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Joint Air-to-Surface Standoff Missile (JASSM)

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

Joint Air-to-Surface Standoff Missile (JASSM)

DoD Component

Air Force

Joint Participants

Department of the Navy

Responsible Office

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References

SAR Baseline (Production Estimate)

Defense Acquisition Executive (DAE) Approved Acquisition Program Baseline (APB) dated April 4, 2011

Approved APB

Air Force Acquisition Executive (AFAE) Approved Acquisition Program Baseline (APB) dated November 15, 2017

Mission and Description

Introduction:

The Joint Air-to-Surface Standoff Missile (JASSM) Extended Range (ER) is a next generation cruise missile enabling the U.S. Air Force to destroy the enemy's war-sustaining capabilities from outside its area air defenses. There are three variants that make up the JASSM family of missiles; AGM-158A Baseline (BL), AGM-158B Extended Range (ER), and AGM-158D (currently in development). It is precise, lethal, survivable, flexible, and adverse-weather capable. JASSM-ER's inherent accuracy (three meters (m) or less using the Imaging Infrared (IIR) seeker and less than 13 m with Global Positioning System (GPS)/Inertial Navigation System (INS) only) reduces the number of weapons and sorties required to destroy a target.

Mission:

JASSM-ER provides both fighter and bomber aircraft the capability to strike critical, high value, heavily defended targets early in a campaign.

Vision:

To provide the warfighter with an autonomous, precision standoff strike weapon product line at an affordable cost and on schedule.

Description:

JASSM-ER is a low observable, highly survivable, subsonic cruise missile which carries a 1000-pound class, hardened, penetrating warhead with a robust blast fragmentation capability. The missiles employ an IIR seeker system to attack fixed, point targets requiring precision targeting. They use GPS/INS for mid-course navigation and as a back up for terminal guidance. A launch can occur over a wide range of altitudes and at ranges greater than 500 nautical miles. JASSM family of missiles Lot 1-10 is covered under warranty and Lot 11 and beyond is covered under Contractor Logistic Support.

CONOPS:

JASSM-ER employment will occur primarily in the early stages of conflict before air superiority is established, and in the later stages of conflict against high value targets remaining heavily defended. JASSM-ER can also be employed in those cases where, due to rules of engagement/political constraints, high value, point targets must be attacked from international airspace. JASSM-ER may be employed independently or the missile may be used as part of a composite package.

Executive Summary

Program Highlights Since Last Report

Operations

JASSM was successfully employed against ISIS in Syria on October 26, 2019.

Production

As of February, 2020 JASSM baseline material availability is 97%; JASSM-ER material availability is 97%.

JASSM Lot 14 US production (100 baseline and 240 extended range missiles) completed in August, 2019. This was the final combined production lot of baseline and extended range missiles. Lot 15 production is underway, delivering 360 extended range missiles by August 31, 2020. Lot 16 production of 360 extended range missiles is scheduled to begin in June, 2020. The Government and Lockheed Martin reached price agreement for Lot 17 (360 extended range missiles), Lot 18 (390 extended range missiles), and Poland Foreign Military Sales (40 extended range missiles) procurements. Contract award for these 790 JASSM-ER missiles is expected 2nd quarter fiscal year 2020.

The 2018 National Defense Strategy resulted in a JASSM Inventory Objective increase from 4,900 missiles to 7,200 missiles. In response to the increased demand, the government is working with Lockheed Martin to build a second production facility to increase production capacity. The joint venture resulted in Lockheed Martin investing capital funding for a new building and the JASSM Program Office awarding Lockheed Martin with a contract to facilitate the new production facility with JASSM tooling. A ground breaking ceremony was held at the new building site on May 16, 2019. Land clearing completed on October 29, 2019. Building construction is anticipated to begin in 2nd quarter fiscal year 2020. In addition, the increase beyond 4,900 missiles will result in obsolescence issues. The JASSM Program Office continues to work with Lockheed Martin and their suppliers to identify and mitigate obsolete parts to meet the 7,200 missile requirement.

Test

Flight Termination System (FTS) battery availability for flight test assets continues to be a challenge for the program. The JASSM team is pursuing multiple battery qualification solutions to resume flight test activities in 4th quarter calendar year 2020.

The F-16 integration of JASSM-ER, a follow on to an existing JASSM capability on the F-16, is part of the F-16 software upgrade to M7.2+. Ground and flight testing between host aircraft and weapon has been successfully completed, including operational testing. While the integration testing is complete, the fielding of the JASSM-ER combat capability on F-16 is tied to the planned March, 2020 fielding of M7.2+ aircraft software.

Australia conducted two successful JASSM live fire tests in September using their F-18s at the Woomera Test Range.

Poland will receive test assets from Lot 16 (4 JASSM-ER) and production missiles from Lot 17 (40 JASSM-ER).

Development

The Program Office continued development of AGM-158D (also known as JASSM-D) to respond to rapidly changing threats. As reported last year, AGM-158D includes new wings, an Electronic Safe and Arm Fuze (ESAF), M-code compatible Global Positioning System (GPS) receiver (JASSM Anti-Jam GPS Receiver with Selective Availability-Anti-Spoofing Module (SAASM) Version 4 (JAGR-S V4)), intelligent test instrumentation kit (iTik), and upgraded missile control unit to create a more capable weapon system with longer range. The Program Office awarded Phase 3 of the Engineering and Manufacturing Development contract for the new wing design in January 2019. The Wing Preliminary Design Review was completed in December 2019.

Although ESAF development was delayed due to an obsolete thyristor part, a redesign with a new part is complete, and the ESAF is scheduled to return to testing in early 2020. Due to software delays from the Military GPS Users Equipment

(MGUE) program, the JASSM Program Office adjusted plans for the AGM-158D M-code GPS receiver and awarded the JAGR-S V4 EMD contract to continue development of a SAASM based receiver that shares 80% commonality with the future JASSM M-Code receiver. This approach enables continued development of the AGM-158D M-Code receiver while allowing the JASSM program to continue producing and fielding missiles with operational GPS receivers.

