

**CLEARED
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May 11, 2023

Department of Defense
OFFICE OF PREPUBLICATION AND SECURITY REVIEW

Selected Acquisition Report (SAR)



Advanced Arresting Gear (AAG)

FY 2024 President's Budget

Defense Acquisition Visibility Environment
(DAVE)

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Common Acronyms and Abbreviations

\$B - Billions of Dollars

\$K - Thousands of Dollars

\$M - Millions of Dollars

ACAT - Acquisition Category

Acq O&M - Acquisition-Related Operations and Maintenance

ADM - Acquisition Decision Memorandum

APB - Acquisition Program Baseline

APPN - Appropriation

APUC - Average Procurement Unit Cost

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

FMS - Foreign Military Sales

FOC - Full Operational Capability

FRP - Full Rate Production

FY - Fiscal Year

FYDP - Future Years Defense Program

ICE - Independent Cost Estimate

Inc - Increment

IOC - Initial Operational Capability

JROC - Joint Requirements Oversight Council

KPP - Key Performance Parameter

LRIP - Low Rate Initial Production

MDA - Milestone Decision Authority

MDAP - Major Defense Acquisition Program

MILCON - Military Construction

N/A - Not Applicable

O&M - Operations and Maintenance

O&S - Operating and Support

ORD - Operational Requirements Document

OSD - Office of the Secretary of Defense

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
- U.S. - United States
- UCR - Unit Cost Reporting
- USD(A&S) - Under Secretary of Defense (Acquisition and Sustainment)
- USD(AT&L) - Under Secretary of Defense (Acquisition, Technology and Logistics)

Program Information

Program Name

Advanced Arresting Gear

DoD Component

Navy

Responsible Office

Program Manager

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Mission and Description

The Advanced Arresting Gear (AAG) program is a system level acquisition for a new arresting gear for the GERALD R. FORD-class (CVN 78) aircraft carrier. AAG is designed to provide total life cycle cost savings by reducing O&M costs when compared to the NIMITZ-class (CVN 68). AAG provides new operational capabilities required by the GERALD R. FORD-class, which include the ability to safely and efficiently recover both heavier and faster aircraft as well as light weight unmanned air vehicles that will enter the fleet in the future.

Executive Summary

AAG

Program Highlights Since Last Report

As of February 15, 2023, the AAG system recovered over 12,577 fixed-wing aircraft aboard the USS Gerald R. Ford (CVN 78). During CVN 78 Independent Steaming Events and Post-Planned Incremental Availability underway periods, the AAG system operated on multiple days with 100+ aircraft recoveries, including the completion of 170 arrestments in a single day. The AAG system has demonstrated steadily improving performance supporting CVN 78's first Air Wing full-cyclic operations. In 2023, CVN 78 will depart for her planned operation deployment. The AAG Operational Availability (Ao) is currently below the APB threshold requirement. The Ao requirement in the CDD is the expected value after AAG reaches system maturity (25,000 cycles on one ship's system). The AAG system has insufficient time and cycles to accurately assess the Ao requirement and achieve the APB performance parameter. As the AAG system increases cyclic operations, increases to the system reliability and Ao are expected. The AAG program continues to address system reliability and Ao through hardware and software improvements. The AAG program awarded the CVN 81 pre-production planning contract in December 2021, to be followed by the full-production contract award no later than Q4 FY 2023. The AAG program is currently evaluating system software performance in an operational environment aboard CVN 78. The AAG team tracks and manages software bugs and artifacts for further investigation consideration. Some high-priority software issues have been addressed and mitigated via issuance of multiple software patches. Other software issues are being prioritized for potential inclusion in planned software engineering change proposals. 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
Nov - 2022	F-35 risk reduction testing conducted.
Oct - 2022	CVN 78 conducted a service-retained deployment from October to November 2022.
Feb - 2022	CVN 78 Planned Incremental Availability I completed.
Dec - 2021	CVN 81 Pre-production Planning contract awarded.
Sep - 2021	CVN 78 Planned Incremental Availability I commenced to address modernization, maintenance, and repairs prior to operational employment.
Aug - 2021	CVN 78 FSST successfully completed with continued operations throughout events.
Jun - 2021	CVN 78 Full Ship-Shock Trials (FSST) commence to evaluate ship and subsystems (including AAG) ability to withstand battle conditions.
Apr - 2021	PDT&T complete; AAG Initial Operating Capability criteria achieved.
Dec - 2020	The French Government announces the FFC will include the AAG system.
Mar - 2020	AAG flight deck certification complete.
Feb - 2020	The AAG APB Change 1 approved February 5, 2020. This revision aligned schedule events with CVN 78 and increased program cost parameters due to the program of record change (increase of one shipset - USS Doris Miller (CVN 81)).
Jan - 2020	AAG aircraft compatibility testing completed; AAG system officially turned-over to CVN 78 crew.
Dec - 2019	All F/A-18E/F, EA-18G, E-2D, E-2C, C-2A, T-45C aircraft launch bulletins, aircraft recovery bulletins, and fleet barricade capability released; AAG system fully supports current air wing.
Nov - 2019	CVN 78 Post-Shakedown Availability - AAG system recertification completed (Formal Certification message containing required information was released January 8, 2020.) Post-delivery Test and Evaluation (PDT&T) commenced.

