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## Selected Acquisition Report (SAR)

RCS: DD-A&T(Q&A)823-474



### **F-22 Increment 3.2B Modernization (F-22 Inc 3.2B Mod)**

As of FY 2020 President's Budget

Defense Acquisition Management  
Information Retrieval  
(DAMIR)

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## Sensitivity Originator

No originator info Available at this time.

## Common Acronyms and Abbreviations for MDAP Programs

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

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

## Program Information

**Program Name**

F-22 Increment 3.2B Modernization (F-22 Inc 3.2B Mod)

**DoD Component**

Air Force

## Responsible Office

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**Date Assigned:** August 25, 2017

## References

**SAR Baseline (Production Estimate)**

Component Acquisition Executive (CAE) Approved Acquisition Program Baseline (APB) dated March 11, 2017

**Approved APB**

Component Acquisition Executive (CAE) Approved Acquisition Program Baseline (APB) dated March 11, 2017

## Mission and Description

The F-22's combination of stealth, supercruise, maneuverability, Intra-Flight Data Link (IFDL), sensor fusion coupled with improved supportability provides an exponential leap in warfighting capabilities and allows full realization of operational concepts vital to the 21st Century Air Force and joint warfighting anti-access area denial environment. As a critical component of the Global Strike Concept of Operations, the F-22 provides unmatched air-to-air and air-to-ground capabilities.

F-22 Increment 3.2B Modernization (F-22 Inc 3.2B Mod) integrates the Air Intercept Missiles (AIM) AIM-9X and AIM-120D into the F-22, adds Electronic Protection techniques, incorporates new hardware, enhances Geolocate capability, and expands IFDL functionality.



## Executive Summary

### Program Highlights Since Last Report

F-22 Inc 3.2B Mod entered Initial Operational Test and Evaluation (IOT&E) in August 2017 and completed on time in April 2018. The Air Force Operational Test and Evaluation Center (AFOTEC), Detachment 6, successfully conducted a combination of Offensive and Defensive Counter Attacks and Geolocation 2 open air range test points. The AIM-120D, AIM-120C, and AIM-9X weapons employment live fire test points were also successfully completed. In conjunction, simulator test missions were completed in the Air Combat Simulator. The AFOTEC IOT&E June 2018 report rated F-22 Inc 3.2B Mod as operationally effective, operationally suitable, and mission capable.

The FRP Decision Review paper-decision package was approved by the Senior Acquisition Executive on August 10, 2018. The FRP contract was awarded on September 25, 2018. LRIP kit production is on-going to support the first aircraft installation in May 2019.

Required Asset Available is on track to complete by July 31, 2019.

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

History of Significant Developments Since Program Initiation	
History of Significant Developments Since Program Initiation	
Date	Significant Development Description
December 2011	USD(AT&L) approved the Material Development Decision and designated F-22 Increment 3.2B Modernization as a pre-MDAP for entry into the acquisition management system at Milestone B as an ACAT 1D program.
December 2012	USD(AT&L) approves the F-22 Increment 3.2B Modernization Acquisition Strategy.
June 2013	USD(AT&L) approves the Milestone B Decision and entry into EMD as an ACAT 1D program.
June 2013	The F-22 Program Office awarded the F-22 Increment 3.2B Modernization EMD contract.
October 2014	F-22 Increment 3.2B Modernization Developmental Test and Evaluation flight testing began.
April 2015	USD(AT&L) delegated F-22 Increment 3.2B Modernization to the Secretary of the Air Force and designated the program as ACAT IC.
July 2015	The F-22 Program Office awarded the LRIP Advance Procurement Contract.
1st Quarter FY 2016	Air Force Operational Test and Evaluation Center conducted an Operational Assessment for F-22 Increment 3.2B Modernization.
September 2016	The SAE approved the F-22 Increment 3.2B Modernization Milestone C Decision and entry into the Production and Deployment Phase.
December 2016	Modifications for the nine aircraft needed to support Initial Operational Test and Evaluation completed.
February 2017	The F-22 Program Office awarded the LRIP I and II contracts.
March 2017	The SAE approved F-22 Increment 3.2B Modernization Milestone C APB.
April 2017	The Capstone Live Fire Event was successfully accomplished.
August 2017	Entered Initial Operational Test and Evaluation.
August 2017	USD(AT&L) signed the Increment 3.2B waiver package allowing cost-plus kit installs.
August 2018	F-22 Increment 3.2B FRP Decision Review ADM issued.
September 2018	FRP contract awarded.

