
JOINT AIR TO SURFACE STANDOFF MISSILE (JASSM)

Selected Acquisition Report (SAR)



AS OF THE FY 2023 PRESIDENT'S BUDGET
U.S. AIR FORCE

Contents

Program Manager	4
Mission and Description.....	4
Executive Summary	5
Program Highlights Since Last Report.....	5
History of Significant Developments Since Program Initiation	6
Schedule	7
Schedule Events	7
Significant Schedule Risks	7
Performance.....	8
Requirements Reference	8
Performance Notes	8
Acquisition Budget Estimate	9
Total Acquisition and Quantity	9
Budget Notes	9
Quantity Notes	9
Acquisition Cost Deviation Explanations	9
Risk and Sensitivity Analysis	9
Unit Cost.....	10
Current Baseline Compared with Current Estimate.....	10
Original Baseline Compared with Current Estimate.....	10
Technologies and Systems Engineering.....	10
Significant Technical Risks.....	10
Contracts	11
External Government Activities	11
External Government Activities Notes	11
Contract Notes	12
Contract Notes	13
Deliveries and Expenditures	14

Deliveries..... 14

Expenditures and Appropriated (TY\$) 14

 Deliveries and Expenditures Notes..... 14

Low Rate Initial Production 14

 LRIP Notes 14

Operating and Support Costs..... 15

 Operating and Support Cost Estimate 15

 Cost Estimate Sources..... 15

 Operating and Support Estimate Compared with Baseline 15

 O&S Cost Deviation Explanation..... 15

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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 multiple variants that make up the JASSM family of missiles; AGM-158A baseline (BL), AGM-158B Extended Range (ER), AGM-158B-2, and AGM-158D. It is precise, lethal, survivable, flexible, and adverse-weather capable.

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. A launch can occur over a wide range of altitudes and at ranges greater than 500 nautical miles.

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

Upcoming or Achieved Milestones:

At the close of calendar year 2021, AGM-158A materiel availability is 97.3%; AGM-158B materiel availability is 98.1%.

Four JASSM Weapon System Evaluation Program (WSEP) missions were conducted using AGM-158A missiles by multiple F-16 units in FY 2021. These missions were successful with all missiles hitting their intended targets.

The AGM-158B-2 has updates in work to address obsolescence and upgrade systems including the Mission Control Unit (MCU), JASSM Anti-Jam Receiver (JAGR V5), the Electronic Safe and Armed Fuse (ESAF), and a Gigabyte update for high speed data transfers to support future capabilities. A multiple sub-system Critical Design Review (CDR) was completed in CY 2021 and a system level CDR is planned for April 2022. The AGM-158B-2 is planned to cut in for low-rate initial production at the end of Lot 19.

Production:

As of December 2021, the program delivered the 3329th missile (includes AGM-158A and AGM-158B) to the US Air Force. AGM-158B Lot 16 production began September 2020, with 359 of 362 missiles delivered to date, and 3 remaining test missiles expected by July 2022. Lot 17 AGM-158B has 35 of 360 missiles delivered to date and Lot 18 AGM-158B (390 missiles) contract was awarded in March 2020.

The construction and security accreditation of the new JASSM production facility in Troy, Alabama was completed in October 2021. The first missile kit for the pilot production line arrived November 2021. The use of both facilities will enable increased AGM-158 production capacity.

In August 2021, the program successfully conducted an AGM-158B flight test from a Polish F-16 aircraft. The program plans to deliver AGM-158B All Up Round (AUR) missiles to Poland by December 2022.

Impending or Major contract awards or modifications:

The contract for JASSM Lot 19 (400 missiles) was awarded in February 2021 and the priced-based AUR Production JASSM Lot 20 (525 missiles) contract was awarded in November 2021. Lot 20 has a separate cost-based proposal that will capture production, tooling, and test equipment. The cost-based contract award is planned for 3rd Quarter FY 2022.

M-Code Global Positioning receiver suppliers have been down-selected to two. The program is on track for contract award in 2nd Quarter FY 2022. A contract for AGM-158D datalink was awarded on 16 December 2021 to L3 Harris. This award covers initial radio hardware and software design, cyber security and crypto design, and initial integration work.

APB deviations (breaches):

The JASSM Program Office (PO) submitted a production program deviation report in January 2019 and a RDT&E program deviation report in January 2020. The production breach was due to increased quantity.

The RDT&E breach was due to investment in improved warfighter capabilities in missile variants. The JASSM PO plans to update the APB in CY 2022 to address quantity, AGM-158B-2 and AGM-158D requirements, and cost.

