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Department of Defense  
OFFICE OF PREPUBLICATION AND SECURITY REVIEW



# Modernized Selected Acquisition Report (MSAR) KC-46A Tanker Modernization (KC-46A)

FY 2025 President's Budget

Effective: December 31, 2023

Defense Acquisition Visibility Environment

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## Table of Contents

Common DoD Abbreviations	3
Program Description	5
Responsible Office	7
Executive Summary	8
Schedule	12
Performance	14
Acquisition Budget Estimate	23
Unit Costs	25
Life-Cycle Costs	27
Technologies and Systems Engineering	30
Performing Activities and Contracts	31
Production	38
Deliveries and Expenditures	39
International Program Aspects	40

**(U) Common DoD 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
APA	Additional Performance Attribute
APB	Acquisition Program Baseline
APPN	Appropriation
APUC	Average Procurement Unit Cost
BA	Budget Authority or Budget Activity
Blk	Block
BY	Base Year
CAE	Component Acquisition Executive
CAPE	Cost Assessment and Program Evaluation
CARD	Cost Analysis Requirements Description
CCE	Component Cost Estimate
CCP	Component Cost Position
CDD	Capability Development Document
CLIN	Contract Line Item Number
CPD	Capability Production Document
CY	Calendar Year or Constant Year
DAB	Defense Acquisition Board
DAE	Defense Acquisition Executive
DAES	Defense Acquisition Executive Summary
DAVE	Defense Acquisition Visibility Environment
DoD	Department of Defense
DSN	Defense Switched Network
EMD	Engineering and Manufacturing Development
EVM	Earned Value Management
FD	Full Deployment
FDD	Full-Deployment Decision
FMS	Foreign Military Sales
FOC	Full Operational Capability
FRP	Full-Rate Production
FY	Fiscal Year
FYDP	Future Years Defense Program
ICD	Initial Capabilities Document
ICE	Independent Cost Estimate
Inc	Increment
IOC	Initial Operational Capability
IT	Information Technology
JROC	Joint Requirements Oversight Council
KPP	Key Performance Parameter
KSA	Key System Attribute

LRIP	Low-Rate Initial Production
MDA	Milestone Decision Authority
MDAP	Major Defense Acquisition Program
MILCON	Military Construction
N/A	Not Applicable
O	Objective
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
R&MF	Revolving and Management Funds
RDT&E	Research, Development, Test, and Evaluation
SAR	Selected Acquisition Report
SCP	Service Cost Position
T	Threshold
TBD	To Be Determined
TY	Then Year
U.S.	United States
U.S.C	United States Code
UCR	Unit Cost Reporting
USD(A&S)	Under Secretary of Defense (Acquisition and Sustainment)

**(U) Program Description**

<p><b>Full Name</b> KC-46A Tanker Modernization</p> <p><b>PNO</b> 387</p> <p><b>Lead Component</b> Department of the Air Force</p> <p><b>Joint Program</b> No</p> <p><b>Adaptive Acquisition Pathway</b> Major Capability Acquisition</p> <p><b>Acquisition Category</b> IC</p> <p><b>Acquisition Status</b> Active Acquisition</p>	<p><b>Short Name</b> KC-46A</p> <p><b>Milestone Decision Authority</b> Component Acquisition Executive</p> <p><b>Program Executive Office</b> Mobility &amp; Training Aircraft Directorate (AFPEO/MB)</p> <p><b>International Partners</b> Israel, Japan</p> <p><b>Acquisition Type</b> Major Defense Acquisition Program</p> <p><b>Acquired Systems</b> KC-46</p>
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**Mission**

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 cargo deck 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. The KC-46 has two Program Elements. PE 65221F covers 3600 BPAC 655271 for KC-46A Baseline EMD RDT&E and 3600 BPAC 651120 for KC-46A Operations and Sustainment (O&S) Modifications RDT&E. PE 41221F covers 3010 BPAC 10KC46 for KC-46A Production.

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MB)

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## (U) Executive Summary

### Program Highlights Since Last Report

**KC-46A Remote Vision System (RVS):** The Program Office and Boeing have made progress but continue to work toward resolution of two Category-1 (CAT-I) Deficiency Reports (DR) related to the RVS. The software-only enhanced RVS (ERVS) retrofits have continued; full-rate retrofits began at Seymour Johnson Air Force Base (AFB), North Carolina in July 2023. Eighteen aircraft in the fleet have been retrofitted thus far, and fourteen aircraft have come off the production line with ERVS installed.

RVS 2.0 Critical Design Review was held in June 2022. CDR closure is expected near-term but is still pending resolution of one remaining critical action item: developing a jointly agreed-to plan for airworthiness certification of the commercial-off-the-shelf cameras. Boeing encountered significant delays completing the certification plan but submitted to the Federal Aviation Administration (FAA) on December 21, 2023. With the certification plan now submitted, the team expects to close CDR in 2nd Quarter Calendar Year 2024, after FAA plan acceptance, and is starting to draft closure documentation accordingly.

As part of the RVS 2.0 development, Boeing will provision for a future panoramic sensor upgrade, including non-recurring engineering for the sensor. Under a separate effort, upon completion of RVS 2.0 retrofit, the United States Air Force (USAF) will subsequently procure and install the upgraded sensors.

**KC-46A Boom Telescope Actuator Redesign (BTAR):** The Program Office and Boeing continue to work toward resolution of the CAT-I DR related to boom stiffness while in contact with receiver aircraft. Boeing and Moog continue to have difficulties providing compliant hardware for testing, resulting in the supplier's Test Readiness Review slipping approximately ten months. The Boeing/USAF team is conducting a schedule risk assessment to determine the overall impact to the development program and associated risk mitigation efforts.

**Product Quality Deficiency Reports (PQDRs):** During Calendar Year 2023, the KC-46A Program was tracking four CAT-I PQDRs; Fuels System Leaks, Auxiliary Power Unit (APU) Drain Mast cracks, Flight Management System (FMS) Instability, and Aerial Refueling Receptacle (ARR) Drain Line Tubing Cracks. In April 2023, the Air Force downgraded the FMS instability PQDR to CAT-II. PQDRs are driving additional maintenance actions in the field. None of the PQDRs carry operational restrictions on fielded KC-46As. Solutions to Fuel Manifold Leaks and APU Drain mast cracks are currently being fielded.

**ARR Drain Line Tubing Cracks Certification and Implementation:** Root cause analysis to address the ARR drain line cracks identified additional ARR design issues due to inadequate ARR box drainage and associated dangers of fuel impingement. These findings are non-compliant with FAA and USAF standards/regulations and further complicated certification and implementation of a design change for the ARR drain system. Boeing developed multiple solutions to address the issues. Testing concluded and results were presented to the Program Office in October 2023. Program Office is currently gathering information and evaluating COAs. A letter was sent to Boeing stating that an FAA compliant design is required due to concerns about the proposed



designs. Boeing will perform retrofit of the new design on all aircraft delivered prior to production incorporation of the new design. Retrofit will be performed at a Boeing facility, and retrofit planning is underway.

**Production:** As of January 31, 2024, 139 Production and four EMD KC-46A aircraft are on contract (total of 143). In total, 82 have been delivered to respective operating bases. Of the remaining 61 aircraft, 27 are in production, acceptance, flight test, or storage; 34 are in Boeing's pre-production supply system.

During FY 2023, Boeing experienced delivery schedule delays resulting from a defect related to primer adhesion in the center wing tank acquired from the subcontractor Daher. In 4th Quarter FY 2023, Boeing notified the USAF they completed all rework on affected aircraft and the Government acceptance process resumed. In a separate incident, several aircraft were temporarily delayed due to a Defense Federal Acquisition Regulation Supplement compliance issue (prohibited sources of printed wiring boards); necessary waivers were obtained, and aircraft acceptance resumed on October 18, 2023. Delayed aircraft were all ferried on October 20, 2023. Center wing tank and prohibited source issues appear to be resolved and production schedules have largely recovered. The Program Office is continuing to closely monitor delivery schedules.

**Depot activation:** Depot activation planning continued across four lines of effort: aircraft, propulsion, commodity, and software activations. In FY 2023, KC-46A completed 32 of 32 C-checks, a high velocity maintenance concept, on time. To date in FY 2024, 15 of 28 C-Checks have been sold; the remaining aircraft are on schedule at Oklahoma City-Air Logistics Center.

