



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 2017 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)

Program Information

Program Name

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

DoD Component

Air Force

Responsible Office

Col Anthony Genatempo
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Building 553
Wright-Patterson Air Force Base, OH 45433

anthony.genatempo@us.af.mil**Phone:** 937-713-7001**Fax:** 937-656-7511**DSN Phone:** 713-7001**DSN Fax:** 986-7511**Date Assigned:** July 19, 2014

References

SAR Baseline (Development Estimate)

Defense Acquisition Executive (DAE) Approved Acquisition Program Baseline (APB) dated June 24, 2013

Approved APB

Defense Acquisition Executive (DAE) Approved Acquisition Program Baseline (APB) dated June 24, 2013

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-9X and AIM-120D into the F-22, adds Electronic Protection techniques, incorporates new hardware, enhances Geolocate capability, and expands IFDL functionality.

Executive Summary

The F-22 Inc 3.2B Mod is on-track to meet APB parameters, and the EMD effort is progressing as planned. Full hardware qualification is complete. Final software Critical Design Review completed on October 29, 2015. Developmental software coding is on-going and five Developmental Test aircraft are modified. Laboratory and flight tests are proceeding on production representative hardware.

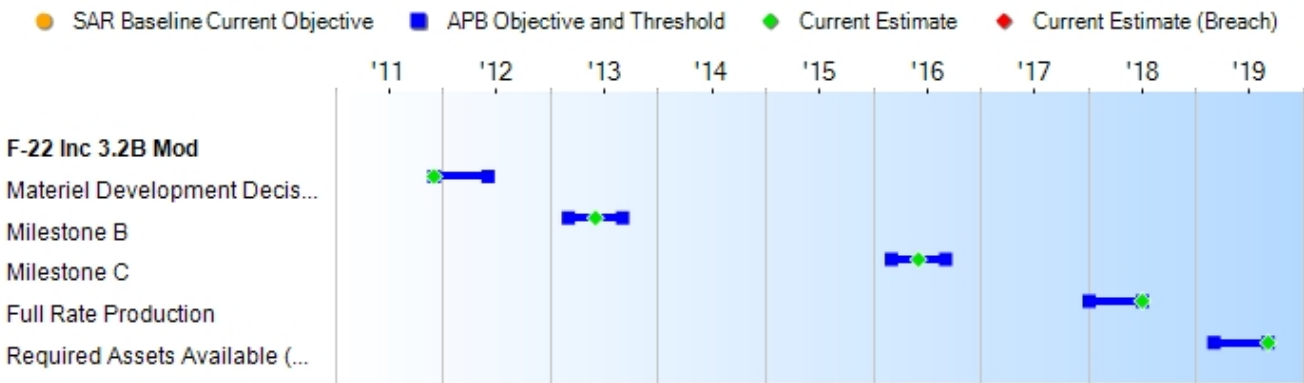
There are no significant software-related issues with this program at this time.

Threshold Breaches

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

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

Schedule



Schedule Events				
Events	SAR Baseline Development Estimate	Current APB Development Objective/Threshold		Current Estimate
Materiel Development Decision	Dec 2011	Dec 2011	Jun 2012	Dec 2011
Milestone B	Mar 2013	Mar 2013	Sep 2013	Jun 2013
Milestone C	Mar 2016	Mar 2016	Sep 2016	Jun 2016
Full Rate Production	Jan 2018	Jan 2018	Jul 2018	Jul 2018
Required Assets Available (RAA)	Mar 2019	Mar 2019	Sep 2019	Sep 2019

Change Explanations

None

Notes

RAA is defined as six aircraft and associated support equipment.

