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Department of Defense
OFFICE OF PREPUBLICATION AND SECURITY REVIEW

Selected Acquisition Report (SAR)



E-2D Advanced Hawkeye Aircraft (E-2D AHE)

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

E-2D Advanced Hawkeye Aircraft

DoD Component

Navy

Responsible Office

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Mission and Description

The E-2D Advanced Hawkeye Aircraft (E-2D AHE) is a carrier based, all weather, multi-mission aircraft. The E-2D AHE mission is to provide premier airborne Battle Management Command and Control and Surveillance as part of the Naval and Joint Integrated Air and Missile Defense architecture including the Naval Integrated Fire Control-Counter Air capability. The centerpiece of the E-2D AHE is the APY-9 radar system. This radar system is designed specifically to provide significantly enhanced surveillance detection and tracking capability against advanced threat aircraft and cruise missile systems in the overland, littoral, and open ocean environments. Maritime surveillance is also maintained in the open ocean scenarios. The E-2D AHE provides early warning of hostile threats and provides the force with the right data to prosecute any engagement. Key capabilities along with the radar include the Identification Friend or Foe system and Electronic Support Measures for surveillance and combat identification, advanced mission processing capability to integrate all on-board sensor data and off-board information into a coherent tactical picture, and communications, data link, and sensor netting systems to share information across the battlespace. These capabilities allow the E-2D AHE to provide a significant contribution to execution of other mission areas such as Strike, Combat Search and Rescue, and Homeland Defense. As a part of the E-2D AHE radar modernization effort, the Navy also invested in integrating a full glass cockpit and full Communication Navigation Surveillance/Air Traffic Management capability. The glass cockpit will also provide the capability for the pilot or co-pilot to perform tactical mission functions. Additionally, aerial refueling capability is being installed to increase the duration of the maximum time on station.

Executive Summary

E-2D AHE

Program Highlights Since Last Report

The initial Program of Record (POR) consists of 75 aircraft with nine operational squadrons. The July 1, 2019 POR Resources and Requirements Review Board validated the requirement to procure 86 aircraft to support nine carrier wings or 92 aircraft to support 10 carrier wings. The final U.S. Navy (USN) aircraft under the FY 2014-FY 2018 E-2D AHE Multi-Year Procurement (MYP) contract was delivered on December 10, 2021 and was the 51st E-2D delivered for the USN. The second MYP (MYP-II) contract, which supports procurement of 24 aircraft during FY 2019-FY 2023, was awarded on April 10, 2019. The Government of Japan procured four E-2D AHE aircraft as a modification to the E-2D AHE MYP-I contract using the Variation in Quantity (VIQ) clause. Japan also funded an additional nine MYP aircraft across FY 2019 and FY 2022, setting the baseline quantity for the MYP-II contract to 33 aircraft. Enacted FY 2020/FY2021 appropriations added three more aircraft, which were procured utilizing the VIQ clause in the USN MYP-II contract; this clause also offered an opportunity for France to procure E-2D AHE aircraft. Currently, France has funded the contract for three E-2D AHE aircraft; this action was awarded in December 2021. VAW-124 was certified safe for flight in January 2022 and is the sixth of the nine operational Hawkeye squadrons to fly the E-2D AHE.

The E-2D AHE program continues to incorporate capabilities into the Fleet via hardware and software modifications, referred to as Delta System/Software Configurations (DSSCs), that are released on two to three year intervals.

E-2D AHE DSSC Build 2 (DSSC-2), which incorporated prior test deficiency corrections and added Dual Transmission Satellite Communication capability, was introduced to the Fleet via new production aircraft, starting with the 26th aircraft (AA-26) and via retrofit to prior fielded aircraft. VAW-126 deployed with DSSC-2 in 3Q FY 2018. The program also fielded a modified version of DSSC-2 (DSSC-2.1) that incorporated Mode 5 Identification Friend or Foe interrogation capability to align with USN efforts to accelerate this to the Fleet.

DSSC-3, which incorporated Automatic Identification System, Embedded National Tactical Receiver, Accelerated Mid-Term Interoperability Improvement Project and improvements to the target tracking functionality completed Follow-On Operational Test and Evaluation in October 2019. Production Cut-In (PCI) was accomplished via production aircraft AA-41. Aerial Refueling (AR) capability is also fielded with DSSC-3. PCI for AR was accomplished with production aircraft AA-46. All operational squadrons have completed their transition to DSSC-3. VAW-126 became the first AR operational squadron in December 2020.

Over half of the E-2D AHE aircraft have been modified with AR capability. AR Developmental Testing and Operational Testing events were completed for KC-130, KC-135, KC-10, Omega KC-707 and F/A-18F aircraft. Testing with F/A-18, KC-130 and other aircraft will continue as opportunities arise for aircraft envelope expansion.

The DSSC-3.1 update (which includes the Multifunctional Information Distribution System Joint Tactical Radio System (MIDS JTRS) Combined Multi-Net 4 terminal, Hybrid Beyond Line of Sight (H-BLOS) satellite communications, and Naval Integrated Fire Control updates) has been installed at all operational sites. DSSC-4 development and test is underway. Key capabilities included in DSSC-4 include Counter Electronic Attack, Integrated BLOS, baseline Tactical Targeting Network Technology (TTNT) and Sensor Netting updates to the From The Sea (FTS) mission known as FTS Improvements (FTS-I). Remaining production aircraft will deliver in the DSSC-4 configuration.

The initial sustainment concept for the E-2D AHE unique parts was Interim Contractor Support through the Material Support Date (MSD) (1Q FY 2016). From the MSD period through Navy Support Date (4Q FY 2028), conventional and performance-based Original Equipment Manufacturer (OEM) repair contracts and OEM onsite Technical Representatives will sustain the E-2D AHE. Since E-2D AHE-unique systems are designated as Core Capabilities, organic repair capabilities will be established in accordance with United States Code Title 10 requirements. These 77 new organic capabilities are actively being established to complete in FY 2028. The airframe's Fleet Support Team (FST) is at Fleet Readiness Center (FRC) Southwest, North Island, California; the engines FST is located in Naval Air Station (NAS) Jacksonville and the propellers and power FST is at FRC East Cherry Point, North Carolina. With new Automated Logistics Environment (ALE) capabilities there will be increased reliability and maintainability engineering data analytics to support optimized user feedback and inform continual improvements for maintenance and future designs.

Significant Accomplishments: In FY 2019, the E-2D AHE Sustainment Program Baseline was developed to track and advise root causes of the Sustainment Infrastructure. In FY 2021, the Reliability Control Board Sprint Project was created to accelerate cost reductions from reliability projects that affected material costs. Today the program is migrating from Production into Sustainment, which will drive changes in infrastructure support requirements in the Government.

Mission Capability (MC) and Fully Mission Capable (FMC) rates have increased and met the FY 2021 targets for MC. The Program is making successful strides in strategies to obtain and sustain new goals in MC/FMC in the near term.

Significant Issues: 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
Jan - 2023	Delta System/Software Configuration 4 (DSSC-4) Operational Test Readiness Review (OTRR) completed and approved to proceed to test.
Dec - 2021	Final MYP-I aircraft delivered.
Dec - 2021	Three (3) French E-2D AHE Aircraft awarded on MYP-II contract.
Jul - 2020	First DSSC-3 AR capable aircraft was delivered to a deployable fleet squadron (VAW-126).
Feb - 2020	The Program revised the APB. Change 4 was approved in February 2020.
Oct - 2019	DSSC-3 and AR FOT&E (OT-D3) completed.
Sep - 2019	The modification to the E-2D AHE MYP-II contract added the procurement of nine Japan aircraft.
Jul - 2019	US Navy held a R3B and affirmed the requirement for an inventory of 86 E-2Ds in order to support nine Carrier Air Wings.
Apr - 2019	The E-2D AHE MYP-II contract was awarded.
Mar - 2019	DSSC-3 and AR FOT&E commenced. The first Japan E-2D AHE was delivered to the Japan Air Self Defense Force.
Feb - 2019	The United States Government took possession of the first Japan E-2D AHE aircraft.
Aug - 2018	FY 2019 National Defense Authorization Act (NDAA) included language for authorizing the second E-2D AHE five year MYP of 24 aircraft.
Mar - 2017	VAW-125 deployed with DSSC-2.
Dec - 2016	The first E-2D AHE flight in the Aerial Refueling configuration was made.
Oct - 2016	DSSC-2 completed FOT&E (OT-D2).
Jul - 2016	The Government of Japan procured a second E-2D AHE as a contract modification to the E-2D AHE MYP contract utilizing a variation in quantity clause.
Nov - 2015	The Japan E-2D AHE aircraft was placed on contract as a modification to the E-2D AHE MYP contract utilizing a variation in quantity clause. The first E-2D AHE Fleet Squadron Deployment completed.
Oct - 2015	The MSD was achieved.
Aug - 2015	The Japan Ministry of Defense signed a Letter of Offer and Acceptance (LOA) for one E-2D AHE.
May - 2015	DSSC-1 OT-D1 was completed.
Mar - 2015	The first Fleet Squadron Deployment commenced with DSSC-1 incorporated.
Oct - 2014	IOC was achieved on the APB schedule objective.
Jul - 2014	DSSC-1, which is the Initial Operating Capability (IOC) hardware/software configuration, was released to the Fleet following a recommendation by the Commander, Operational Test Forces during FOT&E (OT-D1) execution.