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
April 2018	The first operational expenditure of JASSM-Baseline occurred on April 14, 2018. All of the 19 missiles launched successfully and engaged their intended target.

Threshold Breaches

APB Breaches

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

Explanation of Breach

The procurement breach was caused by a quantity increase of 2300 missiles from 4900 to 7200.

The RDT&E APB breach is due to investment in improved warfighter capabilities (e.g., increased range) for the D-variant of JASSM.

An updated APB is in process.

Nunn-McCurdy Breaches

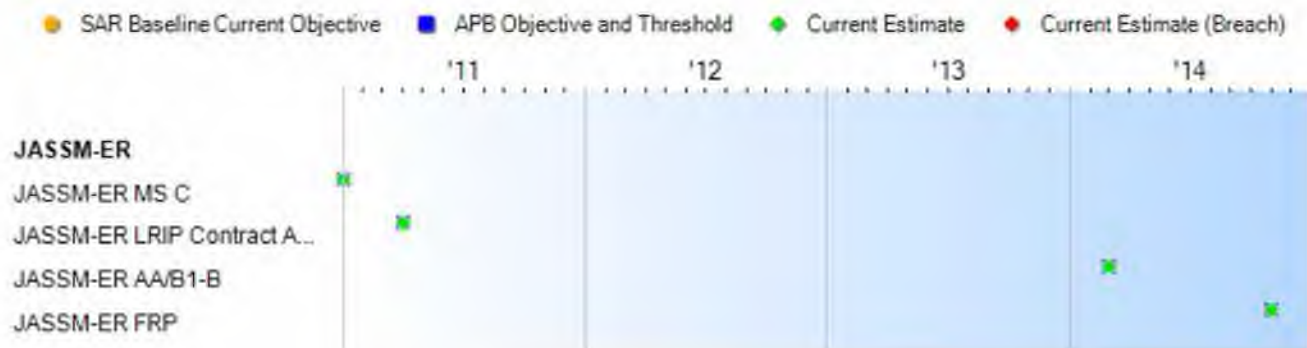
Current UCR Baseline

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
JASSM-ER MS C	Jan 2007	Jan 2011	Jan 2011	Jan 2011
JASSM-ER LRIP Contract Award	Jan 2011	Apr 2011	Apr 2011	Apr 2011
JASSM-ER AA/B1-B	Dec 2008	Mar 2014	Mar 2014	Mar 2014
JASSM-ER FRP	Dec 2013	Nov 2014	Nov 2014	Nov 2014

Change Explanations

None

Acronyms and Abbreviations

AA - Assets Available
 MS - Milestone

Performance

Performance Characteristics				
SAR Baseline Production Estimate	Current APB Production Objective/Threshold		Demonstrated Performance	Current Estimate
Materiel Availability (KPP) (CPD Para 6.1.5)				
.98	.98	.95	1.0	.97
Missile Reliability (KSA) (CPD para 6.2.8)				
4th Lot .91	4th Lot .91	IOT&E .80 4th Lot .85	JASSM: 91.0% JASSM-ER: 90.8%	JASSM: 92.3% JASSM- ER: 92.0%
Net-Ready (KPP) (CPD para 6.1.3)				
All Ops	All Operations	Joint Critical Operations	All Ops	All Ops

(Ch-1)

(Ch-1)

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

Requirements Reference

CPD dated April 16, 2010, JASSM-ER Annex to the JASSM ORD and ORD III dated January 31, 2005, and the ORD 303-95-III dated January 20, 2004

Change Explanations

(Ch-1) Missile Reliability: Demonstrated Performance and Current Estimate changed due to updated reliability performance.

Acronyms and Abbreviations

IOT&E - Initial Operational Test and Evaluation
 KSA - Key System Attributes
 Ops - Operations
 ORD - Operational Requirements Document
 para - paragraph

Track to Budget

RDT&E

Appn	BA	PE		
Air Force	3600	07	0207325F	
		Project	Name	
		674515	Joint Air-to-Surface Standoff Missile	(Shared) (Sunk)
		675356	JASSM Extended Range (JASSM-ER)	

Procurement

Appn	BA	PE		
Air Force	3020	02	0207325F	
		Line Item	Name	
		654515	Joint Air-to-Surface Standoff Missile	(Shared) (Sunk)
Air Force	3020	04	0207325F	
		Line Item	Name	
		999	Replen Spares / Repair Parts	(Shared)
Air Force	3020	02	0207325F	
		Line Item	Name	
		JASSM0	Joint Air-to-Surface Standoff Missile	

Cost and Funding

Cost Summary

Total Acquisition Cost							
Appropriation	BY 2010 \$M			BY 2010 \$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	159.1	519.5	571.5	657.3 ¹	146.6	576.9	757.1
Procurement	2035.9	3297.1	3626.8	7813.4 ¹	2154.8	4059.6	9342.5
Flyaway	--	--	--	7009.7	--	--	8321.0
Recurring	--	--	--	7009.7	--	--	8321.0
Non Recurring	--	--	--	0.0	--	--	0.0
Support	--	--	--	803.7	--	--	1021.5
Other Support	--	--	--	801.0	--	--	1018.0
Initial Spares	--	--	--	2.7	--	--	3.5
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	2195.0	3816.6	N/A	8470.7	2301.4	4636.5	10099.6

¹ APB Breach

Current APB Cost Estimate Reference

SCP dated October 10, 2014

Cost Notes

Program Cost Estimate updated December 2019.

CAPE Cost Risks: Low to moderate cost risk added to program estimate for AGM-158D developmental efforts, production cut in, and new tooling requirements.