Testing Status:

The Flight Termination System (FTS) battery program enabled the JASSM program to return to test in CY21, after the new Nickel Metal Hydride (NiMH) battery was qualified in January 2021. The Lithium Ion (Li-Ion) battery successfully completed qualification testing in December 2021. The JASSM PO continues to work toward qualifying two additional battery types. These efforts are to reduce risk of manufacturing challenges due to obsolescence through CY 2030.

Multiple aircraft integration efforts for JASSM-ER are underway or have been completed. They include integration testing of B-2 software and hardware throughout CY 2021 and the successful release of two weapons on 15 December 2021. The F-16 Block 40/50 Universal Armament Interface testing was completed CY 2021 with two weapons expected to be flight tested in the second quarter of CY 2022. JASSM and the Strategic Development Planning and Experimentation team completed a palletized munitions separation test on a C-130 platform in November 2021 and a live fire palletized demonstration from an MC-130 in December 2021, both missions were successful. F-35/JASSM-ER Integration continues to progress. On August 2, 2021, the JASSM Program Office and F-35 Joint Program Office resumed planning to integrate JASSM-ER on the F-35. A fit check was conducted 4 Aug with a Dummy Air Training Missile (DATM-158A) on Station 3 of an F-35A; there appears to be sufficient clearance between the folded tail and the pylon. A fit check with a tactical weapon and a fit check on the F-35C, which has a different pylon interface, are planned.

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

History of Significant Developments Since Program Initiation

Date	Description
Apr 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.
Aug 2019	Lot 14 US missile production completed; 100 baseline and 240 extended range missiles. This was the final combined production lot of baseline and extended range missiles.
Oct 2019	JASSM was successfully employed against ISIS in Syria.
Jan 2020	JASSM submitted a Program Deviation Report for an RDT&E breach. The RDT&E breach was due to investment in improved warfighter capabilities for the D-variant of JASSM, which has since been re-scoped as the AGM-158B-2.
Sept 2020	JASSM Lot 15 delivery completed.
Dec 2020	A JASSM Separation Test Vehicle (no engine installed) was successfully released from an external hard point on the B-1 bomber during a demonstration at White Sands Missile Range.
Feb 2021	JASSM Lot 19 contract awarded.
Oct 2021	Construction and security accreditation of the new JASSM production facility in Troy, Alabama completed.
Nov 2021	JASSM and Air Force Research Laboratory Strategic Development Planning and Experimentation team completed a successful palletized munition separation demonstration from a C-130 platform.
Nov 2021	JASSM Lot 20 contract awarded.

Schedule

Schedule Events

Events	APB Change 2 (Current) 11/15/2017		Current Estimate 12/31/2021	Actuals
	Objective	Threshold		
JASSM-ER MS C	Jan 2011	Jan 2011	-	January 2011
JASSM-ER LRIP Contract Award	Apr 2011	Apr 2011	-	April 2011
JASSM-ER AA/B1-B	Mar 2014	Mar 2014	-	March 2014
JASSM-ER FRP	Nov 2014	Nov 2014	-	November 2014

Significant Schedule Risks

Current Estimate (December 2021)	
1.	There are no known risks with this program at this time.

Performance

APB Change 2 (Current) 11/15/2017		Demonstrated Performance	Current Estimate 12/31/2021
Objective	Threshold		
Materiel Availability (CPD Para 6.1.5) – KPP			
0.98	0.95	0.99	0.98 (Ch.1)
Net-Ready (CPD Para 6.1.3) – KSA			
All Operations	Joint Critical Operations	All Ops	All Ops
Missile Reliability (CPD Para 6.2.8) – KPP			
4 th Lot: 0.91	IOT&E: 0.80 4 th Lot: 0.85	JASSM: 86% JASSM-ER: 91%	JASSM: 94% (Ch.2) JASSM-ER: 90%

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.

Performance Notes

Missile Availability Current Estimate changed due to updated availability performance.

Missile Reliability Current Estimate changed due to updated reliability performance and calculations.

Acquisition Budget Estimate

Total Acquisition and Quantity

Category (\$M) Base Year: 2010	APB Change 2 (Current) 11/15/2017		Current Estimate PB 2023	
	Base Year Objective	Base Year Threshold	Base Year	Then Year
RDT&E	519.5	571.5	763.8	841.4
Procurement	3,297.1	3,626.8	9,013.5	10,456.3
MILCON	0.0	0.0	0.0	0.0
O&M	0.0	0.0	0.0	0.0
Total Acquisition	3,816.6	4,198.3	9,777.3	11,297.7
Program Acquisition Unit Cost	1.317	1.449	1.290	1.491
Average Procurement Unit Cost	1.150	1.265	1.194	1.385
Program End-Item Quantity				
Development	31	-	31	-
Procurement	2866	-	7547	-

Budget Notes

RDT&E: 2020 SAR increased to \$830.3M due to program restructure for AGM-158B-2 requirements and to incorporate Weapon Data Link efforts. 2021 SAR reflects funding of FY23 POM disconnects.