Oct - 2019	IT-B4 RALS completed at Lakehurst RALS.
Aug - 2019	Integrated Test (IT)-B3 completed at Lakehurst JCTS.
Aug - 2019	The AAG program provided a rough order of magnitude for the Future French Carrier (FFC) Electromagnetic Aircraft Launch System/AAG effort to the French Ministry of Defense.
Dec - 2018	AAG completed manned F/A-18E/F and EA-18G aircraft performance testing at Lakehurst Runway Arrested Landing Site (RALS).
Dec - 2018	First Future French Carrier Working Group meeting held.
Sep - 2018	Letter of Offer and Acceptance for Technical Assistance Case between the U.S. Government and the Government of France signed.
Aug - 2018	AAG completed unmanned F/A-18E/F and EA-18G aircraft performance testing, using deadloads, at the Lakehurst Jet Car Track Site (JCTS).
Aug - 2018	AAG SDD contract Over Target Baseline/Over Target Schedule re-plan completed.
Jan - 2018	USD(AT&L) delegated MDA to ASN(RDA) and re-designated AAG an ACAT IC program.
Dec - 2017	The AAG program submitted the AAG Software plan addressing software safety and requirements that reflect the operational concept addressed in the AAG Nunn McCurdy Certification ADM.
Nov - 2017	The AAG program proposed an adjusted APB based on the CAPE ICE completed July 2017 for the Nunn McCurdy review. On November 17, 2017, the USD(AT&L) approved the APB, which became the original baseline.
Jul - 2017	The Nunn McCurdy review and certification of AAG completed and documented, and USD(AT&L) designated AAG an ACAT ID program in the July 12, 2017 Acquisition Decision Memorandum.
May - 2017	CVN 79 AAG contract option exercised for the CVN 80 AAG system.
May - 2017	PMA 251 submitted a Nunn McCurdy SAR in accordance with the NDAA FY 2017 Section 125.
Dec - 2016	Navy Center for Cost Analysis completed the AAG Component Cost Position.
Dec - 2016	Section 125 of the National Defense Authorization Act includes a requirement to perform a Nunn- McCurdy review of AAG using the 2009 APB.
Jul - 2015	USD(AT&L) reclassified AAG as an ACAT IC program.
Jun - 2015	ASN requested USD(AT&L) reclassify AAG as an ACAT IC program.
Mar - 2015	PMA 251 requested the re-designation of Advanced Arresting Gear (AAG) as an ACAT IC program (from an ACAT II program).

Schedule

AAG

Events	Milestone Baseline Objective	Current Baseline Objective/Threshold		Current Estimate/Actual	Deviation
Milestone A Complete	Jul 2003	Jul 2003	Jul 2003	Jul 2003	
Milestone B Complete	Feb 2005	Feb 2005	Feb 2005	Feb 2005	
IT-B3 JCTS complete Complete	Aug 2020	Aug 2019	Aug 2019	Aug 2019	
IT-B4 RALS complete Complete	Dec 2021	Oct 2019	Oct 2019	Oct 2019	

IOC Complete	Mar 2022	Jul 2021	Jan 2022	Apr 2021	
IOT&E Complete	Aug 2021	Nov 2023	May 2024	Mar 2025	Yes

Notes:

The AAG IOT&E PM Estimate changed from Nov 2023 to Mar 2025 for consistency with the CVN 78 IOT&E PM Estimate.