Total Quantity			
Quantity	SAR Baseline Production Estimate	Current APB Production	Current Estimate
RDT&E	7	31	31
Procurement	2500	2866	7200
Total	2507	2897	7231

Cost and Funding

Funding Summary

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	307.0	78.5	70.9	116.0	33.4	20.6	21.0	109.7	757.1
Procurement	4133.6	483.8	506.3	751.0	758.7	758.8	762.3	1188.0	9342.5
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	4440.6	562.3	577.2	867.0	792.1	779.4	783.3	1297.7	10099.6
PB 2020 Total	4443.2	582.3	454.1	458.6	471.0	461.0	853.7	2244.9	9968.8
Delta	-2.6	-20.0	123.1	408.4	321.1	318.4	-70.4	-947.2	130.8

Funding Notes

RDT&E:

FY 2021 includes for \$10.4M for Weapon Data Link (WDL), \$7.5M for navigation-grade Inertial Measurement Unit (IMU), \$13.2M for Wing Replacement disconnects, and \$3.6M for Warfighter Capability

FY 2022 includes \$55.3M for Weapon Data Link (WDL), \$7.5M for navigation-grade Inertial Measurement Unit (IMU), \$25.7M for Wing Replacement disconnects, and \$15.0M for Warfighter Capability

FY 2023 includes \$4.0M for Weapon Data Link (WDL), \$8.6M for Wing Replacement disconnects, and \$0.6M for Warfighter Capability

Procurement:

FY 2020 includes \$20.9M of Overseas Contingency Operations funding

FY 2021 includes \$30.0M of Overseas Contingency Operations funding

FY 2022 - 2024 funding added to support increased production quantities

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	31	0	0	0	0	0	0	0	0	31
Production	0	3654	390	400	512	516	520	509	699	7200
PB 2021 Total	31	3654	390	400	512	516	520	509	699	7231
PB 2020 Total	31	3654	430	297	265	273	263	550	1468	7231
Delta	0	0	-40	103	247	243	257	-41	-769	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
2003	--	--	--	--	--	--	13.6
2004	--	--	--	--	--	--	15.7
2005	--	--	--	--	--	--	31.8
2006	--	--	--	--	--	--	35.2
2007	--	--	--	--	--	--	22.5
2008	--	--	--	--	--	--	8.3
2009	--	--	--	--	--	--	20.6
2010	--	--	--	--	--	--	26.5
2011	--	--	--	--	--	--	19.3
2012	--	--	--	--	--	--	5.6
2013	--	--	--	--	--	--	2.9
2014	--	--	--	--	--	--	2.2
2015	--	--	--	--	--	--	5.0
2016	--	--	--	--	--	--	9.2
2017	--	--	--	--	--	--	18.3
2018	--	--	--	--	--	--	29.4
2019	--	--	--	--	--	--	40.9
2020	--	--	--	--	--	--	78.5
2021	--	--	--	--	--	--	70.9
2022	--	--	--	--	--	--	116.0
2023	--	--	--	--	--	--	33.4
2024	--	--	--	--	--	--	20.6
2025	--	--	--	--	--	--	21.0
2026	--	--	--	--	--	--	109.7
Subtotal	31	--	--	--	--	--	757.1

Annual Funding							
3600 RDT&E Research, Development, Test, and Evaluation, Air Force							
Fiscal Year	Quantity	BY 2010 \$M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
2003	--	--	--	--	--	--	15.6
2004	--	--	--	--	--	--	17.6
2005	--	--	--	--	--	--	34.8
2006	--	--	--	--	--	--	37.4
2007	--	--	--	--	--	--	23.3
2008	--	--	--	--	--	--	8.4
2009	--	--	--	--	--	--	20.6
2010	--	--	--	--	--	--	26.2
2011	--	--	--	--	--	--	18.7
2012	--	--	--	--	--	--	5.3
2013	--	--	--	--	--	--	2.7
2014	--	--	--	--	--	--	2.0
2015	--	--	--	--	--	--	4.6
2016	--	--	--	--	--	--	8.3
2017	--	--	--	--	--	--	16.2
2018	--	--	--	--	--	--	25.5
2019	--	--	--	--	--	--	34.8
2020	--	--	--	--	--	--	65.4
2021	--	--	--	--	--	--	57.9
2022	--	--	--	--	--	--	92.9
2023	--	--	--	--	--	--	26.2
2024	--	--	--	--	--	--	15.9
2025	--	--	--	--	--	--	15.8
2026	--	--	--	--	--	--	81.2
Subtotal	31	--	--	--	--	--	657.3

Annual Funding								
3020 Procurement Missile 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	
2001	1	0.2	--	--	0.2	--	0.2	
2002	76	42.8	--	--	42.8	4.8	47.6	
2003	100	100.8	--	--	100.8	--	100.8	
2004	240	200.7	--	--	200.7	--	200.7	
2005	288	188.2	--	--	188.2	--	188.2	
2006	75	160.7	--	--	160.7	--	160.7	
2007	163	260.6	--	--	260.6	--	260.6	
2008	178	260.1	--	--	260.1	--	260.1	
2009	120	248.2	--	--	248.2	--	248.2	
2010	1	52.5	--	--	52.5	4.3	56.8	
2011	198	247.4	--	--	247.4	1.8	249.2	
2012	221	100.3	--	--	100.3	4.6	104.9	
2013	230	102.1	--	--	102.1	6.6	108.7	
2014	103	120.8	--	--	120.8	4.3	125.1	
2015	240	175.5	--	--	175.5	37.3	212.8	
2016	340	281.5	--	--	281.5	60.2	341.7	
2017	360	412.6	--	--	412.6	19.4	432.0	
2018	360	392.1	--	--	392.1	41.0	433.1	
2019	360	382.0	--	--	382.0	220.2	602.2	
2020	390	415.9	--	--	415.9	67.9	483.8	
2021	400	441.2	--	--	441.2	65.1	506.3	
2022	512	685.7	--	--	685.7	65.3	751.0	
2023	516	706.2	--	--	706.2	52.5	758.7	
2024	520	705.5	--	--	705.5	53.3	758.8	
2025	509	696.7	--	--	696.7	65.6	762.3	
2026	233	322.9	--	--	322.9	54.8	377.7	
2027	233	308.9	--	--	308.9	56.2	365.1	
2028	233	308.9	--	--	308.9	54.3	363.2	
2029	--	--	--	--	--	19.0	19.0	
2030	--	--	--	--	--	14.5	14.5	
2031	--	--	--	--	--	15.0	15.0	
2032	--	--	--	--	--	15.5	15.5	
2033	--	--	--	--	--	15.2	15.2	
2034	--	--	--	--	--	0.7	0.7	
2035	--	--	--	--	--	2.1	2.1	
Subtotal	7200	8321.0	--	--	8321.0	1021.5	9342.5	

