per Year (CPTPY) and Cost Per Flight Hour (CPFH) Affordability Constraints from the Services in an October 16, 2018 ADM and prior memos directly from the Services. These constraints include a consistent cost definition of O&S less Indirects (WBS elements 1.0 to 5.0), appear in CY12\$, and focus on Service defined Steady State periods ranging from 2033 to 2043. To aid in establishing plans and tracking progress toward meeting these future constraints, the F-35 program established Near Term Targets for FY 2019 to 2033. The program expects efforts such as the Sustainment Affordability War Room (AWR) Cost Reduction Initiatives (CRIs), Reliability and Maintainability Improvement Program (RMIP), Engine Component Improvement Program (CIP), and Life Cycle Sustainment Plan (LCSP) Success Elements to contribute toward achieving these JPO Near Term Targets and Service Affordability Constraints.

The O&S Program Office Estimate (POE) reflects the JPO's 2018 Annual Cost Estimate (ACE) of \$580.9B BY 2012\$ (\$1,096.1B TY\$), which incorporates updates to reflect the latest technical baseline for the program and revised stakeholder requirements. Primary updates to the 2018 POE include: aligning with OSD escalation guidance (impact to BY\$), incorporating the latest beddowns, updating to FY19 military composite labor rates, and adjusting the modifications bookkeeping strategy to only capture sustainment related modifications in FY23 and later years. (Procurement now includes all modifications through FY22 and capability upgrade related modifications in FY23 and beyond within the Non-Recurring Flyaway costs.)

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.

Average Annual O&S Costs shown here reflect the Average Annual CPFH for the USAF F-35A at Steady State in 2036 to 2041, based on the JPO's 2018 ACE, as of March 08, 2019.

Average Annual O&S Costs BY 2012 \$K

Cost Element	F-35A (JPO ACE)	F-16C/D (Antecedent)
Unit-Level Manpower	9.182	10.042
Unit Operations	4.813	5.632
Maintenance	9.617	5.501
Sustaining Support	3.489	2.075
Continuing System Improvements	2.152	2.291
Indirect Support	0.000	0.000
Other	0.000	0.000
Total	29.307	25.541

Equation to Translate Annual Cost to Total Cost

The Total O&S Costs for the F-35 Program do not easily translate to the Average Annual O&S Costs for the USAF F-35A. The Total O&S Costs section includes costs for the USAF F-35A, USMC F-35B, USMC F-35C, and USN F-35C from 2011 to 2077, whereas the Average Annual O&S Costs reflects the USAF F-35A CPFH at Steady State. F-35A Steady State occurs in 2036 to 2041, per definition from the USAF. Additionally, Total O&S Costs includes WBS elements: 1.0 Unit-Level Manpower, 2.0 Unit Operations, 3.0 Maintenance, 4.0 Sustaining Support, 5.0 Continuing System Improvements, and 6.0 Indirect Support. Average Annual O&S Costs CPFH measures include O&S less Indirects (WBS elements 1.0 to 5.0) only, per direction from the Services in their Affordability Constraints Memos.

O&S Cost Variance		
Category	BY 2012 \$M	Change Explanations
Prior SAR Total O&S Estimates - Dec 2017 SAR	620805.4	
Programmatic/Planning Factors	-10578.0	Reduction in USN F-35C flight hours, offset by increased USMC F-35B quantity
Cost Estimating Methodology	-5297.6	Refined AV reliability estimates, incorporated F119 as engine analogy
Cost Data Update	23413.3	Refreshed squadron manning documentation, updated to 2017 inflation indices, revised price escalation
Labor Rate	0.0	
Energy Rate	3828.3	Updated to FY18 fuel prices
Technical Input	-1636.9	Reduced burn rates
Other	0.0	
Total Changes	9729.1	
Current Estimate	630534.5	

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**Antecedent Information**

Annual O&S Costs BY2012 \$M			
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 2017 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):