Deviation Explanation

The IOT&E completion date change is based on the projected future Composite Training Unit Exercise schedule planned for early 2025 that incorporates sortie generation rate demonstration.

Performance

AAG

Performance Characteristics					
Milestone Baseline	Current Baseline Objective/Threshold	Demonstrated Performance	Current Estimate/Actual	Deviation	
(KPP) - AAG Operating Envelope					
9,000 to 55,000 lbs.	9,000 to 55,000 lbs.	13,360 to 55,000 lbs.	Jet Car Testing Site testing demonstrated the ability to absorb deadload arrestment energy within the threshold operating envelope.	Meets Threshold.	
(KPP) - Aircraft Interoperability					
The hookload limits and G-load limits applicable to each aircraft listed in the Development Threshold plus those listed in Table 2 shall not be exceeded when each aircraft engages the AAG at up to its maximum weight, net applied thrust, and maximum aircraft engaging velocity.	The hookload limits and G-load limits applicable to each aircraft listed in the Development Threshold plus those listed in Table 2 shall not be exceeded when each aircraft engages the AAG at up to its maximum weight, net applied thrust, and maximum aircraft engaging velocity.	The hookload limits and G-load limits applicable to C-2A,E-2 Type/Model/Series (TMS), F/A-18, EA-18 TMS, F-35, and T45 aircraft shall not be exceeded when each aircraft engages the AAG at up to its maximum weight, net applied thrust, and maximum aircraft engaging velocity.	Hookload limits and G-load limits demonstrated to be within limits as defined in ARB NO. 35-12 E.	Meets threshold requirements for C-2A, E- 2C, E-2D, F/A- 18E/F, EA- 18G and T-45C. F-35C risk reduction testing conducted in FY 2022; follow-on compatibility testing scheduled in 2023; Aircraft Recovery Bulletin (ARB) expected in FY 2024.	
(KSA) - Barricade Interoperability					
<1 minute / < 3minutes	<1 minute / < 3minutes	<3 minutes / <10 minutes	Barricade testing demonstrated 15 seconds/15 seconds time to convert the system.	Meets Objective.	
(KPP) - Cycle Time JCTS and RALS demonstration					
30 Seconds	30 Seconds	35 Seconds	Runway Arrested Landing Site (RALS) testing demonstrated a minimum cycle time of 40 seconds.	40 seconds	Yes
(KSA) - Human Systems Integration					

Operable and maintainable by 5th to 95th percentile range of operators/maintainers. operator-system interfaces (e.g., switches, displays) will be operated with minimal errors.	Operable and maintainable by 5th to 95th percentile range of operators/maintainers. operator-system interfaces (e.g., switches, displays) will be operated with minimal errors.	(T=O) Operable and maintainable by 5th to 95th percentile range of operators/maintainers. operator-system interfaces (e.g., switches, displays) will be operated with minimal errors.	Requirement assessed during CVN 78 Aircraft Compatibility Test and Flight Deck Certification.	Meets Objective.
(KSA) - Manning				
45	45	55	55 is based on November 2018 Manpower Analysis Report.	Meets Threshold.
(KPP) - Operational Availability IOT&E demonstration				
0.988	0.988	0.985	0.865 based on 12,577 CVN 78 shipboard arrestments for a three-wire system (0.938 = Instantaneous Ao)	0.865
(KSA) - Peak Aircraft Recovery Rate				
Recover 28 aircraft in 21 minutes	Recover 28 aircraft in 21 minutes	(T=O) Recover 28 aircraft in 21 minutes	System analysis (thermal stress) supports recovery of 28 aircraft in 21 minutes for the CVN 78 three-wire system. Aircraft demonstration conducted at RALS October 2019. RALS high-cycle peak recovery of 28 aircraft in 22.3 minutes demonstrated on a 1-wire system.	System expected to meet threshold /objective based on RALS testing.

