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



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

As of FY 2021 President's Budget

Defense Acquisition Management  
Information Retrieval  
(DAMIR)

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## 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 DoN.

## Responsible Office

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**Date Assigned:** July 15, 2019

## References

### F-35 Aircraft

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**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 February 5, 2020

### F-35 Engine

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**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

### Program Highlights Since Last Report

The National Defense Strategy (NDS) identifies several challenges to continued United States (US) 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 require 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. Together with our Industry and warfighting teammates, we have made significant strides in the maturation of this remarkable Air System, reinforcing and maturing its capabilities as our maintainers and aircrew employ it in harm's way around the globe.

The F-35 Lightning II is the Department of Defense's largest cooperative acquisition program bringing together three US military services - Air Force (USAF), Marine Corps (USMC), and Navy (USN) with seven Partner Nations (United Kingdom (UK), Italy, Netherlands, 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 five Foreign Military Sales (FMS) customers: Israel, Korea, Japan, Belgium and Poland (new for 2020) with several additional FMS customers showing strong interest.

The Selected Acquisition Report (SAR) 2019 reflects the February 2020 Acquisition Program Baseline which was updated to realize the reality that F-35 Initial Operational Test and Evaluation (IOT&E) requires more time to complete due to late delivery of the Joint Simulation Environment and to allow execution of IOT&E work on the Point Mugu Sea Range, which will pit the F-35 against real-world and future threats in realistic scenarios. This change to the baseline schedule moves the Milestone C and Full Rate Production Decision Review milestones from December 2019 to an objective date of September 2020 and threshold of March 2021. Other changes in this year's SAR include updates needed to execute the removal of Turkey as a Partner, expansion of Block 4 capabilities beyond 2024, and an addition of funds to bring the training system into alignment with the rest of the Air System as capabilities are delivered.

As your new Program Executive Officer for the F-35, I have come to think of the enterprise in terms of what I call The Four Rs: Relevance, Ramp, Readiness, and Reality. Relevance is the focus of Continuous Capability Development and Delivery (C2D2). While the F-35 will win the fight today, we have to keep it relevant and able to win tomorrow's fight. Ramp reflects not only our focus on continuing to deliver affordable, high quality air vehicles, propulsion systems, spares, training systems, combat data systems, and logistics support systems to the warfighter on time, but also acknowledges that the insertion of aircraft into the fielded fleet will continue unabated for decades. Readiness reflects our focus on delivering a global support solution and air system that supports an ever-expanding fleet and is responsive to warfighter needs such that they are able to win the fight. Lastly, Reality speaks to our focus on learning from the fielded fleet and the Marines, Airmen, Sailors, and Partners that operate it and rapidly addressing the things that we need to do better...whether it be fixing deficiencies, aligning capabilities, or increasing availability and mission capable rates.

### ***Development (Relevance)***

We are meeting our commitment to field initial Block 4 capabilities through our agile development process, known as C2D2. This year we released two major software updates, which included the fielding of the life-saving capability, Automatic Ground Collision Avoidance System, to all three F-35 variants; this achievement was recognized by the National Aeronautics Association with the prestigious Robert J. Collier Trophy for the year's "greatest achievement in aeronautics or astronautics in America." Our Block 4 team awarded the Phase 2.3 contract, enabling the F-35 Enterprise to carry select warfighting capabilities through System Functional Review and others through Developmental Flight Test, providing critical capabilities to the US Services and Partner Nations. This effort includes our first incorporation of agile-based software development metrics, which will drive our industry partners to embrace more agile development and fielding practices enabling responsiveness to an ever-evolving threat. We will build from this foundation as we continue to mature our developmental paradigm.



We completed development of Autonomic Logistics Information System (ALIS) version 3.5, delivering significant capabilities to improve stability, usability, and efficiency; installed on Autonomic Logistics Operating Unit. At the same time, we are leveraging investments and initiatives to craft an aggressive path forward that moves us off the current ALIS baseline and into a more modern data architecture. The Operational Data Integrated Network, or ODIN, is our replacement for ALIS. This new system will modernize ALIS by creating a new, government-owned, cloud native system that incorporates a new integrated data environment and a new suite of user-centered applications.

We eliminated a critical deficiency by successfully redesigning the Helmet Mounted Display in the past year to eliminate the green background glow of the Active Matrix Liquid Crystal Display impacting shipboard landings; the redesign was made possible through the development of a prototype Organic Light Emitting Diode (OLED) helmet.

In response to the customer's desire for aft-heavy weapons, the program awarded the 425 Bulkhead contract, the first step in modifying the configuration of the aircraft to carry new, larger weapons that are essential to meeting the 2025+ peer threat.

The Australia, Canada, UK Reprogramming Laboratory (ACURL) at Eglin Air Force Base (AFB) successfully completed its System Acceptance Testing and has been transferred to the operators for their evaluation in preparation for declaring ACURL Initial Operational Capability (IOC). ACURL is the US-based facility operated by Australia and UK where all F-35 mission data files for both countries are produced, tested, and fielded to support their global fleet of F-35s. With this capability, Australia and UK have the ability to organically produce and field mission data files for their F-35 fleets.

Customer feedback continues to identify the need for program-aligned Training Systems. Our F-35 Training Team delivered software release 30P04.12 to Pilot Training Devices (PTDs) at Eglin, Lemoore, and Yuma. The updated software release reduced the gap between aircraft capability insertion and the insertion of those same capabilities within the PTDs to six weeks for USN and USAF and 13 weeks for the USMC. While much work remains in this critical area, this reduction is a solid show of commitment to fixing this systemic issue.

### ***Production (Ramp)***

Lockheed Martin (LM) delivered 134 aircraft for this calendar year; three more than our plan of 131. This represents almost a 50% quantity increase in aircraft deliveries over the last year. For Lot 11, 87% of aircraft were delivered on time as compared to 64% in Lot 10. Four of the 134 deliveries are Lot 12 aircraft that were pulled forward to replace Lot 11 aircraft that are late. We will continue to work with our Industry partners to drive forward and meet ALL of our delivery commitments. Pratt & Whitney (P&W) delivered 150 F135 engines, three more than our plan of 147. With our focus on Ramp, we have also addressed future capacity by awarding three major tooling efforts for Lot 12 through Full Rate Production increasing production capacity by more than 25%.

We continued to achieve or exceed our affordability goals. The program reached agreement on the Lot 12-14 Air Vehicle contract for \$34B for 478 aircraft achieving an average of 12.8% savings vs. Lot 11 while incentivizing industry to meet required performance. We achieved \$80M Unit Recurring Flyaway (URF) (F-35A Air Vehicle + F135 Engine + Fee) for Lot 13 which was one lot earlier than forecast with a priced option for Lot 14, ensuring contract award in the same fiscal year as the congressional appropriation year; a program first. The P&W contract was awarded for \$7.3 billion for a total of 509 F135 engines – achieving a 3% savings from the Lot 11 award. With the steepest portion of the ramp now behind us, the ramp that will persist is the ramp of aircraft into operational fleets around the world. This ramp drives a need for continuous improvement and innovation in the sustainment of the F-35.

### ***Sustainment (Readiness)***

Early in 2019, we formally signed the F-35 Lifecycle Sustainment Plan (LCSP). This document is our roadmap for the acceleration of fleet modifications, maintenance plan changes, improved supply-chain capability and organic depot repair capacity which are all aimed at enhancing F-35 reliability & maintainability. As outlined in the LCSP, we remain intent on achieving an F-35 80% Mission Capable (MC) rate, increasing Full Mission Capability (FMC) and reducing costs to meet U.S. Service targets, using \$25,000 by 2025 Cost per Flying Hour (CPFH) as our initial stretch goal.

With our unblinking eye focused on affordability, the Joint Program Office (JPO) achieved our interim affordability mandate to reduce operating costs

by \$2,300 CPFH, assigned product team targets to achieve a further \$6.5K CPFH, and established an agile Sustainment Improvement Program which is a single process enabling rapid, and consistent evaluation of and investment in Cost Reduction Initiatives, Reliability and Maintainability Improvement Plans and Maintenance Plan Changes focused on improving cost and performance.

This year, the MC rates for our US services combat coded fleet were 73.2%. This marks an 18.5% increase from our 2018 average of 55%. This fleet grew by 47, now 131 total aircraft, and flew a total of 23,877 hours which was 2,946 hours more than initially planned. MC rate for forward deployed units ended FY19 at 89% MC.

We activated an additional six organic depot workloads in 2019, bringing our total to 30 Air Vehicle workloads at the Line Replaceable Unit (LRU) level of repair out of a total of 68 that we will complete through 2024. To date, 17 of 19 Engine LRU depot workloads are activated. The next steps in this area include bringing all activated workloads to full rate, reduction of repair turnaround time, and broader depot activation at the next level of indenture. In October, the Royal Netherlands Air Force opened the European Regional Warehouse in Woensdrecht, making it the first warehouse Outside the Continental United States (OCONUS) to open and a critical step in implementing the F-35 Global Support Strategy. The first OCONUS Air Vehicle Regional Maintenance, Repair, Overhaul and Upgrade operations in Cameri, Italy declared Initial Depot Capability.

On December 30, 2019, we awarded our FY 2020 Annual Sustainment Contract to LM with a total negotiated value of \$1.93 billion. This procurement provides recurring ground maintenance activities, action request resolutions, depot activation activities, and ALIS operations and maintenance, and results in a significant \$2,264 CFPH reduction from the FY 2019 Annual Sustainment Contract. We are actively working with LM and the U.S. Services to assess opportunities for alternate approaches to our annual sustainment contracting strategy which will drive increased performance and posture the enterprise to better leverage organic capabilities.

### ***Supporting the Warfighter (Reality)***

We continued to provide stable delivery as our customers increased employment of 5<sup>th</sup> Generation lethality. Our warfighters, in a very short time, demonstrated high end warfighter capabilities at both Red Flag and Blue Flag exercises as well as in-theater operations. Today, we are looking ahead to the integration of all Block 4 capabilities as the aircraft is employed around the globe.

In 2019, U.S. Navy, Israel, Japan, Norway, and the UK reached IOC, joining the U.S. Air Force, U.S. Marine Corps, and Italy in providing the warfighter the unrivaled F-35 battlespace awareness and lethality to take the fight to the adversary and win. This year, the Air National Guard, the Netherlands, and the Republic of Korea celebrated the arrival of their first F-35 aircraft. The Netherlands started pilot training at Luke AFB, and Italy began its F-35B training at Marine Corps Air Station (MCAS) Beaufort for both Italian Air Force and Italian Navy pilots.

The 388th Fighter Wing from Hill AFB deployed 12 aircraft and more than 300 personnel to Al Dhafra Air Base (AB), United Arab Emirates from April to October 2019, accomplishing the first F-35A combat deployment encompassing 1,319 sorties for 7,248.8 flight hours with a 74.3% FMC Rate and 78.1% MC Rate. During the deployment the FMC Rate increased from 70.2% in April to 91.8% in October while the MC Rate increased from 72.8% in April to 92.4% in October.

The first USN F-35C operational squadrons (VFA-147) reported to Carrier Air Wing TWO in February for Navy operational tasking with ten aircraft and 18 pilots. The F-35C Fleet Replacement Squadron (VFA-125) qualified the first three 'Category One' F-35C Replacement Pilots in June at the aircraft carrier using the new OLED Helmet. These were the first 'new' fleet pilots to use the OLED helmet, which was developed to greatly enhance visual acuity in the carrier landing environment.

Two USMC F-35Bs from Marine Fighter Attack Training Squadron 501 (VMFAT-501) out of MCAS Beaufort, SC, executed carrier qualifications onboard HMS QUEEN ELIZABETH in October marking the first time operational USMC F-35Bs have executed flight operations aboard HMS QUEEN ELIZABETH, paving the way for the eventual deployment of USMC F-35Bs on HMS QUEEN ELIZABETH in 2021. VMFA-122 embarked 13 F-35Bs and completed two weeks of shipboard flight operations in October to support USS AMERICA (LHA-6) Surface Warfare Advanced Tactical Training.

As all of these aircraft, personnel and systems are exposed to the realities of the operational environment, we will learn. We will continue to fold this reality back into the development, production and sustainment initiatives and plans underway to

ensure the F-35 continues to provide war-winning combat capabilities on an operationally relevant timeline giving our warfighters the tools they need at a cost our taxpayers can afford.