Performance

Performance Characteristics				
SAR Baseline Development Estimate	Current APB Development Objective/Threshold		Demonstrated Performance	Current Estimate
Materiel Availability (Am)				
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%	(Threshold = Objective) 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%	TBD	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%
Reliability, MTBCF				
Do not degrade aircraft MTBCF below current baseline performance.	Do not degrade aircraft MTBCF below current baseline performance.	(Threshold = Objective) Do not degrade aircraft MTBCF below current baseline performance.	TBD	Do not degrade aircraft MTBCF below current baseline performance.
Weapons Integration				
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.	(Threshold = Objective) The F-22A shall be modified as required to enable employment of the AIM-120D and the AIM-9X Block II.	TBD	The F-22A shall be modified as required to enable employment of the AIM-120D and the AIM-9X Block II.

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

Requirements Reference

Capability Production Document (CPD) dated January 4, 2007, as clarified by Joint Requirements Oversight Council Memorandum (JROCM) 052-11 dated April 19, 2011 and JROCM 134-12 dated September 4, 2012 (weapons integration performance criteria are contained in F-22A Increment 3.2B Operational Capabilities Development Document Revision A dated November 15, 2011; availability and reliability performance criteria are contained in Air Force Requirements Oversight Council Memorandum (AFROCM) 11-10-02 dated November 19, 2010 and JROCM 052-11)

Change Explanations

None

Acronyms and Abbreviations

AIM - Air Intercept Missile

MTBCF - Mean Time Between Critical Failure

Track to Budget

RDT&E			
Appn	BA	PE	
Air Force	3600	07	0207138F
	Project	Name	
	674785	F-22	(Shared) (Sunk)
Air Force	3600	07	0207163F
	Project	Name	
	673777	AIM-120D	(Shared)
Air Force	3600	05	0605213F
	Project	Name	
	654785	F-22 Increment 3.2B	(Shared)
Procurement			
Appn	BA	PE	
Air Force	3010	06	0207138F
	Line Item	Name	
	000999	Initial Spares/Repair Parts	(Shared)
Air Force	3010	05	0207138F
	Line Item	Name	
	F2232B	Increment 3.2B	
	F2232BC	Advanced Procurement	

Cost and Funding

Cost Summary

Total Acquisition Cost							
Appropriation	BY 2013 \$M			BY 2013 \$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	1199.4	1199.4	1319.3	1156.2	1207.3	1207.3	1158.6
Procurement	338.2	338.2	372.0	345.3	376.8	376.8	384.0
Flyaway	--	--	--	325.1	--	--	361.8
Recurring	--	--	--	325.1	--	--	361.8
Non Recurring	--	--	--	0.0	--	--	0.0
Support	--	--	--	20.2	--	--	22.2
Other Support	--	--	--	6.7	--	--	7.3
Initial Spares	--	--	--	13.5	--	--	14.9
MILCON	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
Total	1537.6	1537.6	N/A	1501.5	1584.1	1584.1	1542.6

Confidence Level

Confidence Level of cost estimate for current APB: 53%

The Life-Cycle Cost Estimate (LCCE) reflects the expected value, or mean, of the cost estimate distribution. It takes into consideration relevant risks, including ordinary levels of external and unforeseen events, aiming to provide sufficient resources to execute the program under normal conditions encountering average levels of technical, schedule, and programmatic risk and external influence.

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

Quantity Notes

The unit of measure is modified aircraft.

Cost and Funding

Funding Summary

Appropriation Summary									
FY 2017 President's Budget / December 2015 SAR (TY\$ M)									
Appropriation	Prior	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	To Complete	Total
RDT&E	941.9	146.4	70.3	0.0	0.0	0.0	0.0	0.0	1158.6
Procurement	28.5	67.1	82.8	151.4	13.1	20.4	20.7	0.0	384.0
MILCON	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Acq O&M	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PB 2017 Total	970.4	213.5	153.1	151.4	13.1	20.4	20.7	0.0	1542.6
PB 2016 Total	980.2	218.6	156.1	152.6	13.1	20.6	0.0	0.0	1541.2
Delta	-9.8	-5.1	-3.0	-1.2	0.0	-0.2	20.7	0.0	1.4