Requirement Reference

Validated:

AAG CDD dated July 15, 2008, and the Department of the Navy, Program Executive Officer, Aircraft Carriers, Subject: Transfer of one AAG Engine Set from CVN 78 to CVN 79, dated May 19, 2014, and the Department of the Navy, Director, Air Warfare (N98), Subject: AAG POR Requirements Revision dated February 12, 2016.

Deviation Explanation

Cycle Time JCTS and RALS Demonstration: Demonstrated cycle time changed from 35 seconds to 40 seconds due to previous

erroneous entry. Future mitigations include new cable shock absorber proximity switch bracket and A-21 Build K software release to reduce communication faults and aborted retracts in FY 2023. Expected to meet threshold based on retract algorithm changes tested at RALS. Will complete verification during CVN 78 Operational Test.

Notes

Operation Availability IOT&E demonstration (KPP). The objective and threshold are expected values after system maturity is reached. System maturity is defined as the Navy Support Date plus 25,000 cycles on one ship's system. This should occur not later than CY 2023. The current estimate changed from "0.866 based on 8,157 CVN 78 shipboard arrestments for a three-wire system (0.962 based on last 4,677 arrestments during Independent Steaming Events 11-18)" to "0.865 (cumulative, 0.938=Instantaneous Ao) based on 12,577 CVN 78 shipboard arrestments for a three-wire system" due to accounting for additional CVN 78 shipboard arrestments. Operational Availability IOT&E Demonstration: Since July 2020, AAG has demonstrated significant increases in Ao as compared to the early phase of PDT&T. As the AAG system increases cyclic operations, increases to system reliability and Ao are expected. The AAG program will continue to update Ao. IOT&E - Initial Operational Test and Evaluation JCTS - Jet Car Track Site KSA - Key System Attribute RALS - Runway Arrested Landing Site

Acquisition Budget Estimate

AAG

Total Acquisition Cost

		Milestone APB	Current Baseline		Budget Estimate PB 2024		
Category	Base Year	Objective (BY\$M)	Objective (BY\$M)	Threshold (BY\$M)	BY\$M	TY\$M	Deviation
RDT&E	2017	1,446.7	1,550.1	1,705.1	1,393.1	1,400.8	
Procurement	2017	764.2	1,114.8	1,226.3	1,072.5	1,222.1	
MILCON	2017	16.9	16.9	18.6	16.9	15.4	
Acq. O&M	2017	0	0	0	0	0	
Total		2,227.8	2,681.8		2,482.5	2,638.3	
PAUC	2017	742.600	670.450	737.495	620.625	659.575	
APUC	2017	254.733	278.700	306.570	268.125	305.525	

Appropriation Category Deviation Explanations

PAUC Deviation Explanation

APUC Deviation Explanation

Budget Notes

1. The current baseline estimate aligns with the FY 2024 PB.
2. The Procurement estimate includes Shipbuilding and Conversion, Navy funding (\$1,039.14M) allocated to AAG from the CVN 78 Shipbuilding and Conversion, Navy 17-1611 budget (also captured in the CVN 78 SAR Procurement estimate).
3. The FY 2018 through FY 2025 procurement funding supports the water twister effort accounted for in the APB. Continuing system improvements FY 2025 and beyond are captured in the O&S section of the APB and SAR.

Total End Item Quantity

Quantity Category	Current APB Quantity	Current Estimate Quantity
Development	0	0
Procurement	4	4
O&M-Acquired		0

Quantity Notes

Unit Cost

AAG

Current UCR Baseline and Current Estimate (Base-Year Dollars)			
Category (\$M) Base Year:2017	Current UCR Baseline	Current Estimate	% Change
Program Acquisition Unit Cost			
Cost	2,681.8	2,482.5	
Quantity	4	4	
Unit Cost	670.450	620.625	-7.43%
Average Procurement Unit Cost			
Cost	1,114.8	1,072.5	
Quantity	4	4	
Unit Cost	278.700	268.125	-3.79%

