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Department of Defense
OFFICE OF PREPUBLICATION AND SECURITY REVIEW

Selected Acquisition Report (SAR)



KC-46A Tanker Modernization (KC-46A)

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

KC-46A Tanker Modernization (KC-46A)

DoD Component

Air Force

Responsible Office

Program Manager

Name: Col William Leigh Ottati

Date Assigned: May 20, 2021

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Mission and Description

The KC-46A Tanker Modernization (KC-46A) will replace the U.S. Air Force's aging fleet of Tankers which have been the primary refueling aircraft for more than 50 years. The KC-46A will have enhanced refueling capabilities with greater capacity, and both cargo and aeromedical evacuation with improved efficiency and increased capabilities. The KC-46A will provide aerial refueling support to the United States Air Force, Navy, and Marine Corps, as well as allied nation coalition aircraft.

The KC-46A will have the ability to refuel any fixed-wing receiver capable aircraft on any mission. The KC-46A will be equipped with a modernized KC-10 refueling boom integrated with a fly-by-wire control system and will be capable of delivering a fuel offload rate required for large aircraft. Furthermore, a hose and drogue system will add additional mission capability which will be independently operable from the refueling boom system. The centerline drogue and wing aerial refueling pods (WARPs) will be used to refuel aircraft fitted with probes. All KC-46A aircraft will be configured for the installation of a Multi-Point Refueling System capable of refueling two receiver aircraft simultaneously from the WARPs mounted under the wings. One Aerial Refueling Operator will control the boom, centerline drogue, and WARPs during refueling operations. Panoramic displays will provide the Aerial Refueling Operator with wing-tip to wing-tip situational awareness.

A freighter floor above the refueling system will accommodate a mixed load of passengers, patients, and cargo. The KC-46A will carry up to eighteen 463L cargo pallets. Seat tracks and the onboard cargo handling system will make it possible to simultaneously carry palletized cargo, seats, and patient support pallets in a variety of combinations. The KC-46A will offer significantly increased cargo and aeromedical evacuation capabilities compared to the KC-135R.

The aircrew compartment will include 15 permanent seats for aircrew, which will include permanent seating for the Aerial Refueling Operators and an optional Aerial Refueling Instructor.

Two high-bypass turbofans, mounted under 34-degree swept wings, will power the KC-46A to take off at gross weights up to 415,000 pounds.

Executive Summary

KC-46A

Significant Developments Since Last Report

KC-46 Remote Vision System (RVS): Program Office and Boeing continue to work toward resolution of two CAT-1 DRs related to the RVS. The software-only ERVS retrofit re-start has been approved by the Program Office to resume in Mar 2023 beginning with the three remaining aircraft at Altus AFB.. Initial retrofits will be at a slower rate; however, the plan is to ramp up to four aircraft per month by June 2023.

RVS 2.0 system Preliminary Design Review (PDR) was held in May 2021; in April 2022, the PDR was closed and the KC-46 contract was modified with the RVS 2.0 Product Baseline Design Specification (PBDS), which outlined the RVS 2.0 configuration baseline. An agreement between the USAF and Boeing was signed to establish a path forward on provisioning for a future panoramic sensor upgrade within the RVS 2.0 architecture.

RVS 2.0 Critical Design Review was held in June 2022. As a result of evaluating the data and assumptions that went in to the RVS 2.0 schedule, it was determined that an additional 19 months will be required to achieve an Operational Military Flight Release (MFR) for the RVS 2.0 upgrade, resulting in fleet release being delayed until October 2025. This change in schedule is driven by three main areas: sub-contractor development timelines, FAA airworthiness process assumptions, and USAF airworthiness policy integration. CDR closure is pending resolution of one remaining critical action item: Developing a jointly agreed-to plan for airworthiness certification of the commercial-off-the-shelf cameras. The team is continuing to evaluate methods to achieve certification and expects to close CDR in early 2QCY23.

KC-46A Boom Telescope Actuator Redesign (BTAR): The Program Office and Boeing continue to work toward resolution of the CAT-1 DR related to boom stiffness while in contact with receiver aircraft. Throughout CY 2022, the lab actuator was delayed due to some component modifications required to address non-compliances. An actuator solution was identified; the team successfully completed Free-Spin developmental testing in January and has successfully installed the actuator in the BTAR lab boom. Uncoupled and coupled lab testing is now being working.

Product Quality Deficiency Reports (PQDRs): During CY 2022, the KC-46 Program was tracking four CAT-1 PQDR; Fuels System Leaks, APU Drain Mast cracks, Flight Management System Instability, and Aerial Refueling Receptacle Drain Line Tubing Cracks. PQDRs are driving additional maintenance actions in the field. None of the PQDRs carry operational restrictions on fielded KC-46s. Root causes and fixes were identified for all four CAT-1 PQDRs. A solution to Fuel Manifold Leaks is currently being fielded; APU Drain mast & door redesign/certification is complete with trial install complete on four aircraft; Flight Management System instability software update is projected for fleet release in 2nd Quarter FY 2023; and Aerial Refueling Drain Line Tube solution service bulletin ready in 3rd Quarter FY 2023.

Production: At the end of 2022, 109 Production and four Engineering and Manufacturing Development (EMD) KC-46A aircraft were on contract. Sixty-seven have DD250'd and ferried to respective MOB. Of the remaining 46 aircraft yet to be DD250'd, 19 are in the supply system, 25 are in some stage of production, one is supporting flight test at the Military Delivery Center (MDC), and one flight test aircraft is in storage at Moses Lake, WA. Of those 25 in production; eight are in 767-2C build, 10 are undergoing KC-46A conversion, two are undergoing acceptance testing at the MDC, one is at Cecil Field Jacksonville completing Aerial Refueling R&R, and four are being stored in a partially built configuration: one at the Everett Modification Center (EMC) and three at the Everett Delivery Center (EDC).

Cargo: AFOTEC submitted a CAT-1 DR for multiple Cargo Issues in January 2022. A board was held and the DR was downgraded to a CAT-2 due to the DR criteria set forth in the USAF Deficiency Report, Investigation, and Resolution Technical Manual. Efforts have been underway since January 2022 with a team from the SPO, AMC, Boeing, and the test community. A total of six short-term solutions are already on contract; some of these have already been fielded with the remaining solutions ECD in Q3FY23. Additional short-term solutions will execute over the next two FYs. Take-Off and Landing Data (TOLD) request for proposal (RFP) was released 6 Oct 22. Boeing, SPO, and AMC continue weekly meetings to implement short-and long-term fixes to address cargo challenges.

Test/Aerial Refueling Certification: The KC-46 Test program continues work to certify receiver aircraft. In 2022, the P-8 and B-2 received Category 2 (with restrictions) certification; Category 3 (no restrictions) certifications were issued for AV-8B (via WARPS) and MC/CV-22 (via centerline drogue).