Annual Funding 3020 Procurement Missile Procurement, Air Force							
Fiscal Year	Quantity	BY 2010 \$M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
2001	1	0.2	--	--	0.2	--	0.2
2002	76	49.2	--	--	49.2	5.6	54.8
2003	100	114.6	--	--	114.6	--	114.6
2004	240	223.4	--	--	223.4	--	223.4
2005	288	203.7	--	--	203.7	--	203.7
2006	75	169.0	--	--	169.0	--	169.0
2007	163	267.4	--	--	267.4	--	267.4
2008	178	262.1	--	--	262.1	--	262.1
2009	120	246.6	--	--	246.6	--	246.6
2010	1	51.4	--	--	51.4	4.2	55.6
2011	198	237.5	--	--	237.5	1.7	239.2
2012	221	94.7	--	--	94.7	4.3	99.0
2013	230	94.2	--	--	94.2	6.1	100.3
2014	103	109.9	--	--	109.9	3.9	113.8
2015	240	157.8	--	--	157.8	33.5	191.3
2016	340	248.5	--	--	248.5	53.2	301.7
2017	360	356.1	--	--	356.1	16.7	372.8
2018	360	331.8	--	--	331.8	34.7	366.5
2019	360	316.9	--	--	316.9	182.7	499.6
2020	390	338.0	--	--	338.0	55.2	393.2
2021	400	351.6	--	--	351.6	51.8	403.4
2022	512	535.7	--	--	535.7	51.0	586.7
2023	516	540.9	--	--	540.9	40.2	581.1
2024	520	529.7	--	--	529.7	40.1	569.8
2025	509	512.9	--	--	512.9	48.3	561.2
2026	233	233.0	--	--	233.0	39.6	272.6
2027	233	218.6	--	--	218.6	39.7	258.3
2028	233	214.3	--	--	214.3	37.6	251.9
2029	--	--	--	--	--	12.9	12.9
2030	--	--	--	--	--	9.7	9.7
2031	--	--	--	--	--	9.8	9.8
2032	--	--	--	--	--	9.9	9.9
2033	--	--	--	--	--	9.6	9.6
2034	--	--	--	--	--	0.4	0.4
2035	--	--	--	--	--	1.3	1.3
Subtotal	7200	7009.7	--	--	7009.7	803.7	7813.4

FY 2021 missile quantity is 400, which includes Overseas Contingency Operations.