**KC-46A Program Deviation Report for RAA/FRPD:** The Program Office submitted a Program Deviation Report declaring breaches to RAA and FRPD on November 28, 2023. A schedule risk assessment is underway on Wing Aerial Refueling Pods (WARP) and RVS 2.0 efforts that include the detailed work involved in achieving WARP 40-year FAA certification and completion of IOT&E which are the greatest schedule risks to meeting RAA and FRPD, respectively. These efforts will inform an updated APB, expected in 2nd Quarter Calendar Year 2024, with new objective and threshold dates for both RAA and FRPD.

**Defense Cost and Resource Center Cost and Software Data Reporting Compliance Rating:** RED

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

**(U) History of Significant Developments Since Program Inception**

Date	Description
February 2011	The USD(AT&L) signed the APB reflecting the Milestone B approval.
February 2011	The USD(AT&L) conducted a successful Milestone B DAB.
February 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.
November 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

Date	Description
	requirements from the System Specification to lower-level hardware and software requirements.
December 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.
April 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.
June 2012	Deputy Assistant Secretary of Defense, Systems Engineering, validated successful completion of PDR.
July 2013	The KC-46A Program successfully completed the planned Weapon System Critical Design Review (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.
September 2013	The KC-46A Aircrew Training Systems (ATS) conducted a System Requirement Review and SFR.
September 2015	EMD-2 completed a major milestone, KC-46A First Flight.
November 2015	EMD-2 deployed the boom and both drogue systems in flight for the first time.
January 2016	EMD-2 completed the first KC-46A aerial refueling by offloading 1,600 pounds of fuel to an F-16C.
February 2016	EMD-2 completed fuel transfer with F/A-18 aircraft.
February 2016	EMD-2 completed KC-10 fuel transfer conducted with KC-46A as a receiver.
May 2016	MDA notified of Milestone B APB schedule breach to IOT&E Start.
June 2016	KC-46A ATS successfully completed full system CDR.
July 2016	EMD-4 completed fuel transfer to the F-16C, C-17A, and A-10C aircrafts with the boom axial load fix in-place.
August 2016	Program accomplished Milestone C.
December 2016	Boeing delivered new KCR-0800 schedule, Required Assets Available slipped to October 2018.
December 2017	Federal Aviation Administration (FAA) issued KC-46A Amended Type Certificate.
September 2018	FAA issued KC-46A Supplemental Type Certificate.
November 2018	Completed flight testing of eight receiver aircraft for aerial refueling certification.
November 2018	Air Force issued Military Flight Release for KC-46A.
December 2018	Received approval of F-16, C-17, and KC-46A (receiving fuel from a KC-135) receiver certifications.
January 2019	Air Force accepted first KC-46A aircraft on January 10, 2019.
January 2019	First KC-46A aircraft delivery to McConnell AFB, Kansas January 25, 2019.
February 2019	First KC-46A aircraft delivery to Altus AFB, Oklahoma on February 8, 2019.
April 2019	Air Force resumed KC-46A deliveries after Boeing implemented additional corrective actions and finalized a FOD Corrective Action Plan with the government.

Date	Description
May 2019	The KC-46A Program began dedicated operational test with AFOTEC's execution of the IOT&E Test Plan.
August 2019	First KC-46A aircraft delivery to Pease Air National Guard Base, New Hampshire on August 8, 2019.
October 2019	Operational Test Readiness Review approved and IOT&E Start schedule milestone achieved.
March 2020	Due to COVID-19, Boeing temporarily suspended operations at production facilities until April 2020.
April 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.
June 2020	First KC-46 delivery to AF Reserve Command, Seymour Johnson AFB, North Carolina on June 12, 2020.
September 2020	Boom Telescope Actuator Redesign Engineering Change Proposal definitized on September 30, 2020.
September 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, Oklahoma.
October 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.
December 2020	The KC-46 Program conducted a RVS 2.0 System Requirements Review December 10-11, 2020
May 2021	The KC-46 Program conducted a RVS 2.0 PDR May 25-27, 2021.
July 2021	Received approval for F-35B and F-35C receiver certifications (both via centerline drogue).
October 2021	First FMS KC-46A aircraft delivery with ferry to Japan on October 28, 2021.
November 2021	First KC-46A aircraft delivery to Joint Base Maguire-Dix-Lakehurst, New Jersey on November 9, 2021.
April 2022	The KC-46 Program closed RVS 2.0 Preliminary Design Review on April 11, 2022.
May 2022	A revised APB was signed on May 27, 2022 updating the objective and threshold dates for the RAA milestone.
June 2022	The KC-46 Program conducted a RVS 2.0 CDR, June 28-29, 2022.
July 2023	First KC-46A aircraft delivery to Travis AFB, California on July 28, 2023.

**(U) Schedule**

**(U) Schedule Events**

Events		Production APB (Milestone) 1/13/2017 Objective	APB Change 3 (Current) 5/27/2022 Objective / Threshold		Current Estimate 12/31/2023	Actual
Milestone B and Contract Award	MS B	Feb 2011	Feb 2011	Feb 2011	-	1 Feb 2011
Milestone C	MS C	Aug 2016	Aug 2016	Aug 2016	-	1 Aug 2016
IOT&E Start	IOT&E	Nov 2017	Oct 2019	Oct 2019	-	23 Oct 2019
RAA	IOC	Oct 2018	Jun 2023	Dec 2023	-	-
FRP Decision	FRP Decision	Aug 2019	Mar 2024	Sept 2024	Sept 2024	-

**Notes**

1. The IOT&E Start from the 2017 Production APB was inadvertently deleted by the OSD APB system. A separate event of the same name was added. These two events are referencing the same IOT&E.CHR(10)2. 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.CHR(10)3. 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 delivered.CHR(10)4. In November 2023 the Program Office submitted a Program Deviation Report declaring breaches to RAA and FRP Decision. A schedule risk assessment is underway and will inform an updated APB with new objective and threshold dates for both RAA and FRP Decision. An update is expected in 2nd Quarter calendar year 2024.

**Schedule Baseline Deviation Explanation**

None

**(U) Current Significant Schedule Risks and Risks Identified at Milestones/Decisions**

Event	Date	Description
Other	3/1/2024	Engine Intermediate Case (IMC) Tooling Risk: Engine Intermediate Case tooling: Worn casting tools for the engine front center body (FCB) are driving extended finishing time prior to machining. If P&W Engine casting yield does not improve, engines will not be available for installation to support delivery schedule. Mitigation: Casting supplier is building stereolithography (SLA) tools in advance of replacement hard tooling to enable quicker casting shipments.
Other	10/28/2022	Long Wave Infrared (LWIR) Camera Certification

		<p>Risk: IF an acceptable Federal Aviation Administration (FAA) Certification compliance approach cannot be found for the visible and LWIR cameras, THEN the Certification Approval will be delayed ultimately impacting the completion of IOT&amp;E and Full Rate Production Decision</p> <p>Mitigation: Mirror approach utilized by Boom Telescoping Actuator Redesign to leverage lessons learned and close engagement with Technical Airworthiness Authority to minimize schedule impacts from any unanticipated changes to FAA Certification plans.</p>
Other	10/25/2022	<p>Miniaturized Airborne GPS Receiver 2K (MAGR2K) Diminishing Manufacturing Sources and Material Shortages</p> <p>Risk: IF there are no military GPS units available for Boeing procurement at commencement of Lot 10 delivery, THEN subsequent KC-46 production will be impacted. Boeing not able to procure sufficient MAGR2K units.</p> <p>Mitigation: USAF to provide MAGR2KM via Government Furnished Equipment (vice Contractor furnished equipment) for development, certification, and production</p>
Other	9/27/2022	<p>Establishment of Final Product Baseline (FPB)</p> <p>Risk: IF the FPB Data content and Configuration Definition is not defined, THEN it could affect the closure of the EMD contract</p> <p>Mitigation: Establish a clear definition of the FPB content; identify Delta Physical Configuration Audit end items; Define FPB timing and elements; identify post FPB transition to KC-46 change process. Held initial FPB Workshop in August 2023 with plans to reengage with Boeing before the end of Calendar Year 2023. Re-establishing FPB workshop in 2nd Quarter Calendar Year 2024.</p>

(U) Performance

(U) Performance Attributes

Operational Availability		APA
Current Estimate 12/31/2023		Will meet 80% Threshold. Ao impacted by number of Scheduled/Unscheduled maintenance tasks, parts sparing, and quality/design of aircraft parts that are failing. Additional sparing purchases and alternative sources of supply are in work.
Demonstrated Performance 2/29/2024		Ao = 58.2% as of February 29, 2024
APB Change 3 (Current)  5/27/2022	Objective	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%.
	Threshold	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%.
Production APB (Milestone)  1/13/2017	Objective	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%.
Airlift Capability		KPP
Current Estimate 12/31/2023		Will meet T=0.  USAF is experiencing impediments to efficient cargo loading and cargo mission planning operations. Cargo improvement efforts are currently underway.
Demonstrated Performance 9/30/2023		All EMD Specification requirements met and verified.
APB Change 3 (Current)	Objective	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