The following are certified as receiver aircraft with KC-46 to date:

- Category 2 (with restrictions): C-5M, C-17A, KC-10A KC-135(Tanker), KC-46, F-35A, B-52H, AC/ HC/MC130J, EC-130H, E-3B/G, RC/TC/WC/NC-135, B-1B; F-15C/D/E F-16C/D, F-22 F-35B & F-35C (both via centerline drogue), E-8C, and B-2.
- Category 3 (with no restrictions): F-18E/F (via centerline drogue), F/A-18A-D (via centerline drogue), AV-8B (WARPS), and MV/CV-22 (via centerline drogue) P-8.

Sustainment: The Industry Steering Committee (ISC) team completed review and the Chairman approved the August 2022 KC-46 Customized Maintenance Planning Document supporting manual revision cycle, v23. The supply team continues to focus on completing Logistics Reassignment (LR) as soon as possible. To-date, 17,038 consumable NSNs and 1,301 repairable National Stock Numbers (NSNs) have completed LR. The post-baseline numbers being tracked by the team include approximately 4,500 NSNs consumables: 1,500 NSNs with Effective Transfer Dates (ETDs), 2,000 NSNs pending ETDs, and 550 NSNs pending Boeing submission to the SPO / repairables: 440 NSNs in-review with 424th SCMS and 40 NSNs pending Boeing submission to the SPO). The team continues to work with Boeing, the Defense Logistics Agency (DLA), and the Air Force Sustainment Center (AFSC) to get all residual Boeing managed NSNs submitted and staged for LR as quick as possible. The SE team has submitted 4,743 total NSN's to date.

Depot activation: Depot activation planning continued across four lines of effort: aircraft, propulsion, commodity, and software activations. FY22 C-checks completed 17 of 17 on time. To date in FY 2023, seven of 32 C-Checks have been sold; four are currently in progress and are on schedule at Oklahoma City-Air Logistics Center (OC-ALC).

KC-46 Required Assets Available (RAA) APB Milestone: During the current reporting period KC-46A APB Change 3 was approved, updating the RAA threshold and objectives. The updated objective is June 2023 and the threshold is December 2023. The last major criterion to satisfy RAA is delivery of nine Wing Aerial Refueling Pod (WARP) shipsets. Four WARP shipsets have already been delivered.

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
Jun - 2022	The KC-46 Program conducted a RVS 2.0 Critical Design Review, June 28-29, 2022.
May - 2022	A revised APB was signed on May 27, 2022 updating the objective and threshold dates for the Required Assets Available (RAA) milestone.
Apr - 2022	The KC-46 Program closed RVS 2.0 Preliminary Design Review on April 11, 2022.
Nov - 2021	First KC-46A aircraft delivery to Joint Base Maguire-Dix-Lakehurst, New Jersey on November 9, 2021.
Oct - 2021	First FMS KC-46A aircraft delivery with ferry to Japan on October 28, 2021.
Jul - 2021	Received approval for F-35B and F-35C receiver certifications (both via centerline drogue).
May - 2021	The KC-46 Program conducted a RVS 2.0 Preliminary Design Review May 25-27, 2021.
Dec - 2020	The KC-46 Program conducted a RVS 2.0 System Requirements Review December 10-11, 2020.
Oct - 2020	A revised APB was signed on October 19, 2020 updating the objective and threshold dates for the Full Rate Production Decision (FRPD) and Required Assets Available (RAA) milestone.
Sep - 2020	Air Force's first-ever organic depot maintenance of an FAA-certified aircraft commenced September 10, 2020, when the first KC-46 was inducted into organic C-Check maintenance at Tinker AFB, OK.
Sep - 2020	Boom Telescope Actuator Redesign Engineering Change Proposal definitized on September 30, 2020.
Jun - 2020	First KC-46 delivery to AF Reserve Command, Seymour Johnson AFB, on June 12, 2020.
Jun - 2020	Formal notification of schedule breach to Full Rate Production Decision (FRPD) milestone signed on June 7, 2020.
Apr - 2020	USAF and Boeing signed Remote Vision System (RVS) 2.0 memorandum of agreement establishing architecture to resolve CAT-I DRs on April 2, 2020.
Mar - 2020	Due to COVID-19, Boeing temporarily suspended operations at production facilities until April 2020.
Oct - 2019	Operational Test Readiness Review approved and IOT&E Start schedule milestone achieved.
Aug - 2019	First KC-46A aircraft delivery to Pease Air National Guard Base August 8, 2019.
May - 2019	The KC-46A Program began dedicated operational test with AFOTEC's execution of the IOT&E Test Plan.
Apr - 2019	Air Force resumed KC-46A deliveries after Boeing implemented additional corrective actions and finalized a FOD Corrective Action Plan with the government.
Feb - 2019	First KC-46A aircraft delivery to Altus AFB February 8, 2019.
Jan - 2019	Air Force accepted first KC-46A aircraft on January 10, 2019.
Jan - 2019	First KC-46A aircraft delivery to McConnell Air Force Base (AFB) January 25, 2019.
Dec - 2018	Received approval of F-16, C-17, and KC-46A (receiving fuel from a KC-135) receiver certifications.
Nov - 2018	Air Force issued Military Flight Release for KC-46A.
Nov - 2018	Completed flight testing of eight receiver aircraft for aerial refueling certification.
Sep - 2018	FAA issued KC-46A Supplemental Type Certificate.