### **2020 Strategic Objectives**

Moving forward, we will capitalize on the momentum delivered by our focus on *The Four Rs* as we dive into our 2020 focus areas, which include *Capability* – outpacing the threat, *Affordability* – beating the customer's cost targets, *Availability* – improving fleet Full Mission Capable rates, *Agility* – fielding Air System capabilities inside threat timelines, and *Deployability* – supporting Combatant Commanders' worldwide warfighting demands. We have identified key enablers for each focus area and expect significant progress in 2020.

### **Conclusion**

Our F-35 Enterprise goals and milestones for 2020 are challenging, but so are the operational and budgetary environments in which we operate. We will continue to deliver warfighting capability. We will continue to aggressively drive cost out of not only production, but sustainment and development as well. The F-35 already provides the combat-proven capabilities that our warfighter demands today. Your JPO is working daily to ensure the F-35 remains an affordable, lethal and effective war-winning platform in support of our NDS.

There are no significant software-related issues with this program at this time.



<b>History of Significant Developments Since Program Initiation</b>
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History of Significant Developments Since Program Initiation	
Date	Significant Development Description
November 1996	Concept Demonstration Contracts Awarded - Contracts for development of the final two contenders for the Joint Strike Fighter (JSF) program
October 2001	Milestone B - Approval of Milestone B
October 2001	System Development and Demonstration (SDD) Contract Awarded - Award of the SDD contracts to the air vehicle and propulsion providers for the JSF
April 2007	LRIP 1 Contract Signed - Production of F-35 aircraft begins
June 2010	Nunn-McCurdy Recertification - Recertification of the program pursuant to 10 USC 2433a as required after a critical cost breach
December 2011	Creation of subprograms - Split of program to 'aircraft' and 'engine' subprograms
November 2018	Initial Operational Test & Evaluation (IOT&E) Starts
December 2019	Acquisition Decision Memorandum - Schedule breach relating to Milestone C/Full Rate Production Decision Review relating to Joint Simulation Environment delays
February 2020	Acquisition Program Baseline change pursuant to December 2019 Acquisition Decision Memorandum (no additional changes)



## Threshold Breaches

### F-35 Aircraft

#### APB Breaches

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

#### Nunn-McCurdy Breaches

<b>Current UCR Baseline</b>		
	PAUC	None
	APUC	None
<b>Original UCR Baseline</b>		
	PAUC	None
	APUC	None

### F-35 Engine

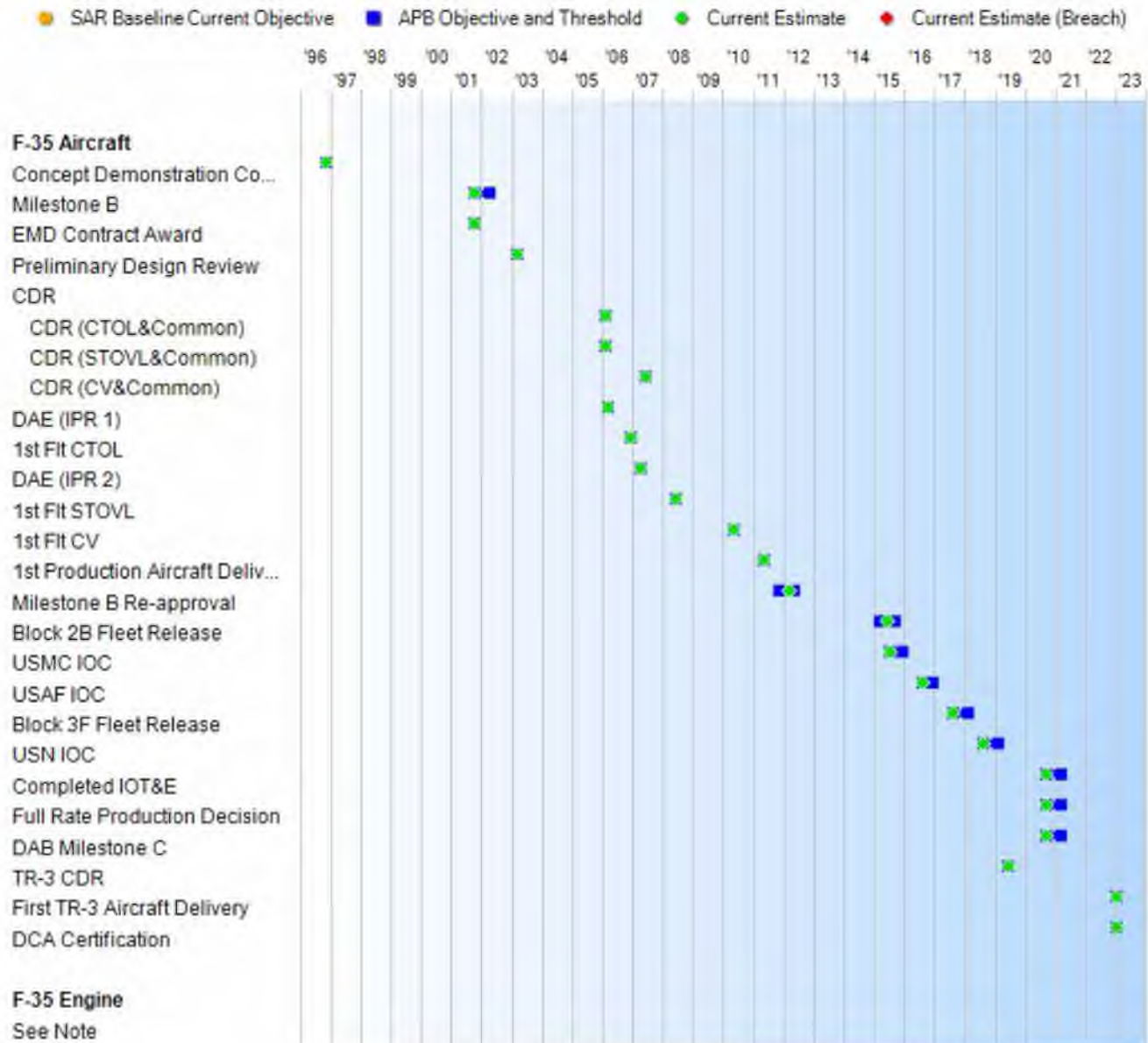
#### APB Breaches

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

#### Nunn-McCurdy Breaches

<b>Current UCR Baseline</b>		
	PAUC	None
	APUC	None
<b>Original UCR Baseline</b>		
	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	Sep 2020	Mar 2021	Sep 2020 (Ch-1)
Full Rate Production Decision	Apr 2019	Sep 2020	Mar 2021	Sep 2020 (Ch-1)
DAB Milestone C	Apr 2019	Sep 2020	Mar 2021	Sep 2020 (Ch-1)
TR-3 CDR	N/A	Jun 2019	Jun 2019	Jun 2019
First TR-3 Aircraft Delivery	N/A	Jan 2023	Jan 2023	Jan 2023
DCA Certification	N/A	Jan 2023	Jan 2023	Jan 2023

## Change Explanations

(Ch-1) Pursuant to 12 Dec 2019 Acquisition Decision Memorandum, the Defense Acquisition Executive has directed a change to the Acquisition Program Baseline. Specifically, the IOT&E current estimate changed from September 2019 to September 2020, the FRP Decision changed from October 2019 to September 2020. This change is driven by delays in completing development, verification, validation, and accreditation of the Joint Simulation Environment, which in-turn delays completion of Initial Operational Test & Evaluation.



**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
<b>Logistics Footprint - CV Variant</b>				
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
<b>Logistics Footprint - STOVL Variant</b>				
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
<b>Logistics Footprint - STOVL Variant L-Class</b>				
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
<b>Sortie Generation Rates - CTOL Variant</b>				
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
<b>Sortie Generation Rates - CV Variant</b>				
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
<b>Sortie Generation Rates - STOVL Variant (USMC)</b>				
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
<b>CV Recovery Performance (Vpa)</b>				
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.

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 (JROCM) 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

#### RDT&E

Appn	BA	PE	
Navy	1319	04	0603800N
	<b>Project</b>	<b>Name</b>	
	2209	RDT&E, Navy CDP	
			(Sunk)
Navy	1319	05	0604800M
	<b>Project</b>	<b>Name</b>	
	2262	Joint Strike Fighter - EMD	
	3350	F-35B Suitability and Deployability	
			(Sunk)
Navy	1319	05	0604800N
	<b>Project</b>	<b>Name</b>	
	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
	<b>Project</b>	<b>Name</b>	
	2935	Joint Strike Fighter Follow On Mod (FoM) - MC	
Navy	1319	05	0604810N
	<b>Project</b>	<b>Name</b>	
	2936	Joint Strike Fighter Follow On Mod (FoM) Navy	
			(Sunk)
Navy	1319	07	0604840M
	<b>Project</b>	<b>Name</b>	
	3410	F-35B C2D2	
Navy	1319	07	0604840N
	<b>Project</b>	<b>Name</b>	
	2936	F-35 C2D2, JSF Follow-on-Modernization	
Air Force	3600	07	0207142F
	<b>Project</b>	<b>Name</b>	
	5346	F-35 Squadrons, F-35	
	5349	F-35 Squadrons, HPSI	
	6011	F-35 Squadrons, Dual Capable Aircraft (DCA)	
Air Force	3600	04	0603800F
	<b>Project</b>	<b>Name</b>	
	2025	RDT&E, Air Force CDP	
			(Sunk)
Air Force	3600	05	0604800F

				<table><tr><th>Project</th><th>Name</th></tr><tr><td>3831</td><td>F-35 - EMD</td></tr><tr><td>3832</td><td>JSF Deployability and Suitability (D&amp;S)</td></tr></table>	Project	Name	3831	F-35 - EMD	3832	JSF Deployability and Suitability (D&S)	(Sunk)
Project	Name										
3831	F-35 - EMD										
3832	JSF Deployability and Suitability (D&S)										
Air Force	3600	07	0604840F								
			<table><tr><th>Project</th><th>Name</th></tr><tr><td>5346</td><td>F-35A C2D2</td></tr></table>	Project	Name	5346	F-35A C2D2				
Project	Name										
5346	F-35A C2D2										
Defense-Wide	0400	03	0603800E								
			<table><tr><th>Project</th><th>Name</th></tr><tr><td></td><td>RDT&amp;E, DARPA</td></tr></table>	Project	Name		RDT&E, DARPA	(Sunk)			
Project	Name										
	RDT&E, DARPA										
Defense-Wide	9999	05									
			<table><tr><th>Project</th><th>Name</th></tr><tr><td></td><td>RDT&amp;E, Non-Treasury Funds</td></tr></table>	Project	Name		RDT&E, Non-Treasury Funds				
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
	<b>Project</b>	<b>Name</b>	
	VARIOUS	MILCON, USN (Shared)	
Navy	1205	01	0212176N
	<b>Project</b>	<b>Name</b>	
	VARIOUS	MILCON, USN (Shared)	
Navy	1205	01	0216496M
	<b>Project</b>	<b>Name</b>	
	VARIOUS	MILCON, USN (Shared)	
Navy	1205	01	0703676N
	<b>Project</b>	<b>Name</b>	
	VARIOUS	MILCON, USN (Shared)	
Navy	1205	01	0712876N
	<b>Project</b>	<b>Name</b>	
	VARIOUS	MILCON, USN (Shared)	
Navy	1205	01	0815976N
	<b>Project</b>	<b>Name</b>	
	VARIOUS	MILCON, USN (Shared)	
Air Force	3300	01	0207142F
	<b>Project</b>	<b>Name</b>	
	VARIOUS	MILCON, AF (Shared)	
Air Force	3300	01	0207597F
	<b>Project</b>	<b>Name</b>	
	VARIOUS	MILCON, AF (Shared)	

**F-35 Engine****RDT&E**

Appn	BA	PE	
Navy	1319	04	0603800N
	<b>Project</b>	<b>Name</b>	
	2209	RDT&E, Navy CDP (Sunk)	
Navy	1319	05	0604800M
	<b>Project</b>	<b>Name</b>	
	2262	RDT&E, Marine Corps	
	3350	F-35B Suitability and Deployability (Sunk)	
Navy	1319	05	0604800N
	<b>Project</b>	<b>Name</b>	
	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	
	<b>Project</b>		<b>Name</b>	
	2935		Joint Strike Fighter Follow On Mod (FoM) - MC	
Navy	1319	05	0604810N	
	<b>Project</b>		<b>Name</b>	
	2936		Joint Strike Fighter Follow On Mod (FoM) Navy	(Sunk)
Navy	1319	07	0604840M	
	<b>Project</b>		<b>Name</b>	
	3410		F-35B C2D2	
Navy	1319	07	0604840N	
	<b>Project</b>		<b>Name</b>	
	2936		F-35 C2D2, JSF Follow-on-Modernization	
Air Force	3600	07	0207142F	
	<b>Project</b>		<b>Name</b>	
	5346		F-35A C2D2	
	6011		F-35 Squadrons, Dual Capable Aircraft (DCA)	
Air Force	3600	04	0603800F	
	<b>Project</b>		<b>Name</b>	
	2025		RDT&E, Air Force CDP	(Sunk)
Air Force	3600	05	0604800F	
	<b>Project</b>		<b>Name</b>	
	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	
	<b>Project</b>		<b>Name</b>	
	5346		F-35A C2D2	
Defense-Wide	0400	03	0603800E	
	<b>Project</b>		<b>Name</b>	
			RDT&E, DARPA	(Sunk)
Defense-Wide	9999	05		
	<b>Project</b>		<b>Name</b>	
			RDT&E, Non-Treasury Funds	