Quantity Summary										
FY 2017 President's Budget / December 2015 SAR (TY\$ M)										
Quantity	Undistributed	Prior	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	To Complete	Total
Development	9	0	0	0	0	0	0	0	0	9
Production	0	0	35	36	72	0	0	0	0	143
PB 2017 Total	9	0	35	36	72	0	0	0	0	152
PB 2016 Total	9	0	35	36	72	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	--	--	--	--	--	--	127.5
2013	--	--	--	--	--	--	129.0
2014	--	--	--	--	--	--	109.1
2015	--	--	--	--	--	--	187.7
2016	--	--	--	--	--	--	146.4
2017	--	--	--	--	--	--	70.3
Subtotal	9	--	--	--	--	--	1158.6

Annual Funding							
3600 RDT&E Research, Development, Test, and Evaluation, Air Force							
Fiscal Year	Quantity	BY 2013 \$M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
2004	--	--	--	--	--	--	7.6
2005	--	--	--	--	--	--	--
2006	--	--	--	--	--	--	18.5
2007	--	--	--	--	--	--	36.0
2008	--	--	--	--	--	--	33.6
2009	--	--	--	--	--	--	43.1
2010	--	--	--	--	--	--	136.5
2011	--	--	--	--	--	--	132.5
2012	--	--	--	--	--	--	128.1
2013	--	--	--	--	--	--	127.6
2014	--	--	--	--	--	--	106.5
2015	--	--	--	--	--	--	181.3
2016	--	--	--	--	--	--	139.3
2017	--	--	--	--	--	--	65.6
Subtotal	9	--	--	--	--	--	1156.2

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	--	28.5	--	--	28.5	--	28.5
2016	35	62.1	--	--	62.1	5.0	67.1
2017	36	76.8	--	--	76.8	6.0	82.8
2018	72	140.7	--	--	140.7	10.7	151.4
2019	--	13.0	--	--	13.0	0.1	13.1
2020	--	20.0	--	--	20.0	0.4	20.4
2021	--	20.7	--	--	20.7	--	20.7
Subtotal	143	361.8	--	--	361.8	22.2	384.0

Annual Funding								
3010 Procurement Aircraft Procurement, Air Force								
Fiscal Year	Quantity	BY 2013 \$M						
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program	
2015	--	26.9	--	--	26.9	--	26.9	
2016	35	57.4	--	--	57.4	4.7	62.1	
2017	36	69.7	--	--	69.7	5.5	75.2	
2018	72	125.3	--	--	125.3	9.5	134.8	
2019	--	11.3	--	--	11.3	0.1	11.4	
2020	--	17.1	--	--	17.1	0.4	17.5	
2021	--	17.4	--	--	17.4	--	17.4	
Subtotal	143	325.1	--	--	325.1	20.2	345.3	

Cost Quantity Information		
3010 Procurement Aircraft Procurement, Air Force		
Fiscal Year	Quantity	End Item Recurring Flyaway (Aligned With Quantity) BY 2013 \$M
2015	--	--
2016	35	79.6
2017	36	81.8
2018	72	163.7
2019	--	--
2020	--	--
2021	--	--
Subtotal	143	325.1

Low Rate Initial Production

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

Unit Cost Report

Item	BY 2013 \$M	BY 2013 \$M	% Change
	Current UCR Baseline (Jun 2013 APB)	Current Estimate (Dec 2015 SAR)	

Program Acquisition Unit Cost

Cost	1537.6	1501.5	
Quantity	152	152	
Unit Cost	10.116	9.878	-2.35

Average Procurement Unit Cost

Cost	338.2	345.3	
Quantity	143	143	
Unit Cost	2.365	2.415	+2.11

Item	BY 2013 \$M	BY 2013 \$M	% Change
	Original UCR Baseline (Jun 2013 APB)	Current Estimate (Dec 2015 SAR)	