5/27/2022		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.
	<b>Threshold</b>	(T=0) 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.
Production APB (Milestone)  1/13/2017	<b>Objective</b>	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.
<b>Tanker Air Refueling Capability</b>		<b>APA</b>
Current Estimate 12/31/2023		Will meet Objective.  SVR was conducted in Q1CY2019 confirming non-compliance with requirements in the aerial refueling system specific to the RVS.  Three CAT-I DRs associated with KPP, RVS 2.0 and BTAR projects are underway to address DRs and Airworthiness Risk.
Demonstrated Performance 9/30/2023		Demonstrated on all current aircraft except A-10.  Fighter receptacle-equipped receiver aircraft carry a SERIOUS risk and heavy receiver aircraft carry a MEDIUM risk due to the boom stiffness.
APB Change 3 (Current)  5/27/2022	<b>Objective</b>	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.
	<b>Threshold</b>	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 fixed wing receiver aircraft.
Production APB (Milestone) 1/13/2017	Objective	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.
<b>Receiver Air Refueling Capability</b>		<b>KPP</b>
Current Estimate 12/31/2023		= Objective: 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.
Demonstrated Performance 9/30/2023		Objective - 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.
APB Change 3 (Current) 5/27/2022	Objective	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.
	Threshold	The aircraft must be capable of receiver air refueling (IAW current technical directives) from any compatible tanker aircraft using current air refueling procedures.
Production APB (Milestone) 1/13/2017	Objective	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.
<b>Reliability and Maintainability</b>		<b>KSA</b>
Current Estimate 12/31/2023		Will meet Objective=Threshold. Additional sparing purchases and alternative sources of supply are in work.
Demonstrated Performance 3/19/2024		Break Rate = 1.7 (Fix Rate = 49.4% (>=70.6% T=0) As of March 19, 20243
APB Change 3 (Current)	Objective	Reliability and Maintainability (R&M) shall be sufficient to generate, deploy, operate, sustain and recover the tanker



5/27/2022		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.
	<b>Threshold</b>	(T=0) 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.
Production APB (Milestone)  1/13/2017	<b>Objective</b>	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.
<b>Survivability</b>		<b>KPP</b>
Current Estimate 12/31/2023	Will meet T=0  Program Office is awaiting final data from Boeing before formally closing Fuel Tank Inerting specification.  Radio Frequency Self Defense System requires updates to be operationally suitable for all operational environments.	
Demonstrated Performance 9/30/2023	All EMD Specification requirements met and verified.	
APB Change 3 (Current)          5/27/2022	<b>Objective</b>	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 (U), Jun 03 (S//NF). 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.
	<b>Threshold</b>	(T=0) 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

		<p>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 (U), Jun 03 (S//NF). 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><b>Production APB (Milestone)</b>  1/13/2017</p>	<p><b>Objective</b></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 (U), Jun 03 (S//NF). 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><b>Civil/Military CNS/ATM</b></p>		<p><b>KPP</b></p>
<p><b>Current Estimate</b> 12/31/2023</p>	<p>Will meet T=0.</p> <p>The FAA issued stateside restrictions on 16 Mar 2023, due to Civil ATC datalink issues. CPDLC software is obsolete. Program Office is working with Boeing on a corrective action plan.</p> <p>Capability to inhibit Civil SATCOM is limited. Contract action in work to address.</p>	
<p><b>Demonstrated Performance</b> 9/30/2023</p>	<p>All EMD Specification requirements met and verified.</p> <p>CNS/ATM Certification Dec 13, 2018</p>	

APB Change 3 (Current)  5/27/2022	<b>Objective</b> 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.
	<b>Threshold</b> (T=0) 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.
Production APB (Milestone)  1/13/2017	<b>Objective</b> 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.
<b>Force Protection</b>	
<b>KPP</b>	
Current Estimate 12/31/2023	Will meet T=0.  Polarization filter appliques worn over chemical/biological agent protection masks are not available across the fleet due to obsolescence of legacy polarizer applique material in CY2022.  Replacement polarizer applique material for RVS 1.0 being certified per corrective action plan.  Replacement polarizer applique material for RVS 2.0 will be certified at time of RVS 2.0 certification.
Demonstrated Performance 9/30/2023	All EMD Specification requirements met and verified.
APB Change 3 (Current)  5/27/2022	<b>Objective</b> Aircraft shall be able to operate in chemical and biological environments.
	<b>Threshold</b> (T=0) Aircraft shall be able to operate in chemical and biological environments.
Production APB (Milestone)  1/13/2017	<b>Objective</b> Aircraft shall be able to operate in chemical and biological environments.
<b>Net-Ready</b>	
<b>KPP</b>	
Current Estimate 12/31/2023	T=0 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.
<b>Demonstrated Performance</b> 2/5/2018		T=0  JITC Certification March 3, 2016 Net-Ready KPP Certification Feb 5, 2018
<b>APB Change 3</b> (Current)	<b>Objective</b>	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.
	5/27/2022	<b>Threshold</b> (T=0) 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.
<b>Production APB</b> (Milestone)	<b>Objective</b>	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.
1/13/2017		
<b>Fuel Offload versus Radius</b>		<b>KPP</b>
<b>Current Estimate</b> 12/31/2023		Objective = 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.
<b>Demonstrated Performance</b> 9/30/2023		Objective = 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.
<b>APB Change 3</b> (Current)	<b>Objective</b>	The aircraft shall be capable, as a minimum, of an offload versus radius as depicted in Figure 5.1; exceed offload/

5/27/2022		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.
	<b>Threshold</b>	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.
<b>Production APB (Milestone)</b> 1/13/2017	<b>Objective</b>	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.
<b>Simultaneous Multi-Point Refuelings</b>		<b>KPP</b>
<b>Current Estimate</b> 12/31/2023		Will meet T=0  Although the capability for multipoint refueling was demonstrated, WARP production articles are not acceptable due to airworthiness limitations and production issues. Program Office and Boeing are working to resolve maintenance issues and supplier Notice of Escapes.
<b>Demonstrated Performance</b> 5/12/2021		Demonstrated T=0 with F-18 (8 Oct 19) and AV-8B (May 12, 2021)
<b>APB Change 3 (Current)</b>  5/27/2022	<b>Objective</b>	The aircraft shall be provisioned (including structural modifications, plumbing, electrical, etc.) for simultaneous multi-point drogue refueling.
	<b>Threshold</b>	(T=0) The aircraft shall be provisioned (including structural modifications, plumbing, electrical, etc.) for simultaneous multi-point drogue refueling.
<b>Production APB (Milestone)</b> 1/13/2017	<b>Objective</b>	The aircraft shall be provisioned (including structural modifications, plumbing, electrical, etc.) for simultaneous multi-point drogue refueling.

**(U) Requirement Source:**

Sponsor(s): United States Air Force

1. Capability Production Document, *Capability Production Document for the KC-135 Replacement Aircraft (KC-46A)*

Validated By: Joint Requirements Oversight Council, April 21, 2016

**Notes**

None

**Performance Deviation Explanation**

None

**(U) Acquisition Budget Estimate**

**(U) Total Acquisition Estimates and Quantities**

Category (\$M) Base Year: 2016	Production APB (Milestone) 1/13/2017 CY\$ obs Objective	APB Change 3 (Current) 5/27/2022 CY\$ obs Objective / Threshold		Current Estimate PB 2025 CY\$ obs / TY\$ obs	
		RDT&E	6,054.7	6,054.7	6,660.2
Procurement	30,897.3	30,897.3	33,987.0	27,196.5	33,178.5
MILCON	2,577.1	2,577.1	2,834.8	1,511.2	1,740.0
O&M	0.0	0.0	0.0	-	-
Total Acquisition	39,529.1	39,529.1	-	34,884.4	41,002.7
Program Acquisition Unit Cost	220.833	220.833	242.916	190.625	224.059
Average Procurement Unit Cost	176.556	176.556	194.212	151.936	185.355
Program End-Item Quantity					
Development	4	4		4	
Procurement	175	175		179	
O&M-Acquired	-	-		0	

**Budget Notes**

None

**Quantity Notes**

None

**Cost Baseline Deviation Explanation**

None

**(U) Risk and Sensitivity Analysis**

Current Procurement Estimate Risks (12/31/2023)	
1	There are no significant Procurement cost concerns for the Program.
Current Baseline Risks (5/27/2022)	

**Current APB Risks and Sensitivity Analysis (Milestone C CAPE ICE (August 10, 2016))**

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. 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.