Date	Significant Development Description
Dec - 2017	Federal Aviation Administration (FAA) issued KC-46A Amended Type Certificate.
Dec - 2016	Boeing delivered new KCR-0800 schedule, Required Assets Available slipped to October 2018.
Aug - 2016	Program accomplished Milestone C.
Jul - 2016	EMD-4 completed fuel transfer to the F-16C, C-17A, and A-10C aircrafts with the boom axial load fix in-place.
Jun - 2016	KC-46A ATS successfully completed full system CDR.
May - 2016	MDA notified of Milestone B APB schedule breach to Initial Operational Test and Evaluation (IOT&E) Start.
Feb - 2016	EMD-2 completed fuel transfer with F/A-18 aircraft.
Feb - 2016	EMD-2 completed KC-10 fuel transfer conducted with KC-46A as a receiver.
Jan - 2016	EMD-2 completed the first KC-46A aerial refueling by offloading 1,600 pounds of fuel to an F-16C.
Nov - 2015	EMD-2 deployed the boom and both drogue systems in flight for the first time.
Sep - 2015	EMD-2 completed a major milestone, KC-46A First Flight.
Sep - 2013	The KC-46A Aircrew Training Systems (ATS) conducted a System Requirement Review and SFR.
Jul - 2013	The KC-46A Program successfully completed the planned Weapon System CDR at Boeing's Harbour Pointe facility. Overall design maturity was demonstrated to be at a high level, consistent with the commercial derivative nature of the design approach. All action items were complete, and the Weapon System CDR was officially closed on August 21, 2013, one month ahead of the contractual requirement of September 24, 2013.
Jun - 2012	Deputy Assistant Secretary of Defense, Systems Engineering, validated successful completion of PDR.
Apr - 2012	The KC-46A Preliminary Design Review (PDR) was successfully completed. The Government and Boeing successfully completed the first step of a two-step PDR process on March 21-22, 2012, which consisted of a detailed review of the 89 contractual entrance criteria to PDR. The second step, conducted April 23 - 27 2012, consisted of a detailed review of the eight exit criteria and completion of all subsystem PDRs to Government satisfaction.
Dec - 2011	Boeing conducted a non-contractual KC-46A Firm Configuration review-an internal Boeing commercial best practice. The KC-46A Firm Configuration validated that the aircraft configuration is sufficiently mature and stable to initiate detailed design of the militarized KC-46A tanker.
Nov - 2011	The KC-46A Program Office and Boeing successfully concluded the System Functional Review (SFR). The KC-46A SFR assessed the allocation and traceability of all program requirements from the System Specification to lower-level hardware and software requirements.
Feb - 2011	The Boeing Company was awarded the KC-46A contract. The Fixed-Price Incentive Firm contract was awarded for the EMD program phase, with Firm-Fixed-Price contract options for Low Rate Initial Production Lots 1 and 2, and Not-to-Exceed contract options with Economic Price Adjustment for Full Rate Production Lots 3 through 13.
Feb - 2011	The USD(AT&L) conducted a successful Milestone B DAB.
Feb - 2011	The USD(AT&L) signed the APB reflecting the Milestone B approval.

Schedule

Events	Initial Production APB	Current APB Production Objective/ Threshold		Current Estimate or Actual	Deviation
Milestone B and Contract Award	Feb 2011	Feb 2011	Feb 2011	Feb 2011	
Milestone C	Aug 2016	Aug 2016	Aug 2016	Aug 2016	
IOT&E Start	Nov 2017	Oct 2019	Oct 2019	Oct 2019	
RAA	Oct 2018	Jun 2023	Dec 2023	Aug 2023	
FRP Decision	Aug 2019	Mar 2024	Sep 2024	Jul 2024	

Schedule Note

1. The KC-46 Program began dedicated operational test with Air Force Operational Test and Evaluation Center's execution of the IOT&E Test Plan in May 2019. The IOT&E Start milestone occurred on October 22, 2019, with formal approval of the Operational Test Readiness Review.
2. RAA is defined as 18 aircraft meeting the final product baseline established at Physical Configuration Audit, two spare engines delivered, and nine ship sets of wing aerial refueling pods in place.
3. An updated APB RAA Objective/Threshold was submitted, and SAF/AQ approved in a revised APB on May 27, 2022.
4. A new FRP Decision current estimate was submitted and SAF/AQ approved in a revised APB on October 19, 2020.

Performance

KC-46A

Performance Characteristics				
Milestone Baseline	Current Baseline Objective/Threshold	Demonstrated Performance	Current Estimate or Actual	Deviation
(KPP) - Airlift Capability				
The aircraft shall be capable of efficiently transporting equipment and personnel and fit seamlessly into the Defense Transportation System. The aircraft's entire main cargo deck must be convertible to an all cargo configuration that accommodates 463L pallets, an all passenger configuration (plus baggage) (or equivalent AE capability to include ambulatory and/or patient support pallets), and must optimize a full range of palletized cargo, passengers, and AE configurations that fully and efficiently utilize all available main deck space.	The aircraft shall be capable of efficiently transporting equipment and personnel and fit seamlessly into the Defense Transportation System. The aircraft's entire main cargo deck must be convertible to an all cargo configuration that accommodates 463L pallets, an all passenger configuration (plus baggage) (or equivalent AE capability to include ambulatory and/or patient support pallets), and must optimize a full range of palletized cargo, passengers, and AE configurations that fully and efficiently utilize all available main deck space.	(T=O) The aircraft shall be capable of efficiently transporting equipment and personnel and fit seamlessly into the Defense Transportation System. The aircraft's entire main cargo deck must be convertible to an all cargo configuration that accommodates 463L pallets, an all passenger configuration (plus baggage) (or equivalent AE capability to include ambulatory and/or patient support pallets), and must optimize a full range of palletized cargo, passengers, and AE configurations that fully and efficiently utilize all available main deck space.	Completed the ground mobility demonstration, proving the ability to accommodate various configurations of 463L pallets, aero-medical patient support pallets, and passenger pallets. The ability to use material handling equipment and processes employed by AMC on other airlift aircraft was also completed.	Will meet or exceed Current APB Objective.

(KPP) - Civil/Military CNS/ATM

<p>Aircraft shall be capable of worldwide flight operations at all times in all civil and military airspace at time of aircraft delivery, including known future CNS/ATM requirements, with redundant systems. Capability to inhibit CNS/ATM emissions and prohibit transmission of CNS/ATM-related data accumulated during the inhibited portion of the mission. Civil ATC data link media for LOS and BLOS communications.</p>	<p>Aircraft shall be capable of worldwide flight operations at all times in all civil and military airspace at time of aircraft delivery, including known future CNS/ATM requirements, with redundant systems. Capability to inhibit CNS/ATM emissions and prohibit transmission of CNS/ATM-related data accumulated during the inhibited portion of the mission. Civil ATC data link media for LOS and BLOS communications.</p>	<p>(T=O) Aircraft shall be capable of worldwide flight operations at all times in all civil and military airspace at time of aircraft delivery, including known future CNS/ATM requirements, with redundant systems. Capability to inhibit CNS/ATM emissions and prohibit transmission of CNS/ATM-related data accumulated during the inhibited portion of the mission. Civil ATC data link media for LOS and BLOS communications.</p>	<p>An SVR Update was held on 13 December 2020; SVR closure is not expected until the end of 2QFY23.</p>	<p>Will meet or exceed current APB threshold. An SVR Update was held on 13 December 2020; SVR closure is expected 2QFY23.</p>	
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(KPP) - Force Protection

	<p>Aircraft shall be able to operate in chemical and biological environments.</p>	<p>(T=O) Aircraft shall be able to operate in chemical and biological environments.</p>	<p>An SVR Update was held on 13 December 2020; SVR closure is not expected until the end of Q3FY21</p>	<p>Will meet or exceed Current APB Objective.</p>	
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(KPP) - Fuel Offload versus Radius

The aircraft shall be capable, as a minimum, of an offload versus radius as depicted in Figure 5.1; exceed offload/radius as depicted in Figure 5.1. Radius is defined as standard day takeoff, fly to the AR track, orbit for one hour, offload fuel, and return to original base with required reserve fuel. Aircraft should operate with maximum fuel efficiency within current aviation technology, without any degradation to mission/aircraft performance.