## Threshold Breaches

### 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

#### Current UCR Baseline

PAUC	None
APUC	None

#### Original UCR Baseline

PAUC	None
APUC	None



### Schedule



Schedule Events				
Events	SAR Baseline Production Estimate	Current APB Production Objective/Threshold		Current Estimate
Materiel Development Decision	Dec 2011	Dec 2011	Dec 2011	Dec 2011
Milestone B	Jun 2013	Jun 2013	Jun 2013	Jun 2013
Milestone C	Aug 2016	Aug 2016	Aug 2016	Aug 2016
Full Rate Production	Jul 2018	Jul 2018	Jan 2019	Aug 2018
Required Assets Available (RAA)	Mar 2019	Mar 2019	Sep 2019	Jul 2019

(Ch-1)

#### Change Explanations

(Ch-1) Full Rate Production changed from July 2018 to August 2018 due to delays in document coordination.

#### Notes

RAA is defined as six aircraft and associated support equipment.

## Performance

Performance Characteristics				
SAR Baseline Production Estimate	Current APB Production Objective/Threshold		Demonstrated Performance	Current Estimate
<b>Materiel Availability (Am)</b>				
Do not degrade aircraft Am below current baseline performance. Baseline performance KPP: By the end of: FY 2011: 61.2% FY 2012: 62.6% FY 2013: 65.8% FY 2014: 67.6% FY 2015: 70.6%	Do not degrade aircraft Am below current baseline performance. Baseline performance KPP: By the end of: FY 2011: 61.2% FY 2012: 62.6% FY 2013: 65.8% FY 2014: 67.6% FY 2015: 70.6%	(T=O) Do not degrade aircraft Am below current baseline performance. Baseline performance KPP: By the end of: FY 2011: 61.2% FY 2012: 62.6% FY 2013: 65.8% FY 2014: 67.6% FY 2015: 70.6%	65.1%	65.1%
<b>Reliability, MTBCF</b>				
Do not degrade aircraft MTBCF below current baseline performance.	Do not degrade aircraft MTBCF below current baseline performance.	(T=O) Do not degrade aircraft MTBCF below current baseline performance.	3.42 hours	3.42 hours
<b>Weapons Integration</b>				
The F-22A shall be modified as required to enable employment of the AIM-120D and the AIM-9X Block II.	The F-22A shall be modified as required to enable employment of the AIM-120D and the AIM-9X Block II.	(T=O) The F-22A shall be modified as required to enable employment of the AIM-120D and the AIM-9X Block II.	Required capabilities provided.	Required capabilities provided

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

### Requirements Reference

CPD, dated January 4, 2007, as modified by JROC Memorandum 052-11 dated April 19, 2011

### Change Explanations

None

### Acronyms and Abbreviations

AIM - Air Intercept Missile  
 Am - Materiel Availability  
 MTBCF - Mean Time Between Critical Failure



## Track to Budget

### RDT&E

Appn	BA	PE		
Air Force	3600	07	0207138F	
	<b>Project</b>		<b>Name</b>	
	674785		F-22	(Sunk)
Air Force	3600	07	0207163F	
	<b>Project</b>		<b>Name</b>	
	673777		AIM-120D	(Sunk)
Air Force	3600	05	0605213F	
	<b>Project</b>		<b>Name</b>	
	654785		F-22 Increment 3.2B	(Sunk)

### Procurement

Appn	BA	PE		
Air Force	3010	06	0207138F	
	<b>Line Item</b>		<b>Name</b>	
	000999		Initial Spares/Repair Parts	(Sunk)
Air Force	3010	05	0207138F	
	<b>Line Item</b>		<b>Name</b>	
	F2232B		Increment 3.2B	
	F2232B		Advance Procurement	(Sunk)