**Original APB Risks and Sensitivity Analysis (Milestone B CAPE ICE (February 22, 2011))**

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 pricing penalties.

**Original Baseline Risks (8/24/2011)**

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 pricing penalties.



**(U) Unit Costs**

**(U) Current Estimate Compared with Current Baseline**

Category (CY\$M) Base Year: 2016	Current Baseline 05/27/2022	Current Estimate PB 2025	% Change
<b>Program Acquisition Unit Cost</b>			
Acquisition Cost	39,529.1	34,884.4	
Program Quantity	179	183	
PAUC	220.833	190.625	-13.68%
<b>Average Procurement Unit Cost</b>			
Procurement Cost	30,897.3	27,196.5	
Procurement Quantity	175	179	
APUC	176.556	151.936	-13.94%

**(U) Current Estimate Compared with Original Baseline**

Category (CY\$M) Base Year: 2011	Original Baseline 08/24/2011	Current Estimate PB 2025	% Change
<b>Program Acquisition Unit Cost</b>			
Acquisition Cost	43,518.2	32,511.6	
Program Quantity	179	183	
PAUC	243.118	177.659	-26.92%
<b>Average Procurement Unit Cost</b>			
Procurement Cost	33,040.3	25,346.6	
Procurement Quantity	175	179	
APUC	188.802	141.601	-25.00%

The Current Estimate's constant-year dollars have been converted from Base Year 2016 to Base Year 2011 using the National Defense Budget Estimates for FY 2024 (Green Book).

**(U) Cost Growth Details**

**Impacts of Schedule Changes on Unit Cost**

Not Applicable.

**Impacts of Performance Changes on Unit Cost**

Not Applicable.

**Actions taken or Proposed to Control Future Cost Growth**

Not Applicable.

**Status of Each Major Contract and Significant Factors Contributing to Cost and Schedule Variance; Projected Effects on Future Program Costs**

See Contracts section.

**Notes**

None

**(U) Life-Cycle Costs**

**(U) Operating and Support and Disposal Cost Estimates Compared with Baseline**

Category (\$M) Base Year: 2016	Production APB (Milestone) 1/13/2017 CY\$ obs Objective	APB Change 3 (Current) 5/27/2022 CY\$ obs Objective / Threshold		Current Estimate CY\$ obs / TY\$ obs	
Total O&S	125,041.0	125,041.0	137,545.1	101,878.1	212,621.7
Total Disposal	-	-	-	16.0	49.9

**(U) Current Cost Estimate Sources**

**Operating and Support Cost**

Type: Program Office Estimate

Approved by: AFLCMC/FZC, September 26, 2023

**Disposal/Demilitarization Cost**

Type: Program Office Estimate

Approved by: AFLCMC/FZC, September 26, 2023

**Operating and Support Baseline Deviation Explanation**

None

**Cost Notes**

**Sustainment Strategy**

The KC-46A is Organically maintained and sustained Commercial Derivative Aircraft (CDA). The strategy plans to retain/maintain FAA Type Certification of the CDA aircraft. FAA supports the USAF Meet-the-Intent agreement. Organization/Depot Level maintenance is performed by USAF personnel.

**O&S and Disposal Cost Sources:** For Programs with an O&S Cost estimate or Disposal Cost estimate the O&S Cost Source and Disposal Cost Source listed in the MSAR are inaccurate due to a system limitation. See MSAR Supplement for corrected source(s).

**(U) Operating and Support Variance with Prior Estimate**

(CY\$M) Base Year: 2016	Estimate	
Prior Estimate (12/31/2022)	102,682.6	
Current Estimate	101,878.1	
Category	Variance	Explanation

(CY\$M) Base Year: 2016	Estimate	
Unit-Level Manpower	-1,856.1	Driven by an overall decrease in required unit personnel at the formal training unit and main operating bases.
Unit Operations	531.7	Driven by updated fuel rates.
Maintenance	-1,796.6	Driven by a decrease in the estimated average flying hours per aircraft and reduced over & above hours.
Sustaining Support	2,257.5	Driven by an increase in estimated costs for aircrew and maintenance training systems and updated pay rates from AFI 65-503.
Continuing System Improvements	59.0	Driven by updated discrete estimates for software maintenance support.
Other	0.0	
Not Categorized	-0.0	

**(U) Operating and Support Cost Element Structure Estimates by Acquired System**

(CY\$M) Base Year: 2016							
System	Unit-Level Manpower	Unit Operations	Maintenance	Sustaining Support	Continuing System Improvements	Other	Total
KC-46	34,511.1	20,332.3	31,533.2	9,205.8	6,295.7	-	101,878.1
Program	34,511.1	20,332.3	31,533.2	9,205.8	6,295.7	-	101,878.1

**(U) Annual Operating and Support Costs per Unit Compared with Antecedent System**

(CY\$M) Base Year: 2016							
System	Unit-Level Manpower	Unit Operations	Maintenance	Sustaining Support	Continuing System Improvements	Other	Total
KC-46	4.7	2.8	4.3	1.3	0.9	-	13.9
KC-135 R/T (Antecedent)	3.2	3.8	5.8	0.1	0.2	-	13.1

**(U) Operating and Support Cost Estimate Assumptions**

System	Quantity to Sustain	Unit Expected Service Life (Years)	Unit of Measure	Fiscal Years Operational
KC-46	183	40.0	Years	2019 - 2069
KC-135 R/T (Antecedent)	378	60.0	AC	1957 - 2040

**Additional O&S Estimate Assumptions**

None

**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.

**O&S Annual Cost Calculation Memo**

The KC-46A Program has 172 Primary Aircraft Authorized (PAA) and 11 back-up aircraft. The O&S estimate is based on 172 PAA.

## (U) Technologies and Systems Engineering

### (U) Current Significant Technical Risks and Risks Identified at Milestones/Decisions

Event	Date	Description
Current	12/31/2023	The KC-46A program is not experiencing risk associated with incorporating technology. Some risks appear to be technical but are rooted in administrative challenges (e.g. FAA certification) that are impacting the program schedule.

**(U) Performing Activities and Contracts**

**(U) External Government Activities**

None

**(U) Contracts and Efforts**

Contract Title	Contract Number / Effort	Contractor	Phase
KC-46 Airworthiness Limitation Refueling Onload/Offload Capability Increase	FA860919D0007 / 0	THE BOEING COMPANY	Development
KC-46A Engineering and Manufacturing Development/BTAR	FA862511C6600 / 2	THE BOEING COMPANY	Development
KC-46 Aircrew Training Systems - Production	FA862113C6247 / 01	FLIGHTSAFETY DEFENSE CORPORATION	Production
KC-46A Long-Term Test Aircraft Maintenance Support	FA860919D0007	THE BOEING COMPANY	Production
KC-46A Production Contract	FA862511C6600 / 03	Boeing	Production
KC-46 Organic Sustainment Support (KOSS) & O&A	FA860919D0007	THE BOEING COMPANY	Sustainment

**(U) Contract and Effort Identification, Price, Quantity and Performance**

<b>Contract Number:</b>	FA860919D0007	<b>Order Number:</b>	FA860921F0004
<b>Contract Title:</b>	KC-46 Airworthiness Limitation Refueling Onload/Offload Capability Increase	<b>Strategy:</b>	FAR 15: Negotiated Contracts
<b>CAGE:</b>	88277 - THE BOEING COMPANY	<b>Contracting Office:</b>	DOD - Department of Defense
<b>City, State/Province:</b>	LONG BEACH, CA		
<b>Effort Number:</b>	0	<b>Supported Phase:</b>	Development
<b>Type:</b>	Cost Plus Fixed Fee	<b>Award Date:</b>	July 28, 2021
<b>Latest Modification Date:</b>	-	<b>Definitization Date:</b>	-
<b>Latest Modification No.:</b>	P00007	<b>Work Start Date:</b>	-
<b>Technical Data Rights:</b>	-		

**Notes:** The current effort will update the limitations due to hours in close proximity and receptacle contacts, allowing Air Mobility Command to perform Aerial Refueling Onload without limitations. This effort will also include a Body Fuel Tank failure analysis.

Contractor and PM EACs represent the Most Likely Estimates for all CLINs. The Target Price represents the definitized value of the CLINs that have been definitized and the

Not-to-Exceed value for undefinitized CLINs.