The aircraft shall be capable, as a minimum, of an offload versus radius as depicted in Figure 5.1. Radius is defined as standard day takeoff, fly to the AR track, orbit for one hour, offload fuel, and return to original base with required reserve fuel. Aircraft should operate with maximum fuel efficiency within current aviation technology, without any degradation to mission/aircraft performance.

An SVR Update was held on 13 December 2020; SVR closure is not expected until the end of 2QFY23.

Will meet or exceed current APB threshold. An SVR Update was held on 13 December 2020; SVR closure is expected 2QFY23.

(KPP) - Net-Ready

	<p>The KC-46 Program Office will provide installed performance values to the Joint Interoperability Test Command at the Operational Test Readiness Review upon completion of developmental testing and evaluation. These installed performance values will facilitate JITC's joint interoperability certification during Initial Operational Testing and Evaluation. The NR-KPP shall be satisfied following a performance assessment of the system capability as defined in the CPD NR-KPP attribute table.</p>	<p>(T=O) The KC-46 Program Office will provide installed performance values to the Joint Interoperability Test Command at the Operational Test Readiness Review upon completion of developmental testing and evaluation. These installed performance values will facilitate JITC's joint interoperability certification during Initial Operational Testing and Evaluation. The NR-KPP shall be satisfied following a performance assessment of the system capability as defined in the CPD NR-KPP attribute table.</p>	<p>An SVR Update was held on 13 December 2020; SVR closure is not expected until the end of 2QFY23.</p>	<p>Will meet or exceed Current APB Objective.</p>	
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(APA) - Operational Availability

<p>Operational Availability (Ao) rate will be used as a primary, capstone measure for reliability, maintainability, availability and supportability. Ao measures the percent of aircraft available for tasking. Ao equals total aircraft inventory (TAI) less the number of depot possessed aircraft (including scheduled and unscheduled depot maintenance) less the number of aircraft that are not mission capable divided by TAI. Operational availability shall not be less than 80% and 89%.</p>	<p>Operational Availability (Ao) rate will be used as a primary, capstone measure for reliability, maintainability, availability and supportability. Ao measures the percent of aircraft available for tasking. Ao equals total aircraft inventory (TAI) less the number of depot possessed aircraft (including scheduled and unscheduled depot maintenance) less the number of aircraft that are not mission capable divided by TAI. Operational availability shall not be less than 80% and 89%.</p>	<p>Operational Availability (Ao) rate will be used as a primary, capstone measure for reliability, maintainability, availability and supportability. Ao measures the percent of aircraft available for tasking. Ao equals total aircraft inventory (TAI) less the number of depot possessed aircraft (including scheduled and unscheduled depot maintenance) less the number of aircraft that are not mission capable divided by TAI. Operational availability shall not be less than 80%.</p>	<p>An SVR Update was held on 13 December 2020; SVR closure is not expected until the end of Q3FY21</p>	<p>Will meet or exceed APB Objective.</p>	
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(KPP) - Receiver Air Refueling Capability

<p>The aircraft must be capable of receiver air refueling (IAW current technical directives) to its maximum inflight gross weight from any compatible tanker aircraft using current air refueling procedures.</p>	<p>The aircraft must be capable of receiver air refueling (IAW current technical directives) to its maximum inflight gross weight from any compatible tanker aircraft using current air refueling procedures.</p>	<p>The aircraft must be capable of receiver air refueling (IAW current technical directives) from any compatible tanker aircraft using current air refueling procedures.</p>	<p>An SVR Update was held on 13 December 2020; SVR closure is not expected until the end of 2QFY23.</p>	<p>Will meet or exceed Current APB Objective.</p>	
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(KSA) - Reliability and Maintainability					
Reliability and Maintainability (R&M) shall be sufficient to generate, deploy, operate, sustain and recover the tanker in the conduct of operations to levels and degrees of readiness and performance as prescribed in 6.6.3 and 6.6.4. The aircraft will be designed with ease of maintenance, improved diagnostics and system reliability to minimize the support required.	Reliability and Maintainability (R&M) shall be sufficient to generate, deploy, operate, sustain and recover the tanker in the conduct of operations to levels and degrees of readiness and performance as prescribed in 6.6.3 and 6.6.4. The aircraft will be designed with ease of maintenance, improved diagnostics and system reliability to minimize the support required.	(T=O) Reliability and Maintainability (R&M) shall be sufficient to generate, deploy, operate, sustain and recover the tanker in the conduct of operations to levels and degrees of readiness and performance as prescribed in 6.6.3 and 6.6.4. The aircraft will be designed with ease of maintenance, improved diagnostics and system reliability to minimize the support required.	An SVR Update was held on 13 December 2020; SVR closure is not expected until the end of Q3FY21	Will meet O=T. Additional sparing purchases and alternative sources of supply are in work.	
(KPP) - Simultaneous Multi-Point Refuelings					
	The aircraft shall be provisioned (including structural modifications, plumbing, electrical, etc.) for simultaneous multi-point drogue refueling.	(T=O) The aircraft shall be provisioned (including structural modifications, plumbing, electrical, etc.) for simultaneous multi-point drogue refueling.	(T=O) The aircraft shall be provisioned (including structural modifications, plumbing, electrical, etc.) for simultaneous multi-point drogue refueling.	Will meet or exceed Current APB Objective.	