## Cost and Funding

### Cost Summary

Total Acquisition Cost							
Appropriation	BY 2016 \$M			BY 2016 \$M	TY \$M		
	SAR Baseline Production Estimate	Current APB Production Objective/Threshold		Current Estimate	SAR Baseline Production Estimate	Current APB Production Objective	Current Estimate
RDT&E	1181.2	1181.2	1299.3	1171.9	1139.7	1139.7	1130.4
Procurement	301.6	301.6	331.8	262.2	321.2	321.2	280.3
Flyaway	--	--	--	242.1	--	--	258.9
Recurring	--	--	--	242.1	--	--	258.9
Non Recurring	--	--	--	0.0	--	--	0.0
Support	--	--	--	20.1	--	--	21.4
Other Support	--	--	--	6.9	--	--	7.4
Initial Spares	--	--	--	13.2	--	--	14.0
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	1482.8	1482.8	N/A	1434.1	1460.9	1460.9	1410.7

#### Current APB Cost Estimate Reference

F-22 Increment 3.2B SCP signed by SAF/FMC, dated July 29, 2016

#### Cost Notes

If an Independent Cost Estimate, Component Cost Estimate, or Program Office Estimate has been completed for the program in the previous year, list any program risks identified in the estimates, the potential impacts of the risks on program cost, and approaches to mitigate the risks.

GINs Supplier Modification Retrofit Turnaround. If GINS supplier retrofit turnaround time cannot be met, then GINS may not be available to support aircraft modifications. Full Rate Production contract awarded September 25, 2018 and included turnaround spares assets and enhanced rapid pit stop capability to support improved turnaround time.

Total Quantity			
Quantity	SAR Baseline Production Estimate	Current APB Production	Current Estimate
RDT&E		9	9
Procurement		143	143
Total		152	152

**Cost and Funding****Funding Summary**

Appropriation Summary									
FY 2020 President's Budget / December 2018 SAR (TY\$ M)									
Appropriation	Prior	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
RDT&E	1130.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1130.4
Procurement	252.1	2.0	20.2	6.0	0.0	0.0	0.0	0.0	280.3
MILCON	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Acq O&M	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PB 2020 Total	1382.5	2.0	20.2	6.0	0.0	0.0	0.0	0.0	1410.7
PB 2019 Total	1423.2	9.0	20.2	6.0	0.0	0.0	0.0	0.0	1458.4
Delta	-40.7	-7.0	0.0	0.0	0.0	0.0	0.0	0.0	-47.7

Quantity Summary										
FY 2020 President's Budget / December 2018 SAR (TY\$ M)										
Quantity	Undistributed	Prior	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Development	9	0	0	0	0	0	0	0	0	9
Production	0	143	0	0	0	0	0	0	0	143
PB 2020 Total	9	143	0	0	0	0	0	0	0	152
PB 2019 Total	9	143	0	0	0	0	0	0	0	152
Delta	0	0	0	0	0	0	0	0	0	0



## Cost and Funding

### Annual Funding By Appropriation

Annual Funding							
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
2004	--	--	--	--	--	--	6.4
2005	--	--	--	--	--	--	--
2006	--	--	--	--	--	--	16.5
2007	--	--	--	--	--	--	33.0
2008	--	--	--	--	--	--	31.4
2009	--	--	--	--	--	--	40.8
2010	--	--	--	--	--	--	131.0
2011	--	--	--	--	--	--	129.5
2012	--	--	--	--	--	--	126.0
2013	--	--	--	--	--	--	128.5
2014	--	--	--	--	--	--	108.5
2015	--	--	--	--	--	--	179.4
2016	--	--	--	--	--	--	120.9
2017	--	--	--	--	--	--	64.9
2018	--	--	--	--	--	--	13.6
Subtotal	9	--	--	--	--	--	1130.4

Annual Funding							
3600   RDT&E   Research, Development, Test, and Evaluation, Air Force							
Fiscal Year	Quantity	BY 2016 \$M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
2004	--	--	--	--	--	--	7.9
2005	--	--	--	--	--	--	--
2006	--	--	--	--	--	--	19.2
2007	--	--	--	--	--	--	37.4
2008	--	--	--	--	--	--	34.9
2009	--	--	--	--	--	--	44.7
2010	--	--	--	--	--	--	141.8
2011	--	--	--	--	--	--	137.6
2012	--	--	--	--	--	--	131.6
2013	--	--	--	--	--	--	131.9
2014	--	--	--	--	--	--	109.9
2015	--	--	--	--	--	--	179.9
2016	--	--	--	--	--	--	119.4
2017	--	--	--	--	--	--	62.8
2018	--	--	--	--	--	--	12.9
Subtotal	9	--	--	--	--	--	1171.9