Jun - 2014	A MYP contract for 25 aircraft in FRP Lots 2-6 during FY2014-2018 was awarded saving the Navy approximately \$369M.
May - 2014	A USD(AT&L) ADM granted authority to proceed with a MYP during FY 2014 through FY 2018. It also designated E-2D AHE as an ACAT IC MDAP and delegated Milestone Decision Authority (MDA) to the Secretary of the Navy.
Oct - 2013	Test events for the verification of Correction of Deficiencies period for IOT&E were completed.
Sep - 2013	The Aerial Refueling Engineering, Manufacturing and Design (EMD) contract was awarded.
Jul - 2013	A contract was awarded for the first FRP lot of five aircraft.
Apr - 2013	USD (AT&L) approved the FRP APB.
Mar - 2013	A USD(AT&L) ADM granted authority to commence Full Rate Production (FRP) procurement of 55 aircraft during FY 2013-FY2021.
Oct - 2012	IOT&E was completed with the Commander, Operational Test and Evaluation Forces assessing the E-2D AHE as operationally effective; operationally suitable for shore based operations (based on limited shipboard testing).
Feb - 2012	The PEO for Tactical Aircraft Programs (PEOT) certified the E-2D AHE to enter Initial Operational Test and Evaluation (IOT&E).
Jan - 2012	A contract was awarded for LRIP Lot 4.
Jul - 2011	A contract was awarded for LRIP Lot 3.
Mar - 2011	A DAB approved procurement of LRIP Lots 3 and 4 as well as Advanced Procurement for FRP Lot 1.
Jul - 2010	A contract for one LRIP Lot 2 Congressionally added aircraft was awarded.
Jan - 2010	A contract was awarded for LRIP Lot 2.
Jul - 2009	The program received a new APB that rebaselined the program to a Production Baseline, replaced the original APB approved in June 2003, and reset the APUC and PAUC values.
Jun - 2009	The Navy declared a Critical Nunn-McCurdy breach based on the updated CAIG ICE. USD(AT&L) issued an ADM acknowledging the breach and stated all required actions to resolve it were completed. The ADM rescinded the Milestone B and documented completion of a root cause analysis. Upon reviewing the program and business case analysis, USD(AT&L) made the certifications required by 10 U.S.C. 2366b(d) to allow the program to re-enter the acquisition process at Milestone C. The Navy was directed to use the accelerated production ramp briefed at the Defense Acquisition Board (DAB). Finally, the ADM approved the E-2D AHE program to enter into the Production and Deployment Phase, specifically to procure Low Rate Initial Procurement (LRIP) Lots 1 and 2. A contract was awarded for LRIP Lot 1 and Advanced Procurement for LRIP Lot 2. A quarterly exception SAR was submitted reporting the Nunn-McCurdy unit cost breach.
May - 2009	As part of the Nunn-McCurdy review, the CAIG updated their ICE and reported the program was in a Critical Nunn-McCurdy breach. The Overarching Integrated Product Team Lead directed the Navy to consider an accelerated production ramp to reduce cost to mitigate the critical breach. A Critical Nunn-McCurdy review out-brief/Milestone C DAB was held and a revised APB Deviation Report was submitted announcing a Significant breach to APUC and PAUC based on the CAIG estimate using a revised production ramp, which accelerated aircraft procurement by moving six aircraft to within the FYDP and ending production one year earlier.
Apr - 2009	USD(AT&L) issued an Acquisition Decision Memorandum (ADM) directing the program perform a review similar to the one for a Critical Nunn-McCurdy breach even though a Critical breach had not occurred.
Mar - 2009	The Cost Analysis Improvement Group (CAIG) conducted an ICE and reported a Significant cost breach to APUC and PAUC.

Dec - 2007	First Mission System (radar) Flight Test.
Sep - 2007	The CDD was approved by the JROC. Seven Key Performance Parameters (KPPs) were added post Milestone B.
Aug - 2007	First Test Flight occurred on the original Milestone B schedule objective.
Jul - 2007	A Pilot Production contract for three aircraft was awarded.
Oct - 2005	The Critical Design Review was completed one month prior to the original Milestone B schedule objective.
Jun - 2003	The E-2D AHE program received Milestone B approval to enter the System Development and Demonstration acquisition phase.

Schedule

E-2D AHE

Events	Milestone Baseline Objective	Current Baseline Objective/Threshold		Current Estimate/Actual	Deviation
Milestone B Complete	May 2003	Jun 2003	Jun 2003	Jun 2003	
Critical Design Review Complete	Nov 2005	Oct 2005	Oct 2005	Oct 2005	
First Flight Complete	Aug 2007	Aug 2007	Aug 2007	Aug 2007	
Milestone C Complete	Mar 2009	May 2009	May 2009	May 2009	
Full Rate Production Complete	Dec 2012	Mar 2013	Mar 2013	Mar 2013	
IOC Complete	Oct 2014	Oct 2014	Oct 2014	Oct 2014	

Notes

Deviation Explanation

Performance

E-2D AHE

Performance Characteristics					
Milestone Baseline	Current Baseline Objective/Threshold		Demonstrated Performance	Current Estimate/Actual	Deviation
(KPP) - Flat Turn Service Ceiling (2)					
	=>25,000 feet above MSL at mission profile	(T=O) =>25,000 feet above MSL at mission profile	25,600 feet above MSL at mission profile	25,600 feet above MSL at mission profile	
(KPP) - Level Flight Airspeed (2)					
	=>300 knots true airspeed below 18,000 feet MSL	(T=O) =>300 knots true airspeed below 18,000 feet MSL	303.5 knots true airspeed below 18,000 feet MSL	303.5 knots true airspeed below 18,000 feet MSL	
(KPP) - Manpower (Full Operational Capability - FY 2020)					
	Aircrew Os =< 323 Maintenance Os/Es =< 34 / 1303 Support Os/Es =< 12 / 683 Training Os/Es =< 76 / 60	(T=O) Aircrew Os =< 323 Maintenance Os/Es =< 34 / 1303 Support Os/Es =< 12 / 683 Training Os/Es =< 76 / 60	Aircrew Os =< 323 Maintenance Os/Es =< 34/1303 Support Os/Es =< 12/683 Training Os/Es =< 76/60	Aircrew Os =<323 Maintenance Os/Es =<34/1303 Support Os/Es =<12/683 Training Os/Es =< 76/60	
(KPP) - Network-Centric Military Operations (Network Readiness) (1)					
	The system must fully support execution of all operational activities identified in the applicable joint and system integrated architectures and the system must satisfy the technical requirements for Net-Centric military operations to include: (1) The DISR mandated GIG IT standards and profiles identified in the TV-1, (2) DISR mandated GIG KIPs identified in the KIP declaration table, (3)	The system must fully support execution of joint critical operational activities identified in the applicable joint and system integrated architectures and the system must satisfy the technical requirements for transition to Net-Centric military operations to include: (1) The DISR mandated GIG IT standards and profiles identified in the TV-1 (2) DISR mandated GIG	The system must fully support execution of joint critical operational activities identified in the applicable joint and system integrated architectures and the system must satisfy the technical requirements for transition to Net-Centric military operations to include: (1) The DISR mandated GIG IT standards and profiles identified in the TV-1, (2) DISR mandated GIG KIPs identified in the KIP declaration table (3) NCOW RM Enterprise Services	The system must fully support execution of joint critical operational activities identified in the applicable joint and system integrated architectures and the system must satisfy the technical requirements for transition to Net-Centric military operations to include: (1) The DISR mandated GIG IT standards and profiles identified in the	