### Procurement

	Appn	BA	PE
Navy	1506	01	0204146N

		Line Item	Name
Navy		0147	JSF (Navy)
	1506 01	0204146M	
		Line Item	Name
Navy		0152	JSF (Marine Corps)
	1506 05	0204146M	
		Line Item	Name
Navy		0592	F-35 STOVL Series (Shared)
	1506 05	0204146N	
		Line Item	Name
Navy		0593	F-35 CV Series (Shared)
	1506 06	0204146N	
		Line Item	Name
Navy		0605	Initial Spares (Navy) (Shared)
	1506 06	0204146M	
		Line Item	Name
Air Force		0605	Initial Spares (Marine Corps) (Shared)
	3010 06	0207142F	
		Line Item	Name
Air Force		000999	Initial Spares (Air Force) (Shared)
	3010 01	0207142F	
		Line Item	Name
Air Force		ATA000	JSF (Air Force)
	3010 05	0207142F	
		Line Item	Name
Air Force		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			SAR Baseline Development Estimate	Current APB Development Objective	Current Estimate
RDT&E	59677.3	70501.2	--	71906.2	55233.8	68246.0	70068.2
Procurement	266665.8	271899.2	--	245021.3	335680.7	363058.3	322470.0
Flyaway	--	--	--	207033.8	--	--	274174.2
Recurring	--	--	--	183631.7	--	--	244507.2
Non Recurring	--	--	--	23402.1	--	--	29667.0
Support	--	--	--	37987.5	--	--	48295.8
Other Support	--	--	--	25218.4	--	--	32016.2
Initial Spares	--	--	--	12769.1	--	--	16279.6
MILCON	4168.0	4168.0	--	4521.8	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	321449.3	395711.8	436101.6	397762.8



## 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	58301.3	44410.1	55948.7	57501.2
Procurement	224332.9	230886.4	253975.0	204116.0	282647.8	308976.5	268567.5
Flyaway	--	--	--	172590.4	--	--	228464.7
Recurring	--	--	--	151833.1	--	--	202052.0
Non Recurring	--	--	--	20757.3	--	--	26412.7
Support	--	--	--	31525.6	--	--	40102.8
Other Support	--	--	--	22462.9	--	--	28558.2
Initial Spares	--	--	--	9062.7	--	--	11544.6
MILCON	4168.0	4168.0	4584.8	4521.8	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	266939.1	331855.2	369722.5	331293.3

#### 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

No program office estimate has been completed in the previous year.

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 (2456) has not changed from SAR 2018 to SAR 2019.

## 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	13604.9	10823.7	12297.3	12567.0
Procurement	42332.9	41012.8	46566.2	40905.3	53032.9	54081.8	53902.5
Flyaway	--	--	--	34443.4	--	--	45709.5
Recurring	--	--	--	31798.6	--	--	42455.2
Non Recurring	--	--	--	2644.8	--	--	3254.3
Support	--	--	--	6461.9	--	--	8193.0
Other Support	--	--	--	2755.5	--	--	3458.0
Initial Spares	--	--	--	3706.4	--	--	4735.0
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	54510.2	63856.6	66379.1	66469.5

### 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

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 2018 to SAR 2019.



## Cost and Funding

### Funding Summary - Total Program

Appropriation Summary									
FY 2021 President's Budget / December 2019 SAR (TY\$ M)									
Appropriation	Prior	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	To Complete	Total
RDT&E	58418.7	1836.3	2151.2	1794.5	1540.1	1509.3	1358.0	1460.1	70068.2
Procurement	89215.4	11873.5	10284.9	10443.3	11028.3	11341.1	11363.2	166920.3	322470.0
MILCON	3005.3	403.0	447.7	611.1	366.8	390.7	0.0	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 2021 Total	150639.4	14112.8	12883.8	12848.9	12935.2	13241.1	12721.2	168380.4	397762.8
PB 2020 Total	150849.9	13047.4	13196.6	13805.7	13510.4	13605.9	13028.3	197338.5	428382.7
Delta	-210.5	1065.4	-312.8	-956.8	-575.2	-364.8	-307.1	-28958.1	-30619.9



## Cost and Funding

### Funding Summary - F-35 Aircraft

Appropriation Summary									
FY 2021 President's Budget / December 2019 SAR (TY\$ M)									
Appropriation	Prior	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	To Complete	Total
RDT&E	46346.7	1762.1	2056.6	1721.7	1479.8	1447.9	1299.4	1387.0	57501.2
Procurement	75231.2	9578.3	8614.5	8624.9	9084.8	9315.1	9319.5	138799.2	268567.5
MILCON	3005.3	403.0	447.7	611.1	366.8	390.7	0.0	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 2021 Total	124583.2	11743.4	11118.8	10957.7	10931.4	11153.7	10618.9	140186.2	331293.3
PB 2020 Total	124865.9	11310.6	11341.9	11823.1	11445.3	11471.5	10854.8	169334.2	362447.3
Delta	-282.7	432.8	-223.1	-865.4	-513.9	-317.8	-235.9	-29148.0	-31154.0

Quantity Summary										
FY 2021 President's Budget / December 2019 SAR (TY\$ M)										
Quantity	Undistributed	Prior	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	To Complete	Total
Development	14	0	0	0	0	0	0	0	0	14
Production	0	542	98	79	85	94	94	96	1368	2456
PB 2021 Total	14	542	98	79	85	94	94	96	1368	2470
PB 2020 Total	14	542	78	81	94	95	94	105	1367	2470
Delta	0	0	20	-2	-9	-1	0	-9	1	0

## Funding Summary - F-35 Engine

Appropriation Summary									
FY 2021 President's Budget / December 2019 SAR (TY\$ M)									
Appropriation	Prior	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	To Complete	Total
RDT&E	12072.0	74.2	94.6	72.8	60.3	61.4	58.6	73.1	12567.0
Procurement	13984.2	2295.2	1670.4	1818.4	1943.5	2026.0	2043.7	28121.1	53902.5
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 2021 Total	26056.2	2369.4	1765.0	1891.2	2003.8	2087.4	2102.3	28194.2	66469.5
PB 2020 Total	25984.0	1736.8	1854.7	1982.6	2065.1	2134.4	2173.5	28004.3	65935.4
Delta	72.2	632.6	-89.7	-91.4	-61.3	-47.0	-71.2	189.9	534.1

Quantity Summary										
FY 2021 President's Budget / December 2019 SAR (TY\$ M)										
Quantity	Undistributed	Prior	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	To Complete	Total
Development	14	0	0	0	0	0	0	0	0	14
Production	0	542	98	79	85	94	94	96	1368	2456
PB 2021 Total	14	542	98	79	85	94	94	96	1368	2470
PB 2020 Total	14	542	78	81	94	95	94	105	1367	2470
Delta	0	0	20	-2	-9	-1	0	-9	1	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						Total Program
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support		
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	--	--	--	--	--	--	508.7
2020	--	--	--	--	--	--	719.9
2021	--	--	--	--	--	--	876.8
2022	--	--	--	--	--	--	588.3
2023	--	--	--	--	--	--	462.6
2024	--	--	--	--	--	--	509.7
2025	--	--	--	--	--	--	572.4
2026	--	--	--	--	--	--	551.9
Subtotal	5	--	--	--	--	--	24053.4

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	--	--	--	--	--	--	551.7
2017	--	--	--	--	--	--	421.6
2018	--	--	--	--	--	--	528.2
2019	--	--	--	--	--	--	445.0
2020	--	--	--	--	--	--	617.5
2021	--	--	--	--	--	--	737.3
2022	--	--	--	--	--	--	485.0
2023	--	--	--	--	--	--	373.9
2024	--	--	--	--	--	--	403.9
2025	--	--	--	--	--	--	444.7
2026	--	--	--	--	--	--	420.3
Subtotal	5	--	--	--	--	--	24512.2



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	--	--	--	--	--	--	530.9
2019	--	--	--	--	--	--	497.0
2020	--	--	--	--	--	--	711.9
2021	--	--	--	--	--	--	754.5
2022	--	--	--	--	--	--	578.7
2023	--	--	--	--	--	--	469.4
2024	--	--	--	--	--	--	474.7
2025	--	--	--	--	--	--	423.2
2026	--	--	--	--	--	--	631.8
Subtotal	9	--	--	--	--	--	24857.7

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	--	--	--	--	--	--	889.4
2017	--	--	--	--	--	--	949.7
2018	--	--	--	--	--	--	473.7
2019	--	--	--	--	--	--	434.8
2020	--	--	--	--	--	--	610.6
2021	--	--	--	--	--	--	634.5
2022	--	--	--	--	--	--	477.1
2023	--	--	--	--	--	--	379.4
2024	--	--	--	--	--	--	376.2
2025	--	--	--	--	--	--	328.8
2026	--	--	--	--	--	--	481.2
Subtotal	9	--	--	--	--	--	25258.5

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	--	--	--	--	--	--	330.3
2021	--	--	--	--	--	--	425.3
2022	--	--	--	--	--	--	554.7
2023	--	--	--	--	--	--	547.8
2024	--	--	--	--	--	--	463.5
2025	--	--	--	--	--	--	303.8
2026	--	--	--	--	--	--	203.3
Subtotal	--	--	--	--	--	--	8495.2



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	--	--	--	--	--	--	43.6
2016	--	--	--	--	--	--	77.8
2017	--	--	--	--	--	--	77.3
2018	--	--	--	--	--	--	114.3
2019	--	--	--	--	--	--	289.8
2020	--	--	--	--	--	--	283.3
2021	--	--	--	--	--	--	357.6
2022	--	--	--	--	--	--	457.3
2023	--	--	--	--	--	--	442.8
2024	--	--	--	--	--	--	367.3
2025	--	--	--	--	--	--	236.0
2026	--	--	--	--	--	--	154.8
Subtotal	--	--	--	--	--	--	8408.8

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	--	742.8	5199.8	774.5	5974.3
2019	56	3746.2	--	544.8	4291.0	632.5	4923.5
2020	62	3916.0	--	866.3	4782.3	716.6	5498.9
2021	48	3074.4	--	664.5	3738.9	1210.8	4949.7
2022	48	3081.0	--	478.9	3559.9	833.3	4393.2
2023	48	3261.2	--	397.5	3658.7	709.6	4368.3
2024	48	3215.1	--	303.0	3518.1	818.8	4336.9
2025	48	3029.5	--	312.1	3341.6	827.8	4169.4
2026	60	3703.7	--	539.3	4243.0	695.6	4938.6
2027	60	3930.0	--	474.5	4404.5	637.6	5042.1
2028	60	4361.9	--	369.5	4731.4	611.7	5343.1
2029	60	4153.2	--	373.7	4526.9	607.8	5134.7
2030	60	3867.9	--	378.1	4246.0	636.3	4882.3
2031	60	4065.3	--	390.7	4456.0	565.1	5021.1
2032	60	4554.8	--	404.2	4959.0	504.6	5463.6
2033	60	5125.6	--	413.6	5539.2	598.3	6137.5
2034	60	4874.6	--	417.9	5292.5	705.1	5997.6
2035	60	4592.1	--	426.4	5018.5	572.1	5590.6
2036	60	4670.9	--	433.6	5104.5	539.2	5643.7
2037	60	5034.6	--	482.9	5517.5	673.4	6190.9
2038	60	5637.0	--	493.2	6130.2	614.7	6744.9
2039	60	5489.6	--	502.6	5992.2	650.7	6642.9
2040	60	5221.9	--	512.0	5733.9	603.4	6337.3
2041	60	5333.0	--	521.4	5854.4	252.8	6107.2
2042	60	5761.9	--	527.1	6289.0	148.1	6437.1
2043	60	5795.4	--	468.3	6263.7	454.4	6718.1
2044	43	4388.9	--	362.7	4751.6	730.3	5481.9
Subtotal	1763	141835.3	--	16555.4	158390.7	22269.8	180660.5