Recent Contract Modifications to the AWL effort include:

P00006 was awarded June 30, 2023 to extend the Period of Performance for CLIN 1101 from June 20, 2023 to November 14, 2023, incorporated FAR 52.204-27, and Incrementally Funded CLIN 1102 \$27,171,526.56

P00007 was awarded November 14, 2023 to extend CLIN 1101 Period of Performance from November 14,2023 to June 30, 2024; no additional cost.

**Target Price Change Explanation**

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

**General Variance Explanation**

Differences between contractor and SPO estimates are minimal and not concerning at this point.

Initial Price (TY\$M) Target / Ceiling		Current Price (TY\$M) Target / Ceiling		Estimate at Completion (TY\$M) Contractor / PM		Initial Quantity	Current Quantity	Delivered Quantity
3.8	3.8	128.4	128.4	112.3	128.4	-	-	-

Work Completed (%): 19.07%

Cost Variance (TY\$M): +4.1

Schedule Variance (TY\$M): -4.3

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

The favorable Cost Variance (\$2.8M/13.14%) is not concerning at this early stage of the AWL program.

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

The favorable Schedule Variance (\$4.546/17.26%) is growing primarily driven by prolonged negotiations with Boeing suppliers. The PO will continue to monitor these activities.

**(U) Contract and Effort Identification, Price, Quantity and Performance**

<b>Contract Number:</b>	FA862511C6600	<b>Order Number:</b>	-
<b>Contract Title:</b>	KC-46A Engineering and Manufacturing Development/ BTAR	<b>Strategy:</b>	FAR 15: Negotiated Contracts
<b>CAGE:</b>	81205 - THE BOEING COMPANY	<b>Contracting Office:</b>	DOD - Department of Defense
<b>City, State/Province:</b>	TUKWILA, WA		
<b>Effort Number:</b>	2	<b>Supported Phase:</b>	Development
<b>Type:</b>	Cost Plus Fixed Fee	<b>Award Date:</b>	August 2, 2019
<b>Latest Modification Date:</b>	-	<b>Definitization Date:</b>	September 30, 2020
<b>Latest Modification No.:</b>	P00301	<b>Work Start Date:</b>	August 2, 2019
<b>Technical Data Rights:</b>	-		
<b>Notes:</b>	The KC-46 Boom Telescope Actuator Redesign effort will design, procure, deliver, test, and implement the necessary software, hardware, and technical information required for KC-46 to safely conduct boom aerial refueling operations on all aircraft and enable		



AMC to reduce high operating costs of the legacy tanker fleet. This effort specifically focuses on the redesign of the KC-46 Boom Telescope.

Recent mods to the BTAR Development Contract include:

- On July 5, 2023, contract mod P00301 was issued to extend CLIN 0026 Period of Performance, integrate ARMS Display Update into CLIN 0027, admin updates, and update BTAR Objective Incentive Fee Plan - no change in contract price.
- On April 27, 2023, contract Mod P00298 was awarded to extend CLIN 0027 Period of Performance and fund CLIN 0026 overrun.

**Target Price Change Explanation**

The difference between the Initial Target Price and the Current Target Price is due to the addition of scope and overruns on the development effort.

**General Variance Explanation**

The PMs EAC was updated as part of the FY23 POE. KTR EAC appears to be importing incorrectly. Latest EVM provided by Boeing shows a most likely EAC of \$139.111M. The delta between EAC's is the result of added risk the Program is expecting to be realized while Boeing continues to be optimistic. Target Price has increased since the original undefinitized contract action (UCA). This is a result of clarification and definitization of the UCA along with funding/incorporating realized risk (overruns).

Initial Price (TY\$M) Target / Ceiling	Current Price (TY\$M) Target / Ceiling	Estimate at Completion (TY\$M) Contractor / PM	Initial Quantity	Current Quantity	Delivered Quantity
103.0 -	103.0 -	116.8 153.7	2	2	-
<b>Work Completed (%):</b>	82.36%				
<b>Cost Variance (TY\$M):</b>	-34.1				
<b>Schedule Variance (TY\$M):</b>	-15.8				

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

The unfavorable cumulative Cost Variance of -\$33.407M (-44.57%) 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 and Requirements Management CLIN 26 continuing regression analysis negotiations with the Boeing technical team and its USAF technical counterparts.

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

The unfavorable cumulative Schedule Variance of -\$14.691M (-16.39%) 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.

<b>(U) Contract and Effort Identification, Price, Quantity and Performance</b>			
<b>Contract Number:</b>	FA862113C6247	<b>Order Number:</b>	-

**Contract Title:** KC-46 Aircrew Training Systems - Production **Strategy:** -

**CAGE:** 7Y637 - FLIGHTSAFETY DEFENSE CORPORATION **Contracting Office:** -

**City, State/Province:** FORT WORTH, TX

**Effort Number:** 01 **Supported Phase:** Production

**Type:** Firm-Fixed-Price **Award Date:** May 1, 2013

**Latest Modification Date:** - **Definitization Date:** May 1, 2013

**Latest Modification No.:** P00094 **Work Start Date:** May 1, 2013

**Technical Data Rights:** -

**Notes:** Delivered quantities include devices that have been DD-250ed or accepted by the Government.  
 Current Target/Ceiling Price represents 3010 funded Procurement efforts.  
 Contract modifications since the last report are as follows:

- P00095 revised delivery location and date on CLIN 2109 and delivery location of CLIN 2209 on September 21, 2023
- P00094 awarded the Projector Retrofit effort (ECP 006) for \$1,799,704 on September 26, 2023
- P00086 Awarded Production Option 9 via Undefined Contract Action (UCA) on October 10, 2023 and obligating \$2,174,929
- P00063 incorporated eRVS capability on October 20, 2023; obligating \$1,850,307
- P00101 exercised the calendar year sustainment option on December 29, 2023 and obligated \$22,094, 418
- Administrative modification P00102 was awarded January 26, 2024; no additional funding
- PZ0100 definitized the Lot 9 Production UCA and obligated an additional \$6,466,320 on January 30, 2024
- \$83,971 was obligated for Lot 9 proposal prep via P00091 on February 7 2024
- P00092 obligated \$7,455,490 for 2nd Half Calendar Year 2023 CBA Adjustment on February 26, 2024
- P00103 obligated \$10,159,853 on March 7, 2023 for Fuselage Trainer Storage, Monitor Retrofit, and adding Calendar Year 2024 funding

**Target Price Change Explanation**

The difference between the Initial Target Price and the Current Target Price is due to exercising annual options.

**General Variance Explanation**

Cost and Schedule Variance reporting is not required for this FFP type contract.

Initial Price (TY\$M) Target / Ceiling	Current Price (TY\$M) Target / Ceiling	Estimate at Completion (TY\$M) Contractor / PM		Initial Quantity	Current Quantity	Delivered Quantity
68.9 -	241.2 -	169.9	241.2	64	64	40

**Work Completed (%):** 95.30%

**Cost Variance (TY\$M):** -51.2

**Schedule Variance (TY\$M):** -4.1

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

Cost and Schedule Variance reporting is not required for this FFP type contract.

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

Cost and Schedule Variance reporting is not required for this FFP type contract.

**(U) Contract and Effort Identification, Price, Quantity and Performance**

<b>Contract Number:</b>	FA860919D0007	<b>Order Number:</b>	FA860920F0003
<b>Contract Title:</b>	KC-46A Long-Term Test Aircraft Maintenance Support	<b>Strategy:</b>	-
<b>CAGE:</b>	81205 - THE BOEING COMPANY	<b>Contracting Office:</b>	-
<b>City, State/Province:</b>	TUKWILA, WA		
<b>Effort Number:</b>	-	<b>Supported Phase:</b>	Production
<b>Type:</b>	Cost Plus Fixed Fee	<b>Award Date:</b>	September 15, 2023
<b>Latest Modification Date:</b>	-	<b>Definitization Date:</b>	September 13, 2021
<b>Latest Modification No.:</b>	P00010	<b>Work Start Date:</b>	September 16, 2020
<b>Technical Data Rights:</b>	-		
<b>Notes:</b>	Recent modifications to this contract include P00010, awarded on September 15, 2023, adding \$9,596,761 to the contract value and obligating \$7,644,903 for Option Year 3 exercise and incorporating various under/overruns.		

**Target Price Change Explanation**

The difference between the Initial Target Price and the Current Target Price is based on addition of scope and exercising of annual options.

**General Variance Explanation**

This contract is a level of effort maintenance contract and does not have Earned Value reporting despite the Cost Plus Fixed Fee contract type. EVM has been waived.