Procurement: \$1B delta due to a billion dollar plus up in the PB 2023 JASSM FYDP. Quantities have been constrained to budget.

Quantity Notes

7,547 in current estimate includes 2,034 of Baseline Missiles.

Acquisition Cost Deviation Explanations

The Procurement and RDT&E breach was previously reported in the December 2019 SAR. The Procurement APB breach was caused by a quantity increase of 2,647 missiles from 4,900 to 7,547. The RDT&E APB breach is due to investment in improved war-fighter capabilities. A Program Devastation Report has been submitted and an updated APB is in progress.

Risk and Sensitivity Analysis

Current Procurement Estimate Risks (12/31/2021)
Increased production from 4,900 to 7,547 missiles. Production costs are sensitive to forecasted lot quantities and AGM-158B-2 requirements. Program Deviation Report signed by SAF/AQ on February 13, 2019, deferring APB update for increased quantities and AGM-158B-2 requirements to 2022.
Current Baseline Risks (10/28/2015)
None
Revised Original Baseline Risks (9/27/1996)
None

Unit Cost

Current Baseline Compared with Current Estimate

Category (\$M) Base Year: 2010	Current Baseline 11/15/2017	Current Estimate PB 2023	% Change
Program Acquisition Unit Cost			
Acquisition Cost	3,816.6	9,777.3	-
Program Quantity	2897	7578	-
PAUC	1.317	1.290	-2.07%
Average Procurement Unit Cost			
Procurement Cost	3,297.1	9,013.5	-
Procurement Quantity	2866	7547	-
APUC	1.150	1.194	3.82%

Original Baseline Compared with Current Estimate

Category (\$M) Base Year: 2010	Original Baseline	Current Estimate PB 2023	% Change
Program Acquisition Unit Cost			
Acquisition Cost	3,631.6	9,777.3	-
Program Quantity	2531	7578	-
PAUC	1.435	1.290	-10.09%
Average Procurement Unit Cost			
Procurement Cost	3,366.1	9,013.5	-
Quantity	2500	7547	-
APUC	1.346	1.194	-11.27%

Technologies and Systems Engineering

Significant Technical Risks

Current Estimate (December 2021)	
1.	There are no known risks with this program at this time.

Contracts

External Government Activities

Activity Identification	
Activity Title	JASSM Production (Lot 17/18)
CAGE	04939 – Lockheed Martin Missile and Fire Control
City, State/Province	Orlando, FL
Supported Phase	Production
Work Start Date	March 31, 2020

Activity Identification	
Activity Title	JASSM Production (Lot 19/20)
CAGE	04939 – Lockheed Martin Missile and Fire Control
City, State/Province	Orlando, FL
Supported Phase	Production
Work Start Date	February 22, 2021

External Government Activities Notes

JASSM Production of Lots 17 and 18 Missiles. Work for both lots began on March 31, 2020.

JASSM Production of Lots 19 and 20 Missiles. Lot 19 work started on February 22, 2021, and Lot 20 work started on November 5, 2021.

Contract Identification								
Contract Number		FA8682-20-C-0001						
Contract Title		JASSM Production (Lot 17/18)						
CAGE		04939 – Lockheed Martin Missile and Fire Control						
City, State/Province		Orlando, FL						
Order Number		-						
Strategy		FAR 15: Negotiated Contracts						
Contracting Office		AFLCMC/EBJK						
Effort Identification								
Effort Number		-						
Type		Firm Fixed Price						
Award Date		March 31, 2020						
Latest Modification Date		March 1, 2022						
Latest Modification Number		P00024						
Technical Data Rights		None						
Supported Phase		Production						
Definitization Date		March 31, 2020						
Work Start Date		March 31, 2020						
Contract/Effort Price, Quantity, and Performance								
Initial Price (\$M)		Current Price (\$M)		Estimate at Completion (\$M)		Initial Quantity	Current Quantity	Delivered Quantity
Target	Ceiling	Target	Ceiling	Contractor	PM			
818.2	N/A	834.7	N/A	834.7	834.7	790	790	-
Work Completed (%)				-				
Cost Variance (\$M)				N/A				
Schedule Variance (\$M)				N/A				

Contract Notes

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to Contract Modification P00006 - Lot 17/18 Rate Reopener.