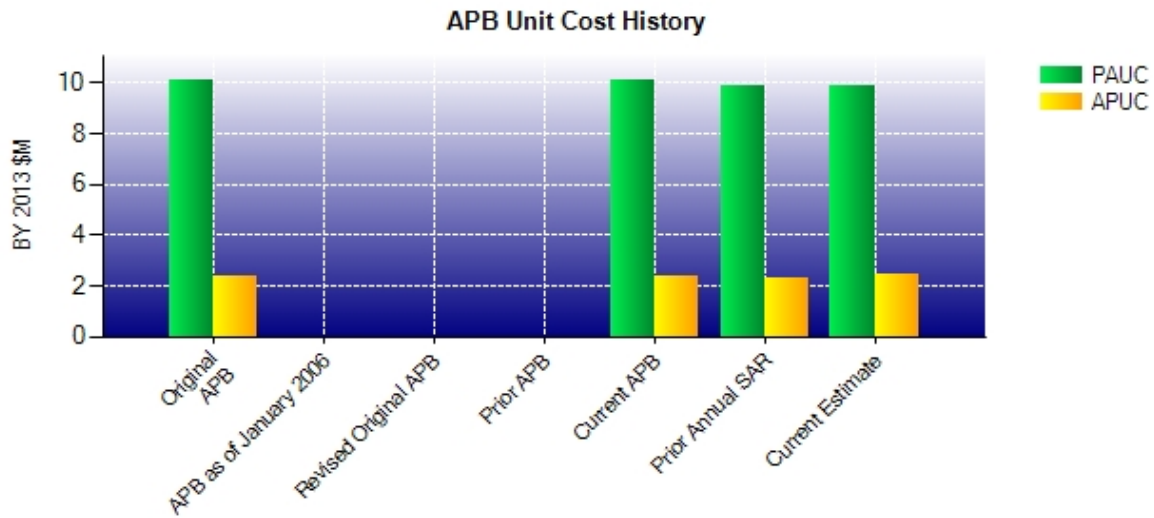
Program Acquisition Unit Cost

Cost	1537.6	1501.5	
Quantity	152	152	
Unit Cost	10.116	9.878	-2.35

Average Procurement Unit Cost

Cost	338.2	345.3	
Quantity	143	143	
Unit Cost	2.365	2.415	+2.11

Unit Cost History



Item	Date	BY 2013 \$M		TY \$M	
		PAUC	APUC	PAUC	APUC
Original APB	Jun 2013	10.116	2.365	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	N/A	N/A	N/A	N/A	N/A
Current APB	Jun 2013	10.116	2.365	10.422	2.635
Prior Annual SAR	Dec 2014	9.848	2.321	10.139	2.592
Current Estimate	Dec 2015	9.878	2.415	10.149	2.685

SAR Unit Cost History

Current SAR Baseline to Current Estimate (TY \$M)									
Initial PAUC Development Estimate	Changes								PAUC Current Estimate
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
10.422	-0.036	0.000	0.000	0.000	-0.232	0.000	-0.005	-0.273	10.149

Current SAR Baseline to Current Estimate (TY \$M)									
Initial APUC Development Estimate	Changes								APUC Current Estimate
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
2.635	-0.010	0.000	0.000	0.000	0.066	0.000	-0.005	0.051	2.685

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	N/A	Jun 2013
Milestone C	N/A	Mar 2016	N/A	Jun 2016
RAA	N/A	Mar 2019	N/A	Sep 2019
Total Cost (TY \$M)	N/A	1584.1	N/A	1542.6
Total Quantity	N/A	152	N/A	152
PAUC	N/A	10.422	N/A	10.149

Cost Variance

Summary TY \$M				
Item	RDT&E	Procurement	MILCON	Total
SAR Baseline (Development Estimate)	1207.3	376.8	--	1584.1
Previous Changes				
Economic	-1.1	+1.3	--	+0.2
Quantity	--	--	--	--
Schedule	--	--	--	--
Engineering	--	--	--	--
Estimating	-35.6	-7.1	--	-42.7
Other	--	--	--	--
Support	--	-0.4	--	-0.4
Subtotal	-36.7	-6.2	--	-42.9
Current Changes				
Economic	-2.9	-2.8	--	-5.7
Quantity	--	--	--	--
Schedule	--	--	--	--
Engineering	--	--	--	--
Estimating	-9.1	+16.5	--	+7.4
Other	--	--	--	--
Support	--	-0.3	--	-0.3
Subtotal	-12.0	+13.4	--	+1.4
Total Changes	-48.7	+7.2	--	-41.5
CE - Cost Variance	1158.6	384.0	--	1542.6
CE - Cost & Funding	1158.6	384.0	--	1542.6