Original UCR Baseline and Current Estimate (Base-Year Dollars)			
Category (\$M) Base Year:2017	Original UCR Baseline	Current Estimate	% Change
Program Acquisition Unit Cost			
Cost	2,227.8	2,482.5	
Quantity	3	4	
Unit Cost	742.600	620.625	-16.43%
Average Procurement Unit Cost			
Cost	764.2	1,072.5	
Quantity	3	4	
Unit Cost	254.733	268.125	5.26%

Cost Growth Details**Current Baseline PAUC Breach Explanation****Current Baseline APUC Breach Explanation****Original Baseline PAUC Breach Explanation****Original Baseline APUC Breach Explanation****Impacts of Schedule Changes on Unit Cost****Impacts of Performance Changes on Unit Cost****Actions Taken or Proposed to Control Future Cost Growth**

Risk and Sensitivity Analysis

AAG

Risk and Sensitivity Analysis
Current Procurement Cost(December - 2022)
The current procurement estimate reflects the May 2, 2019 PLCCE that was approved in support of AAG APB Change 1. The risk and sensitivity analysis performed in support of APB Change 1 remains current and unchanged.
Revised Original Estimate (November - 2017)
Current Baseline Estimate (February - 2020)
The current baseline estimate reflects a CAPE ICE approved in July 2017 in support of the AAG Nunn McCurdy certification and establishes the revised APB for the program's reclassification as an ACAT 1C Program. Software development was identified as the primary risk to the System Development & Demonstration program. The new schedule also added deadload and aircraft recoveries to the Dynamic Control System Software releases.

Schedule Risk		
Other	2023-09-30	AAG Water Twister Mod-II production schedule is highly pressurized to meet Ford-class aircraft carrier retrofit / install timeline.
Technical Risks		
Current	December 22, 2025	1. AAG Reliability, Availability, and Maintainability (RAM). AAG RAM requirements not being met due to system immaturity and component failures. Insufficient number of operational cycles limits the program's ability to identify, analyze, and address critical AAG RAM degraders.
Current	June 21, 2023	2. AAG Software (SW) Reliability (Robustness and Stability). Frequent network communication dropouts, lag-time issues, and database corruption problems negatively impact AAG SW ability to support fast-paced Ford-class aircraft carrier flight operations.
Current	June 21, 2026	3. Acceptable Level of Cyber Risk. If the AAG cyber vulnerabilities are not reduced to acceptable levels, then exposure to cyber attacks can increase, which may result in losing the Authority to Operate.

Low Rate Initial Production

AAG

Item	Initial LRIP Decision	Current Total LRIP
Approval Date	02/10/2005	12/22/2015
Approved Quantity	5	2
Reference	Milestone B ADM	Revision to Milestone B ADM
Start Year	2005	2005
End Year	2010	2024

Rationale if quantity exceeds 10% of the total number of articles to be procured:

The Current Total LRIP Quantity is more than 10% of the total production quantity as MDA approved and documented in the Milestone B ADM, dated February 10, 2005.

Notes

Assistant Secretary of the Navy for Research, Development and Acquisition memorandum, "Revision to Milestone B Approval of Advanced Arresting Gear Program Decision Memorandum" of December 22, 2015, approved the procurement of the first full-rate

production shipset to be installed on CVN 80, starting in FY 2017. Therefore, the only two LRIP shipsets are CVN 78 and CVN 79.

Contracts & Efforts

Contract Data	
Contract Number	N0001914C0037
Effort Number	
Modification Number	P00084
Award Date	05/08/2014
Definitization Date	12/22/2016
Order Number	
CAGE Code/CAGE Legal Name	4V360/General Atomics
Contract Title	AAG/EMALS CVN 79/80 Production
Contract Address	San Diego, CA
Contracting Office	Naval Air Systems Command, Patuxent River, MD
Supported Phase	Production
Contract Strategy	FAR 15 (Negotiated)
Contract Type	Firm-Fixed-Price
Modification Date	January 19, 2023
Work Start Date	
Technical Data Rights	
Work Completed	

Contracts/Effort Price, Quantity, and Performance (TY\$M)