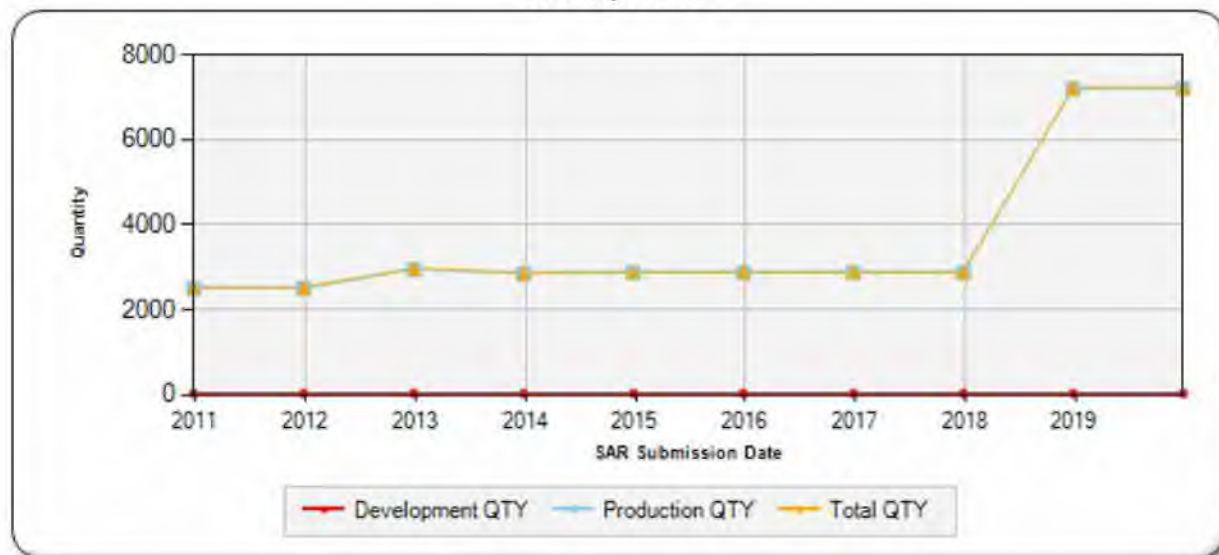
Charts

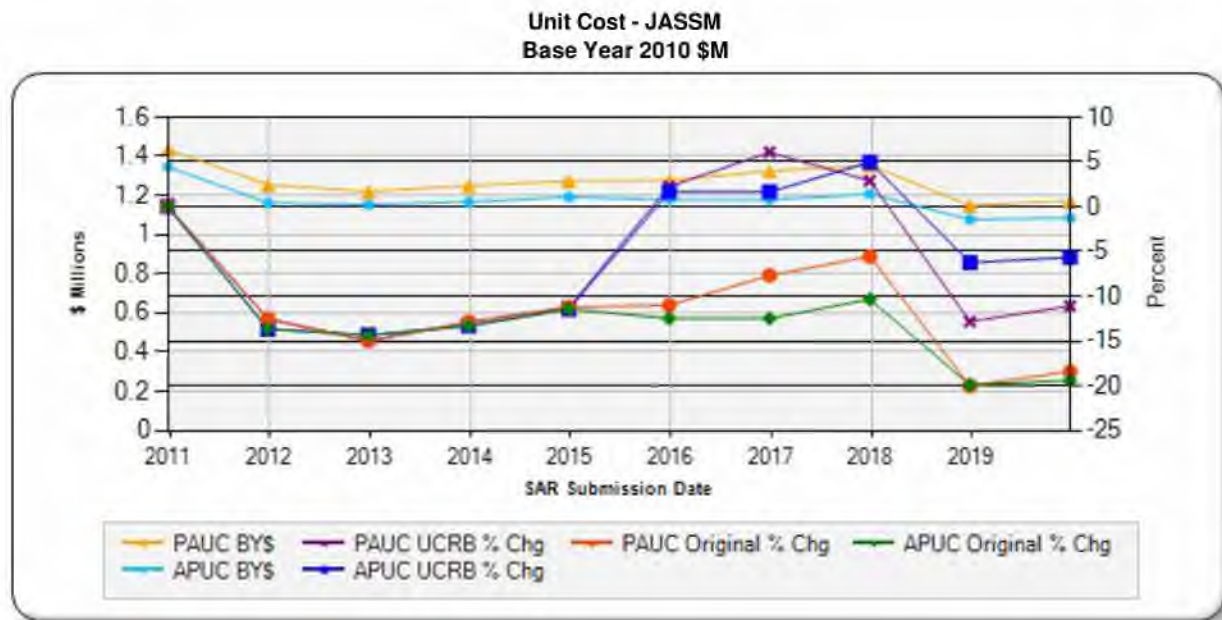
JASSM first began SAR reporting in December 1997

Program Acquisition Cost - JASSM
Base Year 2010 \$M



Quantity - JASSM





Risks

Significant Schedule and Technical Risks

Significant Schedule and Technical Risks
Current Estimate (December 2019)
None

Risks

Risk and Sensitivity Analysis

Risks and Sensitivity Analysis	
Current Baseline Estimate (November 2017)	
1.	N/A
Original Baseline Estimate (April 2011)	
1.	N/A
Revised Original Estimate (N/A)	
None	
Current Procurement Cost (December 2019)	
1.	Increased production from 4,900 to 7,200 missiles. Production costs are sensitive to forecasted lot quantities and AGM-158D requirements. Program Deviation Report signed by SAF/AQ on February 13, 2019, deferring APB update for increased quantities and AGM-158D requirements to 2022.

Low Rate Initial Production

Item	Initial LRIP Decision	Current Total LRIP
Approval Date	1/10/2011	1/10/2011
Approved Quantity	100	160
Reference	Milestone C ADM	Milestone C ADM
Start Year	2011	2011
End Year	2013	2014

Notes

The January 10, 2011 ADM approved LRIP range of 100 to 190 JASSM-ER missiles. Current JASSM-ER's LRIP buy is 160 missiles, within the approved LRIP range, due to production capacity.

Foreign Military Sales

Notes

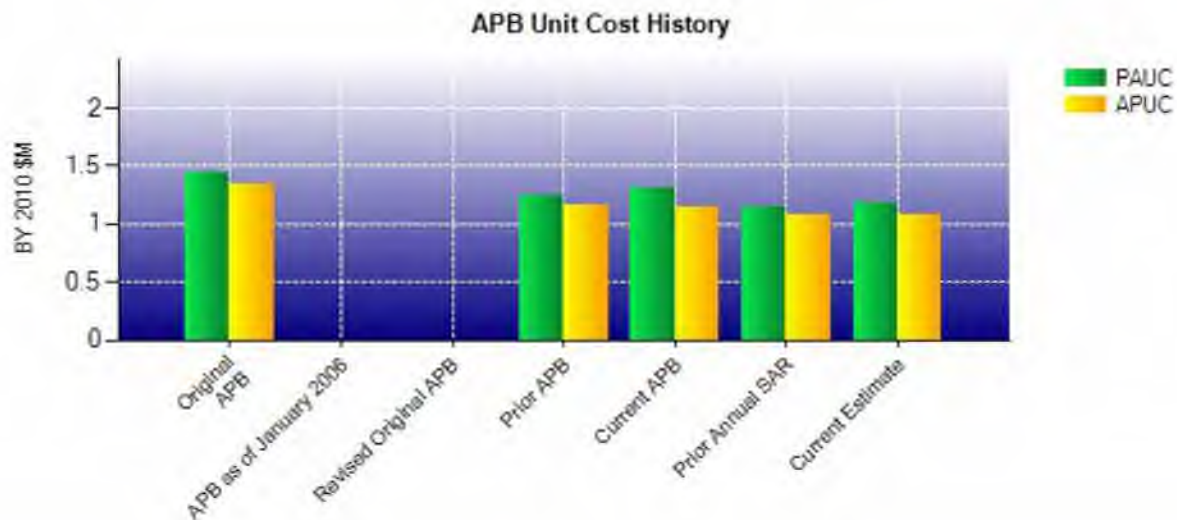
FMS of JASSM-ER to Poland was approved and the Letter of Offer and Acceptance was signed on December 29, 2016 to acquire missiles for integration on the Polish F-16. The Phase 1 contract award will include integration, System Support Simulator upgrade, Missile Operational Flight Program, Unique Planning Component, and management support. Phase 2 contract was awarded August 2019. Lot 16 Contract included one Live Fire (LF) test asset, two Separation Test Vehicles (STV), and the Lot 17 contract will include JASSM-ER all up rounds.