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	1983.7	--	365.1	2348.8	751.0	3099.8
2013	19	1994.3	--	73.6	2067.9	508.4	2576.3
2014	19	1930.6	--	556.7	2487.3	410.9	2898.2
2015	28	2538.8	--	506.7	3045.5	582.4	3627.9
2016	47	3733.5	--	461.3	4194.8	571.7	4766.5
2017	48	3412.2	--	192.0	3604.2	545.1	4149.3
2018	56	3930.3	--	654.9	4585.2	683.0	5268.2
2019	56	3239.2	--	471.1	3710.3	546.9	4257.2
2020	62	3319.7	--	734.4	4054.1	607.4	4661.5
2021	48	2555.1	--	552.3	3107.4	1006.3	4113.7
2022	48	2510.4	--	390.2	2900.6	679.0	3579.6
2023	48	2605.1	--	317.5	2922.6	566.9	3489.5
2024	48	2518.0	--	237.3	2755.3	641.2	3396.5
2025	48	2326.1	--	239.6	2565.7	635.6	3201.3
2026	60	2788.0	--	406.0	3194.0	523.5	3717.5
2027	60	2900.3	--	350.2	3250.5	470.5	3721.0
2028	60	3155.9	--	267.3	3423.2	442.7	3865.9
2029	60	2946.0	--	265.1	3211.1	431.1	3642.2
2030	60	2689.8	--	262.9	2952.7	442.6	3395.3
2031	60	2771.7	--	266.4	3038.1	385.2	3423.3
2032	60	3044.5	--	270.2	3314.7	337.3	3652.0
2033	60	3358.9	--	271.0	3629.9	392.1	4022.0
2034	60	3131.8	--	268.5	3400.3	453.0	3853.3
2035	60	2892.4	--	268.6	3161.0	360.3	3521.3
2036	60	2884.4	--	267.7	3152.1	333.0	3485.1
2037	60	3048.0	--	292.3	3340.3	407.7	3748.0
2038	60	3345.8	--	292.8	3638.6	364.8	4003.4
2039	60	3194.4	--	292.5	3486.9	378.6	3865.5
2040	60	2979.1	--	292.1	3271.2	344.2	3615.4
2041	60	2982.8	--	291.6	3274.4	141.4	3415.8
2042	60	3159.5	--	289.0	3448.5	81.2	3529.7
2043	60	3115.5	--	251.8	3367.3	244.3	3611.6
2044	43	2313.2	--	191.2	2504.4	384.8	2889.2
Subtotal	1763	102116.9	--	12577.8	114694.7	17016.5	131711.2



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	1983.7
2013	19	1994.3
2014	19	1930.6
2015	28	2538.8
2016	47	3733.5
2017	48	3412.2
2018	56	3930.3
2019	56	3239.2
2020	62	3319.7
2021	48	2555.1
2022	48	2510.4
2023	48	2605.1
2024	48	2518.0
2025	48	2326.1
2026	60	2788.0
2027	60	2900.3
2028	60	3155.9
2029	60	2946.0
2030	60	2689.8
2031	60	2771.7
2032	60	3044.5
2033	60	3358.9
2034	60	3131.8
2035	60	2892.4
2036	60	2884.4
2037	60	3048.0
2038	60	3345.8
2039	60	3194.4
2040	60	2979.1
2041	60	2982.8
2042	60	3159.5
2043	60	3115.5
2044	43	2429.5

Subtotal	1763	102116.9
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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	2497.1	--	269.2	2766.3	617.1	3383.4
2018	34	3264.7	--	421.5	3686.2	822.4	4508.6
2019	37	2815.7	--	638.0	3453.7	555.6	4009.3
2020	36	2795.2	--	423.9	3219.1	860.3	4079.4
2021	31	2507.5	--	405.7	2913.2	751.6	3664.8
2022	37	2823.8	--	433.1	3256.9	974.8	4231.7
2023	46	3396.3	--	475.3	3871.6	844.9	4716.5
2024	46	3647.0	--	590.7	4237.7	740.5	4978.2
2025	48	3875.2	--	608.3	4483.5	666.6	5150.1
2026	45	3322.9	--	426.6	3749.5	616.2	4365.7
2027	45	3565.6	--	431.2	3996.8	563.8	4560.6
2028	45	3790.9	--	340.9	4131.8	693.0	4824.8
2029	45	3714.9	--	336.6	4051.5	561.6	4613.1
2030	45	3408.4	--	741.7	4150.1	2160.4	6310.5
2031	20	1497.6	--	578.3	2075.9	2193.4	4269.3
Subtotal	693	60216.7	--	9857.3	70074.0	17833.0	87907.0



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	1143.9	--	356.4	1500.3	609.5	2109.8
2015	10	1042.3	--	594.9	1637.2	383.4	2020.6
2016	21	1951.3	--	525.0	2476.3	590.7	3067.0
2017	26	2242.7	--	241.8	2484.5	554.2	3038.7
2018	34	2878.9	--	371.7	3250.6	725.2	3975.8
2019	37	2434.7	--	551.6	2986.3	480.4	3466.7
2020	36	2369.6	--	359.3	2728.9	729.3	3458.2
2021	31	2084.0	--	337.2	2421.2	624.6	3045.8
2022	37	2300.8	--	352.9	2653.7	794.3	3448.0
2023	46	2713.1	--	379.7	3092.8	674.9	3767.7
2024	46	2856.2	--	462.6	3318.8	579.9	3898.7
2025	48	2975.4	--	467.0	3442.4	511.9	3954.3
2026	45	2501.3	--	321.1	2822.4	463.9	3286.3
2027	45	2631.4	--	318.2	2949.6	416.1	3365.7
2028	45	2742.8	--	246.6	2989.4	501.4	3490.8
2029	45	2635.1	--	238.8	2873.9	398.3	3272.2
2030	45	2370.3	--	515.8	2886.1	1502.4	4388.5
2031	20	1021.1	--	394.3	1415.4	1495.4	2910.8
Subtotal	693	49716.2	--	8179.5	57895.7	14509.1	72404.8

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	1143.9
2015	10	1042.3
2016	21	1951.3
2017	26	2242.7
2018	34	2878.9
2019	37	2434.7
2020	36	2369.6
2021	31	2084.0
2022	37	2300.8
2023	46	2713.1
2024	46	2856.2
2025	48	2975.4
2026	45	2501.3
2027	45	2631.4
2028	45	2742.8
2029	45	2635.1
2030	45	2370.3
2031	20	1123.4
Subtotal	693	49716.2

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		108.0
2016		57.9
2017		58.5
2018		13.4
2019		230.5
2020		285.0
2021		143.6
2022		282.6
2023		223.7
2024		83.4
Subtotal		2175.8

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	--	--	--	--	--	--	30.0
2021	--	--	--	--	--	--	46.2
2022	--	--	--	--	--	--	31.0
2023	--	--	--	--	--	--	24.4
2024	--	--	--	--	--	--	26.9
2025	--	--	--	--	--	--	30.1
2026	--	--	--	--	--	--	29.1
Subtotal	5	--	--	--	--	--	5801.8



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	--	--	--	--	--	--	13.7
2019	--	--	--	--	--	--	43.4
2020	--	--	--	--	--	--	25.7
2021	--	--	--	--	--	--	38.8
2022	--	--	--	--	--	--	25.6
2023	--	--	--	--	--	--	19.7
2024	--	--	--	--	--	--	21.3
2025	--	--	--	--	--	--	23.4
2026	--	--	--	--	--	--	22.2
Subtotal	5	--	--	--	--	--	6295.6

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	--	--	--	--	--	--	37.5
2021	--	--	--	--	--	--	39.7
2022	--	--	--	--	--	--	30.5
2023	--	--	--	--	--	--	24.7
2024	--	--	--	--	--	--	25.0
2025	--	--	--	--	--	--	22.3
2026	--	--	--	--	--	--	33.3
Subtotal	9	--	--	--	--	--	6370.6

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	--	--	--	--	--	--	10.3
2019	--	--	--	--	--	--	60.5
2020	--	--	--	--	--	--	32.2
2021	--	--	--	--	--	--	33.4
2022	--	--	--	--	--	--	25.1
2023	--	--	--	--	--	--	20.0
2024	--	--	--	--	--	--	19.8
2025	--	--	--	--	--	--	17.3
2026	--	--	--	--	--	--	25.4
Subtotal	9	--	--	--	--	--	6878.6



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	--	--	--	--	--	--	6.7
2021	--	--	--	--	--	--	8.7
2022	--	--	--	--	--	--	11.3
2023	--	--	--	--	--	--	11.2
2024	--	--	--	--	--	--	9.5
2025	--	--	--	--	--	--	6.2
2026	--	--	--	--	--	--	10.7
Subtotal	--	--	--	--	--	--	371.5



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	--	--	--	--	--	--	26.2
2020	--	--	--	--	--	--	5.7
2021	--	--	--	--	--	--	7.3
2022	--	--	--	--	--	--	9.3
2023	--	--	--	--	--	--	9.1
2024	--	--	--	--	--	--	7.5
2025	--	--	--	--	--	--	4.8
2026	--	--	--	--	--	--	8.1
Subtotal	--	--	--	--	--	--	400.1

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	175.7	943.8
2019	56	714.8	--	41.0	755.8	150.1	905.9
2020	62	942.8	--	175.4	1118.2	173.2	1291.4
2021	48	594.6	--	46.9	641.5	203.2	844.7
2022	48	600.3	--	35.8	636.1	162.7	798.8
2023	48	653.7	--	29.9	683.6	149.7	833.3
2024	48	665.7	--	22.8	688.5	161.7	850.2
2025	48	636.4	--	23.5	659.9	163.9	823.8
2026	60	773.5	--	40.6	814.1	121.9	936.0
2027	60	830.6	--	35.7	866.3	121.5	987.8
2028	60	923.1	--	27.8	950.9	120.3	1071.2
2029	60	886.3	--	28.1	914.4	116.6	1031.0
2030	60	822.8	--	28.5	851.3	123.5	974.8
2031	60	846.7	--	29.4	876.1	120.4	996.5
2032	60	921.9	--	30.4	952.3	109.2	1061.5
2033	60	1024.0	--	31.1	1055.1	118.3	1173.4
2034	60	985.0	--	31.5	1016.5	140.8	1157.3
2035	60	918.8	--	32.1	950.9	125.4	1076.3
2036	60	935.2	--	32.6	967.8	102.7	1070.5
2037	60	1008.9	--	36.3	1045.2	144.8	1190.0
2038	60	1123.6	--	37.1	1160.7	132.1	1292.8
2039	60	1078.8	--	37.8	1116.6	131.1	1247.7
2040	60	1002.5	--	38.5	1041.0	134.1	1175.1
2041	60	1021.8	--	39.2	1061.0	48.2	1109.2
2042	60	1104.1	--	39.7	1143.8	30.4	1174.2
2043	60	1100.2	--	35.2	1135.4	168.5	1303.9
2044	43	746.0	--	27.3	773.3	164.7	938.0
Subtotal	1763	26866.0	--	1489.0	28355.0	4705.6	33060.6



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	119.6	450.9
2013	19	252.3	--	11.4	263.7	86.2	349.9
2014	19	267.7	--	29.6	297.3	45.1	342.4
2015	28	361.5	--	14.5	376.0	110.5	486.5
2016	47	555.2	--	21.3	576.5	116.0	692.5
2017	48	576.1	--	1.0	577.1	267.9	845.0
2018	56	627.8	--	49.6	677.4	154.9	832.3
2019	56	618.1	--	35.5	653.6	129.7	783.3
2020	62	799.2	--	148.7	947.9	146.8	1094.7
2021	48	494.2	--	39.0	533.2	168.8	702.0
2022	48	489.1	--	29.2	518.3	132.6	650.9
2023	48	522.2	--	23.9	546.1	119.6	665.7
2024	48	521.4	--	17.9	539.3	126.5	665.8
2025	48	488.6	--	18.0	506.6	125.9	632.5
2026	60	582.3	--	30.6	612.9	91.7	704.6
2027	60	613.0	--	26.3	639.3	89.7	729.0
2028	60	667.9	--	20.1	688.0	87.0	775.0
2029	60	628.7	--	19.9	648.6	82.7	731.3
2030	60	572.2	--	19.8	592.0	85.9	677.9
2031	60	577.3	--	20.0	597.3	82.1	679.4
2032	60	616.2	--	20.3	636.5	73.0	709.5
2033	60	671.0	--	20.4	691.4	77.5	768.9
2034	60	632.8	--	20.2	653.0	90.5	743.5
2035	60	578.7	--	20.2	598.9	79.0	677.9
2036	60	577.5	--	20.1	597.6	63.5	661.1
2037	60	610.8	--	22.0	632.8	87.6	720.4
2038	60	666.9	--	22.0	688.9	78.4	767.3
2039	60	627.8	--	22.0	649.8	76.2	726.0
2040	60	571.9	--	22.0	593.9	76.5	670.4
2041	60	571.5	--	22.0	593.5	26.9	620.4
2042	60	605.4	--	21.9	627.3	16.6	643.9
2043	60	591.5	--	18.9	610.4	90.6	701.0
2044	43	393.2	--	14.4	407.6	86.8	494.4
Subtotal	1763	19042.9	--	1179.1	20222.0	3581.9	23803.9