Summary BY 2013 \$M				
Item	RDT&E	Procurement	MILCON	Total
SAR Baseline (Development Estimate)	1199.4	338.2	--	1537.6
Previous Changes				
Economic	--	--	--	--
Quantity	--	--	--	--
Schedule	--	--	--	--
Engineering	--	--	--	--
Estimating	-34.4	-6.1	--	-40.5
Other	--	--	--	--
Support	--	-0.2	--	-0.2
Subtotal	-34.4	-6.3	--	-40.7
Current Changes				
Economic	--	--	--	--
Quantity	--	--	--	--
Schedule	--	--	--	--
Engineering	--	--	--	--
Estimating	-8.8	+13.4	--	+4.6
Other	--	--	--	--
Support	--	--	--	--
Subtotal	-8.8	+13.4	--	+4.6
Total Changes	-43.2	+7.1	--	-36.1
CE - Cost Variance	1156.2	345.3	--	1501.5
CE - Cost & Funding	1156.2	345.3	--	1501.5

Previous Estimate: December 2014

RDT&E		\$M	
Current Change Explanations		Base Year	Then Year
Revised escalation indices. (Economic)		N/A	-2.9
Revised estimate to reflect Air Force reprogramming of funds. (Estimating)		-11.1	-11.5
Adjustment for current and prior escalation. (Estimating)		+2.3	+2.4
RDT&E Subtotal		-8.8	-12.0

Procurement		\$M	
Current Change Explanations		Base Year	Then Year
Revised escalation indices. (Economic)		N/A	-2.8
Revised estimate to reflect Congressional reductions in FY 2016. (Estimating)		-4.6	-4.9
Revised estimate to reflect baseline extension. (Estimating)		+17.4	+20.7
Adjustment for current and prior escalation. (Estimating)		+0.6	+0.7
Adjustment for current and prior escalation. (Support)		+0.1	0.0
Decrease in Initial Spares (Support)		-0.3	-0.3
Increase in Other Support. (Support)		+0.2	0.0
Procurement Subtotal		+13.4	+13.4

Contracts

Contract Identification

Appropriation: RDT&E
Contract Name: F-22 Mod, DO 0004 REDI II, Incr 3.2B Ph C&D
Contractor: Lockheed Martin Aeronautics
Contractor Location: 1 Lockheed Blvd
Ft. Worth, TX 76108-3619
Contract Number: FA8611-13-D-2850/3
Contract Type: Cost Plus Incentive Fee (CPIF), Cost Plus Fixed Fee (CPFF)
Award Date: June 26, 2013
Definitization Date: June 26, 2013

Contract Price							
Initial Contract Price (\$M)			Current Contract Price (\$M)			Estimated Price At Completion (\$M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
328.8	N/A	9	329.8	N/A	9	290.3	295.7

Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to the addition of one Engineering Change Proposal (ECP) and two Contract Change Proposals (CCPs) in CY 2015:

Contract Modification 000412 added ECP 0661 - Addition of 7th Dual Computing Engine (DuCE) and Global Inertial Navigation System (GINS) 09 to Increment 3.2B; as a result, the Delivery Order (DO) 0004 price increased by \$.9M.

Contract Modification 000417 added CCP 438 - Credit for stop work of maintenance training courseware activities; as a result, the DO 0004 price decreased by \$.3M.

Contract Modification 000419 added CCP 0452 - Partial stop work and addition of new work due to Air Force Operational Test and Evaluation Center (AFOTEC) providing new threat model requirements beyond the scope of DO 0004 and deleted threat model requirements previously identified; as a result, the DO 0004 price increased by \$.31M.

The total net value of DO 0004 contract changes in CY 2015 amount to \$3.7M.