Nuclear Costs

None

Unit Cost

Current UCR Baseline and Current Estimate (Base-Year Dollars)			
Item	BY 2010 \$M	BY 2010 \$M	% Change
	Current UCR Baseline (Nov 2017 APB)	Current Estimate (Dec 2019 SAR)	
Program Acquisition Unit Cost			
Cost	3816.6	8470.7	
Quantity	2897	7231	
Unit Cost	1.317	1.171	-11.09
Average Procurement Unit Cost			
Cost	3297.1	7813.4	
Quantity	2866	7200	
Unit Cost	1.150	1.085	-5.65
Original UCR Baseline and Current Estimate (Base-Year Dollars)			
Item	BY 2010 \$M	BY 2010 \$M	% Change
	Original UCR Baseline (Apr 2011 APB)	Current Estimate (Dec 2019 SAR)	
Program Acquisition Unit Cost			
Cost	3631.6	8470.7	
Quantity	2531	7231	
Unit Cost	1.435	1.171	-18.40
Average Procurement Unit Cost			
Cost	3366.1	7813.4	
Quantity	2500	7200	
Unit Cost	1.346	1.085	-19.39



APB Unit Cost History					
Item	Date	BY 2010 \$M		TY \$M	
		PAUC	APUC	PAUC	APUC
Original APB	Apr 2011	1.435	1.346	1.733	1.648
APB as of January 2006	N/A	N/A	N/A	N/A	N/A
Revised Original APB	N/A	N/A	N/A	N/A	N/A
Prior APB	Mar 2015	1.249	1.159	1.517	1.426
Current APB	Nov 2017	1.317	1.150	1.600	1.416
Prior Annual SAR	Dec 2018	1.148	1.078	1.379	1.299
Current Estimate	Dec 2019	1.171	1.085	1.397	1.298

SAR Unit Cost History

Current SAR Baseline to Current Estimate (TY \$M)									
PAUC Production Estimate	Changes								PAUC Current Estimate
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
0.918	0.015	0.112	-0.127	0.105	0.243	0.000	0.131	0.479	1.397

Current SAR Baseline to Current Estimate (TY \$M)									
Initial APUC Production Estimate	Changes								APUC Current Estimate
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
0.862	0.015	0.143	-0.124	0.070	0.200	0.000	0.132	0.436	1.298

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	Jan 2007	Jan 2011
IOC	N/A	N/A	Dec 2008	Mar 2014
Total Cost (TY \$M)	N/A	N/A	2301.4	10099.6
Total Quantity	N/A	N/A	2507	7231
PAUC	N/A	N/A	0.918	1.397

In the chart above, IOC represents Required Assets Available (RAA) for B-1B Dyess Air Force Base. RAA achieved was on March 21, 2014.

Cost Variance

Summary TY \$M				
Item	RDT&E	Procurement	MILCON	Total
SAR Baseline (Production Estimate)	146.6	2154.8	--	2301.4
Previous Changes				
Economic	+3.0	+108.4	--	+111.4
Quantity	+64.9	+5078.9	--	+5143.8
Schedule	-25.8	-788.9	--	-814.7
Engineering	+254.7	+503.9	--	+758.6
Estimating	+171.2	+1416.1	--	+1587.3
Other	--	--	--	--
Support	--	+881.0	--	+881.0
Subtotal	+468.0	+7199.4	--	+7667.4
Current Changes				
Economic	-0.3	-2.0	--	-2.3
Quantity	--	--	--	--
Schedule	--	-102.7	--	-102.7
Engineering	--	--	--	--
Estimating	+142.8	+27.2	--	+170.0
Other	--	--	--	--
Support	--	+65.8	--	+65.8
Subtotal	+142.5	-11.7	--	+130.8
Total Changes	+610.5	+7187.7	--	+7798.2
Current Estimate	757.1	9342.5	--	10099.6

Summary BY 2010 \$M				
Item	RDT&E	Procurement	MILCON	Total
SAR Baseline (Production Estimate)	159.1	2035.9	--	2195.0
Previous Changes				
Economic	--	--	--	--
Quantity	+50.4	+3847.2	--	+3897.6
Schedule	-7.2	-96.2	--	-103.4
Engineering	+212.4	+362.3	--	+574.7
Estimating	+128.6	+929.1	--	+1057.7
Other	--	--	--	--
Support	--	+683.2	--	+683.2
Subtotal	+384.2	+5725.6	--	+6109.8
Current Changes				
Economic	--	--	--	--
Quantity	--	--	--	--
Schedule	--	--	--	--
Engineering	--	--	--	--
Estimating	+114.0	-5.9	--	+108.1
Other	--	--	--	--
Support	--	+57.8	--	+57.8
Subtotal	+114.0	+51.9	--	+165.9
Total Changes	+498.2	+5777.5	--	+6275.7
Current Estimate	657.3	7813.4	--	8470.7

Previous Estimate: December 2018

RDT&E	\$M	
Current Change Explanations	Base Year	Then Year
Revised escalation indices. (Economic)	N/A	-0.3
Revised estimate due to new or disconnected requirements for the Wing Replacement, Weapon Data Link, Nav-grade Initial Measurement Unit, and Warfighting Capability. (Estimating)	+114.0	+142.8
RDT&E Subtotal	+114.0	+142.5

Procurement	\$M	
Current Change Explanations	Base Year	Then Year
Revised escalation indices. (Economic)	N/A	-2.0
Acceleration of procurement buy profile. (Schedule)	0.0	-102.7
Revised estimate to align events in proper cost categories. (Estimating)	-7.1	+26.2
Adjustment for current and prior escalation. (Estimating)	+1.2	+1.0
Adjustment for current and prior escalation. (Support)	-0.1	+0.3
Revised estimate to include an increase of funding associated with equipment for an additional production facility, Systems Engineering Program Management, AGM-158D tooling requirements, reliability and obsolescence. (Support)	+57.4	+64.8
Two additional years of spares added to support increase of quantities. (Support)	+0.5	+0.7
Procurement Subtotal	+51.9	-11.7

Contracts

Contract Identification	
Appropriation:	Procurement
Contract Name:	JASSM Production (Lot 13)
Contractor:	Lockheed Martin Corporation
Contractor Location:	5600 W. Sand Lake Road Orlando, FL 32819-8907
Contract Number:	FA8682-16-C-0005/13
Contract Type:	Fixed Price Incentive(Firm Target) (FPIF)
Award Date:	October 09, 2015
Definitization Date:	October 09, 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
263.3	263.4	240	268.0	306.1	240	306.1	306.1

Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to the last JASSM Baseline delivery on December 20, 2018.