(KPP) - Survivability

<p>Aircraft Self-Protection Measures (SPM). Tanker aircraft shall be able to operate in hostile environments as discussed in section 2 and AFTTP 3-3.22B. SPM shall provide automated protection against IR threats as described in AMC Annex to LAIRCM ORD 314-92 dated 25 Jan 2001. SPM shall provide automated protection against radio frequency (RF) threats as described in the Advanced Situational Awareness and Countermeasures (ASACM) CDD, 22 May 06, with the exception of Reduction in Lethality values in Table 28. Aircraft shall have the capability to receive off-board situational awareness data, correlate this data with on-board sensor data, display battle-space information to provide situational awareness, and assist in using countermeasures and DS to avoid potential threats as discussed in ASACM CDD. The aircraft system shall support use of existing night vision devices and laser eye protection devices. KC-46A must be capable of flying tanker tactical profiles as specified in MCM 3-1, Vol 22, AF Tactics, Training, Procedures, Jun 03. The aircraft shall be capable of takeoff, landing, and air refueling, as a tanker and receiver in an NVIS environment. The KC-46A fleet shall have EMP protection for flight-critical aircraft systems.</p>	<p>Aircraft Self-Protection Measures (SPM). Tanker aircraft shall be able to operate in hostile environments as discussed in section 2 and AFTTP 3-3.22B. SPM shall provide automated protection against IR threats as described in AMC Annex to LAIRCM ORD 314-92 dated 25 Jan 2001. SPM shall provide automated protection against radio frequency (RF) threats as described in the Advanced Situational Awareness and Countermeasures (ASACM) CDD, 22 May 06, with the exception of Reduction in Lethality values in Table 28. Aircraft shall have the capability to receive off-board situational awareness data, correlate this data with on-board sensor data, display battle-space information to provide situational awareness, and assist in using countermeasures and DS to avoid potential threats as discussed in ASACM CDD. The aircraft system shall support use of existing night vision devices and laser eye protection devices. KC-46A must be capable of flying tanker tactical profiles as specified in MCM 3-1, Vol 22, AF Tactics, Training, Procedures, Jun 03. The aircraft shall be capable of takeoff, landing, and air refueling, as a tanker and receiver in an NVIS environment. The KC-46A fleet shall have EMP protection for flight-critical aircraft systems.</p>	<p>(T=O) Aircraft Self-Protection Measures (SPM). Tanker aircraft shall be able to operate in hostile environments as discussed in section 2 and AFTTP 3-3.22B. SPM shall provide automated protection against IR threats as described in AMC Annex to LAIRCM ORD 314-92 dated 25 Jan 2001. SPM shall provide automated protection against radio frequency (RF) threats as described in the Advanced Situational Awareness and Countermeasures (ASACM) CDD, 22 May 06, with the exception of Reduction in Lethality values in Table 28. Aircraft shall have the capability to receive off-board situational awareness data, correlate this data with on-board sensor data, display battle-space information to provide situational awareness, and assist in using countermeasures and DS to avoid potential threats as discussed in ASACM CDD. The aircraft system shall support use of existing night vision devices and laser eye protection devices. KC-46A must be capable of flying tanker tactical profiles as specified in MCM 3-1, Vol 22, AF Tactics, Training, Procedures, Jun 03. The aircraft shall be capable of takeoff, landing, and air refueling, as a tanker and receiver in an NVIS environment. The KC-46A fleet shall have EMP protection for flight-critical aircraft systems.</p>	<p>SVR was conducted in 1QCY2019 confirming non-compliance with requirements to meet Self Protection Measure specific to the RVS and use of LWIR in hostile environments. Redesign efforts are currently underway to improve functionality of RVS to meet Critical Performance Parameters in order to resolve non-compliances enabling LWIR functionality. At completion, we will provide demonstrated performance for KPP.</p>	<p>Will meet or exceed Current APB Threshold.</p>
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(APA) - Tanker Air Refueling Capability

<p>The aircraft should be capable of accomplishing air refueling of all current and programmed fixed-wing and tilt rotor receiver aircraft in accordance with technical guidance and STANAGs using current procedures and refueling airspeeds with no modification to existing receiver air refueling equipment and no restrictions to the refueling envelope. The aircraft shall be able to effectively conduct (non-simultaneously) both boom and drogue air refuelings on the same mission. While engaged, the KC-46A should be capable of maneuvering throughout the entire refueling envelope, in accordance with applicable air refueling manuals and standard agreements, of any compatible current and programmed fixed wing and tilt rotor receiver aircraft.</p>	<p>The aircraft should be capable of accomplishing air refueling of all current and programmed fixed-wing and tilt rotor receiver aircraft in accordance with technical guidance and STANAGs using current procedures and refueling airspeeds with no modification to existing receiver air refueling equipment and no restrictions to the refueling envelope. The aircraft shall be able to effectively conduct (non-simultaneously) both boom and drogue air refuelings on the same mission. While engaged, the KC-46A should be capable of maneuvering throughout the entire refueling envelope, in accordance with applicable air refueling manuals and standard agreements, of any compatible current and programmed fixed wing and tilt rotor receiver aircraft.</p>	<p>The aircraft shall be capable of accomplishing air refueling of all current and programmed fixed-wing receiver aircraft in accordance with technical guidance and STANAGs using current procedures and refueling airspeeds with no modification to existing receiver air refueling equipment and no restrictions to the refueling envelope. The aircraft shall be able to effectively conduct (non-simultaneously) both boom and drogue air refuelings on the same mission. While engaged, the KC-46A shall be capable of maneuvering throughout the entire refueling envelope, in accordance with applicable air refueling manuals and standard agreements, of any compatible current and programmed fixedwing receiver aircraft.</p>	<p>SVR was conducted in 1QCY2019 confirming non-compliance with requirements in the aerial refueling system specific to the Remote Vision System (RVS). Redesign efforts are currently underway to improve functionality of RVS to meet Critical Performance Parameters in order to resolve non-compliance's. At completion, we will provide demonstrated performance for this KPP.</p>	<p>Will meet or exceed Current APB Threshold.</p>	
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Requirements Reference

CPD for KC-135 Replacement Aircraft (KC-46A), R4.4 approved by JROC Memorandum (023-16), dated April 21, 2016, revalidated by JROC Memorandum (043-18), dated May 2, 2018.

Performance Note

The Tanker AR Capability KPP objective requires the air refueling of all current and programmed fixed-wing receiver aircraft and the air refueling of all current and programmed tilt-rotor receiver aircraft. The ability to refuel at a maximum in-flight gross weight portion of this KPP objective was not included as one of the contractually-required 372 mandatory requirements.

Figure 5.1, as referenced in the objective and threshold values, is located in the CPD.

The KC-46A CPD references five KSAs. To maintain alignment with the approved Milestone B APB, only two have been referenced in the Milestone C update.

Development test is completed on the aircraft's LWIR cameras within the remote vision system. LWIR cameras are necessary for a KC-46A to perform as a tanker in a NVIS environment. LWIR performance was deemed unsatisfactory and conducting NVIS air refueling is prohibited until fixes are incorporated. Boeing has agreed to address the LWIR performance in the overall remote vision system improvements they are planning to incorporate.

Acquisition Budget Estimate

KC-46A

Total Acquisition Cost

		Milestone APB	APB Current)10/19/2020		Budget Estimate PB 2024		
Category	Base Year	Objective (BY\$M)	Objective (BY\$M)	Threshold (BY\$M)	BY\$M	TY\$M	Deviation
RDT&E	2016	7,351.9	6,054.7	6,660.2	6,128.5	6,023.1	
Procurement	2016	35,699.9	30,897.3	33,987.0	26,662.1	32,370.0	
MILCON	2016	3,969.4	2,577.1	2,834.8	1,252.5	1,398.7	
Acq. O&M	2016	0	0	0	0	0	
Total		\$43,051.80	\$39,529.10	\$43,482.00	\$34,043.10	\$39,791.87	
PAUC	2016	262.688	220.833	242.916	190.185	222.301	
APUC	2016	203.999	176.556	194.212	152.355	184.971	

Budget Note

The total fleet quantity for the KC-46A Program is 179 aircraft, reflected in the FY 2024 PB. Four of these aircraft are funded with RDT&E dollars. The remaining aircraft are to be purchased using Procurement funds. Funding and quantities in this SAR reflect the FY 2024 PB submission.