Annual Funding								
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	
2015	--	31.0	--	--	31.0	--	31.0	
2016	35	61.7	--	--	61.7	4.6	66.3	
2017	36	46.0	--	--	46.0	5.9	51.9	
2018	72	92.6	--	--	92.6	10.3	102.9	
2019	--	1.8	--	--	1.8	0.2	2.0	
2020	--	19.8	--	--	19.8	0.4	20.2	
2021	--	6.0	--	--	6.0	--	6.0	
Subtotal	143	258.9	--	--	258.9	21.4	280.3	

Annual Funding								
3010   Procurement   Aircraft Procurement, Air Force								
Fiscal Year	Quantity	BY 2016 \$M						
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program	
2015	--	30.3	--	--	30.3	--	30.3	
2016	35	59.2	--	--	59.2	4.4	63.6	
2017	36	43.2	--	--	43.2	5.6	48.8	
2018	72	85.1	--	--	85.1	9.5	94.6	
2019	--	1.6	--	--	1.6	0.2	1.8	
2020	--	17.5	--	--	17.5	0.4	17.9	
2021	--	5.2	--	--	5.2	--	5.2	
Subtotal	143	242.1	--	--	242.1	20.1	262.2	

Cost Quantity Information		
3010   Procurement   Aircraft Procurement, Air Force		
Fiscal Year	Quantity	End Item Recurring Flyaway (Aligned With Quantity) BY 2016 \$M
2015	--	--
2016	35	59.3
2017	36	60.9
2018	72	121.9
2019	--	--
2020	--	--
2021	--	--
Subtotal	143	242.1



## Low Rate Initial Production

Item	Initial LRIP Decision	Current Total LRIP
<b>Approval Date</b>	6/26/2013	6/26/2013
<b>Approved Quantity</b>	71	71
<b>Reference</b>	Milestone B ADM	Milestone B ADM
<b>Start Year</b>	2016	2016
<b>End Year</b>	2017	2017

The Current Total LRIP Quantity is more than 10% of the total production quantity due to an opportunity to capture economic order quantity efficiencies. This strategy was approved as part of the Milestone B review.

## **Foreign Military Sales**

None

## **Nuclear Costs**

None

**Unit Cost**

Current UCR Baseline and Current Estimate (Base-Year Dollars)			
Item	BY 2016 \$M	BY 2016 \$M	% Change
	Current UCR Baseline (Mar 2017 APB)	Current Estimate (Dec 2018 SAR)	

## Program Acquisition Unit Cost

Cost	1482.8	1434.1	
Quantity	152	152	
Unit Cost	9.755	9.435	-3.28

## Average Procurement Unit Cost

Cost	301.6	262.2	
Quantity	143	143	
Unit Cost	2.109	1.834	-13.04

Original UCR Baseline and Current Estimate (Base-Year Dollars)			
Item	BY 2016 \$M	BY 2016 \$M	% Change
	Original UCR Baseline (Jun 2013 APB)	Current Estimate (Dec 2018 SAR)	