Initial Target Price	Current Target Price	
\$8.88	\$486.46	
Initial Ceiling Price	Current Ceiling Price	
\$8.88	\$486.46	
Contractor EAC	PM EAC	
Initial Quantity	Current Quantity	Delivered Quantity
0	2	0
BAC	BCWP	ACWP

BCWS	Cost Variance	Schedule Variance

Contract Notes:

Contract N0001914C0037 is a combined Electromagnetic Aircraft Launch System (EMALS) and AAG CVN 79/CVN 80 Production contract with a total contract value of \$1,629.0M. The Naval Air Systems Command (NAVAIR) awarded the base (original) contract for the procurement of EMALS and AAG long lead-time materials. The difference between the Initial Contract Price Target and the Current Contract Price Target is due to contract modifications to add the CVN 79 and CVN 80 AAG shipsets as well as other AAG production-related requirements. The Current Target Price reflects the AAG-related contract funding.

Factors Contributing to Cost Variance and Projected Effects on Program Costs**Factors Contributing to Schedule Variance and Projected Effects on Program Schedule**

Contract Data	
Contract Number	N0001922C0033
Effort Number	
Modification Number	P00006
Award Date	12/28/2021
Definitization Date	12/28/2021
Order Number	
CAGE Code/CAGE Legal Name	4V360/General Atomics
Contract Title	AAG/EMALS CVN 81 Pre-production
Contract Address	San Diego, CA
Contracting Office	Naval Air Systems Command, Patuxent River, MD
Supported Phase	Production
Contract Strategy	FAR 15 (Negotiated)
Contract Type	Firm-Fixed-Price
Modification Date	February 13, 2023
Work Start Date	
Technical Data Rights	
Work Completed	

Contracts/Effort Price, Quantity, and Performance (TYSM)		
Initial Target Price	Current Target Price	
0.85	31.76	
Initial Ceiling Price	Current Ceiling Price	
0.85	31.76	
Contractor EAC	PM EAC	
Initial Quantity	Current Quantity	Delivered Quantity
0	0	
BAC	BCWP	ACWP
BCWS	Cost Variance	Schedule Variance

Contract Notes:

Contract N0001922C0033 is a combined EMALS and AAG CVN 81 Pre-production contract with a total contract value of \$69.25M. NAVAIR will modify this base contract to add CVN 81 EMALS and AAG shipset production. The Current Target Price reflects the AAG-related contract funding.

Factors Contributing to Cost Variance and Projected Effects on Program Costs

Factors Contributing to Schedule Variance and Projected Effects on Program Schedule

External Government Activities

Activity Title		Government Entity	Supported Phase
CAGE		Work Start Date	
City		State/Province:	
Notes			

Deliveries and Expenditures

AAG

Deliveries				
Delivered to Date	Planned to Date	Actual to Date	Total Quantity	Percent Delivered
Development				
Production	1	1	4	25.00%
Total Program Quantity Delivered				
1	1	4	25.00%	
Expended and Appropriated (TY \$M)				

Years Appropriated to date: 26

Total Years Appropriated Funding (Current Baseline): 26

Percent Years Appropriated: 100.00%

Then-Year Funding Appropriated as Percentage of Total Acquisition Estimate: 100.00%

Then-Year Funding Expended as Percentage of Total Acquisition Estimate: 72.42%

Total Acquisition Cost: 2,638.3

Deliveries & Expenditures Notes:

The above data is current as of March 17, 2017.

Operating and Support Costs

AAG

O&S Cost Breakdown:

Category (BY\$ Million)	AAG
Unit-Level Manpower	887.6
Unit Operations	.0
Maintenance	824.5
Sustaining Support	627.4
Continued System Improvements	719.7
Other	.0
Total	3,059.2

Cost Estimate Source: POE dated January 26, 2021

O&S Cost Notes:

a. Disposal/Demilitarization Cost Estimate and Source of Estimate (cost can be total or unitized): AAG disposal costs are included in the CVN 78 Class Disposal Cost.