	<p>NCOW RM Enterprise Services (4) IA requirements include availability, integrity, authentication, confidentiality, non-repudiation, and issuance of an ATO by the DAA (5) Operationally effective information exchanges; and MC-performance and IA attributes, data correctness, data availability, and consistent data processing specified in the applicable joint and system integrated architecture views</p>	<p>KIPs identified in the KIP declaration table (3) NCOW RM Enterprise Services (4) IA requirements including availability integrity, authentication, confidentiality, non-repudiation, and issuance of an IATO by the DAA (5) Operationally effective information exchanges and MC-performance and IA attributes, data availability, and consistent data processing specified in the applicable joint and system integrated architecture views</p>	<p>(4) IA requirements including availability integrity, authentication, confidentiality, nonrepudiation, and issuance of an IATO by the DAA (5) Operationally effective information exchanges; and MC-performance and IA attributes, data availability, and consistent data processing specified in the applicable joint and system integrated architecture views.</p>	<p>TV-1, (2) DISR mandated GIG KIPs identified in the KIP declaration table (3) NCOW RM Enterprise Services (4) IA requirements including availability integrity, authentication, confidentiality, nonrepudiation, and issuance of an IATO by the DAA (5) Operationally effective information exchanges; and MC-performance and IA attributes, data availability, and consistent data processing specified in the applicable joint and system integrated architecture views</p>	
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(KPP) - Radar Ao

	=>0.98	=>0.85	0.62	>=0.88	
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(KPP) - Survivability - Safe Egress In Crash (2)

	<p>The E-2D AHE shall retain all equipment mounted inside the fuselage in its installed position in inhabited spaces for crash landing inertia load factors applied at the equipment center of gravity of 20g forward, parallel and downward in the cockpit along a single axis. The E-2D AHE escape hatches and doors shall allow egress subsequent to a 40g crash inertial load.</p>	<p>(T=O) The E-2D AHE shall retain all equipment mounted inside the fuselage in its installed position in inhabited spaces for crash landing inertia load factors applied at the equipment center of gravity of 20g forward, parallel and downward in the cockpit along a single axis. The E-2D AHE escape hatches and doors shall allow egress subsequent to a 40g crash inertial load.</p>	<p>The E-2D AHE shall retain all equipment mounted inside the fuselage in its installed position in inhabited spaces for crash landing inertia load factors applied at the equipment center of gravity of 20g forward, parallel and downward in the cockpit along a single axis. The E-2D AHE escape hatches and doors shall allow egress subsequent to a 40g crash inertial load.</p>	<p>The E-2D AHE shall retain all equipment mounted inside the fuselage in its installed position in inhabited spaces for crash landing inertia load factors applied at the equipment center of gravity of 20g forward, parallel and downward in the cockpit along a single axis. The E-2D AHE escape hatches and doors shall allow egress subsequent to a 40g crash inertial load.</p>
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(KPP) - Unrefueled Time On Station (1)

	<p>=>2.0 hours at a station distance of 200nm</p>	<p>(T=O) =>2.0 hours at a station distance of 200nm</p>	<p>2.10 hours at a station distance of 200nm</p>	<p>2.10 hours at a station distance of 200nm</p>
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Requirement Reference

CDD dated March 3, 2009

Deviation Explanation

No deviations for this program/subprogram

Notes

Performance Notes: Classified Performance information is provided in the classified annex to this submission. Requirements Source: CDD, approved by JROC, dated March 3, 2009. Acronyms and Abbreviations: Ao - Operational Availability; ATO - Authorization to Operate; DAA - Designated Approval Authority; DISR - DoD Information Technology Standards and Profile Registry; DSSC-2 - Delta System/Software Configuration Build 2; Es - Enlisted; g - gravity; GIG - Global Information Grid; IA - Information Assurance; IATO - Interim Authorization to Operate; IT - Information Technology; KIPs - Key Intelligence Profiles; MC - Mission Critical; MSL - Mean Sea Level; NCOV RM - Net-Centric Operations and Warfare Reference Model; nm - nautical mile; Os - Officers; TV-1 - Technical View 1

Acquisition Budget Estimate

E-2D AHE

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	2009	4,140	6,707	7,377.7	8,066.9	9,353.7	Yes
Procurement	2009	13,281.9	14,832.9	16,316.2	14,252.9	17,256.8	
MILCON	2009	46.7	88.7	97.6	88.7	103.9	
Acq. O&M	2009	0	0	0			
Total		17,468.6	21,628.6		22,408.5	26,714.5	
PAUC	2009	232.915	251.495	276.645	260.564	310.634	
APUC	2009	189.741	183.122	201.434	175.962	213.047	

Appropriation Category Deviation Explanations

RDT&E The RDT&E Budget Estimate shows an APB breach however, this breach is on total dollars and not unit costs. This is due to PB 2024 exceeding the current APB by \$689.2M (BY 2009\$) due to extending the RDT&E budget from FY 2025 to FY 2030 to address obsolescence and modernization efforts including DSSC-6 and future DSSC build capabilities.

PAUC Deviation Explanation

APUC Deviation Explanation

Budget Notes

- RDT&E DSSC-6 Hawkeye Cockpit Technical Refresh (HECTR) and Theater Combat Identification (TCID) rephase to delay fielding from FY 2027 to FY 2028 and address wholeness (+\$568.1M)
- RDT&E extended budget from FY 2028 to FY 2030 address obsolescence and modernization efforts including future DSSC build capabilities. (+\$510.3M)
- RDT&E adjustment for NEXTGEN Navy Mission Planning System (NGNMPS) (-\$14.3M)
- RDT&E adjustments for inflation, rate changes (+\$19.2M)
- RDT&E Congressional Adds for radar development (+\$20.0M)
- RDT&E Congressional Reductions (-\$35.7M)
- RDT&E various reductions for SBIR, BSO realignments, Cancelled Accounts and Total Force Management (-\$19.2M)
- Procurement acceleration of procurement buy profile from FY 2031 to FY 2023 (-\$91.0M)
- Procurement elimination of one year of production as a result of acceleration of procurement buy profile (-\$228.7M)
- Procurement revised Initial Spares estimate (+\$10.8M)
- Procurement revised phasing for Depot Standup & Government Staff estimates due to extending production (-\$13.4M)
- Procurement revised Non- Recurring cost estimate to incorporate projected obsolescence bills for 2 additional aircraft (+\$23.4M)
- Procurement revised Production Line Shutdown estimate (-\$13.9M)

Total End Item Quantity

Quantity Category	Current APB Quantity	Current Estimate Quantity
Development	5	5
Procurement	81	81
O&M-Acquired		

Quantity Notes

The requirement has been validated at 86 aircraft to support nine fleet squadrons. Through the FY 2024 PB FYDP, the program is funded for 75 aircraft.

Unit Cost**E-2D AHE**

Current UCR Baseline and Current Estimate (Base-Year Dollars)			
Category (\$M) Base Year:2009	Current UCR Baseline	Current Estimate	% Change

Program Acquisition Unit Cost

Cost	21,628.6	22,408.5	
Quantity	86	86	
Unit Cost	251.495	260.564	3.61%

Average Procurement Unit Cost

Cost	14,832.9	14,252.9	
Quantity	81	81	
Unit Cost	183.122	175.962	-3.91%

Original UCR Baseline and Current Estimate (Base-Year Dollars)			
Category (\$M) Base Year:2009	Original UCR Baseline	Current Estimate	% Change

Program Acquisition Unit Cost

Cost	17,468.6	22,408.5	
Quantity	75	86	
Unit Cost	232.915	260.564	11.87%

Average Procurement Unit Cost

Cost	13,281.9	14,252.9	
Quantity	70	81	
Unit Cost	189.741	175.962	-7.26%

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**E-2D AHE****Risk and Sensitivity Analysis****Current Procurement Cost(December - 2022)**

None

Revised Original Estimate (July - 2009)

(1) After review of the programmatic and technical baseline at Milestone C, the MDA directed E-2D AHE to use the CAIG ICE as the funding requirement. The Navy SCP was seven percent lower than the CAIG ICE. (2) Both the CAIG ICE and the Navy SCP showed a shortfall in FY 2010-FY 2015 resources for procurement in the FYDP.

Current Baseline Estimate (February - 2020)

The Current Baseline Estimate aligns with PB 2021.

Schedule Risk		
Current	2021-12-31	<p>RISK: If the Government Software Support Activity (SSA) facilities at Patuxent River and Pt. Mugu are not certified for all classification levels after DSSC-5 THEN the capacity of organic support performed may be limited resulting in increased costs to contract work to NGC.DRIVER: The Government SSA facilities have some physical space that can operate at required classification levels for DSSC-5 and beyond, but most of the space cannot currently. If not addressed, this will limit the amount of work/people due to facility size/staff therefore increasing life cycle sustainment cost for Mission Computer Display (MCD) software. MITIGATION STEPS:1. Generate the Government SSA demand signal candidates to support the PMA's requirements for DSSC-6 and beyond. (Q3 FY 2022)</p> <p>2. Complete an Initial Facilities Footprint Assessment to support tasking and schedule to meet demand signal. (Q3 FY 2022)</p> <p>3. Create a project plan to have all facilities at PAX and Pt. Mugu operating at the appropriate classification level, along with connectivity to the prime's integrated development environment (if required), in time to support the schedule and scope of DSSC-6 and beyond tasking outlined in the Demand Signal. (Q3 FY 2022)</p> <p>4. PMA Level II's allocate funding/kits for the Project Plan for the current and future years. (Q4 FY 2022)</p> <p>5. Staff the key positions identified in the Project Plan.(Q3 FY 2023).</p> <p>6. Complete the required physical security modification at PAX and Pt. Mugu facilities to allow work at the designated classification level. (Q4 FY 2023)</p> <p>7. Acquire/install work stations, servers, and secure comms equipment for each facility/lab at the appropriate classification level consistent with the Project Plan. (Q2 FY 2024)</p> <p>8. Acquire/install integrated development environment and associated integration and test tools at the appropriate classification level consistent with the Project Plan. (Q1 FY 2024)</p> <p>9. Acquire/install of the integration and test tools (e.g. AST/ASG, 3+1 bench, ESM Simulator) has occurred at each facility/lab at the appropriate classification level consistent with the Project Plan. (Q1 FY 2024)10. Generate Interconnection Agreements between labs, create an RMF package, and acquire the ATO for each facility/lab consistent with the Project Plan. (Q3 FY 2023).</p>
Technical Risks		

Current	December 12, 2021	<p>RISK: If the rotodome adhesive limitations are exceeded, then an operational F/A-18 tanking envelope will reduce rotodome life. DRIVER: E-2D rotodome materials requirements were for temperatures up to 180F.</p> <p>MITIGATION STEPS: 1. Raise IFC thermal limits to 270F IOT allow exploration of the tanking environment behind the F/A-18 with increased probability of irreparable damage to the rotodome. (COMPLETED) 2. Increase post-flight inspection criteria to minimize likelihood of catastrophic failure. (COMPLETED) 3. Gather and analyze test data to establish an operational tanking envelope (COMPLETED) 4. Conduct coupon testing to address cyclic thermal fatigue of the rotodome and its effects on material life. Analyze data and adjust periodic maintenance plan. (Publish Mx update Q3/FY22) (COMPLETED) 5. Increase the ARS pod hose length with a 5' extension and execute F-18 flight test. Funds identified in Q4/FY22. (Flight test planned for Q4/FY24). 6. Expand the F/A-18 tanking envelope to meet operational requirements (start Q1/FY25).</p>
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Low Rate Initial Production

E-2D AHE

Item	Initial LRIP Decision	Current Total LRIP
Approval Date	06/13/2003	04/03/2011
Approved Quantity	22	15
Reference	Milestone B ADM	LRIP Lots 3 and 4 ADM
Start Year	2009	2009
End Year	2012	2012

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 due to 15 aircraft being the minimum to maintain the industrial base and ensure successful transition to FRP. The 15 planned LRIP aircraft (including one FY 2011 supplemental) represent 20% of the total quantity. The reduction in LRIP quantities is due to the production quantity ramp changes.

Notes

Contracts & Efforts

Contract Data	
Contract Number	N00019-18-F-2334
Effort Number	
Modification Number	P00016
Award Date	05/02/2018
Definitization Date	05/02/2018
Order Number	
CAGE Code/CAGE Legal Name	70974/Northrop Grumman Systems Corporation
Contract Title	Aerial Refueling Retrofit Kits
Contract Address	Melbourne, FL
Contracting Office	N00019
Supported Phase	Production
Contract Strategy	
Contract Type	Firm-Fixed-Price
Modification Date	September 07, 2022
Work Start Date	May 02, 2018
Technical Data Rights	Limited Rights to Technical Data--Non-Commercial Items Only
Work Completed	

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

Initial Target Price	Current Target Price	
\$74.7	\$74.7	
Initial Ceiling Price	Current Ceiling Price	
Contractor EAC	PM EAC	
\$74.7	\$74.7	
Initial Quantity	Current Quantity	Delivered Quantity
0	0	0
BAC	BCWP	ACWP

BCWS	Cost Variance	Schedule Variance

Contract Notes:

An administrative contract modification was awarded in November 2020 to update the SOW as well as DCMA address. In December 2020, a contract modification was executed to add NAVAIR clause 5252.232-9522 (Transportation Account Codes) and reduce CLIN 0204 by \$2,384.00. A contract modification was awarded in June 2021 to extend the PoP of CLIN 0003 from May 31, 2021 to December 31, 2021. In January 2022 a contract modification to extend the PoP of CLIN 0003 from 31 December 2021 to 31 May 2022 was awarded. Another contract modification is to extend the PoP of CLIN 0003 from 31 May 2022 to 29 July 2022 was executed in May 2022. CLIN 0003 was then extended from 29 July 2022 to 30 September 2022 via a contract modification in September 2022.

Cost Variance: Cost Variance reporting is not required as this is a FFP contract..

Schedule Variance: Schedule Variance reporting is not required as this is a FFP contract.

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	N00019-13-C-9999
Effort Number	
Modification Number	P00090
Award Date	06/30/2014
Definitization Date	06/30/2014
Order Number	
CAGE Code/CAGE Legal Name	70974/Northrop Grumman Systems Corporation
Contract Title	E-2D AHE Multi-Year Procurement (FRP Lots 2-6)
Contract Address	Melbourne, FL
Contracting Office	N00019
Supported Phase	Production
Contract Strategy	
Contract Type	Firm-Fixed-Price Level of Effort Term
Modification Date	September 19, 2022
Work Start Date	June 30, 2014
Technical Data Rights	Limited Rights to Technical Data--Non-Commercial Items Only
Work Completed	

Contracts/Effort Price, Quantity, and Performance (TY\$M)		
Initial Target Price	Current Target Price	
\$113.7	\$5,199.2	
Initial Ceiling Price	Current Ceiling Price	
Contractor EAC	PM EAC	
\$5,199.2	\$5,199.2	
Initial Quantity	Current Quantity	Delivered Quantity
30	30	30
BAC	BCWP	ACWP
BCWS	Cost Variance	Schedule Variance

Contract Notes: The difference between the Initial Contract Price Target and the Current Contract Price Target is due to this contract being awarded on May 17, 2013 as an advanced acquisition contract for the FRP Lot 2 valued at \$113.7M. On July 31, 2013 an additional \$9.3M contract modification was awarded. This contract was definitized on June 30, 2014 and transitioned to Fixed Price Incentive Firm Target Contract for the procurement of 25 aircraft valued at \$3906.7M. The Government of Japan is procuring four E-2D AHE aircraft to include nonrecurring engineering for a Japan-unique Wet Outer Wing Panel totaling \$963.3M under four FMS Letters of Offer and Acceptance all of which have been added to this contract to date. Other modifications to the contract which have increased the value by \$189.6M include the addition of the Advanced Radar Processor, Fiber Optic Improvement, Aerial Refueling capabilities, Engineering Change Orders, Economic Order Quantity Funding, and Nose Gear Catapult System Engineering Change Proposal. Other contract modifications, valued at \$16.7M, include Japan E-2D AHE Difference Training and Japan Non-Recurring Engineering. In March 2020, a contract modification was awarded to fund CLIN 0415 in the amount of \$208,157.00. A contract modification was awarded August 4, 2020 to address a cost overrun related to CLIN 0115 (Japan Non-Recurring Engineering (NRE) efforts) and incorporate CLINs 0121, 0122, 0123 and 0124 for Japan Air Self Defense Force (JASDF) NRE incentives. In addition, the Period of Performance (PoP) for CLIN 0115 was extended to June 30, 2024 and CLIN 0405 was extended to September 30, 2020; Exhibits K, L and M were also updated with this modification. In September 2020, a contract modification was awarded to update Attachments (7) (Statement of Work (SOW)) and Attachment (13) (Scheduled Government Furnished Property (GFP)), update CDRL D001, extend the PoP for CLIN 0405 as well as de-obligate funds under CLIN 0001. Additionally, clauses 52.251-1 and 252.251-7000 were added and clauses 52.204-25 and 52.244-6 were updated to the latest versions. A contract modification was executed in February 2021 to update the following documents: Exhibit L (CDRLs L003 and L050), Exhibits J, K-M, Supplement 2 (Electronic Data Submission Instructions), Exhibit Q (Spares and Support Equipment under CLIN 0117), and Attachment (19) (JASDF GFP List). This modification also extended the PoP for CLIN 0116 as well as added DFARS clauses 252.225-7043 and 252.225-7976. In May 2021, a contract modification was executed to update Attachment (7) (SOW), Attachment (13) (Scheduled GFP) and Exhibits A-D, Supplement (1) (Electronic Data Submission Instructions). This modification also reduces fee on CLIN 0409 to \$18,337.00 in accordance with H-12 Level of Effort Engineering Investigations NAVAIR Clause 5252.211-9503 Level of Effort (Cost Reimbursement). Additionally, the PoP under CLIN 0413 has been extended from December 30, 2020 to December 31, 2021. A contract modification was awarded October 2021 to add \$17,615,418.00 in incremental funding to CLIN 0115 (Japan NRE) and create SLINs 011540 through 011545. In December 2021, a contract modification was executed to update Attachment (7) (SOW) and extend the PoP for CLINs 0302 and 0401. Additionally, this modification reconciled the \$318,000.00 consideration balance. In June of 2022, a contract modification was awarded to update Attachment (7) (SOW). A contract modification was awarded in September 2022 to increase the value and add funding to CLIN 0115; extend the PoP for CLIN 0115 from 30 June 2024 to 31 December 2026; delete JASDF NRE Incentive CLINs 0122, 0123, and 0124; de-obligate funding associated with those CLINs; and delete and replace Attachment (23).

Cost and schedule variances are not reported for this contract. An EVM waiver was granted by the Deputy Assistant Secretary of the Navy (Acquisition & Procurement) (DASN AP) on May 12, 2014 as delegated by the Assistant Secretary of the Navy (Research, Development, & Acquisition). This waiver was approved because the E-2D AHE airframe is being produced in a mature FRP environment with a prime contractor displaying a long-term history of consistently meeting delivery schedules at or below contract targets.

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	N00019-18-C-1037
Effort Number	
Modification Number	P00056
Award Date	02/22/2018
Definitization Date	04/10/2019
Order Number	
CAGE Code/CAGE Legal Name	70974/Northrop Grumman Systems Corporation
Contract Title	E-2D AHE Multi-Year Procurement (FRP Lots 7-11)
Contract Address	Melbourne, FL
Contracting Office	N00019
Supported Phase	Production
Contract Strategy	
Contract Type	Fixed-Price Incentive (Firm Target)
Modification Date	December 16, 2022
Work Start Date	April 10, 2019
Technical Data Rights	Limited Rights to Technical Data--Non-Commercial Items Only
Work Completed	

Contracts/Effort Price, Quantity, and Performance (TY\$M)		
Initial Target Price	Current Target Price	
\$99.8	\$4,768.7	
Initial Ceiling Price	Current Ceiling Price	
Contractor EAC	PM EAC	
\$4,763.7	\$4,762.7	
Initial Quantity	Current Quantity	Delivered Quantity
39	39	
BAC	BCWP	ACWP
BCWS	Cost Variance	Schedule Variance

Contract Notes: The original contract price was for FRP Lot 7 Advance Procurement in the amount of \$99.77M (FFP). The contract was definitized on April 10, 2019 as the MYP for FRP Lots 7-11 and transitioned to a FPIF Target contract for the procurement of 24 aircraft valued at \$3352.10M. On April 29, 2019 NRE for Product Support and SSA was added increasing the total contract cost to \$3390.87M. On August 29, 2019, NRE and Obsolescence Management for FRP Lots 7-11 was added increasing the total contract cost to \$3459.76M. On September 26, 2019, the procurement of nine Japan FMS aircraft was added increasing the total contract cost to \$4763.68M. DASN AP granted a one-time deviation to remove EVM requirements from this contract. In March 2020 a contract modification was executed that added funding for FRP Lot 7 Engine Support in the amount of \$382,165.00. Two other modifications were awarded April 2020; the first included exercising the VIQ clause for two aircraft, long lead funding and added NRE for the VIQ aircraft which increased the contract cost by \$389,452,781.00. The second was in April 2020 increased funding by \$950,000.00 to support Japan SSA. Two modifications were awarded June 2020; the first incorporated BLOS, TTNT, NAVWAR, and ESM efforts on multiple CLINs, increasing funding by \$14,109,762.00. The second modification incorporated PCI Capability support via a CPFF CLIN. In September 2020, a contract modification was awarded which incorporated Japan Contractor Technical Services, created CLIN 0025 and funded SLIN 002501. Attachments (4) (SOW), (5) (Data and Computer Software Rights Assertions), Exhibits (A) and (J) were updated. Several clauses were also added. In November 2020, a contract modification was executed to incorporate the Engine Cutout Circuitry effort into several CLINs. Several attachments and CDRLs were also updated via this modification. In addition, this modification also added DFARS Clause 252.225-7976 and revised Clause TXT-G-01 to include CLINs 0112 and 0212. Clause TXT-H-04 was updated to reflect the new unit prices of CLINs 0312 and 0412. Funding on this modification increased by \$1,711,561.00. Two contract modifications were executed in December 2020. The first established CLINs 0240 and 0241 for France E-2D AHE initial planning; funding was added in the amount of \$2,843,834.00 to support these activities. This modification updated Attachment (4) (SOW), added Exhibit (F) (CDRL for CLIN 0241) and added Supplement (4) (Electronic Data Submission Instructions). The second modification updated CLIN 0025 (Japan Contractor Technical Services) to increase the value and extend the PoP to April 30, 2021; total funding increased by \$2,537,504.00. A contract modification was executed in February 2021 to update Attachment (108) (Japan PBP Schedule for CLIN 0020). In March 2021 a contract modification was executed to realign funding in the amount of \$3,006,160.00 from SLIN 002008 to SLIN 002012. Two contract modifications were executed in April 2021. The first supported execution of VIQ aircraft via CLIN 0312 (FY22), reduced CLINs 0301 and 0020 per the VIQ clause (H-04) due to the aforementioned VIQ aircraft, provided full funding for CLIN 0201, long lead funding for CLIN 0301, EOQ funding for CLINs 0301 and 0401, and exercised and fully funded CLINs 0203, 0204, 0207, 0208, 0210 and 0211. The second modification established CLIN 0440 for the procurement of long lead items for France E-2D aircraft FAA1-FAA3, as well as added Attachments (201) France (Long Lead Parts List for FAA1-FAA3), (202) France (France E-2D Configuration List), and (206) France (PBP Schedule for CLIN 0440). A contract modification was awarded May 2021 to add Inventory Analysis CLINs 0215, 0315, and 0415. Additionally Attachment (4) (SOW), Exhibit B (CDRL B00A), and Exhibit A-E, Supplement (1) (Electronic Data Submission Instructions) were added. In June 2021, a contract modification to exercise Option CLIN 0213 and add \$4,648,160.00 for continued contract support was awarded. Additionally, this modification updated CLINs 0113 and 0114 PoPs to February 14, 2023. The PoP for CLINs 0213 and 0214 were also updated to February 14, 2024. CLINs 0313 and 0314 PoP was updated to February 14, 2025. Finally, the PoP for CLINs 0413 and 0414 was updated to February 14, 2026. Two contract modifications were awarded in July 2021. The first updated several attachments and exhibits; CDRL A019 TDP was also added. The second modification added CLIN 0442 for France E-2D NRE Risk Reduction. In August 2021, two contraction modifications were executed. The first incorporated CLINs 0X16, 0X17, 0X18 and 0X19, and added Attachment (17) (GFE OA SOW). The second modification added the Japan E-2D SSA in the amount of \$887,936.00 by creating CLIN 0026, revised NAVAIR Clause 5252.211-9503 (Level of Effort (Cost Reimbursement)), and updated Attachment (4) (SOW). A contract modification was awarded in October 2021 which exercised Option CLIN 0105 (NRE Engine Support, Lot 8) and added \$876,328.00 for continued support. In addition, this modification updated the delivery schedule in Section F and updated the following Attachments: Attachment (4) (SOW), Attachment (6) (USN Recurring PBP Schedule) and Attachment (16) (USN NRE PBP Schedule). A contract modification was awarded in November 2021 which updated Attachment (102) (Japan E-2D Configuration List) and Attachment (109) (PBP Schedule for CLIN 0022 (Japan NRE)). In December 2021, two contract modifications were executed. The first modification updated the PoP for CLINs 0005 and 0006 to October 31, 2022; the second updated Attachment (2) (CSI List), Attachment (4) (SOW), supplements and revised the title of CLIN 0440 from FAA1-FAA3 Long Lead Parts to France E-2D AHE Aircraft. This was necessary to support the procurement of three (3) France E-2D aircraft (FAA1, FAA2 and FAA3). CLIN 0401 was modified to account for the reduction in prices of USN aircraft reflected in TXT-H-04, Aircraft VIQ Contract Price Adjustments. In addition, the PoP was updated to April 30, 2022 for CLINs 0240 and 0241 in this second contract modification. Two contract modifications were awarded in January 2022. The first modification updated several attachments and exhibits. With this modification, the aircraft delivery dates for AA53 and AA54 were revised, Clause TXT-H-11 was revised, and consideration of \$291,000.00 was added for the payback to the Government for the missed obsolescence requirements reflected in Attachment (4) (SOW). The second extended CLIN 0442's (France E-2D NRE Risk Reduction Effort) PoP to 15 February 2022. In February 2022, a contract modification was executed to increase the value of CLIN 0442 and add SLIN 044202 to extend the France E-2D NRE Risk Reduction Effort through 30 April 2022. Four contract modifications were executed in April 2022. The first modification exercised and provided funding for several option CLINs and also provided funding for CLIN 0301, updated delivery

information (Section F), updated TXT-H-02, Limitation of Government Liability Value, and updated Attachment (4) (SOW). The second modification provided additional funding for CLIN 0401 and updated TXT-H-02, Limitation of Government Liability Value. The third modification awarded in April 2022 added CLINs 0X26, 0X27 and 0X28 for Japan E-2D O&A, updated several attachments, and added Special Contract Requirement TXT-H-15, Lifetime Warranty on Busing for Japan E-2D Aircraft JAA6. The fourth contract modification extended the PoP for CLIN 0240 through 31 October 2022 and CLIN 0442 through 31 May 2022. In May 2022, three contract modifications were executed. The first modification exercised Option CLIN 0315. The second contract modification increased the value on CLIN 0026 by \$1,031,483.00, extended the PoP to 18 April 2023, provided funding to SLINs, updated Attachment (4) (SOW), and revised Clause 5252.211-9503. The third contract modification increased the value of CLIN 0442 and added a SLIN to extend the France NRE Risk Reduction effort through 15 July 2022. Two contract modifications were executed in July 2022. The first exercised several CLINs, deleted and replaced Attachment (4) SOW and deleted and replaced two Exhibits. In addition, this action replaced Attachment (8) GFE List. The second modification increased the value of CLIN and added a SLIN to fund France E-2D NRE Risk Reduction Effort through 30 September 2022. The last modification extended the PoP for CLIN 0442 (France E-2D NRE Risk Reduction Effort) from 30 September 2022 to 31 October 2022. In October 2022, two contract modifications were awarded. The purpose of the first modification was to add cost and funding to CLIN 0020 (Japan E-2D AHE Aircraft JAA5-JAA13) for RAR-1500 Radios, establish CLIN 0029 (Japan E-2D Non-Recurring Engineering of the AR-1500 Radios), revise delivery dates for Japan E-2D aircraft, update the H Clause Table, revise language in clauses TXT-H-08 and TXT-H-13, establish clause TXT-H-16 and establish, delete and replace attachments in Section J. The second modification awarded in October 2022 was a no cost PoP extension for CLIN 0442 from 31 October 2022 to 30 November 2022. Two no-cost administrative modifications were executed in November 2022. The first exercised Option CLINs 0205 and 0206 2 and provided an update to Attachment 8 in Section J. The second extended the PoP for CLIN 0442 (France E-2D NRE Risk Reduction Effort) from 30 November 2022 to 20 December 2022. Another contract modification to extend the PoP for CLIN 0442 (France E-2D NRE Risk Reduction Effort) from 20 December 2022 to 31 January 2023 was completed in December 2022; another modification was awarded in December to address the DTS-K stop work, ECPs and update Section J.

Cost and schedule variances are not reported for this contract. DASN (AP) granted a one-time deviation to remove EVM requirements from this contract.

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	N00019-18-C-1066
Effort Number	
Modification Number	P00024
Award Date	06/25/2018
Definitization Date	06/25/2018
Order Number	
CAGE Code/CAGE Legal Name	70974/Northrop Grumman Systems Corporation
Contract Title	Electronic Support Measures (ESM) Upgrade
Contract Address	Melbourne, FL
Contracting Office	N00019
Supported Phase	Production
Contract Strategy	
Contract Type	Cost-Plus-Fixed-Fee
Modification Date	September 29, 2022
Work Start Date	June 25, 2018
Technical Data Rights	Limited Rights to Technical Data--Non-Commercial Items Only
Work Completed	

Contracts/Effort Price, Quantity, and Performance (TY\$M)		
Initial Target Price	Current Target Price	
Initial Ceiling Price	Current Ceiling Price	
Contractor EAC	PM EAC	
Initial Quantity	Current Quantity	Delivered Quantity
BAC	BCWP	ACWP
BCWS	Cost Variance	Schedule Variance

Contract Notes:

To date, the contract price has increased by \$5.57M due to an Equitable Adjustment. In addition, a contract modification was issued in October 2019 to incrementally fund CLINs 0001, 0002, and 0003. In February 2020, a contract modification was awarded to incrementally fund CLINs 0001, 0002 and 0003. In April 2020 a contract modification was awarded to delete and replace Exhibit A Contract Data Requirements List (CDRL) and Attachment (4) DD 254 contract security classification. In May 2020, a contract modification was awarded to add to incremental funds to CLINs 0001, 0002 and 0003 was awarded. A contract modification to delete and replace Attachment (1) ESM ADRP Upgrade Statement of Work (SOW) was awarded June 2020. A contract modification was executed in January 2021 to add incremental funding to CLINs 0001, 0002 and 0003. Exhibit A (CDRL) was also updated with this modification. Due to OPNAV realignment, the program office issued a stop work in January 2021 in order to restructure activities to meet Government needs. The program office has since canceled the stop work and authorized LMCO to resume work on this contract. A contract modification was awarded in January 2022, which provided an updated SOW and funding for CLIN 0001 in the amount of \$1,200,000.00. In April 2022, a contract modification was executed, which provided incremental funding to CLIN 0001 and updated Clause 5252.232-9524 Allotment of Funds, as well as corrected CLIN 0004 PoP. A contract modification was awarded in July 2022 to provide incremental funding to CLIN 0001 and update clause 5252.232-9524. In September 2022, a contract modification was executed to update Exhibit A (CDRLs), Attachment 1 and add CLINs 0005, 0006 and CLIN 0007.

Cost Variance: The program was in a blackout beginning January 2021. The program and contract have been restructured; EVM data will be forthcoming in 2023.

Schedule Variance: The program was in a blackout beginning January 2021. The program and contract have been restructured; EVM data will be forthcoming in 2023.

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	N00019-14-C-0036
Effort Number	
Modification Number	P00044
Award Date	07/07/2014
Definitization Date	07/07/2014
Order Number	
CAGE Code/CAGE Legal Name	70974/Northrop Grumman Systems Corporation
Contract Title	Full Scale Fatigue Test
Contract Address	Melbourne, FL
Contracting Office	N00019
Supported Phase	Production
Contract Strategy	
Contract Type	Cost-Plus-Fixed-Fee
Modification Date	November 08, 2022
Work Start Date	July 07, 2014
Technical Data Rights	Limited Rights to Technical Data--Non-Commercial Items Only
Work Completed	76.06%

Contracts/Effort Price, Quantity, and Performance (TY\$M)		
Initial Target Price	Current Target Price	
\$52.4	\$84.8	
Initial Ceiling Price	Current Ceiling Price	
	\$84.8	
Contractor EAC	PM EAC	
\$64	\$79.8	
Initial Quantity	Current Quantity	Delivered Quantity
0	0	0
BAC	BCWP	ACWP
\$88.3	\$67.2	\$66.9
BCWS	Cost Variance	Schedule Variance

\$67.1	\$0.3	\$0
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Contract Notes:

The difference between the initial value of \$52.44M and the current value of \$84.76 is the addition of Wing Center Section (WCS) Fatigue Testing, exercising a repair option of 370 days, exercising CLINs 0001 and 0202, which provide incremental funding to complete Full Scale Testing, and extending the Period of Performance (PoP) on CLINs 0001, 0004, and 0303 to 31 May 2022. The contract price decreased by \$623,889.36 due to anticipated WCS repairs not being required. In addition, a contract modification was awarded in February 2020 in the amount of \$2,000,000.00 for incremental funding for CLIN 0001. A contract modification was awarded in May 2020 to change clause FAR 52.222-2, as well as update NAVAIR clause 5252.232-9524, Allotment of Funds. Additionally, this modification incrementally funded CLIN 0001 in the amount of \$3,493,000, CLIN 0002 was de-obligated by \$141,646.56, CLIN 0102 was de-obligated by \$320,410.32 and CLIN 0302 was de-obligated \$187,699.66. A contract modification was awarded in June 2020 to de-obligate \$1,122,194.88 from CLIN 0202 as well as update NAVAIR clause 5252.232-9524. A contract modification was executed in August 2020, which added \$200,000 of additional funding to CLIN 0001 and de-obligated a total of \$96,033.70 from SLINs 000201 (\$15,782.88) and 000501 (\$80,250.82). In addition, this modification included an update to clause 5252.232-9524. In September 2020, another contract modification was awarded to incrementally fund CLIN 0001 in the amount of \$392,128.91 and update clause 5252.232-9524. To date, a total of \$1,867,985.12 has been de-obligated from this contract, which was used to offset funding for CLIN 0001. In October 2020, a contract modification was executed to incrementally fund CLIN 0001 in the amount of \$2,500,000.00, update clause 5252.232-9524, and update the Defense Management Contract Agency (DCMA) address. A contract modification was executed in January 2021 to provide incremental funding to CLIN 0001 in the amount of \$2,200,000.00 and updated clause 5252.232.9524. In March 2021, a contract modification was executed to provide incremental funding to CLIN 0001 in the amount of \$3,258,463.16 and updated clause 5252.232-9524. Two contract modifications were awarded in June 2021. The first, extended the PoP of CLIN 0001 and 0004 to 30 June 2023. The second, provided incremental funding to CLIN 0001 in the amount of \$2,200,899.67 as well as updated clause 5252.232-9524. In September 2021, a contract modification was executed to provide incremental funding to CLIN 0001 in the amount of \$250,000.00. A contract modification was awarded in November 2021, which provided funding to CLIN 0001 in the amount of \$3,407,000.00. In February 2022, a contract modification was executed to provide incremental funding to CLIN 0001 in the amount of \$1,816,354.33. Additionally CLIN 0003 was de-obligated by \$31,431.83 to properly capture modification A00002. A contract modification was awarded in April 2022, which provided incremental funding to CLIN 001 in the amount of \$3,000,000.00; additionally the PoP for CLIN 0303 was extended to 30 June 2023. In June 2022, another contract modification was executed to provide incremental funding to CLIN 0001 in the amount of \$1,675,037.64. In September 2022, a contract modification was awarded which added a CLIN to accept delivery of Contractor Acquired Property (CAP). Another contract modification was executed in November 2022 to provide incremental funding to CLIN 0001 in the amount of \$3,300,000 and to update clause 5252.232-9524. In addition this modification updated the SOW to support continued cycling of the test article up to 22,000 Effective Flight Hours (EFHs).

Factors Contributing to Cost Variance and Projected Effects on Program Costs

Cycling of test articles has exceeded 2 lifetimes and 20,000 hours of cycling without needing to perform all the contractual major repair events, resulting in a slightly favorable cost variance. This effort will complete cycling March 31, 2023 and begin the teardown of the Fatigue Test Article.

Factors Contributing to Schedule Variance and Projected Effects on Program Schedule

Cycling of test articles exceeded 2 lifetimes and 20,000 hours of cycling prior to the March 31, 2023 deadline. After cycling efforts are complete (scheduled for 31 March 2023), the teardown of the fatigue article will commence.

Contract Data	
Contract Number	N00019-15-C-0091
Effort Number	
Modification Number	P00044
Award Date	04/06/2015
Definitization Date	04/06/2015
Order Number	
CAGE Code/CAGE Legal Name	70974/Northrop Grumman Systems Corporation
Contract Title	Post IOC Capabilities (PIOC)
Contract Address	Melbourne, FL
Contracting Office	N00019
Supported Phase	Production
Contract Strategy	
Contract Type	Cost-Plus-Fixed-Fee
Modification Date	October 12, 2022
Work Start Date	April 06, 2015
Technical Data Rights	Limited Rights to Technical Data--Non-Commercial Items Only
Work Completed	

Contracts/Effort Price, Quantity, and Performance (TY\$M)		
Initial Target Price	Current Target Price	
\$146.7	\$178.8	
Initial Ceiling Price	Current Ceiling Price	
	\$178.8	
Contractor EAC	PM EAC	
\$170.5	\$186.3	
Initial Quantity	Current Quantity	Delivered Quantity
BAC	BCWP	ACWP
BCWS	Cost Variance	Schedule Variance

Contract Notes: The difference between the initial contract price of \$146.69M and the current contract price of \$178.78M is due to increased contract scope to include cybersecurity requirements, incorporation of S-Band frequencies, and extension of the contract end date. The contract price decreased by \$181,524.00 due to work scope reductions, which caused the value of CLIN 0001, Post Initial Operational Capability Added Capabilities, and CLIN 0003, S-Band Frequencies, to be reduced. A contract modification extending the contract's end date to the PM's Estimated Completion Date was required due to delays in MIDS JTRS Operational Testing which is executed by a different program and is impacting our schedule; this modification extended the PoP from December 2019 to November 2020. Another contract modification was executed in February 2020 that added incremental funding to CLIN 0003 in the amount of \$11,948,431.00 for continued contract support. A contract modification to add incremental funding to CLIN 0001 in the amount of \$459,664.00 for continued contract support was awarded in March 2020. A contract modification was awarded in May 2020 to incorporate a directed change in accordance with FAR 52.243-2 "Changes - Cost Reimbursement." Additionally, the Statement of Work (SOW), Contract Data Requirement List (CDRL) and GFP list were updated to increase Delta System Software Configuration (DSSC)-4 Developmental Test (DT) aircraft. A contract modification was awarded June 2020 to extend the PoP to August 30, 2021 as well as line of accounting correction causing funding removal from SLIN 000319 and added to SLIN 00320 with corrected line of accounting. A contract modification to add incremental funding to CLIN 0003 in the amount of \$529,741.87 for continued contract support was awarded on June 29, 2020. A contract modification was executed in August 2020 to update Attachment (3) (Cost and Software Data Reporting (CSDR) Plans). In September 2020, a contract modification was awarded to add incremental funding to CLIN 0003 in the amount of \$4,283,259.00 and update Attachment (7) (GFP List). A contract modification to add incremental funding to CLIN 0001 in the amount of \$325,000.00 for continued contract support was awarded in December 2020. Additionally this modification updated the DCMA office name, added CLIN 0005 to support the DD250, and provided delivery addresses for Support Equipment that has been developed under this contract. In February 2021 a contract modification was executed to provide incremental funding in the amount of \$406,736.00 to CLIN 0003 for continued contract support. A contract modification was awarded in April 2021 to provide incremental funding in the amount of \$6,215,949.00 for continued contract support. Additionally in April 2021 a contract modification was awarded to increase CLIN 0001 by \$2,302,001.00, CLIN 0003 by \$7,227,493.00 and extend the PoP to June 30, 2022. Incremental funding in the amount of \$102,393.00 has also been added to CLIN 0001 on this modification. A contract modification was executed in June 2021 to provide incremental funding in the amount of \$395,822.00 to CLIN 0001 and \$5,294,050.00 to CLIN 0003. In October 2021, a contract modification was executed to incrementally fund CLIN 0001 by \$1,601,084.00 and CLIN 0003 by \$1,044,432.00. A contract modification was awarded in November 2021 to provide incremental funding to CLIN 0001 in the amount of \$200,000.00 and to CLIN 0003 in the amount of \$800,000.00. Additionally, the Technical Data CLIN 0002 was extended to June 30, 2022 with this modification. In February 2022, a contract modification was executed to incorporate a directed change, updating the SOW to include requirements to integrate a Government Furnished Equipment (GFE) KG-250 Encryption Device. This modification also includes several administrative changes: (1) The DT Aircraft quantity changed from 3 to 5, (2) the PoP has been extended until 30 September 2022, (3) Under CLIN 0003, the contract value has decreased by \$5,714.00 (4) The delivery location for CLIN 0005 was updated, and finally (5) Incremental funding was added to both CLIN 0001 and CLIN 0003 for a total funding increase of \$1,365,817.35. An Earned Value (EV) waiver was received March 2022. A contract modification was executed in April 2022 to add incremental funding to CLIN 0003 and update the Allotment of Funds Clause 5252.232-9516. In June 2022, a contract modification was awarded to pay the maximum technical incentive fee by creating CLIN 0006, provided incremental funding to CLIN 0003 and update the Allotment of Funds Clause 5252.232-9516. Supplement (1) (Navy Data Manager Points of Contacts) to Exhibit A (CDRLs) was revised via a contract modification in July 2022. In August 2022, a contract modification was awarded to incrementally fund CLINs 0001 and 0003; extend the PoP on CLINs 0001, 0002 and 0003 from 30 September 2022 to 30 November 2022; update NAVAIR Clause 5252.211-9507 Period of Performance (NAVAIR)(SEP 2013) under Section F; and update NAVAIR Clause 5252.232-9516 Allotment of Funds - Incrementally Funded Cost Reimbursement Contract other than Cost-Sharing (July 1985). A contract modification was also executed in October 2022 to update Section J, specifically Attachment 3 CSDR Plan and Exhibit A Supplement (1) CDRLs.

NOTE: EVM reporting has ceased as the contract is over 97% complete. This contract completed on 31 January 2023 therefore this will be the last time it is reported in the SAR.

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

E-2D AHE

Deliveries				
Delivered to Date	Planned to Date	Actual to Date	Total Quantity	Percent Delivered
Development	5	5	5	100.00%
Production	52	52	75	69.33%
Total Program Quantity Delivered	57	57	80	71.25%
Expended and Appropriated (TY \$M)				

Years Appropriated to date: 22

Total Years Appropriated Funding (Current Baseline): 27

Percent Years Appropriated: 81.48%

Then-Year Funding Appropriated as Percentage of Total Acquisition Estimate: 0.00%

Then-Year Funding Expended as Percentage of Total Acquisition Estimate: 68.16%

Total Acquisition Cost: 26,714.49

Deliveries & Expenditures Notes:

PB24 budget numbers. Expenditures as of 3/8/2023.