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

Lots 17 and 18 were both awarded under contract number FA8682-20-C-0001 on March 31, 2020. Lot 17 is for 360 USG Missiles and 40 FMS at a price of \$424.4M, and Lot 18 is for 390 USG missiles at a price of \$393.8M, for a total price of \$818.2M and is considered the initial/original contract price.

P00006 - Lot 17/18 Rate Reopener increased the price of Lot 17 Missiles to \$431.7M and Lot 18 to \$403M for a total contract price of \$834.7M.

Contract Identification	
Contract Number	FA8682-21-C-0001
Contract Title	JASSM Production (Lot 19/20)
CAGE	04939 – Lockheed Martin Missile and Fire Control
City, State/Province	Orlando, FL
Order Number	-
Strategy	FAR 15: Negotiated Contracts
Contracting Office	AFLCMC/EBJK
Effort Identification	
Effort Number	-
Type	Firm Fixed Price
Award Date	February 22, 2021
Latest Modification Date	March 17, 2022
Latest Modification Number	P00014
Technical Data Rights	None
Supported Phase	Production
Definitization Date	February 22, 2021
Work Start Date	February 22, 2021

Contract/Effort Price, Quantity, and Performance								
Initial Price (\$M)		Current Price (\$M)		Estimate at Completion (\$M)		Initial Quantity	Current Quantity	Delivered Quantity
Target	Ceiling	Target	Ceiling	Contractor	PM			
428.4	N/A	514.1	N/A	514.1	514.1	400	925	-
Work Completed (%)				-				
Cost Variance (\$M)				N/A				
Schedule Variance (\$M)				N/A				

Contract Notes

JASSM-ER Lot 19 and LRASM Lots 4 and 5 were awarded on February 22, 2021, which included JASSM-ER procurement of 400 missiles for the USAF and LRASM procurement of 137 missiles for USN, USAF, FMS, and OSD Strategic Capabilities Office (SCO). On November 5, 2021, contract modification P00007 awarded Lot 20 for 94 AUR JASSM-ER Production Missiles. On February 25, 2022, contract modification P00013 awarded 123 additional AUR JASSM-ER Production Missiles. On March 17, 2022, contract modification P00014 awarded additional 308 AUR JASSM-ER Production Missiles.

The difference between the Initial Target Price and the Current Target Price is the award of Lot 20 Missiles. JASSM streamlined with the use of one contract vehicle for JASSM Lots 19 & 20 and LRASM Lots 4 & 5.

The difference between the JASSM Initial Quantity and Current Quantity is the award of Lot 20 with a quantity of 525 Missiles.

Deliveries and Expenditures

Deliveries

Quantities	Planned to Date	Actual to Date	Total Quantity	Percent Delivered
Development	31	31	31	100.0%
Procurement	3,329	3,329	7,457	44.6%
Total	3,360	3,360	7,488	44.9%

Expenditures and Appropriated (TY\$)

Appropriation Category (\$M)	Then Year Appropriated Amount	Then Year Expended Amount
RDT&E	575.07	377.59
Procurement	5,828.44	3,950.30
Acq O&M		
Percent Appropriated/Expended	58.86%	39.78%

Deliveries and Expenditures Notes

The total 3,360 quantities delivered are a combination of Baseline and ER; total Baseline deliveries are 2,034 and total ER deliveries are 1,295.

Low Rate Initial Production

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

LRIP Notes

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

Operating and Support Costs

Operating and Support Cost Estimate

Category (\$M) Base Year: 2010	JASSM Cost Estimate	JASSM-ER Cost Estimate
Unit-Level Manpower	50.9	76.6
Unit Operations	0	0
Maintenance	21.4	97.9
Sustaining Support	31.9	164.2
Continued System Improvements	219.0	446.0
Other	-	-
Total O&S	323.2	784.7

Cost Estimate Sources

Type: Program Office Estimate

Approved Authority and Date: Center Cost Staff (FZC), Dec 2020

Note: Estimate above does not include Indirect Support and Demil.

Operating and Support Estimate Compared with Baseline

Category (\$M) Base Year: 2010	APB Change 2 (Current) 11/15/2017		Cost Estimate 12/31/2021	
	Base Year Objective	Base Year Threshold	Base Year	Then Year
Total O&S	622.5	684.4	784.7	1,198.3

O&S Cost Deviation Explanation

2017 Estimate used for APB: ends in FY 2033, Total quantity 4,900, Baseline 15 year shelf life.

2020 Estimate: ends in FY 2043; Total quantity 7,200; Baseline 20 year shelf life, also added B-2 variant.