Initial Price (TY\$M) Target / Ceiling	Current Price (TY\$M) Target / Ceiling	Estimate at Completion (TY\$M) Contractor / PM	Initial Quantity	Current Quantity	Delivered Quantity
15.2 -	38.0 -	47.4 47.4	-	-	-

**(U) Contract and Effort Identification, Price, Quantity and Performance**

<b>Contract Number:</b>	FA862511C6600	<b>Order Number:</b>	-
<b>Contract Title:</b>	KC-46A Production Contract	<b>Strategy:</b>	-
<b>CAGE:</b>	-- Boeing	<b>Contracting Office:</b>	-
<b>City, State/Province:</b>	Seattle, WA		
<b>Effort Number:</b>	03	<b>Supported Phase:</b>	Production
<b>Type:</b>	Firm-Fixed-Price	<b>Award Date:</b>	February 24, 2011
<b>Latest Modification Date:</b>	-	<b>Definitization Date:</b>	February 24, 2011
<b>Latest Modification No.:</b>	P00259	<b>Work Start Date:</b>	February 24, 2011
<b>Technical Data Rights:</b>	-		

**Notes:**

Recent Modifications to the KC-46 Production effort include:

On November 28, 2023, a contract modification (P00259) was issued in the amount of \$2,325M to exercise the option for Production Lot 10

On November 13, 2023, contract mod P00308 was awarded to document liquidation consideration agreement associated with Lots 4 and 5. No change in funding.

**Target Price Change Explanation**

The difference between the Initial Target Price and the Current Target Price is due to exercising additional Production Lot Options. Target Price figure represent the exercised option for Production aircraft. Ceiling Price estimates represent the value of exercised options and the value of future Production Lot Buys based on fixed price options and current buy profile. Contractor Estimated Price at Completion is incorrectly importing from EVM data. Remaining Production Lots are fixed price; Contractor's and PM's Estimated Price at Completion are equal.

**General Variance Explanation**

Cost and Schedule Variance reporting is not required for this FFP type contract.

Initial Price (TY\$M) Target / Ceiling	Current Price (TY\$M) Target / Ceiling	Estimate at Completion (TY\$M) Contractor / PM	Initial Quantity	Current Quantity	Delivered Quantity
2,814.8 -	21,031.9 -	116.8 27,492.9	175	175	80

Work Completed (%): 78.36%

Cost Variance (TY\$M): -28.0

Schedule Variance (TY\$M): -11.0

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

Cost and Schedule Variance reporting is not required for this FFP type contract.

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

Cost and Schedule Variance reporting is not required for this FFP type contract.

**(U) Contract and Effort Identification, Price, Quantity and Performance**

<b>Contract Number:</b>	FA860919D0007	<b>Order Number:</b>	FA860922F0007
<b>Contract Title:</b>	KC-46 Organic Sustainment Support (KOSS) & O&A	<b>Strategy:</b>	-
<b>CAGE:</b>	81205 - THE BOEING COMPANY	<b>Contracting Office:</b>	-
<b>City, State/Province:</b>	TUKWILA, WA		
<b>Effort Number:</b>	-	<b>Supported Phase:</b>	Sustainment
<b>Type:</b>	Cost Plus Fixed Fee	<b>Award Date:</b>	June 27, 2022
<b>Latest Modification Date:</b>	-	<b>Definitization Date:</b>	December 19, 2022
<b>Latest Modification No.:</b>	P00013	<b>Work Start Date:</b>	June 28, 2022
<b>Technical Data Rights:</b>	-		

**Notes:**

Recent modifications to the KOSS contract include:

P00006 award April 27,2023 updated payment schedules - No change to funding.

P00007 awarded May 22, 2023, increased price and funding by \$3,000,000 for CLIN 2208.

P00008 awarded June 2, 2023, increased price and funding by \$4,524,388 for CLIN 2208.  
 P00009 awarded July 26, 2023, increased ceiling price and funding by \$2,500,000 for CLIN 2210.  
 P00010 awarded August 28, 2023, increased ceiling price and funding by \$802,292.  
 P00011 awarded September 13, 2023, increased ceiling price and funding by \$526,934.  
 P00012 awarded January 29, 2024, exercising Option year 2; increasing the ceiling and obligating \$33,916,508.  
 P00013 awarded February 22, 2024 and added Prime Software Support; no increase in funding.

**Target Price Change Explanation**

The difference between the Initial Target Price and the Current Target Price is based on addition of scope and exercising of annual options.  
 Estimated Ceiling Prices reflect current obligation amounts and all future options.

**General Variance Explanation**

Cost and Schedule Variance reporting is not required as this is a level of effort contract and Earned Value has been waived.

Initial Price (TY\$M) Target / Ceiling		Current Price (TY\$M) Target / Ceiling		Estimate at Completion (TY\$M) Contractor / PM		Initial Quantity	Current Quantity	Delivered Quantity
19.9	26.6	66.3	180.2	180.2	180.2	-	-	-

Work Completed (%): -  
 Cost Variance (TY\$M): -  
 Schedule Variance (TY\$M): -

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

Cost and Schedule Variance reporting is not required as this is a level of effort contract and Earned Value has been waived.

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

Cost and Schedule Variance reporting is not required as this is a level of effort contract and Earned Value has been waived.

**(U) Production**

**(U) Low-Rate Initial Production**

	Original LRIP Determination	Current LRIP Determination
Total LRIP Quantity	19	139
Date	2/24/2011	11/17/2023
Reference	KC-X Milestone B Tanker Modernization Program ADM (February 2019)	KC-46A Lot 10 ADM
LRIP Period	FY 2015 - 2016	FY 2024 - 2024
Total Procurement Quantity	179	179
LRIP Percentage of Total	10.6%	77.7%

**Rationale if LRIP Quantity Exceeds 10% of Total Procurement Quantity (Current Determination)**

In prior coordination with the Air Force, the Director, Operational Test and Evaluation decided KC-46 Initial Operational Test and Evaluation will conclude after the Remote Vision System deficiencies are resolved, and the KC-46A is tested in its final production configuration. Fixing these deficiencies in parallel with operational test and evaluation, is the shortest path to accepting production KC-46As with full operational capability to meet warfighter requirements and recapitalize an aging legacy tanker fleet.

**LRIP Notes**

None

**(U) Deliveries and Expenditures**

**(U) Acquisition Funding**

	Total Estimate	Actual to Date	Actual, Percent Complete
Years Appropriated	-	-	-
Appropriations (TY, \$M)	41,002.7	41,002.7	100.0%
Expenditures (TY, \$M)	41,002.7	25,214.3	61.5%

**(U) End Items Delivered**

	Total Required	Planned to Date	Actual to Date	Actual, Percent Complete
Development	4			
KC-46		4	4	
Procurement	179			
KC-46		78	78	
<b>Total</b>	<b>183</b>	<b>82</b>	<b>82</b>	<b>44.8%</b>

**Notes**

None

**(U) International Program Aspects**

**General Memo**

Japan: Japan is approved for six KC-46 aircraft; two were delivered prior to 2023. Aircraft #3 was delivered to country in February and Aircraft #4 in March 2024. Aircraft #5 and #6 contractual DD250 dates are April 2025 and June 2025, respectively. The Japan Air Self-Defense Force submitted an additional request for Pricing & Availability for nine additional KC-46 aircraft on November 21, 2022. Japan indicated a Letter of Request (LOR) was submitted at end of February 2024, for six KC-46s with funds from FY 2025 and the remaining three in FY 2026. KC-46 Program Office is waiting to receive the official notification of LOR receipt.

Israel: On August 31, 2022, the Program Office awarded an Unfinalized Contract Action (UCA) with Boeing for the first four Israel KC-46 aircraft. The UCA fully finalized and executed December 21, 2023. Israel chose not to do bundled approach for spares and support equipment - three phase approach initiated. Team working on Phase I-award of long lead spare items and support equipment via KC-46 Initial Spares (KIS) and KC-46 Support Equipment (KSE). Award of KIS and KSE projected for end of May 2024 (dependent upon IS-D-SAG LOA amendment #3, anticipated to be signed by May 2024). Engine Program Office handling procurement of Israel spare engine. Boeing's proposal came in 40% above estimate and 12 months behind delivery schedule. Engine Program Office determined proposal to be "not adequate" and "non-compliant" with RFP instructions, Boeing to offer revised proposal by end of March 2024.

**Exportability and Business Issues**

No exportability or business concerns

Is design for international exportability planned?	Yes	Industry/Partner Exportability Cost-Sharing?	No
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**Program Protection: Technology Security and Foreign Disclosure Issues**

No concerns

**(U) Agreements**

Activity Date	Type	Agreement Number	International Partner(s)	Quantity	Funding (TY\$M)
2/18/2021	FMS LOA	IS-D-SAG	Israel (IS)	4	1,100.0
2/23/2017	FMS LOA	JA-D-SAG	Japan (JA)	6	1,725.0

<b>(U) Agreement Information</b>			
<b>Partner(s):</b>	Israel (IS)	<b>Activity Date:</b>	2/18/2021
<b>Type:</b>	Foreign Military Sales: Letter of Offer and Acceptance	<b>Agreement Number:</b>	IS-D-SAG
<b>Notes:</b>	None		



Israel (IS)		
Fiscal Year	Funding (TY\$M)	Quantity
2021	1,100.0	4
<b>Total</b>	<b>1,100.0</b>	<b>4</b>

**(U) Agreement Information**

**Partner(s):** Japan (JA) **Activity Date:** 2/23/2017  
**Type:** Foreign Military Sales: Letter of Offer and Acceptance **Agreement Number:** JA-D-SAG  
**Notes:** None

Japan (JA)		
Fiscal Year	Funding (TY\$M)	Quantity
2017	449.4	1
2018	273.4	1
2019	-	-
2020	1,002.2	4
<b>Total</b>	<b>1,725.0</b>	<b>6</b>



UNCLASSIFIED

**Modernized  
Selected Acquisition Report  
Supplement**

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

FY 2025 President's Budget  
As of: December 31, 2023

UNCLASSIFIED

## **MSAR Supplement Sections**

Program Description

Program Use of the Adaptive Acquisition Framework

Technologies and Systems Engineering

Funding Sources (Acquisition)

Funding Sources (Operating and Support)

Acquisition Estimate and Quantity Summary

Annual Acquisition Estimates by Appropriation Account

Acquired System Annual End-Item Quantities by Appropriation Account

Nuclear Costs

Operational Fielding Plan

O&S Independent Cost Estimate

Annual Operating and Support Estimates by Cost Element

## Program Description

**Full Name**

KC-46A Tanker Modernization

**Short Name**

KC-46A

**PNO**

387

**Lead Component**

Air Force

**AAF Pathway**

MCA

**Acquisition Type**

MDAP

**Acquired Systems**

KC-46

**Related Programs**

Full Name	PNO	Pathway	Type	ACAT/ BCAT	Acquisition Status	Costs in SAR?	
						Acq	O&S
KC-46A Block 1 Pegasus Advanced Communications Suite	L74	MCA	AP	II	Active	No	No

## **Program Use of the Adaptive Acquisition Framework**

This acquisition is accomplished by a single program in the Major Capabilities Acquisition Pathway

## Technologies and Systems Engineering

### KC-46A Tanker Modernization

#### Major Software Efforts

Title	Status	Fielding Date	Description

#### Major Engineering Changes

Title	Original Need Date	Fielding Date	Description, Rationale and Program Impacts
Boom Telescoping Actuator Redesign (BTAR)	Dec 2023	Mar 2026	The Boom Telescoping Actuator Redesign (BTAR) effort is intended to resolve the Category 1 deficiency.

**Funding Sources (Acquisition)****Acquisition Funding Notes****KC-46A Tanker Modernization**

Category	Account	BA	Line Item	Program Element	RDT&E Project	Shared	Sunk
RDT&E	3600F	07	0401219F - KC-10s	0401219F	675195 - Aircraft Modernization Program (AMP)	x	x
RDT&E	3600F	05	0401221F - KC-46A Tanker Squadrons	0401221F	655271 - KC-46 Tanker Replacement (KC-X)		
RDT&E	3600F	07	0401221F - KC-135 Tanker Replacement	0401221F	674927 - Kc-X Next Generation Tanker	x	x
RDT&E	3600F	05	0605221F - KC-46	0605221F	655271 - KC-46 Tanker Replacement (KC-X)		
RDT&E	3600F	06	0909999F - Financing for Cancelled Account Adjustments	0909999F	664277 - Financing for Canceled Account Adj		
Procurement	3010F	02	KC046A - KC-46A MDAP	0401221F	-		
Procurement	3010F	06	KC046A - KC-46A Tanker	0401221F	-		
MILCON	3300F	01	AGGN143001 - KC-46A FTU Renovate Fac for 97 OG & 97 MXTS	0401221F	-		
MILCON	3730F	01	10023700 - TFI SMALL ARMS FIRING RANGE	0502576F	-		
MILCON	3830F	01	SZCQ139901 - KC-46A ADAL Fuel Cell Building 253	0501413F	-		

## Funding Sources (Operating and Support)

*Note: Budget lines fund activities executed by the Program Office or Sustainment Office.*

### Operating and Support Funding Notes

#### KC-46A Tanker Modernization

Category	Account	BA	Line Item	Program Element	RDT&E Project	Shared	Sunk
O&M	3400F	01	011M - Depot Purchase Equipment Maintenance	0401221F	-		

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## Acquisition Estimate and Quantity Summary

### KC-46A Tanker Modernization

#### Acquisition Estimates

Category	PB 2025	TY (\$M)	Current Base Year	Original Base Year	Report Fiscal Year
			CY2016 (\$M)	CY2011 (\$M)	CY2024 (\$M)
RDT&E		6,084.3	6,176.8	5,756.7	7,838.6
Procurement		33,178.5	27,196.5	25,346.6	34,513.3
MILCON		1,740.0	1,511.2	1,408.4	1,917.7
O&M		-	-	-	-
Total Acquisition		41,002.7	34,884.4	32,511.6	44,269.6
PAUC		224.059	190.625	177.659	241.910
APUC		185.355	151.936	141.601	192.812

#### Acquisition End-Item Quantities

System	PB 2025	Development	Procurement
KC-46		4	179
<b>Total</b>		<b>4</b>	<b>179</b>

#### Unit Description

The KC-46A unit of measure is an aircraft. The KC-46A program will develop, certify, produce, and sustain the next generation tanker aircraft, support equipment, and training systems.

#### Current and Future Years Defense Program Summary, TY(\$M)

Appropriation	Prior	2024	2025	2026	2027	2028	2029	To Complete	Total
RDT&E	5,932.3	86.9	52.7	12.4	-	-	-	-	6,084.3
Procurement	21,195.7	2,943.0	3,071.5	3,085.8	2,882.5	-	-	-	33,178.5
MILCON	1,512.5	213.9	13.6	-	-	-	-	-	1,740.0
O&M	-	-	-	-	-	-	-	-	-
<b>PB 2025 Total</b>	<b>28,640.5</b>	<b>3,243.8</b>	<b>3,137.8</b>	<b>3,098.1</b>	<b>2,882.5</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>41,002.7</b>

## Annual Acquisition Estimates by Appropriation Account

(Aligned to Budget Position: PB 2025)

### KC-46A Tanker Modernization

Source for TY\$-CY\$ Conversion: SAF/FMCE Raw and Weighted Inflation Indices for DAF Accounts: 23 Feb 2024

<b>3600F - Research, Development, Test &amp; Eval, AF</b>					
fiscal year		Other/ Unallocated	Total TY(\$M)	Weighted Rate	Total CY2016 (\$M)
<b>Total</b>		<b>6,084.3</b>	<b>6,084.3</b>	<b>-</b>	<b>6,176.8</b>
2005		10.200	10.2	0.834976	12.2
2006		10.102	10.1	0.860152	11.7
2007		67.801	67.8	0.882810	76.8
2008		16.686	16.7	0.900569	18.5
2009		17.801	17.8	0.912423	19.5
2010		305.113	305.1	0.923891	330.2
2011		538.875	538.9	0.941354	572.4
2012		818.947	818.9	0.957756	855.1
2013		1,550.289	1,550.3	0.973942	1,591.8
2014		1,495.911	1,495.9	0.987520	1,514.8
2015		548.224	548.2	0.997440	549.6
2016		105.084	105.1	1.012693	103.8
2017		113.702	113.7	1.033884	110.0
2018		72.219	72.2	1.055619	68.4
2019		77.755	77.8	1.075243	72.3
2020		38.755	38.8	1.102898	35.1
2021		30.725	30.7	1.154715	26.6
2022		30.190	30.2	1.216661	24.8
2023		83.937	83.9	1.259904	66.6
2024		86.864	86.9	1.291994	67.2
2025		52.739	52.7	1.319722	40.0
2026		12.362	12.4	1.347436	9.2