Comparisons to the previous year's budget are as follows. RDT&E had a less than 0.1% increase in TY budget. Procurement had a 2.0% decrease in TY budget, primarily driven by an FY 2022 rescission and FY 2023 mark. MILCON experienced a 49% decrease in TY budget, driven by a budget increase in FY 2024 and budget decreases in FY 2025 through FY 2028. There are no cost breach concerns for the program.

Total End Item Quantity

Quantity Category	Current APB Quantity	Current Estimate Quantity
Development	4	4
Procurement	175	175
O&M-Acquired	--	--

Unit Cost

Current Baseline Compared with Current Estimate			
Category (2016BY\$M)	Current APB	Current Estimate	% Change
Program Acquisition Unit Cost			
Cost	39,529.1	34,043.10	
Quantity	179	179	
Unit Cost	220.833	190.185	-13.88%
Average Procurement Unit Cost			
Cost	30,897.3	26,662.1	
Quantity	175	175	
Unit Cost	176.556	152.355	-13.71%
Original Baseline Compared with Current Estimate			
Category (2011BY\$M)	Current APB	Current Estimate	% Change
Program Acquisition Unit Cost			
Cost	47,021.2	31,724.0	
Quantity	179	179	
Unit Cost	262.688	177.229	-27.10%
Average Procurement Unit Cost			
Cost	35,699.9	24,845.8	
Quantity	175	175	
Unit Cost	203.999	141.976	-24.80%

The Current Estimate's Base Year Costs have been converted from Base Year 2016 to Base Year 2011 using the National Defense Budget Estimates for FY 2023 (Green Book).

Risks**KC-46A*****Risk and Sensitivity Analysis***

Risk and Sensitivity Analysis
Current Procurement Cost (December - 2022)
1. Current procurement cost risks match current baseline.
Original Baseline Estimate (August - 2011)
1. The CAPE ICE (February 22, 2011) identified the following risks as Milestone B: (1) The Department has historically demonstrated limited ability to maintain stable requirements and limit changes to program technical baselines for complex weapon systems. Furthermore, the potential of engineering change introduces the possibility of opening the terms and conditions of the KC-46A contract, causing upward pressure on prices, even though the initial contract was awarded on a competitive basis.(2) The procurement of annual quantities, other than the target quantity, introduces significant unit
Current Baseline Estimate (May - 2022)
<ol style="list-style-type: none"> 1. The CAPE ICE (August 10, 2016) identified the following risks at Milestone C: The Department has historically demonstrated limited ability to maintain stable requirements and limit changes to program technical baselines for complex weapon systems. Furthermore, the potential of engineering change introduces the possibility of opening the terms and conditions of the KC-46A contract, causing upward pressure on prices, even though the initial contract was awarded on a competitive basis. 2. KC-46A annual procurements lots 3 through 13 include a 'Not to Exceed' (NTE) unit price with Economic Price Adjustment (EPA). The EPA is sensitive to relatively small changes in the contractual Producer Price Index. 3. Final negotiation of annual procurement lot prices from the pre-priced NTE values. 4. Analogous DoD programs have historically taken longer to establish an organic capability than the time estimated for KC-46A to transition from Interim Contractor Support. 5. The procurement of annual quantities, other than the target quantity, introduces significant unit pricing penalties.

Significant Schedule Risks

Significant Schedule Risks
Current Estimate (December - 2022)
1. Moog is behind on completing the Test Readiness Review and starting the Qualification Testing on time. This 12 week delay is impacting the critical path for the BTAR Program.

Technologies and System Engineering

Significant Technical Risks
Current Estimate (December - 2022)
<ol style="list-style-type: none"> 1. If an acceptable FAA Certification compliance approach cannot be found for the visible and LWIR cameras, then the STC Certification Approval will be delayed resulting in significant schedule impacts. 2. If supplier DRS is unable to build the crypto module to the planned schedule, then USAF retrofit of MIDS BU1 to MIDS BU2 will be further delayed. 3. If the Final Product Baseline (FPB) Data content and Configuration Definition is not defined, then it could affect the closure of the EMD contract. 4. If the RVS display design cannot accommodate a retarder based upon publicly released specifications, then display development may be delayed due to an inability of the two sub-contractors to have technical dialogue about the design. 5. If Lot 1 Initial Spares/Lot 2 Aircraft Withholds/Lot 2 WARPs/Lot 3 Pease Spares are not delivered by June 30, 2023, then FY 2016 3010 funds are at risk and will cancel September 30, 2023 and drive new bills across the FYDP.

Low Rate Initial Production

KC-46A

Item	Initial LRIP Decision	Current Total LRIP
Approval Date	02/24/2011	10/20/2020
Approved Quantity	19	118
Reference	MS B ADM	Milestone C and KC-46 Lot 6-9 ADMs
Start Year	2015	2015
End Year	2016	2024

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

In coordination with the Air Force, the Director, Operational Test and Evaluation decided KC-46 IOT&E will conclude after Remote Vision System deficiencies are resolved, and the Air Force Operational Test and Evaluation Center has tested the KC-46 in its final production configuration.

It was determined that accepting production KC-46s, and fixing deficiencies in parallel with operational test and evaluation, is the shortest path to full operational capability meeting warfighter requirements and recapitalize an aging legacy tanker fleet.

Note: Conversion of Lots 6 through 9 to LRIP results in an increased LRIP quantity of 118 aircraft. Approved through Acquisition Decision Memorandum on October 20, 2020.

- Feb 2011(MS B): LRIP was defined as Lot 1-2 (19 aircraft)
- Aug 2016 (MS C): LRIP was extended through Lot 4 (49 aircraft)
- Nov 2017 (ADM): LRIP was extended through Lot 5 (64 aircraft)
- Oct 2020 (ADM): LRIP was extended through Lot 9 (118 aircraft)

Contracts

Contract Data (\$TYM)	
Contract Number	FA8625-11-C-6600
Effort Number	1
Modification Number	P000208
Award Date	02/24/2011
Definitization Date	02/24/2011
Order Number	
CAGE Code/CAGE Legal Name	81205/The Boeing Company
Contract Title	KC-46 Maintenance Training System - Development
Contract Address	Seattle WA
Contract Type	Firm-Fixed-Price

Contracts/Effort Price, Quantity, and Performance (TY\$M)		
Initial Target Price	Current Target Price	
\$66.6	\$173.5	
Initial Ceiling Price	Current Ceiling Price	
\$66.6	\$173.5	
Contractor EAC	PM EAC	
\$173.5	\$173.5	
Initial Quantity 0	Current Quantity 0	Delivered Quantity 0
0	0	0

Contract Note:

This effort is for FFP Studies and Analysis. The delta between the Initial and Current Target Prices represents additional scope from various studies that have been added to this contract.