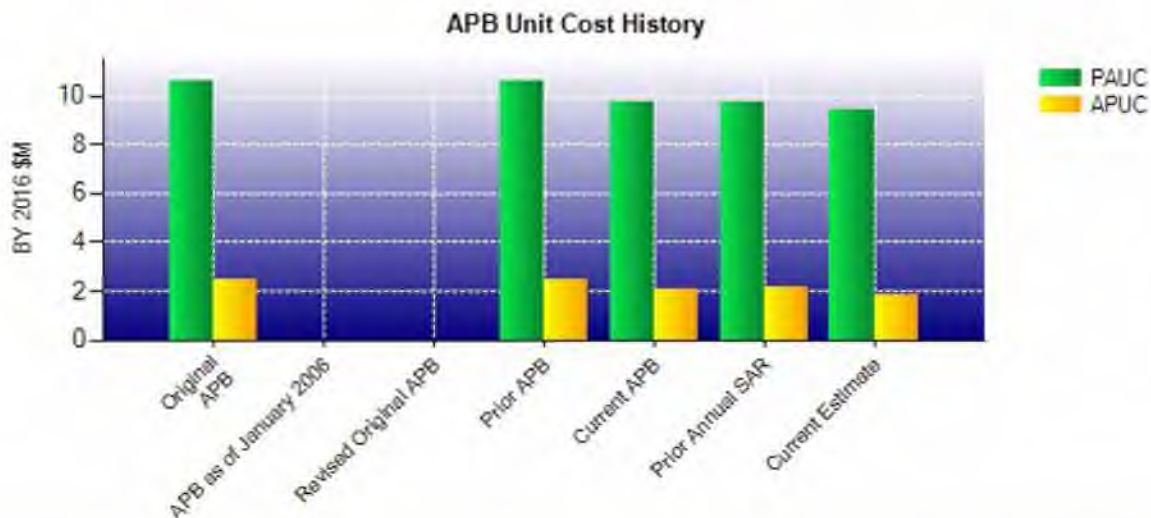
## Program Acquisition Unit Cost

Cost	1607.9	1434.1	
Quantity	152	152	
Unit Cost	10.578	9.435	-10.81

## Average Procurement Unit Cost

Cost	353.7	262.2	
Quantity	143	143	
Unit Cost	2.473	1.834	-25.84





APB Unit Cost History					
Item	Date	BY 2016 \$M		TY \$M	
		PAUC	APUC	PAUC	APUC
Original APB	Jun 2013	10.578	2.473	10.422	2.635
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 2013	10.578	2.473	10.422	2.635
Current APB	Mar 2017	9.755	2.109	9.611	2.246
Prior Annual SAR	Dec 2017	9.745	2.153	9.595	2.287
Current Estimate	Dec 2018	9.435	1.834	9.281	1.960

**SAR Unit Cost History**

Initial SAR Baseline to Current SAR Baseline (TY \$M)										
Initial PAUC Development Estimate	Changes								PAUC Production Estimate	
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total		
10.422	0.051	0.000	0.000	0.000	-0.860	0.000	-0.002	-0.811	9.611	

Current SAR Baseline to Current Estimate (TY \$M)										
PAUC Production Estimate	Changes								PAUC Current Estimate	
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total		
9.611	0.009	0.000	0.000	0.000	-0.330	0.000	-0.009	-0.330	9.281	

Initial SAR Baseline to Current SAR Baseline (TY \$M)									
Initial APUC Development Estimate	Changes								APUC Production Estimate
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
2.635	0.029	0.000	0.000	0.000	-0.416	0.000	-0.002	-0.389	2.246

Current SAR Baseline to Current Estimate (TY \$M)									
APUC Production Estimate	Changes								APUC Current Estimate
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
2.246	0.007	0.000	0.000	0.000	-0.284	0.000	-0.009	-0.286	1.960

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	Mar 2013	Jun 2013	Jun 2013
Milestone C	N/A	Mar 2016	Aug 2016	Aug 2016
RAA	N/A	Mar 2019	N/A	N/A
Total Cost (TY \$M)	N/A	1584.1	1460.9	1410.7
Total Quantity	N/A	152	152	152
PAUC	N/A	10.422	9.611	9.281

**Cost Variance**

Summary TY \$M				
Item	RDT&E	Procurement	MILCON	Total
SAR Baseline (Production Estimate)	1139.7	321.2	--	1460.9
Previous Changes				
Economic	-0.2	-1.3	--	-1.5
Quantity	--	--	--	--
Schedule	--	--	--	--
Engineering	--	--	--	--
Estimating	-8.2	+6.7	--	-1.5
Other	--	--	--	--
Support	--	+0.5	--	+0.5
<b>Subtotal</b>	<b>-8.4</b>	<b>+5.9</b>	<b>--</b>	<b>-2.5</b>
Current Changes				
Economic	+0.5	+2.3	--	+2.8
Quantity	--	--	--	--
Schedule	--	--	--	--
Engineering	--	--	--	--
Estimating	-1.4	-47.3	--	-48.7
Other	--	--	--	--
Support	--	-1.8	--	-1.8
<b>Subtotal</b>	<b>-0.9</b>	<b>-46.8</b>	<b>--</b>	<b>-47.7</b>
<b>Total Changes</b>	<b>-9.3</b>	<b>-40.9</b>	<b>--</b>	<b>-50.2</b>
CE - Cost Variance	1130.4	280.3	--	1410.7
CE - Cost & Funding	1130.4	280.3	--	1410.7