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	555.2
2017	48	576.1
2018	56	627.8
2019	56	618.1
2020	62	799.2
2021	48	494.2
2022	48	489.1
2023	48	522.2
2024	48	521.4
2025	48	488.6
2026	60	582.3
2027	60	613.0
2028	60	667.9
2029	60	628.7
2030	60	572.2
2031	60	577.3
2032	60	616.2
2033	60	671.0
2034	60	632.8
2035	60	578.7
2036	60	577.5
2037	60	610.8
2038	60	666.9
2039	60	627.8
2040	60	571.9
2041	60	571.5
2042	60	605.4
2043	60	591.5
2044	43	403.8

Subtotal	1763	19042.9
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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	232.7	901.0
2018	34	799.5	--	86.3	885.8	216.3	1102.1
2019	37	897.4	--	151.2	1048.6	111.1	1159.7
2020	36	740.3	--	95.9	836.2	167.6	1003.8
2021	31	591.2	--	82.8	674.0	151.7	825.7
2022	37	754.7	--	79.2	833.9	185.7	1019.6
2023	46	916.6	--	48.5	965.1	145.1	1110.2
2024	46	978.4	--	76.8	1055.2	120.6	1175.8
2025	48	1020.7	--	80.4	1101.1	118.8	1219.9
2026	45	934.5	--	100.1	1034.6	101.7	1136.3
2027	45	996.6	--	74.0	1070.6	103.7	1174.3
2028	45	1052.2	--	53.7	1105.9	120.1	1226.0
2029	45	1035.6	--	57.3	1092.9	97.0	1189.9
2030	45	948.3	--	159.3	1107.6	374.7	1482.3
2031	20	426.1	--	147.2	573.3	371.8	945.1
Subtotal	693	15589.2	--	1765.3	17354.5	3487.4	20841.9



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	100.7	453.3
2017	26	582.4	--	17.8	600.2	209.0	809.2
2018	34	705.0	--	76.1	781.1	190.8	971.9
2019	37	776.0	--	130.7	906.7	96.1	1002.8
2020	36	627.6	--	81.3	708.9	142.0	850.9
2021	31	491.3	--	68.8	560.1	126.1	686.2
2022	37	614.9	--	64.5	679.4	151.4	830.8
2023	46	732.2	--	38.7	770.9	116.0	886.9
2024	46	766.2	--	60.1	826.3	94.5	920.8
2025	48	783.7	--	61.7	845.4	91.2	936.6
2026	45	703.4	--	75.4	778.8	76.6	855.4
2027	45	735.5	--	54.6	790.1	76.5	866.6
2028	45	761.3	--	38.9	800.2	86.8	887.0
2029	45	734.6	--	40.6	775.2	68.8	844.0
2030	45	659.5	--	110.8	770.3	260.5	1030.8
2031	20	290.5	--	100.4	390.9	253.5	644.4
Subtotal	693	12755.7	--	1465.7	14221.4	2880.0	17101.4

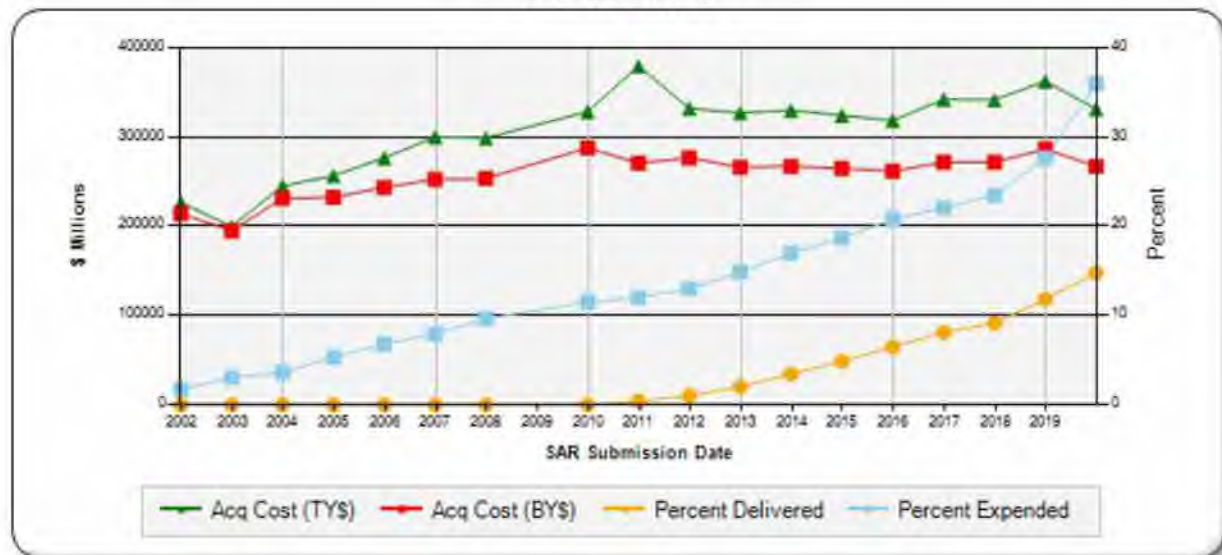
Cost Quantity Information - F-35 Engine 1506   Procurement   Aircraft Procurement, Navy		
Fiscal Year	Quantity	End Item Recurring Flyaway (Aligned With Quantity) BY 2012 \$M
2007	--	--
2008	6	256.1
2009	7	305.8
2010	20	602.1
2011	10	394.7
2012	13	186.0
2013	10	227.7
2014	10	215.5
2015	10	242.6
2016	21	332.2
2017	26	582.4
2018	34	705.0
2019	37	776.0
2020	36	627.6
2021	31	491.3
2022	37	614.9
2023	46	732.2
2024	46	766.2
2025	48	783.7
2026	45	703.4
2027	45	735.5
2028	45	761.3
2029	45	734.6
2030	45	659.5
2031	20	319.4
Subtotal	693	12755.7