b. Sustainment Strategy: The AAG is currently in operation onboard the CVN 78. The maintenance concept for AAG utilizes a three-level strategy (organizational (O), intermediate (I), and depot). The fleet performs O-level repairs while the ship's Aircraft Intermediate Maintenance Department, as well as the Carrier and Field Service Unit, perform minimal I-level repairs. For depot-level repair, the Commander, Fleet Readiness Centers, issued a depot source of repair decision on October 25, 2021, based on a joint service capability review, for both organic and contractor facilities at the Naval Air Warfare Center Aircraft Division (NAWCAD) Lakehurst and General Atomics, respectively. The Naval Air Systems Command (NAVAIR) awarded an AAG depot stand-up contract to General Atomics, the AAG original equipment manufacturer (OEM), in January 2021. Depot stand-up is scheduled for second quarter of FY 2023 to include OEM repairs of depot-level repairables and some organic repair capability. The planned software support concept includes a joint OEM-organic Software Support Activity, which will leverage organic advanced test capability at NAWCAD Lakehurst for software development beginning in first quarter of FY 2023. The AAG program achieved the Material Support Date on February 3, 2020, and the Naval Systems Supply Command and Defense Logistics Agency awarded spares and repair contracts for the AAG system. For fleet training, NAVAIR awarded contracts to General Atomics for interim training that will continue until the formal training curriculum and training schoolhouse are complete at the Center for Naval Aviation Technical Training Unit Norfolk in the fourth quarter of FY 2023.

c. For Each Acquired System or System Variant:

- i. Quantity to Sustain: 4
- ii. First Operational Fiscal Year: 2018
- iii. Final Operational Fiscal Year: 2080
- iv. Unit Expected Service Life: 50.00 years

d. Antecedent System(s) O&S Costs: No antecedent. The AAG system is specifically designed to meet the requirements of the CVN 78 Class. The advanced technologies and capabilities, and unique ship interface requirements of AAG do not exist in any legacy recovery systems. As such, there are no comparable antecedent systems.

Total Program O&S Cost Compared with Baseline					
	Current Baseline				
	Objective (BY\$M)	Threshold (BY\$M)	Current Estimate (BY\$M)	Current Estimate (TY\$M)	Deviation
Total O&S	3,701.1	4,071.2	3,059.2	6,450.3	

Note:

The O&S Cost Estimate changed from \$3,700.9M to \$3,059.2M due to removing Indirect Support (O&S WBS 6.0) in accordance with CAPE guidance. The O&S Cost Estimate (TY\$) is 6,450.3.

O&S Cost Deviation Explanation

Operating and Support Costs - Disposal and Unitized Costs**AAG****Annual Unitized O&S Cost Definition and Calculation Relative to Total O&S Cost:**

Total O&S cost for 4 shipsets is 3,059 BY17\$M15.296 BY17\$M X 4 X 50 = 3,059 BY17\$M

Sustainment Factors	System Name: Advanced Arresting Gear	Antecedent System Name:
Quantity to Sustain	4	
Unit of Measure	System	
Unit Expected Service Life	50	

Base Year:

Annual Unitized O&S Cost by Category Base Year \$ Unit:(\$M)	System Name: Advanced Arresting Gear	Antecedent System Name:
Unit-Level Manpower	4.4	
Unit Operations		
Maintenance	4.1	
Sustaining Support	3.1	
Continued System Improvements	3.6	
Other		
Total O&S	15.2	0.0

Disposal/Demilitarization Cost Estimate

(Base Year \$Millions)	System Name: Advanced Arresting Gear	Antecedent System Name:
Total Disposal		

Cost Estimate Source - Disposal	
Type:	Other
Approval Authority and Date:	
Note:	
Disposal Cost Notes:	
The AAG disposal costs are included in the CVN 78-class disposal costs.	
Additional O&S Estimate Assumptions:	

AAG shipboard units, included in quantity to sustain, are based on the CVN 78-class unit quantities and program of record as of February 6, 2020. The AAG system service-life is based on an equivalent 50-year carrier service-life. Fiscal year placed in service identifies the year the Navy delivered the CVN 78 with an AAG shipboard unit installed and operating. Fiscal year retired identifies the planned year the CVN 81 with an AAG shipboard installed and operating is decommissioned.

Sustainment Strategy:

Antecedent Estimate Assumptions: