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Department of Defense  
OFFICE OF PREPUBLICATION AND SECURITY REVIEW

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# APACHE REMANUFACTURE (AH-64E REMAN)

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**December 2021 Selected Acquisition Report (SAR)**



**December 31, 2021  
Department of The Army**

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## Executive Summary

**Program Highlights Since Last Report (Congress):** Requirements are stable and funding is currently adequate to meet cost, schedule and performance objectives; however, the reductions in funding based on the FY2022 President's Budget have caused a decrease in procurement quantities of AH-64E Remanufacture aircraft. The decrease in procurement quantities, combined with additional funding included in the Program Objective Memorandum (POM) for FY2027 in the amount of \$40.1M, resulted in an increase to the AH-64E Remanufacture APUC due to the total procurement costs being amortized over fewer units. In addition, the FY2021 Inflation guidance reduced the projected inflation indices which caused the program's estimated Base Year APUC to increase to 10.5% over the APB Unit Cost. The 10.5% APUC growth is over the 10% threshold for an APB Unit Cost Deviation by ~\$88K per unit. PM Apache is monitoring PB22 marks for potential relief and working in parallel with HQDA G8 to pursue a funding realignment in order to alleviate the deviation. United States Government (USG) completed the special investigation into Boeing quality due to Critical Safety Item material escapements. Three hundred seventy-nine (379) manufacturing plan changes implemented and 43 of 43 discreet "Return to Green" actions completed.

Strap Pack Product Improvement (SPPI): First Article Test (FAT) is complete for SPPI and a full fielding Airworthiness Release (AWR) has been received. A fielding decision was completed with PEO Aviation on June 17, 2021 to proceed with contract action for full SPPI on the production line. Materiel cut-in is targeted for January 2022.

The Remanufacture and New Build aircraft are procured using the same contracts, built on the same production line, and delivered in the same configuration with the same capabilities.

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

### History of Significant Developments Since Program Initiation:

Date	Description
Jun 2006	Completed the Apache Block III (AB3) Milestone B Defense Acquisition Executive (DAE) review.
Jul 2006	The DAE Acquisition Decision Memorandum (ADM) approved Milestone B, authorized the AB3 program to enter System Design & Development (SDD) and designated AB3 as ACAT ID.
Jul 2006	Apache PM awarded an SDD contract to the Boeing Company to begin the development effort for AB3.
Mar 2007	A follow-on ADM authorized a Low Rate Initial Procurement (LRIP) quantity of 59 aircraft and granted the Army authority to procure long-lead items beginning in FY 2009. The Acquisition Program Baseline (APB) schedule milestones were established for both Preliminary Design Review (PDR) and the Critical Design Review (CDR).
Dec 2009	Resource Management Decision (RMD) 802 and RMD 700 directed the PM to increase the total procurement quantity by 56 AB3 aircraft as New Build airframes and

	included those aircraft in the FY 2011 PB at a total of \$2.6B. This change was implemented to support an increase in the training base capacity and to establish a new heavy Combat Aviation Brigade (CAB) in the active component. This change was significant due to the fact that the baseline program was fundamentally a Remanufacture production program by design. The additional aircraft procurements would be New Build aircraft at a unit cost significantly higher than the Remanufacture unit cost. The increased unit cost, compounded with minor fact-of-life changes throughout the program, caused a Nunn-McCurdy breach to the Average Procurement Unit Cost (APUC) as reflected in the December 2009 Selected Acquisition Report (SAR). The DAE supported a rapid Nunn-McCurdy certification in response.
Jun 2010	Completed Nunn-McCurdy reporting resulting in an ADM certifying the program's progress to Milestone C and formally separating AB3 into two Milestone Decision Acquisition Programs (MDAPs) for cost and reporting purposes: the Apache Block IIIA (AB3A) and Apache Block IIIB (AB3B) programs.
Sep 2010	Completed a successful Milestone C Defense Acquisition Board (DAB) authorizing LRIP and advance procurement actions for Full Rate Production (FRP).
Oct 2010	Awarded an LRIP contract procuring a total of 51 AH-64E Remanufacture aircraft.
Oct 2011	The first Apache AH-64E Remanufacture production delivery occurred on October 24, 2011 with a formal roll-out ceremony held on November 2, 2011.
Mar 2012	Completed the Initial Operational Test and Evaluation (IOTE) for the AH-64E Remanufacture production aircraft.
Jun 2012	The Apache PM requested and received approval for the Mission Design Series change for AB3 and was formally designated AH-64E Remanufacture. The AB3A and AB3B programs were subsequently renamed the AH-64E Apache Remanufacture and the AH-64E Apache New Build programs, respectively.
Aug 2012	A DAB approved FRP for the AH-64E Apache Remanufacture program and authorized up to 12 LRIP aircraft for the AH-64E Apache New Build program in FY 2013. The DAE ADM approved the designation of the Apache AH-64E Remanufacture and Apache AH-64E New Build programs as ACAT IC after approval of the AH-64E Remanufacture APB.
Jun 2014	The Government and Boeing definitized and awarded the FRP contract for Lot 3 and Lot 4. This contract supports the remanufacture of 72 AH-64E Apache Helicopters. This production activity supported completion of fielding the 2nd and 3rd Units Equipped, as well as augmentation of the training fleet.
Aug 2014	AH-64E Capability Version 4 Follow-on Operational Test & Evaluation (FOT&E) successfully concluded on time at Eglin Air Force Base, Florida. This capability was included in production Lot 5 with the first aircraft being DD250'd in February 2016.
Nov 2014	The First Unit Equipped (FUE), 1-229 Attack Reconnaissance Battalion (ARB), successfully completed the first operational combat deployment of the AH-64E Remanufacture.
Dec 2014 *	The Army Acquisition Executive (AAE) approved the Justification and Authorization to enter a Multi-Year (MY) procurement to support production from FY 2017 to FY 2021.
Dec 2014	The Apache PM delivered 83 AH-64E Remanufacture Attack Helicopters of the 690 Army Acquisition Objective (AAO).
Aug 2015	The Secretary of the Army approved the AH-64E Multi-Year (MY) procurement, which was definitized on March 17, 2017. Completed Manned/Unmanned Teaming (MUM-T) Expanded Capabilities Competition and awarded the contract. Fire Control Radar

	(FCR) Maritime Mode Testing occurred from August through September 2015 at Joint Base Little Creek, Virginia.
Sep 2015	Apache PM completed fielding to the 2-17 Cavalry (3-101 Attack Reconnaissance Battalion (ARB)), the Army's 4th Unit Equipped with the AH-64E Apaches. Apache PM assisted and managed transfer of 20 AH-64D aircraft from Germany and Forces Command to a new AH-64 unit, the 1-25 ARB in Fort Wainwright, Alaska. Apache PM identified and provided a materiel solution to support Apache AH-64D and AH-64E helicopters for first time stationing in an arctic environment.
Sep 2015	The Joint Staff and USD(AT&L) concurred on the MY procurement request for approval. In October 2015, Apache PM received FY 2015 funding in an Omnibus Reprogramming Action to support procurement of 13 additional AH-64E Remanufacture aircraft. Office of the Secretary of Defense (OSD) Cost Assessment Program Evaluation (CAPE) visited Boeing Mesa to support MY Independent Government Estimate analysis.
Feb 2016	The first Production Lot 5 AH-64E rolled off the Apache line at the Boeing facility in Mesa, Arizona. This aircraft marked the first production AH-64E with Version 4 capability.
Mar 2016	The AAE approved Boeing's MY commitment of 10% savings. Awarded AP contract for AH-64E Production Lot 7.
Apr 2016	Definitized FRP Contract for Lot 5 and Lot 6 for 117 Apache AH-64E Remanufactured aircraft.
Apr 2016	Definitized the AH-64E SDD Version 6 contract.
Nov 2016	Apache PM completed fielding to the 5th Unit Equipped (7-17 CAV) at Fort Hood, Texas.
Jan 2017	Apache PM completed fielding six AH-64E aircraft to Fort Rucker, Alabama.
Mar 2017	Awarded AH-64E Apache MY Contract for Lot 7 through Lot 11 for a total of 244 Remanufactured aircraft, providing options to procure additional Remanufacture and New Build aircraft each year.
May 2017	Completed fielding to the 1-227th ARB, Fort Hood, Texas.
May 2017	The AAO is increased by 77 aircraft from 690 to 767. Authorized Procurement Objective (APO) remains at 634 Remanufacture aircraft and 56 New Build aircraft.
Jun 2017	Apache PM fielded nine AH-64E aircraft to Fort Rucker, Alabama.
Dec 2017	Completed fielding of 24 AH-64E Apache aircraft to 4-4 Armored Reconnaissance Battalion (ARB), Fort Carson, Colorado.
Jan 2018	Began fielding to 1-6 Cavalry Regiment, Fort Riley, Kansas.
Mar 2018	Army Contracting Command (ACC) sent a letter to Boeing rejecting the acceptance of all U.S. AH-64E aircraft until the redesigned Strap Pack is fielded and additional criteria are met.
May 2018	Army adjusted the AAO from 767 to 812 and the APO to 791 for the AH-64E Apache Helicopter.
Jun 2018	Began fielding the redesigned strap pack to 1-149 Texas National Guard (NG) in Houston, Texas.
Aug 2018	Since Boeing has met the conditions to restart, PM Apache resumed inductions acceptance of all U.S. AH-64E Apache Remanufacture and New Build aircraft. Two AH-64Ds were inducted and two AH-64Es were accepted with planned delivery to 7-17 Cavalry Regiment by the end of September 2018.

Sep 2018	7-17 Cavalry Regiment accepted and signed for the first two AH-64E aircraft September 26 and departed Fort Riley, Kansas to Fort Hood, Texas on September 27. The next three induction aircraft will arrive at the Central Modification Facility on October 4 for Version 4 Post Production Modifications, the estimated delivery to 7-17 Cavalry Regiment is October 30.
Sep 2018	Teams completed retrofit of the redesigned strap pack to all Category 1 Severe Coastal units (Texas NG, Missouri NG, Hawaii NG, Joint Base Lewis-McCord, Korea, and Hunter Army Airfield, Georgia). Retrofit shifted to Category 2 Deployed/Deploying units.
Sep 2018	PM Apache and ACC-Redstone executed options for 48 AH-64E Lot 8 Remanufacture aircraft (\$392M) and AP for AH-64E Lot 9 (\$170M).
Nov 2018	The Army stopped fielding of the redesigned strap pack and began legacy strap pack collar retrofit starting with severe coastal units. All severe coastal units had fail safe collars installed April 2019 and the fail safe collar install was completed to the entire Army fleet on June 28, 2019.
Dec 2018	AH-64E Remanufacture Capability Version 6 FOT&E 2 was completed in May 2019.
May 2019	Failsafe collar fielding is complete.
Jun 2019	FOT&E 2 was completed on June 14, 2019. The event included operations at Ft. Hood, TX and Eglin Air Force Base (AFB) and concluded with an adversarial assessment at Redstone Arsenal. The final test report for the event was received on September 11, 2019.
Sep 2019	The FOT&E 2 report was received from Army Test and Evaluation Command (ATEC). The report determined that the version 6 AH-64E is more effective, more suitable, and is incrementally more survivable than the version 4 AH-64E. The report from ATEC supports a conditional materiel release and recommends version 6 AH-64E capabilities be cut-in the AH-64E production line.
Sep 2020	The first V6 AH-64E aircraft was DD250'd in Mesa, AZ at the Boeing facility.
Oct 2020	The US Government stopped accepting aircraft from Boeing due to quality issues identified in October 2020.
Dec 2020	After Boeing met the conditions-based criteria, the USG resumed accepting aircraft in December 2020. The conditions-based criteria ensures production processes meet standards for safety and quality and the potential for future quality escapes.
Feb 2021	The first V6 Longbow Crew Trainer (LCT) retrofit was completed in the field at Hunter Army Airfield, GA.
Mar 2021	V6 FUE is completed at 1-229th Joint Based Lewis McChord, WA with 24 AH-64E aircraft.
Jun 2021	Full Fielding Decision Brief Completed on the SPPI Program. Production line cut-in scheduled January 2022.
Aug 2021	Second Unit Equipped is completed at 3-17th Hunter Army Airfield, GA with 24 AH-64E aircraft.
Nov 2021	Third Unit Equipped delivery began to 4-2 AB in Korea.

# Schedule

## Schedule Events

Event Title (or Header)	Current Objective	Current Threshold	Current Estimate/Actual Date	Deviation?
Milestone B	Jun-2006	Dec-2006	Jul-2006	
Preliminary Design Review	Apr-2007	Oct-2007	Apr-2007	
Critical Design Review	Jan-2008	Jul-2008	Jan-2008	
LUT	Nov-2009	May-2010	Nov-2009	
Milestone C	Jul-2010	Jan-2011	Sep-2010	
IOT&E	Mar-2012	Sep-2012	Mar-2012	
FRP	Jul-2012	Jan-2013	Sep-2012	
First Unit Equipped	Nov-2012	May-2013	May-2013	
IOC	May-2013	Nov-2013	Nov-2013	

<i>Schedule Notes:</i>	<i>Schedule Deviation Explanations:</i>
AH-64E Remanufacture (formerly known as Apache Block IIIA) schedule encompasses a continuous integration of technology to maintain overmatch which began with a risk reduction effort from May 2005 to July 2006. This effort was followed by the current development effort which began in July 2006 and continues through FY 2020. Production started in FY 2010 and continues through FY 2025.	

## Significant Schedule Risks

Even	Date	Description
Milestone B	7/30/2006	1. Insufficient fidelity of Lot 6 functionality requirements 2. Reliability KPP 3. Performance KPP 4. Net Ready KPP.
Milestone C	9/30/2010	1. Architecture Shortfalls – Refined hardware and software requirements coupled with COTS obsolescence necessitate compute / electronic tech refresh to meet Lot 4 - Lot 6 functionality. 2. LRIP Production – Boeing has not manufactured an AB3 aircraft and is using a subcontractor for premodification for the first time.

		<p>Unforeseen production variables (new subcontractors and components) could cause schedule and delivery delays. 3. Net Ready – AB3 PM is dependent on performance of the JTRS program to achieve Net Ready – AB3 PM is dependent on performance of the JTRS program to achieve Net Ready KPP. JTRS is the preferred solution to meet the Link 16 requirement at Lot 4 and Wideband Networking Waveform / Soldier Radio Waveform at Lot 6. Further delays to the JTRS program could prohibit AB3 from meeting the Net Ready KPP. 4. Reliability – Limited flight test hours on AB3 aircraft at Limited User Test and Initial Operational Test and Evaluation does not allow for a traditional reliability demonstration in which the test unit is in the final configuration and tested for a statistically significant number of flight hours. This could result in an inability to demonstrate acceptable mission reliability to support the FRP Decision.</p>
FRP	8/30/2012	<p>1. Architecture Shortfalls – Refined hardware and software requirements coupled with Commercial-Off-The- Shelf (COTS) obsolescence necessitate computer / electronic tech refresh to meet Lot 4 - Lot 6 functionality. 2. Main Transmission – Financial issues at Northstar Aerostar (Apache Block III (AB3) main transmission supplier) created a temporary trough in transmission supply, resulting in up to seven aircraft without transmissions. The AB3 prime contractor took measures to sustain AB3 production and revitalize Northstar's supply base. The PM closely monitored this plan and full recovery established in December 2012 with no critical fielding impacts expected. The PM will continue to closely monitor this plan. 3. Net Ready – The AB3 Link 16 solution changed from a Joint Tactical Radio System (JTRS) Joint Program Office (JPO) Government Furnished Equipment radio to a Non-Developmental Item (NDI) radio. The AB3 PM is solely managing Link 16 for Lots 4 - Lot 5. A planned NDI competition for a Lot 6 Link 16 solution will be managed by the JTRS JPO. If the competitive procurement does not meet the Lot 6 timeline there will be a Link 16 capability fielding gap.</p>
Current	12/31/2021	<p>1. The AH-64E program meets all Key Performance Parameters and remains on schedule and affordable. The program currently remains on schedule to deliver IAW the HQDA fielding plan. USG completed the special investigation into Boeing quality due to Critical Safety Item material escapements. Three hundred seventy-nine (379) manufacturing plan changes implemented and 43 of 43 discreet "Return to Green" actions completed. Recommend certify the December 2021 SAR with risk until award of MY2 which will constitute the formal legal agreement between Boeing and USG on the entirety of the Army's CSI program requirement. Award is estimated 3QFY22.</p>

## Performance

Performance Attributes					
Current Objective	Current Threshold	Current Estimate	Deviation?	Demonstrated Performance	Date
Attribute Title:	Net Ready			KPP	
Fully support execution of all operational activities.	Fully support execution of joint critical operational activities.	Fully support execution of joint critical operational activities.		Met Threshold	



Attribute Title:	Performance 6000' PA, 95 F OGE Hover (lbs/payload)		KPP	
4,100	3,400	3,400	Met Threshold	
Attribute Title:	Mission Reliability MTBF(M) hrs. Lot 1		KPP	
22	15.3	24.5	Met Objective	
Attribute Title:	Mission Reliability MTBF(M) hrs. Lot 4		KPP	
22	17	24.5	Met Objective	
Attribute Title:	Mission Reliability MR for 3.5 hr. flight (%)		KPP	
85	80	86.7	Met Objective	
Attribute Title:	Survivability Safe Operation (minutes)		KPP	
30	30	30	Met Objective	
Attribute Title:	Survivability Survive Band IV MANPADS IR Missile Engagement		KPP	
IAW JROCM 086-10	IAW JROCM 086-10	IAW JROCM 086-10	Met Objective	
Attribute Title:	Force Protection Crewstation armor survivability (mm)		KPP	
IAW JROCM 086-10	IAW JROCM 086-10	IAW JROCM 086-10	Met Objective	
Attribute Title:	Force Protection Crewstation armor barrier survivability (mm)		KPP	
IAW JROCM 086-10	IAW JROCM 086-10	IAW JROCM 086-10	Met Objective	

<i>Performance Notes:</i>	<i>Performance Deviation Explanations:</i>
Net Ready KPP compliance is achieved by meeting the information exchange capabilities required by the Integrated Architectures Operational View-1 and is demonstrated by completing Joint Interoperability Certification, Army Interoperability Certification and DoD Information Assurance and Accreditation Process.	

Mission Reliability based on Reliability, Availability, and Maintainability data derived from performance of fielded aircraft.

## Acquisition Budget Estimate

### Total Acquisition Cost

Budget Year: 2023 Base Year: 2010

Appropriation Category (\$Millions)	Objective Base Year (Current APB)	Threshold Base Year (Current APB)	Budget Estimate Base Year	Budget Estimate Then Year	Deviation?
RDT&E	\$1,504.2	\$1,654.6	\$1,490.5	\$1,538.2	
Procurement	\$10,088.1	\$11,096.9	\$10,843.6	\$12,857.5	
MILCON	\$0	\$0.0	\$0.0	\$0.0	
Acq O&M	\$0	\$0.0	\$38.5	\$46.6	
<b>Total Acquisition</b>	\$11,592.3	\$12,751.50	\$12,372.6	\$14,442.3	
PAUC	\$18.141	\$19.955	\$19.608	\$22.888	
APUC	\$15.912	\$17.503	\$17.322	\$20.539	

### Total End Item Quantity

Quantity Category	Current APB	Current Estimate
Development Qty	5	5
Procurement Qty	634	626

#### Budget Notes:

#### Quantity Notes:

#### Cost Deviations Explanations:

Previously, the December 2020 SAR reported a unit cost deviation for the AH-64E Remanufacture program due to changes in guidance on inflation history and projections provided for fiscal year 2021. Updated guidance provided by Office of the Under Secretary of Defense (Comptroller) and US Army Deputy Assistant Secretary of the Army (Cost & Economics) for the fiscal year 2022 inflation guidance has reduced the base year 2010 AH-64E Remanufacture unit cost below the APB deviation threshold.

## Risk and Sensitivity Analysis

### Current Procurement Risks:

1. Original Baseline Estimate (December 2010) - A successful Milestone C was completed on September 27, 2010, authorizing LRIP and advance procurement actions for FRP. Milestone C separated the Apache program into the Remanufacture and New Build programs with separate APBs. The Apache OSD CAPE ICE was used to establish the APB. The most significant cost drivers in the Apache estimate are material, labor and prime contractor labor and overhead rates and factors.
2. Current Baseline Estimate (July 2013) - Apache completed a FRP Decision in August 2012 and an OSD CAPE ICE was prepared. This was the first time actuals from the AB3 production line were incorporated into the ICE. Material, labor, prime contractor rates and factors decreased from the Revised Original Baseline completed in December 2010.
3. Current Procurement Cost (June 2021) - The current Apache program office estimate is based upon the 2012 OSD CAPE Estimate and adjusted for fact of life changes and updated actuals of the current New Build production line and option pricing on the Multi-Year contract. The Apache Current Estimate cost model reflects a 50% Confidence Level estimate through its use of actual costs. The most significant cost drivers in the Apache estimate remain the material and labor. The Apache program assumed the risk of procuring radios, which were to be provided by JPO JTRS. The Apache program signed a five-year Multi-Year contract from FY 2017 to FY 2021 for the procurement of the AH-64E Apache aircraft.

## Unit Cost

### Current Baseline Compared with Current Estimate

Current Baseline Base Year: 2010

Category (\$ Millions)	Current Baseline	Current Estimate	% Change	Breach? Significant or Critical
<b>Program Acquisition Unit Cost</b>				
Acquisition Cost	\$11,592.3	\$12,372.6		
Program Quantity	639	631		

PAUC	\$18.141	\$19.608	8.08%	None
<b>Average Procurement Unit Cost</b>				
Procurement Cost	\$10,088.1	\$10,843.6		
Procurement Quantity	634	626		
APUC	\$15.912	\$17.322	8.86%	None

## Original Baseline Compared with Current Estimate

Original Baseline Base Year: 2010

Category (\$ Millions)	Original Baseline	Current Estimate	% Change	Breach? Significant or Critical
<b>Program Acquisition Unit Cost</b>				
Acquisition Cost	\$10,468.7	\$12,372.6		
Program Quantity	639	631		
PAUC	\$16.383	\$19.608	19.69%	None
<b>Average Procurement Unit Cost</b>				
Procurement Cost	\$8,856.9	\$10,843.6		
Procurement Quantity	634	626		
APUC	\$13.970	\$17.322	24.00%	None

Unit Cost Notes:

Previously, the December 2020 SAR reported a unit cost deviation for the AH-64E Remanufacture program due to changes in guidance on inflation history and projections provided for fiscal year 2021. Updated guidance provided by Office of the Under Secretary of Defense (Comptroller) and US Army Deputy Assistant Secretary of the Army (Cost & Economics) for the fiscal year 2022 inflation guidance has reduced the base year 2010 AH-64E Remanufacture unit cost below the APB deviation threshold.

## Contracts

<b>Contract Number:</b>	W58RGZ-16-C-0023	<b>Order Number:</b>		<b>Contract Title:</b>	AH-64E Apache Multi-Year Contract
CAGE Code		City	Mesa		
CAGE Legal Name		State/Province	AZ 85215-9707	Contract Strategy	
<b>Effort Number</b>					
Supportive Phase	Production	Latest Modification Number		Definitization Date	3/15/2017
Contract Type	Firm Fixed Price	Latest Modification Date		Work Start Date	

Technical Data Rights	None		Notes				
<b>Contract/Effort Price, Quantity and Performance (\$M)</b>							
Initial Target Price	\$3,030.50	Current Target Price	4,298.22	Contractor's EAC	\$4,298.22		
Initial Ceiling Price		Current Ceiling Price		PM's EAC	\$4,298.22		
Initial Quantity	244	BAC		BCWP		Work Completed	0.00%
Current Quantity	247	ACWP		BCWS		Cost Variance	
Delivered Quantity	155					Schedule Variance	
Factors Contributing to Cost Variance and Projected Effects on Program Costs:				Factors Contributing to Schedule Variance and Projected Effects on Program Schedule:			

<b>Contract Number:</b>	W53P1J-17-D-0043	<b>Order Number:</b>		<b>Contract Title:</b>	MTADS/PNVS Production Services IDIQ		
CAGE Code		City	Orlando				
CAGE Legal Name		State/Province	FL 32819-8907	Contract Strategy			
<b>Effort Number</b>							
Supportive Phase	Production	Latest Modification Number		Definitization Date	4/28/2017		
Contract Type	Firm Fixed Price	Latest Modification Date		Work Start Date	4/28/2017		
Technical Data Rights	None	Notes	Quantities are reflective of complete MTADS/PNVS systems, but multiple Line Replaceable Unit's (LRU)/ Line Replaceable Modules (LRM's) that are contained within a MTADS/PNVS system.				
<b>Contract/Effort Price, Quantity and Performance (\$M)</b>							
Initial Target Price	\$0.50	Current Target Price	\$80.80	Contractor's EAC	\$44,656.00		
Initial Ceiling Price		Current Ceiling Price		PM's EAC	\$4,656.00		

Initial Quantity	0	BAC		BCWP		Work Completed	0.00%
Current Quantity	9	ACWP		BCWS		Cost Variance	
Delivered Quantity	6					Schedule Variance	
Factors Contributing to Cost Variance and Projected Effects on Program Costs:				Factors Contributing to Schedule Variance and Projected Effects on Program Schedule:			

<b>Contract Number:</b>	W52P1J-16-D-0055	<b>Order Number:</b>		<b>Contract Title:</b>	REU/MMA Production & Services IDIQ		
CAGE Code		City	Orlando				
CAGE Legal Name		State/Province	FL 32819-8907	Contract Strategy			
<b>Effort Number</b>							
Supportive Phase	Production	Latest Modification Number		Definitization Date	6/30/2017		
Contract Type	Firm Fixed Price	Latest Modification Date		Work Start Date	8/18/2016		
Technical Data Rights	None	Notes					
<b>Contract/Effort Price, Quantity and Performance (\$M)</b>							
Initial Target Price	\$22.40	Current Target Price	\$59.10	Contractor's EAC	\$931.20		
Initial Ceiling Price		Current Ceiling Price		PM's EAC	\$931.20		
Initial Quantity	23	BAC		BCWP		Work Completed	0.00%
Current Quantity	101	ACWP		BCWS		Cost Variance	
Delivered Quantity	87					Schedule Variance	
Factors Contributing to Cost Variance and Projected Effects on Program Costs:				Factors Contributing to Schedule Variance and Projected Effects on Program Schedule:			

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<b>Contract Number:</b>	W52P1J-17-D-0070	<b>Order Number:</b>		<b>Contract Title:</b>	MUMT Production & Services IDIQ		
CAGE Code		City	Salt Lake City				
CAGE Legal Name		State/Province	UT	Contract Strategy			
<b>Effort Number</b>							
Supportive Phase	Production	Latest Modification Number		Definitization Date	6/15/2019		
Contract Type	Firm Fixed Price	Latest Modification Date		Work Start Date	4/12/2019		
Technical Data Rights	None	Notes					
<b>Contract/Effort Price, Quantity and Performance (\$M)</b>							
Initial Target Price	\$66.60	Current Target Price	\$145.80	Contractor's EAC	\$226.60		
Initial Ceiling Price		Current Ceiling Price		PM's EAC	\$226.60		
Initial Quantity	233	BAC		BCWP		Work Completed	0.00%
Current Quantity	496	ACWP		BCWS		Cost Variance	
Delivered Quantity	496					Schedule Variance	
Factors Contributing to Cost Variance and Projected Effects on Program Costs:				Factors Contributing to Schedule Variance and Projected Effects on Program Schedule:			

<b>Contract Number:</b>	W58RGZ-15-C-005	<b>Order Number:</b>		<b>Contract Title:</b>	E12 Camera Production		
CAGE Code		City	Santa Clara				
CAGE Legal Name		State/Province	CA 95054-2704	Contract Strategy			

<b>Effort Number</b>							
Supportive Phase	Production	Latest Modification Number		Definitization Date	6/12/2015		
Contract Type	Firm Fixed Price	Latest Modification Date		Work Start Date	6/12/2015		
Technical Data Rights	None	Notes					
<b>Contract/Effort Price, Quantity and Performance (\$M)</b>							
Initial Target Price	\$12.60	Current Target Price	\$13.00	Contractor's EAC	\$32.50		
Initial Ceiling Price		Current Ceiling Price		PM's EAC	\$32.50		
Initial Quantity	0	BAC		BCWP		Work Completed	0.00%
Current Quantity	0	ACWP		BCWS		Cost Variance	
Delivered Quantity	0					Schedule Variance	
Factors Contributing to Cost Variance and Projected Effects on Program Costs:				Factors Contributing to Schedule Variance and Projected Effects on Program Schedule:			

<b>Contract Number:</b>	W52P1J-18-D-0061	<b>Order Number:</b>		<b>Contract Title:</b>	MRFI Production & Services IDIQ
CAGE Code		City	Owego		
CAGE Legal Name		State/Province	NY	Contract Strategy	
<b>Effort Number</b>					
Supportive Phase	Production	Latest Modification Number		Definitization Date	7/29/2019
Contract Type	Firm Fixed Price	Latest Modification Date		Work Start Date	9/1/2018



Technical Data Rights	None	Notes					
<b>Contract/Effort Price, Quantity and Performance (\$M)</b>							
Initial Target Price	\$11.80	Current Target Price	\$31.00	Contractor's EAC	\$249.50		
Initial Ceiling Price		Current Ceiling Price	\$249.50	PM's EAC	\$249.50		
Initial Quantity	15	BAC		BCWP		Work Completed	0.00 %
Current Quantity	88	ACWP		BCWS		Cost Variance	
Delivered Quantity	0					Schedule Variance	
Factors Contributing to Cost Variance and Projected Effects on Program Costs:				Factors Contributing to Schedule Variance and Projected Effects on Program Schedule:			

## Technologies and Systems Engineering

### Significant Technical Risks

Event	Date	Description
MS B	7/30/2006	<ol style="list-style-type: none"> <li>1. Insufficient fidelity of Lot 6 functionality requirements</li> <li>2. Reliability KPP</li> <li>3. Performance KPP</li> <li>4. Net Ready KPP</li> </ol>
MS C	9/30/2006	<ol style="list-style-type: none"> <li>1. Architecture Shortfalls Refined hardware and software requirements coupled with COTS obsolescence necessitate computer / electronic tech refresh to meet Lot 4 - Lot 6 functionality.</li> </ol>

		<p>2. LRIP Production – Boeing has not manufactured an AB3 aircraft and is using a subcontractor for premodification for the first time. Unforeseen production variables (new subcontractors and components) could cause schedule and delivery delays.</p> <p>3. Net Ready – AB3 PM is dependent on performance of the JTRS program to achieve Net Ready KPP. JTRS is the preferred solution to meet the Link 16 requirement at Lot 4 and Wideband Networking Waveform /Soldier Radio Waveform at Lot 6. Further delays to the JTRS program could prohibit AB3 from meeting the Net Ready KPP.</p> <p>4. Reliability – Limited flight test hours on AB3 aircraft at Limited User Test and Initial Operational Test and Evaluation does not allow for a traditional reliability demonstration in which the test unit is in the final configuration and tested for a statistically significant number of flight hours. This could result in an inability to demonstrate acceptable mission reliability to support the FRP Decision.</p>
FRP	8/30/2012	<p>1. Architecture Shortfalls – Refined hardware and software requirements coupled with Commercial-Off-The-Shelf (COTS) obsolescence necessitate computer / electronic tech refresh to meet Lot 4 - Lot 6 functionality.</p> <p>2. Main Transmission – Financial issues at Northstar Aerostar (Apache Block III (AB3) main transmission supplier) created a temporary trough in transmission supply, resulting in up to seven aircraft without transmissions. The AB3 prime contractor took measures to sustain AB3 production and revitalize Northstar's supply base. The PM closely monitored this plan and full recovery established in December 2012 with no critical fielding impacts expected. The PM will continue to closely monitor this plan.</p> <p>3. Net Ready – The AB3 Link 16 solution changed from a Joint Tactical Radio System (JTRS) Joint Program Office (JPO) Government Furnished Equipment radio to a Non-Developmental Item (NDI) radio. The AB3 PM is solely managing Link 16 for Lots 4 - Lot 5. A planned NDI competition for a Lot 6 Link 16 solution will be managed by the JTRS JPO. If the competitive procurement does not meet the Lot 6 timeline there will be a Link 16 capability fielding gap.</p>
Current	12/31/2021	<p>1. The he AH-64E program meets all Key Performance Parameters and remains on</p>

		<p>schedule and affordable. The program currently remains on schedule to deliver IAW the HQDA fielding plan. USG completed the special investigation into Boeing quality due to Critical Safety Item material escapements. Three hundred seventy-nine (379) manufacturing plan changes implemented and 43 of 43 discreet "Return to Green" actions completed.</p> <p>Recommend certify the December 2021 SAR with risk until award of MY2 which will constitute the formal legal agreement between Boeing and USG on the entirety of the Army's CSI program requirement. Award is estimated 3QFY22.</p>
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## Deliveries and Expenditures

Quantities	Planned to Date	Actual to Date	Total Quantity	Percent Delivered
Development	5	5	5	100.00%
Procurement	401	401	626	64.06%
<b>Total</b>	406	406	631	64.34%

Years Appropriated to date	17	Total Years Appropriated Funding (Current Baseline):	22	Percent Years Appropriated:	77.27%
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Appropriation Category (\$Millions)	Then Year Appropriated Amount	Then Year Expended Amount
RDT&E	1,538.20	1,538.02
Procurement	10,671.67	7,839.40
MILCON	0.00	0.00
Acq O&M	46.60	46.60
<b>Total Appropriated/Expended</b>	\$12,256.47	\$9,424.02
<b>Percent Appropriated/Expended</b>	84.87%	65.25%

The five A/C that are associated with RDT&E funding are for Prototype Development (not D to E conversion).

The above data is current as of March 14, 2021.

## Low-Rate Initial Production

	Initial Decision LRIP	Current Total LRIP
Approval Date	10/7/2010	10/7/2010
Approval LRIP Quantity	51	51
Approval Document Title	MS C ADM	MS C ADM
Start Year	2010	2010
End Year	2013	2013

## Operating and Support Costs

### Total Program O&S Costs Compared with Baseline

	Current Base Year Objective	Current Base Year Threshold	Current Base Year Estimate	Current Then Year Estimate	Deviation ?
<b>Total O&amp;S (\$Millions)</b>	\$38,506.0	\$42,356.6	\$25,820.0	\$38,514.35	

## Operating and Support Cost Breakdown

Base Year: 2010

Category (Base Year \$Millions)	System Name: AH-64E Remanufacture	System Name: Longbow Apache
Unit-Level Manpower	\$12,458.0	\$22,835.0
Unit Operations	\$1,466.0	\$3,044.0
Maintenance	\$6,653.0	\$17,044.0
Sustaining Support	\$4,264.0	\$5,271.0

Continued System Improvements	\$715.0	\$1,084.0
Other	\$264.0	\$1,500.0
<b>Total O&amp;S</b>	<b>\$25,820.0</b>	<b>\$50,778.0</b>

## Cost Estimate Source

**Type:** Program Office Estimate

**Approval Authority and Date:** 12-08-2021

**Note:** The O&S cost estimate is based upon the OSD CAPE ICE dated August 15, 2012. The estimate was last updated on December 8, 2021 for fact-of-life changes.

### O&S Notes:

The sustainment quantity of 623 aircraft differs from the acquisition quantity of 628 aircraft by five aircraft. Those five aircraft were procured as limited test articles only and do not become part of the operational inventory.

The AH-64E Apache is maintained in a two level maintenance system (field and depot) by a mix of Soldier and civilian maintainers. The strategy assumes the fielding of 623 Remanufactured aircraft, each flying 238.8 hours per year. Aircraft are logistically supported by a mix of organic supply and Contractor Performance Based Logistics activities.

Other Costs: PM Apache utilizes this field to capture the OMA funded costs from AMCOS labeled "Average Cost of Morale, Welfare, and Recreation," "Average Recruiting Cost," and "Average Cost of Officer Acquisition."