## Charts

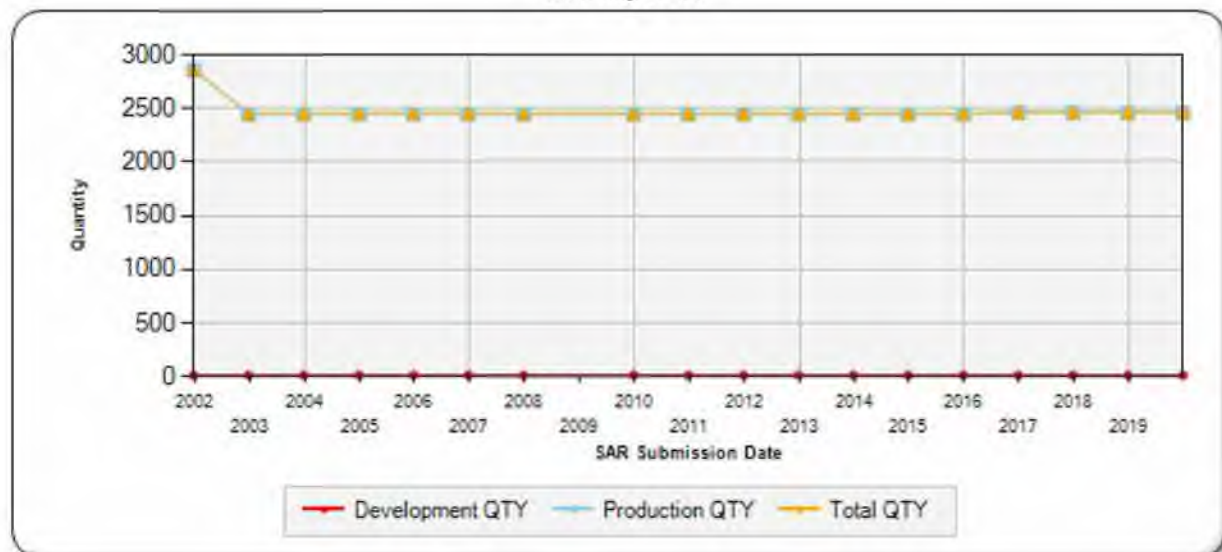
### F-35 Aircraft

#### F-35 first began SAR reporting in December 1997

Program Acquisition Cost - F-35  
Base Year 2012 \$M

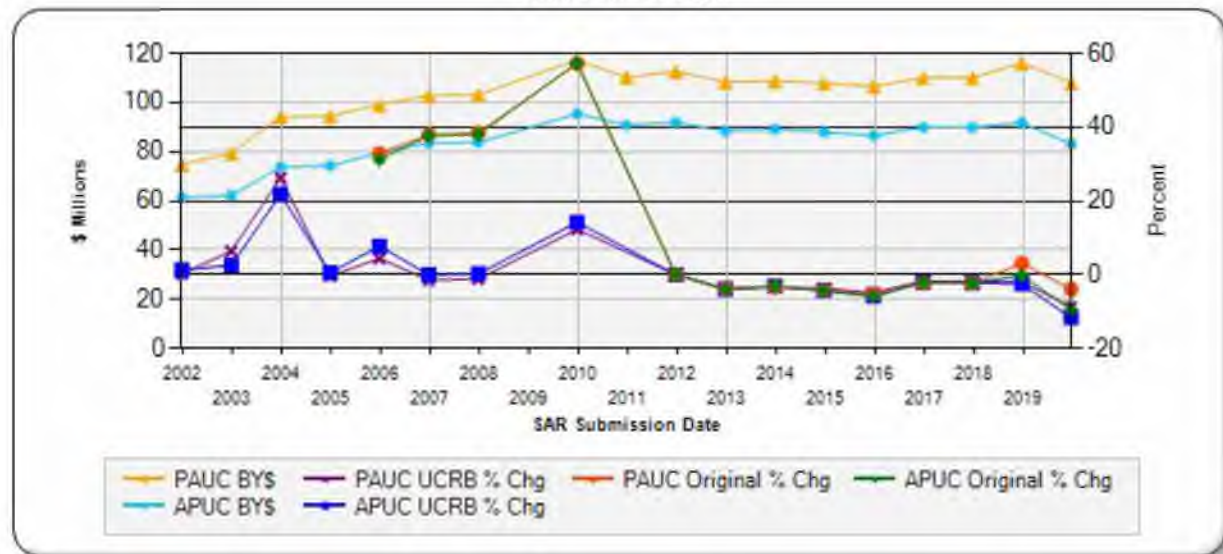


Quantity - F-35





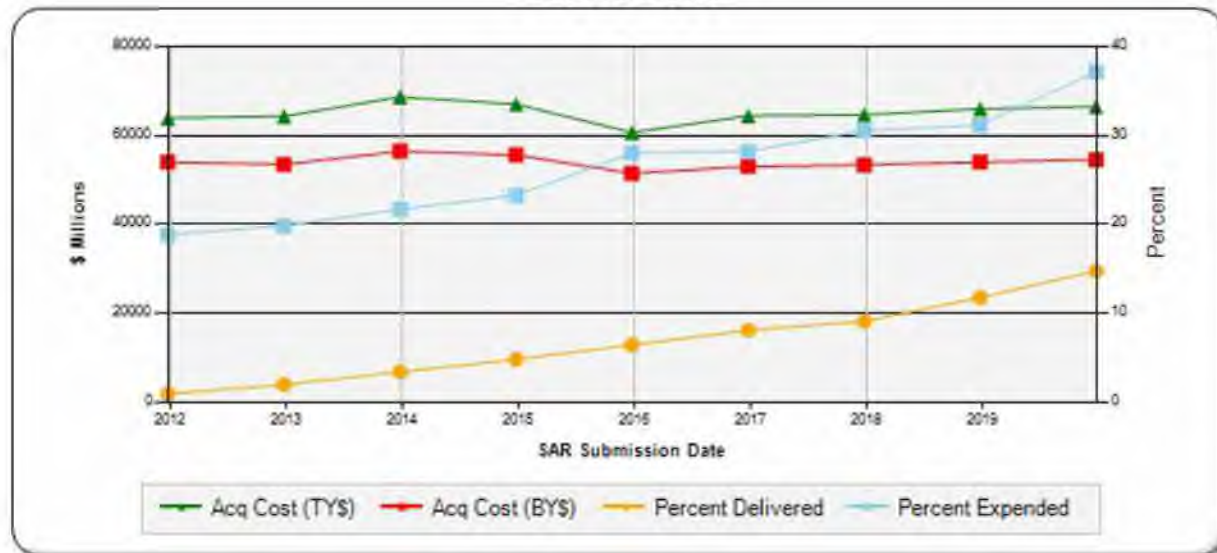
Unit Cost - F-35  
Base Year 2012 \$M



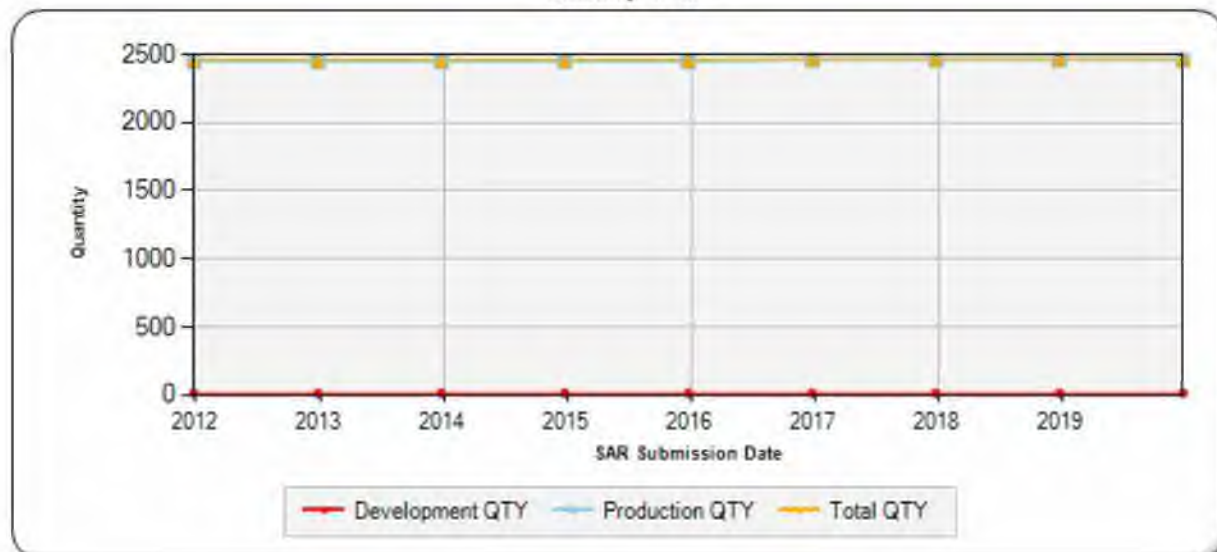
## F-35 Engine

F-35 first began SAR reporting in December 1997

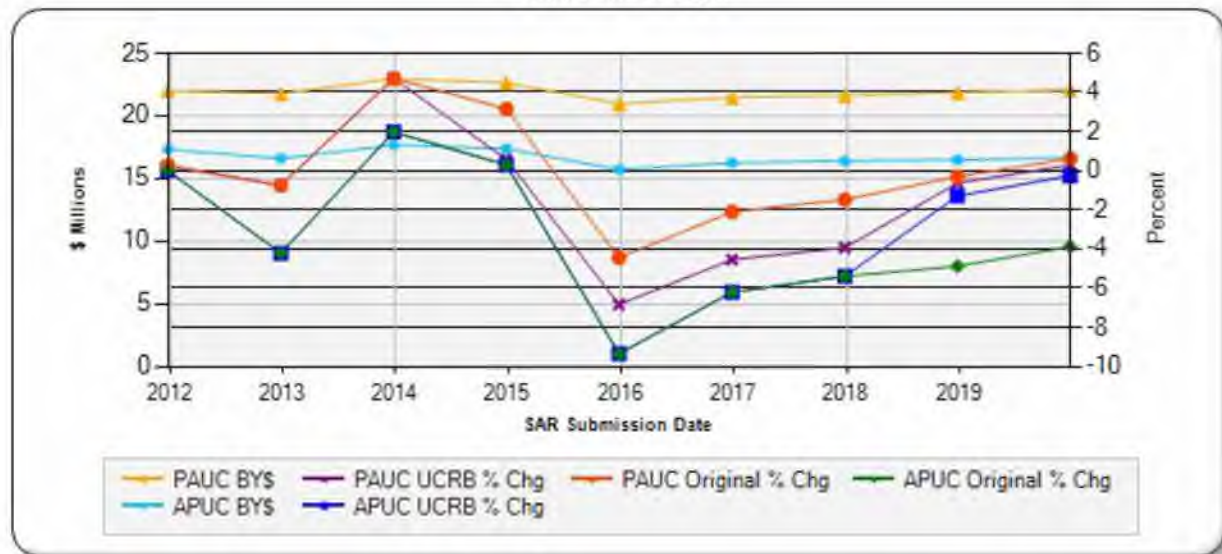
Program Acquisition Cost - F-35  
Base Year 2012 \$M



Quantity - F-35



Unit Cost - F-35  
Base Year 2012 \$M





## Risks

### Significant Schedule and Technical Risks - F-35 Aircraft

Significant Schedule and Technical Risks	
Current Estimate (December 2019)	
1.	Development of the Joint Simulation Environment (JSE) is the highest priority risk to the F-35 program's completion of Milestone C and the Full Rate Production Decision Review.

**Significant Schedule and Technical Risks - F-35 Engine**

Significant Schedule and Technical Risks	
Current Estimate (December 2019)	
1.	No major programmatic risks attributable to the F-35 Engine subprogram have been identified at this time.

## Risks

### Risk and Sensitivity Analysis - F-35 Aircraft

Risks and Sensitivity Analysis	
Current Baseline Estimate (February 2020)	
1.	Risk and sensitivity analysis information will be provided after receipt of Director, Cost Assessment and Program Evaluation (DCAPE) Independent Cost Estimate in 2020.
Original Baseline Estimate (October 2001)	
1.	N/A
Revised Original Estimate (March 2012)	
1.	N/A
Current Procurement Cost (December 2019)	
1.	Risk and sensitivity analysis information will be provided after receipt of Director, Cost Assessment and Program Evaluation (DCAPE) Independent Cost Estimate in 2020.



## Risk and Sensitivity Analysis - F-35 Engine

Risks and Sensitivity Analysis	
Current Baseline Estimate (February 2020)	
1.	No major programmatic risks attributable to the F-35 Engine subprogram have been identified at this time.
Original Baseline Estimate (March 2012)	
1.	No major programmatic risks attributable to the F-35 Engine subprogram have been identified at this time.
Revised Original Estimate (N/A)	
1.	No major programmatic risks attributable to the F-35 Engine subprogram have been identified at this time.
Current Procurement Cost (December 2019)	
1.	No major programmatic risks attributable to the F-35 Engine subprogram have been identified at this time.

## Low Rate Initial Production

### F-35 Aircraft

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

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None

F-35 Engine

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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 (Feb 2020 APB)	Current Estimate (Dec 2019 SAR)	
Program Acquisition Unit Cost			
Cost	292210.2	266939.1	
Quantity	2470	2470	
Unit Cost	118.304	108.073	-8.65
Average Procurement Unit Cost			
Cost	230886.4	204116.0	
Quantity	2456	2456	
Unit Cost	94.009	83.109	-11.59

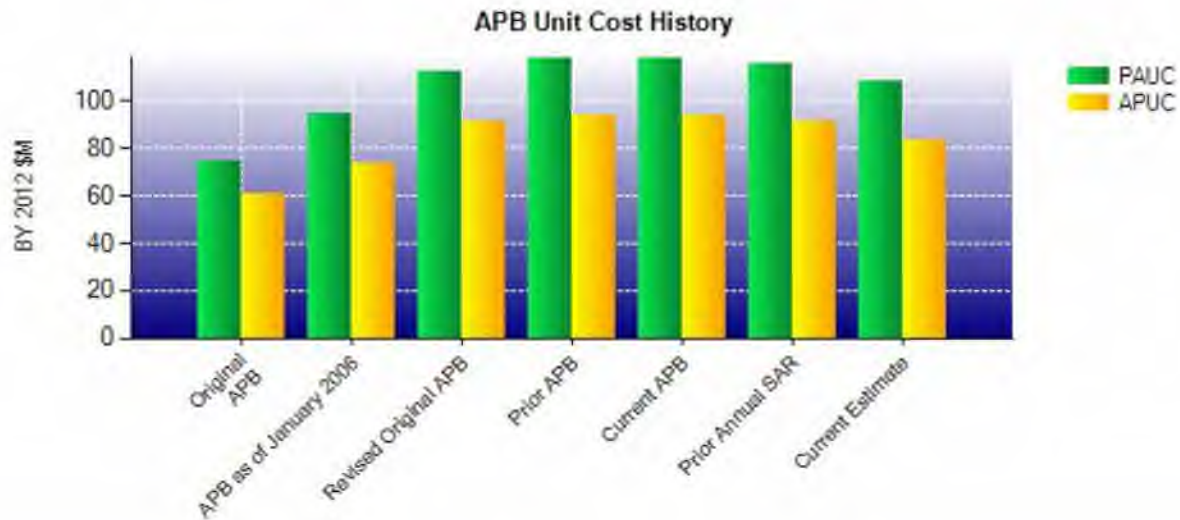
Original UCR Baseline and Current Estimate (Base-Year Dollars)			
Item	BY 2012 \$M	BY 2012 \$M	% Change
	Revised Original UCR Baseline (Mar 2012 APB)	Current Estimate (Dec 2019 SAR)	
Program Acquisition Unit Cost			
Cost	276482.2	266939.1	
Quantity	2458	2470	
Unit Cost	112.483	108.073	-3.92
Average Procurement Unit Cost			
Cost	224333.7	204116.0	
Quantity	2443	2456	
Unit Cost	91.827	83.109	-9.49

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 271 FMS aircraft and 538 International Partner aircraft.

F-35A (Conventional Take Off and Landing) URF - \$57.4M (BY 2012)

F-35B (Short Takeoff and Vertical Landing) URF - \$72.1M (BY 2012)

F-35C (Carrier Variant) URF - \$72.3M (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	Mar 2019	118.304	94.009	149.685	125.805
Current APB	Feb 2020	118.304	94.009	149.685	125.805
Prior Annual SAR	Dec 2018	115.967	91.671	146.740	122.889
Current Estimate	Dec 2019	108.073	83.109	134.127	109.352

### 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	0.626	-0.224	8.768	7.139	-18.825	0.000	1.578	-0.938	134.127

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	0.598	-0.123	7.765	2.438	-18.610	0.000	1.587	-6.345	109.352



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	Sep 2020
IOC	TBD	TBD	N/A	Jul 2015
Total Cost (TY \$M)	24800.0	331855.2	N/A	331293.3
Total Quantity	N/A	2457	N/A	2470
PAUC	N/A	135.065	N/A	134.127

The Service IOC reflected in the above table is the U.S. Marine Corps Objective date. As of Feb 2019, all three US services have achieved their IOC dates.