Operating and Support Costs

E-2D AHE

O&S Cost Breakdown:

Category (BY\$ Million)	E-2D AHE
Unit-Level Manpower	4,679.8
Unit Operations	583.8
Maintenance	6,296.6
Sustaining Support	1,124.6
Continued System Improvements	3,388.9
Other	1,683.2
Total	17,756.9

Cost Estimate Source: POE dated March 01, 2023

O&S Cost Notes:

Inflation Indices Utilized: FY 2022 OSD rates Due to the historical inclusion of Indirect costs as part of the E-2D APB, these costs have been addressed as Other O&S cost within the above chart to ensure equivalency when comparing SAR 2022 to previously documented O&S cost totals.

Flight Hours per Aircraft per Month: 32

Number of Aircraft per Carrier Airborne Early Warning Squadron (AEW): 5

Total Number of Primary Aircraft Authorization (PAA): 62

- Nine 5 aircraft Carrier AEW squadrons

-One 12 aircraft Fleet Replacement Squadron (FRS)

- 2 aircraft at Air Test and Evaluation Squadron One (VX-1)*

- 3 aircraft at Naval Aviation Warfighting Development Center (NAWDC)

*Aircraft Flight Hours Life Limit: 9,600

Total Operating Flight Hours: 604,862

Total Operating Aircraft Years: 1,628

Assumes 6% of maximum total aircraft inventory will be attrited over the lifecycle. The Quantity to Sustain only includes fleet-owned assets, thereby excluding two developmental aircraft, which are Naval Air Systems Command (NAVAIR)-owned assets. The Total Operating Aircraft Years is calculated by summing the actual or estimated annual Primary Aircraft Inventory from FY 2011 through FY 2051.

*PAA beyond Primary Mission Aircraft Authorization (PMAA) and FRS aircraft are typically not included in NAVAIR SCE&A O&S cost estimates; however, PAA for VX-1 and Naval Aviation Warfighting Development Center (NAWDC) have been included in the E-2D AHE O&S cost estimate. Base Year costs are calculated as Constant Price values.

a. Disposal/Demilitarization Cost Estimate and Source of Estimate: \$19.7M Total (BY 2009), POE 03/10/2022

b. Sustainment Strategy: The E-2D AHE initial sustainment concept for E-2D AHE unique parts was Interim Contractor Support through MSD with common systems supported organically. For the period of MSD (1st Quarter FY 2016) through Navy Support Date (3rd Quarter FY 2025), Naval Supply Systems Command Weapons System Support will support E-2D AHE unique systems through conventional and/or performance-based repair contracts with Original Equipment Manufacturers. With few exceptions, E-2D AHE unique systems have been designated as Core Capabilities and the program is pursuing the establishment of organic repair capabilities to comply with the U.S. Code Title 10 requirements. As these organic repair capabilities are established, business case analyses will be conducted to determine the best value sustainment strategies, whether it is fully organic or public-private partnership.

c. For Each Acquired System or System Variant:

i. Quantity to Sustain: 84

ii. First Operational Fiscal Year: FY 2011

iii. Final Operational Fiscal Year: FY 2051

iv. Unit Expected Service Life: 25 Years

d. Antecedent System(s) O&S Costs:

i. The antecedent program is the E-2C. Annual costs for the antecedent program are based upon a three-year average of Naval Visibility and Management of Operating and Support Costs (VAMOSOC) data from FY 2010 - FY 2012, the last three years prior to the start of the E-2C transition to E-2D AHE. Costs for the three years are summed and then divided by the sum of aircraft count for the three years. The average number of aircraft in the three-year VAMOSOC dataset is 58.33. Since Naval VAMOSOC does not capture Indirect Support costs, the E-2C Indirect Support cost is calculated by multiplying the E-2C Unit-Level Manpower by the ratio of E-2D AHE Indirect Support to E-2D AHE Unit-Level Manpower. For comparison purposes, the Total O&S Cost is the product of the Antecedent's Average Annual cost per Unit and the Operating Aircraft Years of the E-2D AHE.

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	19,700.2	21,670.2	17,756.9	28,201.9	

Note:

None

O&S Cost Deviation Explanation

Operating and Support Costs - Disposal and Unitized Costs**E-2D AHE****Annual Unitized O&S Cost Definition and Calculation Relative to Total O&S Cost:**

Sustainment Factors	System Name: E-2D	Antecedent System Name: E-2C
Quantity to Sustain	84	
Unit of Measure	Number of Aircraft	Number of Aircraft
Unit Expected Service Life	25	25

Base Year:

Annual Unitized O&S Cost by Category Base Year \$ Unit:(\$M)	System Name: E-2D	Antecedent System Name: E-2C
Unit-Level Manpower	2.9	2.7
Unit Operations	0.4	0.4
Maintenance	3.9	3.5
Sustaining Support	0.7	0.2
Continued System Improvements	2.1	1.0
Other	1.0	1.0
Total O&S	10.9	8.9

Disposal/Demilitarization Cost Estimate

(Base Year \$Millions)	System Name: E-2D	Antecedent System Name: E-2C
Total Disposal		19.7

Cost Estimate Source - Disposal	
Type:	Component Cost Estimate
Approval Authority and Date:	03/01/2023
Note:	

Inflation Indices Utilized: FY 2022 OSD rates Due to the historical inclusion of Indirect costs as part of the E-2D APB, these costs have been addressed as "Other" O&S cost within the above chart to ensure equivalency when comparing SAR 2022 to previously documented O&S cost totals. Flight Hours per Aircraft per Month: 35 (Updated to reflect latest WSPD and budget documentation.) Number of Aircraft per Carrier Airborne Early Warning Squadron (AEW): 5 Total Number of Primary Aircraft Authorization (PAA): 62 - Nine 5 aircraft Carrier AEW squadrons - One 12 aircraft Fleet Replacement Squadron (FRS) - 2 aircraft at Air Test and Evaluation Squadron One (VX-1)* - 3 aircraft at Naval Aviation Warfighting Development Center (NAWDC)* Aircraft Flight Hours Life Limit: 9,600 Total Operating Flight Hours: 604,862 Total Operating Aircraft Years: 1,628 Assumes 6% of maximum total aircraft inventory will be attrited over the lifecycle. The Quantity to Sustain only includes fleet-owned assets, thereby excluding two developmental aircraft, which are Naval Air Systems Command (NAVAIR)-owned assets. The Total Operating Aircraft Years is calculated by summing the actual or estimated annual Primary Aircraft Inventory from FY 2011 through FY 2051. *PAA beyond Primary Mission Aircraft Authorization (PMAA) and FRS aircraft are typically not included in NAVAIR SCE&A O&S cost estimates; however, PAA for VX-1 and Naval Aviation Warfighting Development Center (NAWDC) have been included in the E-2D AHE O&S cost estimate.

Disposal Cost Notes:

Disposal/Demilitarization Cost Estimate and Source of Estimate: \$19.7M Total (BY 2009), POE 03/10/2022

Antecedent Estimate Assumptions:

Sustainment Strategy:

The E-2D AHE initial sustainment concept for E-2D AHE unique parts was Interim Contractor Support through MSD with common systems supported organically. For the period of MSD (1st Quarter FY 2016) through Navy Support Date (3rd Quarter FY 2025), Naval Supply Systems Command Weapons System Support will support E-2D AHE unique systems through conventional and/or performance-based repair contracts with Original Equipment Manufacturers. With few exceptions, E-2D AHE unique systems have been designated as Core Capabilities and the program is pursuing the establishment of organic repair capabilities to comply with the U.S. Code Title 10 requirements. As these organic repair capabilities are established, business case analyses will be conducted to determine the best value sustainment strategies, whether it is fully organic or public-private partnership.

Antecedent Estimate Assumptions:

The antecedent program is the E-2C. Annual costs for the antecedent program are based upon a three-year average of Naval Visibility and Management of Operating and Support Costs (VAMOSOC) data from FY 2010 - FY 2012, the last three years prior to the start of the E-2C transition to E-2D AHE. Costs for the three years are summed and then divided by the sum of aircraft count for the three years. The average number of aircraft in the three-year VAMOSOC dataset is 58.33. Since Naval VAMOSOC does not capture Indirect Support costs, the E-2C Indirect Support cost is calculated by multiplying the E-2C Unit-Level Manpower by the ratio of E-2D AHE Indirect Support to E-2D AHE Unit-Level Manpower. For comparison purposes, the Total O&S Cost is the product of the Antecedents Average Annual cost per Unit and the Operating Aircraft Years of the E-2D AHE.