Mod P00011: Troy Tooling Refurbishment (\$263.4K)

Mod P00012: Test Instrumentation (TIK) install for B-52 Integration (\$696.9K)

Mod P00020: JASSM Baseline Containers for Dummy Air Training Missiles (DATM) (\$579.0K)

Mod P00021: Robotics Validation effort (\$300.6K)

Mod P00023: Focal Plane Array (FPA), Microcontroller and Flash Memory Obsolescence Life of Type Buy (LTB). (\$378.5K)

Mod P00025: JASSM-ER Bulkhead and Lube Pump Value Engineering Change Proposal Non-Recurring Engineering Recoupment and Savings (\$552.9K)

Mod P00026: Re-Design & Fabrication of the JASSM FPA Test Stations (\$612.1K)

Mod P00027: JASSM receiver Flash Memory & Automated Information System (AIS) Inertial Measurement Unit (IMU) & Seeker Gyro PZI Crystal Obsolescence LTB (\$1.28M)

Mod P00028: Troy Tooling Refurbishment Phase 2 (\$228.6K)

Mod P00032: De-scope and de-obligate Contract Line Item Number (CLINs) 9116 and 9117, extend the Period of Performance for CLIN 5005,(\$-8.9K)

Mod P00035: Fund the Troy Government furnished property (GFP) tooling repair (\$24.1K)

Cost and Schedule Variance Explanations

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

General Contract Variance Explanation

Cost and schedule variances are not reported for this contract, because an earned value management waiver was granted by MDA on Sep 2014. Waiver rationale:

The JASSM program office has an approved strategy to utilize a fixed-price incentive (firm target) (FPIF) in lieu of FFP type of contract for the upcoming Production Lot 13/Option Lot 14 effort. Using this type of contract will provide the program office the necessary insight into the actual costs to perform and should result in a lower unit price for missiles. The estimated value for the contract (basic and one option) is \$750M. DoDI 5000.02, Table 8 and DFARS 234.2 mandate EVM system be required in incentive contracts exceeding \$20M and a validated EVM system if the contract exceeds \$50M.

Notes

The funding identified here only represents production funding placed on contract to support 240 missiles (100 Baseline and 140 Extended Range).

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

Contract Identification

Appropriation: Procurement
Contract Name: JASSM Production (Lot 14)
Contractor: Lockheed Martin Corporation Fire and Missile Control
Contractor Location: 5600 West Sand Lake Road
Orlando, FL 32819
Contract Number: FA8682-16-C-0005/14
Contract Type: Fixed Price Incentive(Firm Target) (FPIF)
Award Date: December 01, 2015
Definitization Date: December 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
371.0	417.6	340	393.0	436.2	340	436.2	436.2

Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to contract modifications since the initial contract awarded in December 2015.

Mod P00004: Excellis tooling (\$14.4M)
Mod P00025: JASSM-ER Bulkhead and Lube Pump Value Engineering Change Proposal (VECP) Non-Recurring Engineering (NRE) (\$1.6M)
Mod P00018: VECP Honeywell (\$1.4M)
Mod P00014: Critical Tooling and Test Stations (\$1.4M)
Mod P00036: De-obligate subCLINs 9007AA and 9007AB (-\$96.9K)
Mod P00039: De-obligate tooling funds as a result of savings from subcontractors. (-\$182.2K)

Cost and Schedule Variance Explanations

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

General Contract Variance Explanation

Cost and schedule variances are not reported for this contract, because an earned value management waiver was granted by the MDA on Sep 2014.

Waiver rationale: The JASSM program office has an approved strategy to utilize a fixed-price incentive (firm target) (FPIF) in lieu of FFP type of contract for the upcoming Production Lot 13/Option Lot 14 effort. Using this type of contract will provide the program office the necessary insight into the actual costs to perform and should result in a lower unit price for missiles. The estimated value for the contract (basic and one option) is \$750M. DoDI 5000.02, Table 8 and DFARS 234.2 mandate EVM system be required in incentive contracts exceeding \$20M and a validated EVM system if the contract exceeds \$50M.

Notes

The Lot 14 option was executed December 1, 2015. Under Continuing Resolution Authority (CRA) the program was not allowed to buy more quantities than the previous Lot/year. The initial contract price (\$247.8M) was based on 240 missiles (100 Baseline and 140 ER), in the First Phase of a two Phase contract award. Once CRA was completed and full FY 2016 funding was received, Phase 2 was executed to buy the remaining 100 JASSM-ER missiles. The total contract price for Lot 14 is 340 missiles at \$371.0M and considered the initial/original contract price.

Contract Identification

Appropriation: Procurement
Contract Name: JASSM Production (Lot 15)
Contractor: Lockheed Martin Corporation
Contractor Location: 5600 W. Sand Lake Road
Orlando, FL 32819-8907
Orlando, FL 32819
Contract Number: FA8682-17-C-0037
Contract Type: Fixed Price Incentive(Firm Target) (FPIF)
Award Date: June 01, 2017
Definitization Date: June 01, 2017

Contract Price							
Initial Contract Price (\$M)			Current Contract Price (\$M)			Estimated Price At Completion (\$M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
413.8	N/A	360	411.5	415.8	360	415.8	415.8

Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to contract modifications which were awarded after the initial contract awarded in June 2017. Lot 15 was the first lot of JASSM-ER only missiles.

Mod P00001: Williams international tooling (\$1.9M)
Mod P00002: Long Range Anti Ship Missile (LRASM) LOT 1 (\$86.4M)
Mod P00003: Procure 12 JASSM live warheads (\$460.0K)
Mod P00004: Buy 5 more LRASM missiles (\$17.9M)
Mod P00005: Receiver obsolescence LTB (\$34.7K)
Mod P00007: Supplier Expedite fees (\$83.1K)
Mod P00008: JASSM Weapon System Evaluation Program (WSEP) (\$382.6K)
Mod P00010: JASSM B2 Integration (\$3.9M)
Mod P00011: Engineering Change Proposal VECP (\$386.3K)
Mod P00012: 4 LRASM missiles with containers (\$13.9M)
Mod P00013: Micro-Electro-Mechanical System (MEMS) Gyro VECP (\$1.6M)
Mod P00014: Missile Control Unit (MCU) Sensitive Security Information (SSI) Circuit Card Assembly (CCA) Diode LTB (\$29.9K)
Mod P00015: Updated Supplier Expedite fees (\$343.6K)
Mod P00017: Reduce quantities of Electrically Erasable Programmable Read-Only Memory (EEPROM) (-2.6K)

Cost and Schedule Variance Explanations

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

General Contract Variance Explanation

Cost and schedule variances are not reported for this contract, because an earned value management waiver was granted by the MDA on Jan 2015.