Contract Data	
Contract Number	FA8625-11-C-6600
Effort Number	2
Modification Number	P00288
Award Date	08/04/2019
Definitization Date	09/30/2020
Order Number	
CAGE Code/CAGE Legal Name	81205/The Boeing Company
Contract Title	KC-46A Engineering and Manufacturing Development/BTAR
Contract Address	Seattle, WA
Contract Type	Cost-Plus-Incentive-Fee

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

Initial Target Price	Current Target Price	
\$55.5	\$105.4	
Initial Ceiling Price	Current Ceiling Price	
\$55.5	\$105.4	
Contractor EAC	PM EAC	
\$123.7	\$128	
Initial Quantity	Current Quantity	Delivered Quantity 0
2	2	0
BAC	BCWP	ACWP
\$84.6	\$63.6	\$84.2
BCWS	Cost Variance	Schedule Variance
68.8	-20.6	-5.2

Contract Note:

The PM's EAC represents the risk burdened Program Office Estimate for BTAR Development. Deltas between the Contractor's EAC and the PM's EAC represent unrealized risk in the development effort.

In January 2022, contract mod P00271 was issued to extend CLIN 0026 PoP – no change in contract price

In July 2022, contract mod P00280 was issued to extend CLIN 0026 PoP – no change in contract price

In September 2022, contract mod P00285 was issued to add Incr funding to CLIN 0027 \$0.158M – no change in contract price

In September 2022, contract mod P00288 was issued to extend CLIN 0026 PoP – no change in contract price

Factors Contributing to Cost Variance:

The unfavorable cumulative cost variance of -\$20.6M (-32.44%) is spread among many WBS elements, including: 1) WBS 2.1.3.1 Boom Hardware CLIN26 supplier Moog's continued effort towards closing out their Actuation Critical Design Review (CDR) and Test Equipment Preliminary Design Review (PDR), 2) WBS 2.1.3.2 Boom ACU additional effort required on drawings for the retrofit and production drawings, 3) WBS 2.1.3.3 Boom Electrical CLIN 26 unplanned Unit Member review efforts for review on certification acceptance of the drawings, & unplanned LOE support for USAF requests for additional retrofit connection brakes in the wire bundle runs to reduce USAF field efforts in removing the boom, & defining final effectiveness of the production units, 4) WBS 2.2.1.1 Systems Engineering & Requirements Management CLIN 26 continuing regression analysis negotiations with the Boeing technical team & its USAF technical counterparts, 5) WBS 2.2.1.2 Software Planning and Control CLIN 27 LOE support, & CDR AI closure, L5 SRS update/release, L6 SDD update/release, initial S/W release for the BTAR lab, 6) WBS 2.2.1.7 System Safety review in CLIN 26 to its supplier documents & develop & release the Preliminary System Safety Assessment in support of the BTAR CDR, 7) WBS 2.2.1.8 Environment & Occupational Health CLIN 26 unexpected required deliverables in a different method than was previously used, & late supplier submittals which have driven a need to engage with additional reliability engineers, & post Critical Design Review actions to complete the review of the supplier reliability submittals and provide an updated Failure Mode & Effects Criticality Analysis 8) WBS 2.2.2.1 - Program Planning & Management continued charging of proposal prep effort for CLIN 0027 and the aligning of all proposal cost that remained on the Company Funds Request account collected on the CLIN 26 control account, 9) WBS 2.3.1.2 System Integration Laboratory Ground Testing CLIN 27 Rate Variance and Efficiency Variance

Factors Contributing to Schedule Variance:

The unfavorable cumulative schedule variance of -\$5.2M (-7.61%) is being driven primarily by WBS 2.1.3.1 - Boom Hardware CLIN27 rework and design changes in the Delivery Hardware Vendor NRE Manufacturing Readiness and Test Equipment IPT, specifically re-design and rework of the Power Design Unit (PDU) and Test Stand. In addition, Moog is experiencing resource constraints, specifically design engineers, due to retirements and other miscellaneous hiring constraints.

Contract Data	
Contract Number	FA8621-16-C-6390
Effort Number	1
Modification Number	P0032
Award Date	07/06/2016
Definitization Date	07/06/2016
Order Number	
CAGE Code/CAGE Legal Name	81205/The Boeing Company
Contract Title	KC-46 Maintenance Training System – Development
Contract Address	St. Louis/MO
Contract Type	Firm-Fixed-Price

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

Initial Target Price	Current Target Price	
\$45.4	\$46.6	
Initial Ceiling Price	Current Ceiling Price	
\$45.4	\$46.6	
Contractor EAC	PM EAC	
\$46.6	\$46.7	
Initial Quantity	Current Quantity	Delivered Quantity
8	8	4

Contract Notes:

In March 2022, contract modification awarded for KC-46 MTS to provide an extension for EMD CLINs, move expiration date of the Productions CLINs, and other admin changes.

In July 2022, P00026 was awarded for KC-46 MTS to extend the Delivery date of the EMD Landing Gear device.

In November 2022, P00029 was awarded which obligates 190K in funding for continuing EMD contractor travel in FY 2023. This is a must-pay bill. Total increase - \$190,000.

Contract Data	
Contract Number	FA8621-13-C-6247
Effort Number	1
Modification Number	P00079
Award Date	05/01/2013
Definitization Date	05/31/2017
Order Number	
CAGE Code/CAGE Legal Name	7Y637/FlightSafety Services Corporation
Contract Title	KC-46 Aircrew Training Systems - Production
Contract Address	Centennial, CO
Contract Type	Firm-Fixed-Price

Contracts/Effort Price, Quantity, and Performance (TY\$M)		
Initial Target Price	Current Target Price	
\$68.9	\$334.1	
Initial Ceiling Price	Current Ceiling Price	
N/A	N/A	
Contractor EAC	PM EAC	
\$334.1	\$334.1	
Initial Quantity	Current Quantity	Delivered Quantity
63	63	32

Contract Notes:

The difference between the Initial Target Price and the Current Target Price is due to exercising additional Production Lot Options.

Delivered quantities include devices that have been DD-250ed or conditionally accepted by the Government.

P00054, FFP Production OY7 exercised in February 2022. Total increase - \$33.1M.

P00061: KC-46 Aircrew Training System (ATS) Exercise Fuselage Trainer #8 Sprinkler Installation Option \$353,254 P00069, KC-46 Aircrew Training System (ATS) Indian Incentive Rebate \$313,790

PZ0064, KC-46 Aircrew Training System (ATS) Production Option 7 Definitization. Total decrease -\$827,268

P00073, KC-46 Aircrew Training System (ATS) Production Option 8 Exercise. Total increase - \$68,175

P00079, KC-46 Aircrew Training System (ATS) Production Option 8 SEPM Exercise. Total increase - \$168,426

Contract Data	
Contract Number	FA8625-11-C-6600
Effort Number	3
Modification Number	P000273
Award Date	12/10/2014
Definitization Date	09/15/2014
Order Number	
CAGE Code/CAGE Legal Name	81205/The Boeing Company
Contract Title	KC-46A Production
Contract Address	Seattle, WA
Contract Type	Firm-Fixed-Price

Contracts/Effort Price, Quantity, and Performance (TY\$M)		
Initial Target Price	Current Target Price	
\$119.4	\$17,349.33	
Initial Ceiling Price	Current Ceiling Price	
N/A	N/A	
Contractor EAC	PM EAC	
\$17,349.33	\$17,349.33	
Initial Quantity	Current Quantity	Delivered Quantity
175	175	63

Contract Note:

The difference between the Initial Target Price and the Current Target Price is due to exercising additional Production Lot Options.