**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 2019 SAR)	
Program Acquisition Unit Cost			
Cost	54358.2	54510.2	
Quantity	2470	2470	
Unit Cost	22.007	22.069	+0.28
Average Procurement Unit Cost			
Cost	41012.8	40905.3	
Quantity	2456	2456	
Unit Cost	16.699	16.655	-0.26

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 2019 SAR)	
Program Acquisition Unit Cost			
Cost	53916.4	54510.2	
Quantity	2458	2470	
Unit Cost	21.935	22.069	+0.61
Average Procurement Unit Cost			
Cost	42332.9	40905.3	
Quantity	2443	2456	
Unit Cost	17.328	16.655	-3.88

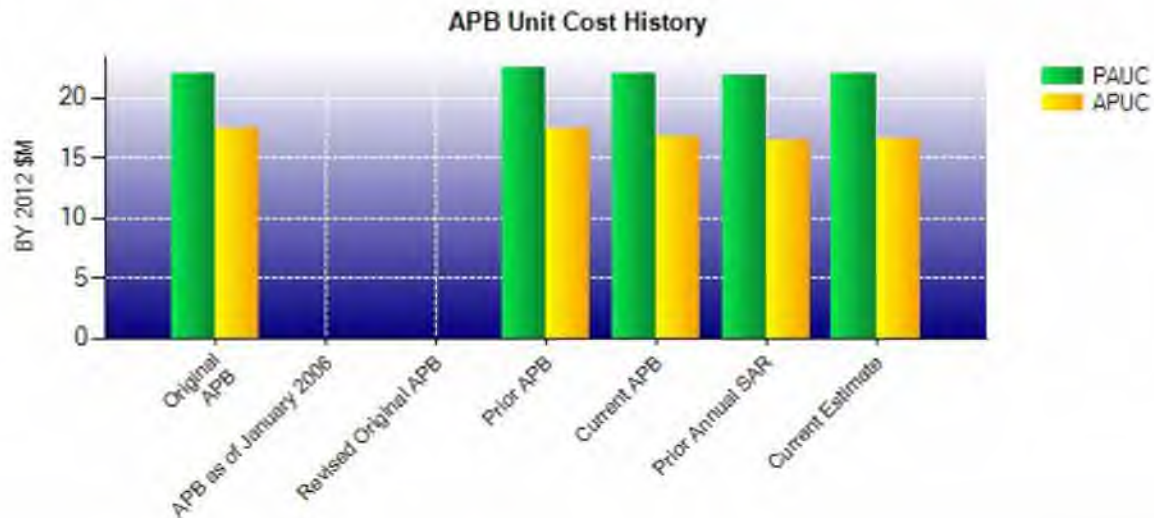
The DoD average F-35 Engine Unit Recurring Flyaway (URF) Cost consists of the Hardware (Propulsion and Engineering Change Order) costs over the life of the program. The URF assumes the quantity benefits of 271 FMS engines and 538 International Partner engines.

The current estimate for F-35 total procurement quantity increase from 2443 to 2456 has not changed from SAR 2018 to SAR 2019.

F-35A (Conventional Take Off and Landing) URF - \$10.7M (BY 2012)

F-35B (Short Takeoff and Vertical Landing) URF - \$26.3M (BY 2012)

F-35C (Carrier Variant) URF - \$10.8M (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	Feb 2020	22.007	16.699	26.874	22.020
Prior Annual SAR	Dec 2018	21.869	16.483	26.694	21.770
Current Estimate	Dec 2019	22.069	16.655	26.911	21.947

### 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	0.094	-0.047	1.005	0.220	-0.162	0.000	-0.189	0.921	26.911

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	0.087	-0.025	0.961	0.000	-0.594	0.000	-0.190	0.239	21.947



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	66469.5
Total Quantity	N/A	2457	N/A	2470
PAUC	N/A	25.990	N/A	26.911

## 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	-6.6	+2078.7	+47.9	+2120.0
Quantity	--	+1204.0	--	+1204.0
Schedule	--	+20822.9	--	+20822.9
Engineering	+11608.1	+5986.5	--	+17594.6
Estimating	-605.3	-6602.2	+379.4	-6828.1
Other	--	--	--	--
Support	--	-4321.3	--	-4321.3
Subtotal	+10996.2	+19168.6	+427.3	+30592.1
Current Changes				
Economic	+32.3	-610.8	+4.8	-573.7
Quantity	--	--	--	--
Schedule	+2587.1	-1752.7	--	+834.4
Engineering	+38.1	--	--	+38.1
Estimating	-562.6	-39103.4	-4.8	-39670.8
Other	--	--	--	--
Support	--	+8218.0	--	+8218.0
Subtotal	+2094.9	-33248.9	--	-31154.0
Total Changes	+13091.1	-14080.3	+427.3	-561.9
Current Estimate	57501.2	268567.5	5224.6	331293.3

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	--	+5533.0	--	+5533.0
Engineering	+9816.4	+4343.7	--	+14160.1
Estimating	-1030.2	-5780.4	+357.7	-6452.9
Other	--	--	--	--
Support	--	-4102.6	--	-4102.6
Subtotal	+8786.2	+811.6	+357.7	+9955.5
Current Changes				
Economic	--	--	--	--
Quantity	--	--	--	--
Schedule	+1980.7	-1124.6	--	+856.1
Engineering	+33.6	--	--	+33.6
Estimating	-481.3	-25440.9	-3.9	-25926.1
Other	--	--	--	--
Support	--	+5537.0	--	+5537.0
Subtotal	+1533.0	-21028.5	-3.9	-19499.4
Total Changes	+10319.2	-20216.9	+353.8	-9543.9
Current Estimate	58301.3	204116.0	4521.8	266939.1

Previous Estimate: December 2018



RDT&E		\$M	
Current Change Explanations		Base Year	Then Year
Revised escalation indices. (Economic)		N/A	+32.3
Revised estimate due to Congressional reduction in FY 2020 (Air Force). (Schedule)		-36.0	-42.0
Revised estimate due to Congressional reduction in FY 2020 (Navy). (Schedule)		-49.2	-57.4
Extension of Block 4 and additional capabilities (DoN) (Schedule)		+810.0	+1055.0
Extension of Block 4 and additional capabilities (USAF) (Schedule)		+865.1	+1124.4
Extension of Block 4 and additional capabilities (International Partners) (Schedule)		+390.8	+507.1
USMC Block 4 Operational Test, USN Block 4 re-phase & technical reductions/rate adjustments (DoN) (Engineering)		+33.6	+38.1
Adjustment for current and prior escalation. (Estimating)		-11.3	-13.1
Adjustment reflects updated cost share ratios within the Partnership. (Estimating)		-430.7	-502.9
Revised estimate to reflect application of new outyear indices (USAF). (Estimating)		-5.8	-7.1
Revised estimate to reflect application of new outyear indices (Navy). (Estimating)		-5.1	-6.3
Revised estimate to reflect application of new outyear indices (International Partners). (Estimating)		-4.8	-5.9
Adjustment for prior year actuals (USAF). (Estimating)		-12.8	-14.6
Adjustment for technical reductions and rate adjustments (USAF). (Estimating)		-3.5	-4.3
Adjustment for prior year actuals (DoN). (Estimating)		-7.3	-8.4
RDT&E Subtotal		+1533.0	+2094.9

Procurement		\$M	
Current Change Explanations		Base Year	Then Year
Revised escalation indices. (Economic)		N/A	-610.8
Acceleration of procurement buy profile (Air Force). (Schedule)		0.0	-201.6
Stretch-out of procurement buy profile (Navy). (Schedule)		0.0	+46.6
Adjustment for current and prior escalation. (Estimating)		+55.4	+62.8
Revised estimate to reflect the application of new outyear escalation indices (Air Force). (Estimating)		+920.9	+1377.2
Additional schedule variance as a result of the estimating model not accounting for the commonality of the various models being requested (Air Force). (Schedule)		+33.3	+64.0
Additional schedule variance for procurement quantity profile adjustments due to FMS and International Partner quantities (Air Force). (Schedule)		-892.3	-1313.4
Revised estimate of non-recurring costs (Air Force). (Estimating)		-1888.5	-2939.1
Revised estimate of non-recurring costs due to Block 4 modifications (Air Force). (Estimating)		-1515.7	-2125.4
Revised estimate of Airframe cost due to the incorporation of the latest prime and subcontractor actuals and labor/exchange rates (Air Force). (Estimating)		-18476.3	-29414.7
Update for fact of life changes for prior years/lots FY 2006 - FY 2020 (Air Force). (Estimating)		-477.1	-556.2
Revised estimate to reflect the application of new outyear escalation indices (Navy). (Estimating)		+376.7	+485.2
Additional schedule variance as a result of the estimating model not accounting for the commonality of the various models being requested (Navy). (Schedule)		-4.7	+5.3

Additional schedule variance for procurement quantity profile adjustments due to FMS and Partner quantities (Navy). (Schedule)	-260.9	-353.6
Revised estimate of non-recurring costs (Navy). (Estimating)	-386.4	-552.1
Revised estimate of non-recurring costs due to Block 4 modifications (Navy). (Estimating)	+62.0	-1.5
Revised estimate of Airframe cost due to the incorporation of the latest prime and subcontractor actuals and labor/exchange rates (Navy). (Estimating)	-3801.4	-5077.3
Update for fact of life changes for prior years/lots FY 2007 - FY 2020 (Navy). (Estimating)	-310.5	-362.3
Adjustment for current and prior escalation. (Support)	+9.8	+12.0
Increase in Other Support due to maturation of technical baseline, definition of customer requirements, and further definition of Service beddown plans (Air Force). (Support)	+2004.7	+2910.0
Increase in Initial Spares due to maturation of technical baseline, definition of customer requirements, and further definition of Service beddown plans (Air Force). (Support)	+886.0	+1606.8
Increase in Other Support due to maturation of technical baseline, definition of customer requirements, and further definition of Service beddown plans (Navy). (Support)	+2184.4	+3000.5
Increase in Initial Spares due to maturation of technical baseline, definition of customer requirements, and further definition of Service beddown plans (Navy). (Support)	+452.1	+688.7
Procurement Subtotal	-21028.5	-33248.9

MILCON	\$M	
Current Change Explanations	Base Year	Then Year
Revised escalation indices. (Economic)	N/A	+4.8
Adjustment for current and prior escalation. (Estimating)	-1.5	-1.8
Adjustment for current and prior escalation (DoN) (Estimating)	-2.4	-3.0
MILCON Subtotal	-3.9	0.0



## 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	+17.0	+322.5	--	+339.5
Quantity	--	+221.3	--	+221.3
Schedule	--	+2489.8	--	+2489.8
Engineering	+545.4	--	--	+545.4
Estimating	+1082.5	-606.6	--	+475.9
Other	--	--	--	--
Support	--	-1993.1	--	-1993.1
Subtotal	+1644.9	+433.9	--	+2078.8
Current Changes				
Economic	+1.7	-108.8	--	-107.1
Quantity	--	--	--	--
Schedule	+121.6	-129.7	--	-8.1
Engineering	-1.0	--	--	-1.0
Estimating	-23.9	-851.1	--	-875.0
Other	--	--	--	--
Support	--	+1525.3	--	+1525.3
Subtotal	+98.4	+435.7	--	+534.1
Total Changes	+1743.3	+869.6	--	+2612.9
Current Estimate	12567.0	53902.5	--	66469.5



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	--	+264.4	--	+264.4
Engineering	+460.1	--	--	+460.1
Estimating	+1378.1	-747.3	--	+630.8
Other	--	--	--	--
Support	--	-1517.2	--	-1517.2
Subtotal	+1838.2	-1849.8	--	-11.6
Current Changes				
Economic	--	--	--	--
Quantity	--	--	--	--
Schedule	+92.5	-74.0	--	+18.5
Engineering	-0.8	--	--	-0.8
Estimating	-20.2	-479.6	--	-499.8
Other	--	--	--	--
Support	--	+975.8	--	+975.8
Subtotal	+71.5	+422.2	--	+493.7
Total Changes	+1909.7	-1427.6	--	+482.1
Current Estimate	13604.9	40905.3	--	54510.2

Previous Estimate: December 2018

RDT&E		\$M	
Current Change Explanations		Base Year	Then Year
Revised escalation indices. (Economic)		N/A	+1.7
FY20 Congressional Mark: Prior year execution delays (USAF) (Schedule)		-8.7	-10.1
Extension of Block 4 and additional capabilities (USAF) (Schedule)		+45.6	+59.2
Extension of Block 4 and additional capabilities (DoN) (Schedule)		+42.7	+55.6
Extension of Block 4 and additional capabilities (International Partners) (Schedule)		+12.9	+16.9
USMC Block 4 Operational Test, USN Block 4 re-phase & technical reductions/rate adjustments (DoN) (Engineering)		-0.8	-1.0
Adjustment for current and prior escalation. (Estimating)		-0.9	-0.9
Adjustment reflects updated Program Office Estimate which included the removal of Turkey from the Partnership and a refined weapons estimating methodology (International Partners) (Estimating)		-18.5	-22.2
Adjustment for current and prior escalation (USAF) (Estimating)		-0.4	-0.4
Adjustment for current and prior escalation (DoN) (Estimating)		-0.4	-0.4
RDT&E Subtotal		+71.5	+98.4