Contract Variance			
Item	Cost Variance		Schedule Variance
Cumulative Variances To Date (12/27/2015)	-3.6		-4.3
Previous Cumulative Variances	+3.8		-4.2
Net Change	-7.4		-0.1

Cost and Schedule Variance Explanations

The unfavorable net change in the cost variance is due to additional unplanned efforts due to delays of predecessor F-22 software programs.

The unfavorable net change in the schedule variance is due to schedule delays of predecessor F-22 software programs.

Notes

Delivery Order (DO) 0004 was issued under the overarching F-22 Raptor, Enhancement, Development, and Integration II Indefinite Delivery Indefinite Quantity Contract (FA8611-13-D-2850). Definitization date is same as award date and does not indicate this DO was issued as a letter contract or Undefined Contractual Action.

Contract Identification

Appropriation: RDT&E
Contract Name: D.O. 009 Test Execution CLIN 0301
Contractor: Lockheed Martin (Aeronautics)
Contractor Location: 1 Lockheed Blvd
Ft. Worth, TX 76108-3619
Contract Number: FA8611-13-D-2850/4
Contract Type: Cost Plus Fixed Fee (CPFF)
Award Date: January 01, 2015
Definitization Date: January 01, 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
54.6	N/A	N/A	54.6	N/A	N/A	54.6	54.6

Contract Variance		
Item	Cost Variance	Schedule Variance
Cumulative Variances To Date (12/27/2015)	+2.2	-0.5
Previous Cumulative Variances	--	--
Net Change	+2.2	-0.5

Cost and Schedule Variance Explanations

The favorable cumulative cost variance is due to less effort required due to delays in predecessor F-22 software programs.

The unfavorable cumulative schedule variance is due to delayed start of flight testing due to delays in predecessor F-22 software programs.

Notes

This is the first time this contract is being reported.

This effort is for 3.2B System Integration and Test efforts only; deliveries, as such, are not anticipated.

Deliveries and Expenditures

Deliveries				
Delivered to Date	Planned to Date	Actual to Date	Total Quantity	Percent Delivered
Development	5	5	9	55.56%
Production	0	0	143	0.00%
Total Program Quantity Delivered	5	5	152	3.29%

Expended and Appropriated (TY \$M)			
Total Acquisition Cost	1542.6	Years Appropriated	13
Expended to Date	894.8	Percent Years Appropriated	72.22%
Percent Expended	58.01%	Appropriated to Date	1183.9
Total Funding Years	18	Percent Appropriated	76.75%

The above data is current as of February 09, 2016.

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.

Operating and Support Cost

Cost Estimate Details

Date of Estimate: May 31, 2013
Source of Estimate: SCP
Quantity to Sustain: 149
Unit of Measure: Modified Aircraft
Service Life per Unit: 15.00 Years
Fiscal Years in Service: FY 2018 - FY 2033

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

Annual O&S Costs BY2013 \$K		
Cost Element	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	33.000	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	33.000	--

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 Development APB Objective/Threshold		Current Estimate	
Base Year	80.9	89.0	80.9	N/A
Then Year	104.5	N/A	104.5	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. The total Inc 3.2B Mod O&S costs, estimated to be \$80.9M (BY 2013), will be reported as part of the estimated \$67.1B overall F-22 baseline program O&S costs.

The Air Force expects F-22 Incr 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 Increment 3.2B modification.

Total O&S costs were estimated for initial "steady state" year, 2022.

- Cost were then applied for the years 2018 (1st modified aircraft is fielded) through 2033 (15 years)

Equation to Translate Annual Cost to Total Cost

Unitized cost estimate is calculated:

Total O&S / estimated service life / Average PAA; $(\$80.9M/15/163) = \$0.033M$

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 2013 \$M	Change Explanations
Prior SAR Total O&S Estimates - Dec 2014 SAR	80.9	
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	80.9	

Disposal Estimate Details

Date of Estimate:

Source of Estimate:**Disposal/Demilitarization Total Cost (BY 2013 \$M):**

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