- P00273: In March 2022, a contract modification was issued in the amount of \$1,021,873.50 to exercise option CLINs 0525, 0623, and 0624 for FSR/LSR Support for McConnell and LSR support for Altus.
- P00272: In April 2022, a contract modification was issued in the amount of \$250,765 to incorporate Engineering Change Proposal (ECP) 2022-045 LAIRCM High-Capacity Card (HCC) Part Number Update.
- P00215: In August 2022, a contract modification was issued in the amount \$2,214,952.163 for the exercise of Production Lot 8 CLINs 0801, 0805, 0832, and 0833.

Contract Data	
Contract Number	FA8609-19-D-0007
Effort Number	Delivery Order FA8609-21-F-0004 (Base Delivery Order UCA CLIN 1101)
Modification Number	P00002 (UCA CLIN 1102), PZ0003 (Defin CLIN 1101)
Award Date	07/28/2021
Definitization Date	10/14/2022
Order Number	
CAGE Code/CAGE Legal Name	81205/The Boeing Company
Contract Title	KC-46 Airworthiness Limitation Refueling Onload/Offload Capability Increase
Contract Address	Seattle, WA
Contract Type	CPFF

Contracts/Effort Price, Quantity, and Performance (TY\$M)		
Initial Target Price	Current Target Price	
\$3.8	\$128.4	
Initial Ceiling Price	Current Ceiling Price	
\$3.8	\$128.4	
Contractor EAC	PM EAC	
\$106.4	\$128.4	
Initial Quantity N/A	Current Quantity N/A	Delivered Quantity N/A
N/A	N/A	N/A
BAC	BCWP	ACWP
\$112.4	\$9.2	\$6.3
BCWS	Cost Variance	Schedule Variance
\$9.2	2.9	-.01

Contract Note:

The difference between the Initial Target Price and the Current Target Price is due to definitization of CLIN 1101 and exercise of CLIN 1102.

Delivery Order FA8609-21-F-0004: CLIN 1101 UCA NTE \$7M

P00002: CLIN 1102 UCA NTE \$121,435,544; Obligated: \$32,331,890 (3010 funds)

PZ0003: Definitized CLIN 1101; Definitized Price: \$3,815,314; Total CLIN 1101 Obligated Amount: \$3,815,314 (3010 funds)

Factors Contributing to Cost and schedule variance:

Variances are minimal and not concerning at this early stage of the AWL program.

Deliveries and Expenditures

KC-46A

Deliveries				
Delivered to Date	Planned to Date	Actual to Date	Total Quantity	Percent Delivered
Development	4	4	4	100.00%
Production	61	63	175	36.00%
Total Program Quantity Delivered	65	67	179	37.43%

Expended and Appropriated (TY \$M)

Years Appropriated to date: 19

Total Years Appropriated Funding (Current Baseline): 23

Percent Years Appropriated: 82.61%

Then-Year Funding Appropriated as Percentage of Total Acquisition Estimate: 71.79%

Then-Year Funding Expended as Percentage of Total Acquisition Estimate: 60.03%

Total Acquisition Cost: \$41,774.7

Operating and Support Costs

KC-46A

O&S Cost Breakdown:

Category (BY2016\$ Million)	KC-46
Unit-Level Manpower	\$36,367.2
Unit Operations	\$19,800.6
Maintenance	\$33,329.8
Sustaining Support	\$6,948.3
Continued System Improvements	\$6,236.7
Other	\$0.0
Total	\$102,682.6

Total Program O&S Cost Compared with Baseline

	Current Baseline		Current Estimate (BY\$M)	Current Estimate (TY\$M)	Deviation
	Objective (BY\$M)	Threshold (BY\$M)			
Base Year: 2016					
Total O&S	\$125,041.0	\$137,545.1	\$102,682.6	\$193,148.8	
Total Disposal	\$15.6	\$17.2	\$15.6	\$41.9	

Operating and Support Costs - Disposal and Unitized Costs**KC-46A****Annual Unitized O&S Cost Definition and Calculation Relative to Total O&S Cost:**

The antecedent system used for this comparison is the KC-135R/T. It should be noted that the comparison does not adjust for the additional capability (including range, fuel offload, and cargo capabilities) provided by the KC-46A.

Sustainment Factors	System Name: KC-46A	Antecedent System Name: KC-135R/T
Quantity to Sustain	168	378
Unit of Measure	PAA	PAA
Unit Expected Service Life	40	

Base Year: 2016

Annual Unitized O&S Cost by Category Base Year \$ Unit:(\$M)	System Name: KC-46A	Antecedent System Name: KC-135R/T
Unit-Level Manpower	\$5.3	\$3.2
Unit Operations	\$3.1	\$3.8
Maintenance	\$5.3	\$5.9
Sustaining Support	\$1.0	\$0.1
Continued System Improvements	\$0.8	\$0.2
Other	\$0.0	\$0.0
Total O&S	\$15.5	\$13.1

Disposal/Demilitarization Cost Estimate

(BY2016\$M)	System Name: KC-46A	Antecedent System Name: KC-135R/T
Total Disposal	\$41.9	

Cost Estimate Source - Disposal	
Type:	Program Office Estimate
Approval Authority and Date:	Air Force Life Cycle Management Center/Cost and Economic Division (AFLCMC/FZC) 08/02/2022
Note:	
None	
Disposal Cost Notes:	
None	

Antecedent Estimate Assumptions:

The KC- 46A Program has 168 Primary Aircraft Authorized (PAA) and 11 back-up aircraft. The O&S estimate is based on 168 PAA. FY 2022 POE approved by Air Force Life Cycle Management Center/Cost and Economic Division (AFLCMC/FZC). Figures are based on the FY 2022 POE approved by Air Force Life Cycle Management Center/Cost and Economic Division (AFLCMC/FZC).

Sustainment Strategy:

Both the KC-46A and the KC-135R/T are organically maintained at USAF Depots.

Antecedent Estimate Assumptions:

The KC-135R/T analysis assumes 378 PAA, based on analysis of the average PAA between 2010 and 2020. The KC-135R/T costs are adjusted to account for the difference in flight hours between the KC-46 and KC-135R/T. The energy (fuel), consumables, and depot level repairables cost categories are each adjusted based on the ratio between KC-46 to KC-135R/T average annual flight hours.