Summary BY 2016 \$M				
Item	RDT&E	Procurement	MILCON	Total
SAR Baseline (Production Estimate)	1181.2	301.6	--	1482.8
Previous Changes				
Economic	--	--	--	--
Quantity	--	--	--	--
Schedule	--	--	--	--
Engineering	--	--	--	--
Estimating	-7.8	+5.9	--	-1.9
Other	--	--	--	--
Support	--	+0.4	--	+0.4
Subtotal	-7.8	+6.3	--	-1.5
Current Changes				
Economic	--	--	--	--
Quantity	--	--	--	--
Schedule	--	--	--	--
Engineering	--	--	--	--
Estimating	-1.5	-44.0	--	-45.5
Other	--	--	--	--
Support	--	-1.7	--	-1.7
Subtotal	-1.5	-45.7	--	-47.2
Total Changes	-9.3	-39.4	--	-48.7
CE - Cost Variance	1171.9	262.2	--	1434.1
CE - Cost & Funding	1171.9	262.2	--	1434.1

Previous Estimate: December 2017

RDT&E	\$M	
Current Change Explanations	Base Year	Then Year
Revised escalation indices. (Economic)	N/A	+0.5
Revised amounts updated to reflect actuals. (Estimating)	-1.0	-0.9
Adjustment for current and prior escalation. (Estimating)	-0.5	-0.5
<b>RDT&amp;E Subtotal</b>	<b>-1.5</b>	<b>-0.9</b>

Procurement	\$M	
Current Change Explanations	Base Year	Then Year
Revised escalation indices. (Economic)	N/A	+2.3
Revised amounts updated to reflect actuals. (Estimating)	-42.2	-45.4
Adjustment for current and prior escalation. (Estimating)	-1.8	-1.9
Adjustment for current and prior escalation. (Support)	-0.2	-0.2
Decrease in Initial Spares. Revised amounts updated to reflect actuals. (Support)	-1.6	-1.7
Increase in Other Support. Revised amounts updated to reflect actuals. (Support)	+0.1	+0.1
<b>Procurement Subtotal</b>	<b>-45.7</b>	<b>-46.8</b>

## Contracts

### Contract Identification

**Appropriation:** Procurement  
**Contract Name:** Increment 3.2B Production  
**Contractor:** Lockheed Martin Corporation  
**Contractor Location:** 1 Lockheed Blvd  
 Fort Worth, TX 76108-3619  
**Contract Number:** FA8611-13-D-2850/5  
**Contract Type:** Firm Fixed Price (FFP)  
**Award Date:** July 22, 2015  
**Definitization Date:** July 22, 2015

### Contract Price

Initial Contract Price (\$M)			Current Contract Price (\$M)			Estimated Price At Completion (\$M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
20.4	N/A	0	248.7	N/A	143	248.7	248.7

### Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to multiple modifications for Advance Procurement for EMD, Diminishing Manufacturing Sources, and Processor Interface Control and Communication 3 for \$7.6M, the awards on February 28, 2017 of 3.2B Production and Deployment LRIPs I and II in the amount of \$114.3M, and the award on March 28, 2017 of Advance Procurement for Production in the amount of \$3.4M. The current total of \$248.7M includes Full Rate Production award made on September 25, 2018 for the remaining 72 kits.

### Cost and Schedule Variance Explanations

Cost and Schedule Variance reporting is not required on this (FFP) contract.



## Deliveries and Expenditures

Deliveries				
Delivered to Date	Planned to Date	Actual to Date	Total Quantity	Percent Delivered
Development	9	9	9	100.00%
Production	0	0	143	0.00%
Total Program Quantity Delivered	9	9	152	5.92%

Expended and Appropriated (TY \$M)			
Total Acquisition Cost	1410.7	Years Appropriated	16
Expended to Date	1112.3	Percent Years Appropriated	88.89%
Percent Expended	78.85%	Appropriated to Date	1384.5
Total Funding Years	18	Percent Appropriated	98.14%

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

### Notes

Total funding years reflect development executed in support of the F-22 Inc 3.2B Mod program. Beginning in FY 2011 the program was rescoped into smaller increments of capability (e.g. 3.2A, 3.2B) to adjust to financial constraints, facilitate improved baseline control/management, and meet capability delivery needs. F-22 Inc 3.2B Mod officially started in FY 2013 with approval of Milestone B.