Procurement		\$M	
Current Change Explanations		Base Year	Then Year
Revised escalation indices. (Economic)		N/A	-108.8
Acceleration of procurement buy profile (Air Force). (Schedule)		0.0	-35.6
Stretch-out of procurement buy profile (Navy). (Schedule)		0.0	+8.3
Adjustment for current and prior escalation. (Estimating)		+10.8	+11.8
Revised estimate to reflect the application of new outyear escalation indices (Air Force). (Estimating)		+50.3	+73.5
Additional schedule variance as a result of the estimating model not accounting for the commonality of the various models being requested (Air Force). (Schedule)		+1.6	+5.8
Additional schedule variance for procurement quantity profile adjustments due to FMS and Partner quantities (Air Force). (Schedule)		-31.2	-46.9
Revised estimate of non-recurring costs (Air Force). (Estimating)		-142.3	-221.4
Revised estimate of Airframe cost due to the incorporation of the latest prime and subcontractor actuals and labor/exchange rates (Air Force). (Estimating)		-556.5	-847.3
Update for fact of life changes for prior years/lots FY 2006 - FY 2020 (Air Force) (Estimating)		+219.8	+260.5
Revised estimate to reflect the application of new outyear escalation indices (Navy). (Estimating)		+32.9	+42.1
Additional schedule variance as a result of the estimating model not accounting for the commonality of the various models being requested (Navy). (Schedule)		-1.7	-4.2
Additional schedule variance for procurement quantity profile adjustments due to FMS and Partner quantities (Navy). (Schedule)		-42.7	-57.1
Revised estimate of non-recurring costs (Navy). (Estimating)		-69.5	-99.8
Revised estimate of Airframe cost due to the incorporation of the latest prime and subcontractor actuals and labor/exchange rates (Navy). (Estimating)		-169.0	-237.8
Update for fact of life changes for prior years/lots FY 2007 - FY 2020 (Navy). (Estimating)		+143.9	+167.3

Adjustment for current and prior escalation. (Support)	+2.4	+3.3
Increase in Other Support (Air Force). (Support)	+226.9	+327.6
Increase in Initial Spares (Air Force). (Support)	+311.7	+568.5
Increase in Other Support (Navy). (Support)	+241.0	+331.3
Increase in Initial Spares (Navy). (Support)	+193.8	+294.6
Procurement Subtotal	+422.2	+435.7



## Contracts

### Contract Identification

**Appropriation:** Procurement  
**Contract Name:** F-35 LRIP 11  
**Contractor:** Lockheed Martin  
**Contractor Location:** 1 Lockheed Boulevard  
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	12166.8	12166.8	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 (12/31/2019)	-83.3	-163.5
Previous Cumulative Variances	-135.0	-227.0
Net Change	+51.7	+63.5

### Cost and Schedule Variance Explanations

The favorable net change in the cost variance is due to Contract advancing towards completion.

The favorable net change in the schedule variance is due to Contract advancing towards completion.

### 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 (12/31/2019)	-84.6	-9.4
Previous Cumulative Variances	-39.0	+51.0
Net Change	-45.6	-60.4

**Cost and Schedule Variance Explanations**

The unfavorable net change in the cost variance is due to propulsion system hardware for engines and spares is costing more than planned due to delays with the 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 unfavorable net change in the schedule variance is due to delays with delivering the initial global spare engine, initial spare power modules and tooling that was offset by early delivery of Initial Depot Level Common Spares Parts, spare fan modules and clutch modules.

**Notes**

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



**Contract Identification**

**Appropriation:** Procurement  
**Contract Name:** F-35 LRIP 12-14  
**Contractor:** Lockheed Martin  
**Contractor Location:** 1 Lockheed Boulevard  
Fort Worth, TX 76101  
**Contract Number:** N00019-17-C-0001  
**Contract Type:** Fixed Price Incentive(Firm Target) (FPIF)  
**Award Date:** April 28, 2017  
**Definitization Date:** October 28, 2019

Contract Price							
Initial Contract Price (\$M)			Current Contract Price (\$M)			Estimated Price At Completion (\$M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
1377.0	1377.0	255	25322.8	25322.8	255	26240.0	26097.0

**Target Price Change Explanation**

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to initial contract award including only extra long lead and long lead time parts.

Contract Variance		
Item	Cost Variance	Schedule Variance
Cumulative Variances To Date (12/31/2019)	-130.9	-581.6
Previous Cumulative Variances	--	--
Net Change	-130.9	-581.6

**Cost and Schedule Variance Explanations**

The unfavorable cumulative cost variance is due to Contract recently definitized. Baseline review in progress.

The unfavorable cumulative schedule variance is due to Contract recently definitized. Baseline review in progress.

**General Contract Variance Explanation**

Cost and schedule variances are not reported for this contract, because earned value management reporting has not yet commenced due to incomplete baseline review. Earned value management reporting will commence in April 2020.



**Contract Identification**

**Appropriation:** Procurement  
**Contract Name:** F-135 Lot 12  
**Contractor:** Pratt & Whitney  
**Contractor Location:** 400 Aircraft Road  
Middletown, CT 06457  
**Contract Number:** N00019-18-C-1021  
**Contract Type:** Fixed Price Incentive(Firm Target) (FPIF)  
**Award Date:** March 23, 2018  
**Definitization Date:** May 31, 2019

Contract Price							
Initial Contract Price (\$M)			Current Contract Price (\$M)			Estimated Price At Completion (\$M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
239.6	N/A	N/A	7217.3	N/A	N/A	7458.8	6040.9

**Target Price Change Explanation**

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to definitization of the LRIP 12 production effort. Initial contract price consisted primarily of long lead material.

Contract Variance		
Item	Cost Variance	Schedule Variance
Cumulative Variances To Date (12/31/2019)	-238.4	-116.3
Previous Cumulative Variances	--	--
Net Change	-238.4	-116.3

**Cost and Schedule Variance Explanations**

The unfavorable cumulative cost variance is due to a timing issue with the actual costs being charge for STOVL propulsion system hardware without the associated performance claimed due to the contract currently being baselined. Overall, the CTOL, CV and STOVL propulsion system hardware for engines and spares is costing more than planned due to delays with the 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 unfavorable cumulative schedule variance is due to late Fan, Low Pressure Turbine and Nozzle hardware deliveries.

**Contract Identification**

**Appropriation:** Procurement  
**Contract Name:** Block 4 Phase 2.3  
**Contractor:** Lockheed Martin  
**Contractor Location:** 1 Lockheed Boulevard  
Fort Worth, TX 76101  
**Contract Number:** N00019-19-C-0010  
**Contract Type:** Cost Plus Incentive Fee (CPIF)  
**Award Date:** November 15, 2018  
**Definitization Date:** May 28, 2019

Contract Price							
Initial Contract Price (\$M)			Current Contract Price (\$M)			Estimated Price At Completion (\$M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
1892.0	N/A	0	1892.0	N/A	0	1835.8	1921.5

Contract Variance			
Item	Cost Variance		Schedule Variance
Cumulative Variances To Date (12/31/2019)	-12.5		-4.3
Previous Cumulative Variances	--		--
Net Change	-12.5		-4.3

**Cost and Schedule Variance Explanations**

The unfavorable cumulative cost variance is due to delayed task starts due to unavailable technical information, late subcontract awards, delayed supplier time and material invoicing, requirements development delays, and delayed configuration management tasks.

The unfavorable cumulative schedule variance is due to unanticipated Pilot System Software (PSSW) technical challenges (required additional resources), Fire Control Navigation & Stores (FCNS) overruns, increased labor for architecture support and design oversight, and Full Motion Video Data Link (FMVDL) development.



**Contract Identification**

**Appropriation:** RDT&E  
**Contract Name:** Technical Refresh 3, Phase 3  
**Contractor:** Lockheed Martin  
**Contractor Location:** 1 Lockheed Blvd  
Fort Worth, TX 76101  
**Contract Number:** N00019-14-G-0020/474  
**Contract Type:** Cost Plus Incentive Fee (CPIF)  
**Award Date:** December 24, 2018  
**Definitization Date:** December 24, 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	
712.6	N/A	0	753.8	N/A	0	805.3	753.8	

**Target Price Change Explanation**

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to exercise of option clins for dart pod support.

Contract Variance		
Item	Cost Variance	Schedule Variance
Cumulative Variances To Date (12/31/2019)	-36.5	-27.1
Previous Cumulative Variances	--	--
Net Change	-36.5	-27.1

**Cost and Schedule Variance Explanations**

The unfavorable cumulative cost variance is due to Integrated Core Processor (ICP) effort due to technical clarifications, additional SME support to assist supplier Ultracomm, greater Integrated Processor Field Programmable Gate Array (IP FPGA) development complexity in building custom 100G core, and additional effort for more complicated reviews and simulations.

The unfavorable cumulative schedule variance is due to ICP delays (Systems Integration & Test (SI&T) test procedures, ordering test equipment, ambient test sets); Electronic Unit (EU) delays in baselining drawing releases, test procedures, and Qual procedures; slow Labs start-up; and aircraft memory system delays in development, integration, and qualifying hardware/software.



## 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	343	351	2456	14.29%
Total Program Quantity Delivered	357	365	2470	14.78%

### Expended and Appropriated (TY \$M)

Total Acquisition Cost	331293.3	Years Appropriated	27
Expended to Date	119192.2	Percent Years Appropriated	52.94%
Percent Expended	35.98%	Appropriated to Date	136326.6
Total Funding Years	51	Percent Appropriated	41.15%

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	343	351	2456	14.29%
Total Program Quantity Delivered	357	365	2470	14.78%

### Expended and Appropriated (TY \$M)

Total Acquisition Cost	66469.5	Years Appropriated	27
Expended to Date	24693.5	Percent Years Appropriated	52.94%
Percent Expended	37.15%	Appropriated to Date	28425.6
Total Funding Years	51	Percent Appropriated	42.76%

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:	Aircraft
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 Aircraft	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 FY 2012 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 top priority for the F-35 Joint 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 FY 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 program pursued improved affordability in a number of ways throughout 2019. The Affordability and Cost teams from both government and industry began jointly developing a 'Deliver Affordable Sustainment' LSCP POA&M to formalize efforts to reduce costs. The Product Support Manager (PSM) directed teams to consolidate CRI and RMIP efforts into the Sustainment Improvement Program (SIP) in order to utilize investment resources toward best value initiatives. The Cost team focused on incorporating Air Vehicle repair cost actuals and improved Propulsion projections, establishing a more realistic baseline estimate for the program. This now allows incorporation of CRIs and RMIPs into estimates, given a current actual basis from which to show improvement, as these initiatives mature. The program established the 180 Day Sprint, with clear objectives from the Services on reducing Sustainment Costs, and specific measures for contracts by FY 2020 and FY 2025. The program achieved the goal of reducing CPFH by \$2,000 on the FY 2020 Annual Sustainment Contracts. From 2019 into 2020, program leadership initiated a reorganization to better enable program managers' ownership of cost, schedule, and technical performance. The program managers now have responsibility for the affordability of their products. Program leadership developed and shared a strategic vision for achieving the LCSP Stretch Goal of \$25,000 by 2025. The Affordability and Cost teams expect to support the program managers in achieving the Services' Constraints, Targets, and Goals to the extent possible.

The O&S Program Office Estimate (POE) reflects the 2020 Interim Program Review (IPR) Annual Cost Estimate (ACE) of \$613.5 billion BY 2012\$ (\$1,182.4 billion TY\$), which incorporates updates to reflect the latest technical baseline for the program and revised stakeholder requirements. Primary updates to the 2020 IPR POE include: aligning with 2019 OSD escalation guidance, incorporating DoD CLS requirements beyond FY 2022, revising Propulsion maintenance to reflect

new F135 specific worksopes definition, revising Air Vehicle maintenance to reflect actual pricing and reliabilities, incorporating IPT inputs, adjusting Flight Test Support to reflect current plans, incorporating the latest beddowns, updating labor rates, removing Turkey, including prior year actuals through FY 2018, updating fuel burn rates, incorporation of anticipated cost savings related to LCSP Success Elements and CRIs, and aligning with the latest DoD Unit Level manning documents.

The F-35 program believes that inherent differences between the F-35 and the F-16 estimates, such as including mission planning costs for F-35 but not F-16 and the fact that the F-16 reflects a mature weapons system with improved reliability and maintenance costs, result in overstating the differences in CPFH between the two. Regardless of the differences, the F-35 program office remains committed to and continues pursuing multiple efforts to drive down O&S costs.

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 2020 Interim Program Review (IPR) ACE as of February 4, 2020.

#### Average Annual O&S Costs BY 2012 \$K

Cost Element	F-35A (JPO ACE)	F-16C/D (Antecedent)
Unit-Level Manpower	9.753	10.042
Unit Operations	4.582	5.632
Maintenance	10.728	5.501
Sustaining Support	4.583	2.075
Continuing System Improvements	2.454	2.291
Indirect Support	0.000	0.000
Other	0.000	0.000
Total	32.099	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.

Category	O&S Cost Variance	
	BY 2012 \$M	Change Explanations
Prior SAR Total O&S Estimates - Dec 2018 SAR	630534.5	
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

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 2018 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):