Waiver rationale:

While the contemplated production contract meets the dollar threshold for full EVM implementation, the impetus for continuing with a FPIF contract is not driven by, nor related to EVM purposes. This is not the typical, historical application of FPIF contract type. Instead, under the Better Buying Power (BBP) goals of "Employ appropriate contract types" and "Achieve affordable programs," the JASSM program office is appropriately using a FPIF contract in order to reduce the actual production costs to the Air Force. FPIF will allow the Air Force to share in actual cost savings with the contractor, prevent the contractor from receiving huge profit windfalls, lower the amount the Air Force ultimately pays for missile production, and motivate the contractor to provide satisfactory performance at lower costs. This application of FPIF is not intended to more closely manage the contractor's efforts or costs (as is traditionally done in EVM), but is being used solely for the Government to benefit from any cost savings that can occur. Thus, EVM is not only unnecessary, but is ineffective for this production contract. Nonetheless, the tenets of sound planning and sharing of contract execution data between the contractor and the Government already exist in the JASSM program office. For example, JASSM Production/Sustainment Branch conducts several weekly meetings with the contractor where contract status and schedules are reviewed, as well as actual problems are identified, discussed, and addressed. This disciplined approach that is built into the existing structure of the JASSM program office provides ample insight into the contractor's production contracts.

Notes

Lot 15 contract includes LRASM units in the amount of \$56.8M not shown in the Target Price listed above.

Initial contract target price was updated to \$413.8M to reflect accuracy as December 2017 SAR's number of \$411M was based on only missile cost.

Contract Identification

Appropriation: Procurement
Contract Name: JASSM Production (Lot 16)
Contractor: Lockheed Martin Corporation
Contractor Location: 5600 W. Sand Lake Road
Orlando, FL 32819-8907
Contract Number: FA8682-19-C-0009
Contract Type: Fixed Price Incentive(Firm Target) (FPIF)
Award Date: October 05, 2018
Definitization Date: October 05, 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
386.3	386.8	360	386.3	386.8	360	386.3	386.3

Cost and Schedule Variance Explanations

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

General Contract Variance Explanation

Cost and schedule variances are not reported for this contract, because an earned value management waiver was granted by the MDA on Jan 2015.

Waiver rationale:

The JASSM/JASSM-ER program office plans to continue its strategy of using a FPIF in lieu of FFP type of contract for all current and upcoming production lot efforts (Lots 15- 21). Using this type of contract will provide the program office the necessary insight into the actual costs to perform and should result in a lower unit price for missiles and lower price for required services.

Notes

Lot 16 was executed October 5th, 2018. The total contract price for Lot 16 is for 360 Missiles at a target price of \$386.3M and considered the initial/original contract price.

Deliveries and Expenditures

Deliveries				
Delivered to Date	Planned to Date	Actual to Date	Total Quantity	Percent Delivered
Development	31	31	31	100.00%
Production	2622	2622	7200	36.42%
Total Program Quantity Delivered	2653	2653	7231	36.69%

Expended and Appropriated (TY \$M)

Total Acquisition Cost	10099.6	Years Appropriated	20
Expended to Date	3368.7	Percent Years Appropriated	57.14%
Percent Expended	33.35%	Appropriated to Date	5002.9
Total Funding Years	35	Percent Appropriated	49.54%

The above data is current as of February 10, 2020.

Notes

Total Baseline quantities are 2034. Extended range production quantities (DD250), delivered to date 540. This consists of Lot 9 thru Lot 14. Lot 15 quantities delivered is 149 out of 360. Lot 16 was awarded for 360 quantities, no current deliveries. Total ER deliveries to date is 689.

Operating and Support Cost

Cost Estimate Details

Date of Estimate:	December 16, 2019
Source of Estimate:	POE
Quantity to Sustain:	7200
Unit of Measure:	Total Quantity
Service Life per Unit:	15.00 Years
Fiscal Years in Service:	FY 2013 - FY 2040

RDT&E quantity (31) is not counted towards JASSM sustainment efforts.

Service Life Extension completed for JASSM Baseline which extended the service life from 15 to 20 years. The JASSM-ER service life is currently 15 years. A service life extension study is underway to extend the JASSM-ER service life to 20 years.

Sustainment Strategy

The sustainment and readiness plan/estimate for JASSM has evolved to a combination of 15-year Warranty for Lots 1-10 and Contractor Logistics Support for all non-warranty support through Lot 16.

JASSM baseline and JASSM-ER are wooden rounds, meaning there is no routine maintenance required.

Antecedent Information

No Antecedent

Annual O&S Costs BY2010 \$M		
Cost Element	JASSM-ER Average Annual Cost Per Total Quantity	No Antecedent (Antecedent) No Antecedent
Unit-Level Manpower	2.065	0.000
Unit Operations	0.000	0.000
Maintenance	1.477	0.000
Sustaining Support	3.569	0.000
Continuing System Improvements	10.272	0.000
Indirect Support	1.314	0.000
Other	0.000	0.000
Total	18.697	--

Item	Total O&S Cost \$M			
	JASSM-ER			No Antecedent (Antecedent)
	Current Production APB Objective/Threshold		Current Estimate	
Base Year	622.5	684.8	523.5	N/A
Then Year	908.6	N/A	845.3	0.0

Equation to Translate Annual Cost to Total Cost

Total O&S Cost = total years in service * average annual cost = 28 * \$18.696M = \$523.5M

O&S Cost Variance		
Category	BY 2010 \$M	Change Explanations
Prior SAR Total O&S Estimates - Dec 2018 SAR	523.5	
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	523.5	

Disposal Estimate Details

Date of Estimate: August 18, 2018
Source of Estimate: POE
Disposal/Demilitarization Total Cost (BY 2010 \$M): 67.0

Demil profile has been updated to reflect the latest production quantity profile.