Total Expended to Date was \$1193.8M in the previous SAR and is now \$1112.3M. The reduction occurred after review indicated certain Budget Program 11 expenditures were inadvertently included in Increment 3.2B reporting.

LRIP I deliveries are expected to begin in April 2019.

## Operating and Support Cost

### Cost Estimate Details

<b>Date of Estimate:</b>	July 29, 2016
<b>Source of Estimate:</b>	SCP
<b>Quantity to Sustain:</b>	149
<b>Unit of Measure:</b>	Modified Aircraft
<b>Service Life per Unit:</b>	33.00 Years
<b>Fiscal Years in Service:</b>	FY 2018 - FY 2051

The F-22 Inc 3.2B Mod is a capability upgrade modification program. The program will modify 152 F-22A aircraft (9 RDT&E and 143 Procurement). Of the 152 aircraft, 3 are development test assets, and 149 will be sustained with O&S funds.

### Sustainment Strategy

Given the low hardware risk of the F-22 Inc 3.2B Mod upgrade, sustainment requirements will be managed within the baseline F-22 sustainment concept with minimal impact on O&S cost estimates or achievement of materiel availability goals. The F-22 sustainment strategy is to sustain F-22 readiness and availability at the lowest cost over the life of the weapon system. The F-22 sustainment strategy employs Performance-Based Logistics contracts with Public/Private Partnering for depot repair capabilities to meet Air Force Core requirements.

### Antecedent Information

No Antecedent

Cost Element	Annual O&S Costs BY2016 \$K	
	F-22 Inc 3.2B Mod Average Annual Cost Per Modified Aircraft	No Antecedent (Antecedent)
Unit-Level Manpower	0.000	0.000
Unit Operations	0.000	0.000
Maintenance	7.100	0.000
Sustaining Support	0.000	0.000
Continuing System Improvements	26.400	0.000
Indirect Support	0.000	0.000
Other	0.000	0.000
<b>Total</b>	<b>33.500</b>	<b>--</b>

Average Primary Aircraft Assigned (PAA): 163 (entire F-22 fleet)



Item	Total O&S Cost \$M			
	F-22 Inc 3.2B Mod			No Antecedent (Antecedent)
	Current Production APB Objective/Threshold		Current Estimate	
<b>Base Year</b>	180.0	198.0	180.0	N/A
<b>Then Year</b>	260.9	N/A	N/A	N/A

The F-22 Inc 3.2B Mod O&S costs will not be tracked separately as directed by the June 26, 2013 ADM. F-22A Modernization Increment 3.2B O&S cost estimate from the Milestone C SCP is \$180M (BY 2016), \$260.9M (TY). The total life cycle cost estimate for the F-22A system is \$96.3B (BY 2016\$). The service life of the F-22 system was increased from 15 years to 33 years per modified aircraft.

The Air Force expects F-22 Inc 3.2B Mod O&S costs to be budgeted in the baseline F-22 PE (27138F) and expended along with baseline program O&S funds, so the PAA value used in the calculation includes all F-22s, not just the aircraft receiving the Inc 3.2B modification.

Costs are applied for the years 2018 (1st modified aircraft is fielded) through 2051 (33 years).

#### Equation to Translate Annual Cost to Total Cost

Unitized cost estimate is calculated:

Total O&S / estimated service life / Average PAA;  $(\$180.0M/33/163) = \$33.5K$

The average annual cost per modified aircraft represents the additional O&S cost of the 149 modified aircraft spread over the entire fleet of F-22 aircraft (163 PAA). This is necessary since the modified aircraft will be reported as part of the overall F-22 baseline program.

O&S Cost Variance		
Category	BY 2016 \$M	Change Explanations
Prior SAR Total O&S Estimates - Dec 2017 SAR	180.0	
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	180.0	

#### Disposal Estimate Details

Date of Estimate:

**Source of Estimate:****Disposal/Demilitarization Total Cost (BY 2016 \$M):**

Disposal costs for this modification are included in the F-22 platform.