## Annual Acquisition Estimates by Appropriation Account

(Aligned to Budget Position: PB 2025)

### KC-46A Tanker Modernization

Source for TY\$-CY\$ Conversion: SAF/FMCE Raw and Weighted Inflation Indices for DAF Accounts: 23 Feb 2024

3010F - Aircraft Procurement, Air Force									
fiscal year	End Item Recurring Flyaway	Non-End Item Recurring Flyaway	Non-Recurring Flyaway	Initial Spares	Depot Activation	Other/ Unallocated	Total TY(\$M)	Weighted Rate	Total CY2016 (\$M)
<b>Total</b>	<b>27,580.7</b>	<b>163.5</b>	<b>125.3</b>	<b>2,388.4</b>	<b>1,114.1</b>	<b>1,806.5</b>	<b>33,178.5</b>	<b>-</b>	<b>27,196.5</b>
2005							-	0.851243	-
2006							-	0.873871	-
2007							-	0.897189	-
2008							-	0.911550	-
2009							-	0.927110	-
2010							-	0.944809	-
2011							-	0.959963	-
2012							-	0.974550	-
2013							-	0.994366	-
2014	-	-	-	-	-	9.500	9.5	1.008848	9.4
2015	1,122.710	26.577	-	168.686	-	138.111	1,456.1	1.022889	1,423.5
2016	1,719.841	28.225	-	52.965	45.910	202.385	2,049.3	1.042966	1,964.9
2017	2,184.875	27.177	-	327.982	0.107	173.071	2,713.2	1.064794	2,548.1
2018	2,674.029	27.499	-	385.568	5.210	97.486	3,189.8	1.095835	2,910.8
2019	2,121.611	27.994	-	79.320	1.604	76.699	2,307.2	1.133854	2,034.9
2020	1,687.799	0.000	-	-	22.301	179.946	1,890.0	1.181798	1,599.3
2021	2,314.422	-	63.319	45.154	10.119	184.121	2,617.1	1.232370	2,123.7
2022	2,133.244	-	36.132	154.207	29.754	58.095	2,411.4	1.273021	1,894.3
2023	2,310.090	-	22.633	93.238	12.321	113.674	2,552.0	1.304428	1,956.4
2024	2,403.837	5.437	3.167	159.072	308.052	63.433	2,943.0	1.330717	2,211.6
2025	2,525.123	9.396	-	216.754	170.153	150.076	3,071.5	1.358801	2,260.5
2026	2,438.260	5.018	-	252.725	193.392	196.384	3,085.8	1.387336	2,224.2
2027	1,944.866	6.156	-	452.761	315.192	163.491	2,882.5	1.416470	2,035.0

## Annual Acquisition Estimates by Appropriation Account

(Aligned to Budget Position: PB 2025)

### KC-46A Tanker Modernization

Source for TY\$-CY\$ Conversion: SAF/FMCE Raw and Weighted Inflation Indices for DAF Accounts: 23 Feb 2024

3300F - Military Construction, Air Force					
fiscal year		Other/ Unallocated	Total TY(\$M)	Weighted Rate	Total CY2016 (\$M)
<b>Total</b>		<b>1,614.9</b>	<b>1,614.9</b>	<b>-</b>	<b>1,393.2</b>
2005			-	0.858761	-
2006			-	0.880920	-
2007			-	0.899886	-
2008			-	0.912494	-
2009			-	0.925007	-
2010		1.559	1.6	0.939883	1.7
2011		2.562	2.6	0.959242	2.7
2012		11.183	11.2	0.976493	11.5
2013			-	0.999489	-
2014		207.181	207.2	1.014870	204.1
2015		168.155	168.2	1.033662	162.7
2016		66.794	66.8	1.056340	63.2
2017		39.111	39.1	1.080896	36.2
2018		267.856	267.9	1.106857	242.0
2019		178.000	178.0	1.140980	156.0
2020		31.959	32.0	1.190729	26.8
2021		15.288	15.3	1.243281	12.3
2022		93.600	93.6	1.282812	73.0
2023		304.200	304.2	1.313208	231.6
2024		213.900	213.9	1.340769	159.5
2025		13.600	13.6	1.368968	9.9

## Annual Acquisition Estimates by Appropriation Account

(Aligned to Budget Position: PB 2025)

### KC-46A Tanker Modernization

Source for TY\$-CY\$ Conversion: SAF/FMCE Raw and Weighted Inflation Indices for DAF Accounts: 23 Feb 2024

3730F - Mil. Con., Air Force Reserve					
fiscal year		Other/ Unallocated	Total TY(\$M)	Weighted Rate	Total CY2016 (\$M)
<b>Total</b>		<b>78.8</b>	<b>78.8</b>	<b>-</b>	<b>72.7</b>
2005			-	0.858772	-
2006			-	0.880602	-
2007			-	0.898411	-
2008			-	0.911295	-
2009			-	0.924872	-
2010			-	0.942361	-
2011			-	0.958255	-
2012			-	0.976018	-
2013			-	0.998252	-
2014			-	1.012944	-
2015			-	1.023269	-
2016			-	1.044515	-
2017		72.355	72.4	1.081684	66.9
2018		6.400	6.4	1.111053	5.8

## Annual Acquisition Estimates by Appropriation Account

(Aligned to Budget Position: PB 2025)

### KC-46A Tanker Modernization

Source for TY\$-CY\$ Conversion: SAF/FMCE Raw and Weighted Inflation Indices for DAF Accounts: 23 Feb 2024

3830F - Mil. Con., Air National Guard					
fiscal year		Other/ Unallocated	Total TY(\$M)	Weighted Rate	Total CY2016 (\$M)
<b>Total</b>		<b>46.3</b>	<b>46.3</b>	<b>-</b>	<b>45.3</b>
2005			-	0.861776	-
2006			-	0.883293	-
2007			-	0.899117	-
2008			-	0.911530	-
2009			-	0.923591	-
2010			-	0.940680	-
2011		0.230	0.2	0.956344	0.2
2012			-	0.976599	-
2013		0.749	0.7	0.994043	0.8
2014		0.233	0.2	1.009502	0.2
2015		41.000	41.0	1.021532	40.1
2016		3.202	3.2	1.041843	3.1
2017		0.887	0.9	1.064999	0.8
2018		0.002	0.0	1.088773	0.0

## Acquired System Annual End-Item Quantities by Appropriation Account

(Aligned to Budget Position: PB 2025)

### KC-46A Tanker Modernization

3600F - Research, Development, Test & Eval, AF				
fiscal year	KC-46			Total
<b>Total</b>	<b>4</b>			<b>4</b>
Undistributed	4			4

## Acquired System Annual End-Item Quantities by Appropriation Account

(Aligned to Budget Position: PB 2025)

### KC-46A Tanker Modernization

3010F - Aircraft Procurement, Air Force				
fiscal year	KC-46			Total
<b>Total</b>	<b>179</b>			<b>179</b>
Undistributed				-
2015	7			7
2016	12			12
2017	15			15
2018	18			18
2019	15			15
2020	12			12
2021	15			15
2022	15			15
2023	15			15
2024	15			15
2025	15			15
2026	15			15
2027	10			10



## **Nuclear Costs**

### **KC-46A Tanker Modernization**

#### **Program's Use of Department of Energy Resources**

None

## Operational Fielding Plan

### KC-46A Tanker Modernization

#### System: KC-46

#### Fielding and Inventory Notes

Some of this Program's Operational Fielding Plan contains Controlled Unclassified Information (CUI) data and has been removed per the Implementation Plan for the DoD's Modernized Selected Acquisition Report Process, dated June 2023, which required the SAR be submitted without any designation relation to dissemination control.

#### KC-46 Fielding Plan and Inventory

fiscal year	Store	Field	Expend/Loss	Decommission	Inventory
2023					
2024					-
2025					-
2026					-
2027					-
2028					-
2029					-

## O&S Independent Cost Estimate

### KC-46A Tanker Modernization

#### Independent and Current Cost Estimate Comparison

Category	CY2016 (\$M)	Independent Cost Estimate 2/13/2024	Current Estimate 9/26/2023	Variance with ICE (%)
Unit-Level Manpower		32,801.2	34,511.1	5%
Unit Operations		19,869.1	20,332.3	2%
Maintenance		33,500.5	31,533.2	-6%
Sustaining Support		8,522.2	9,205.8	8%
Continued System Improvements		5,981.9	6,295.7	5%
Other		19,487.6	-	-100%
<b>Total O&amp;S</b>		<b>120,162.5</b>	<b>101,878.1</b>	<b>-15%</b>

#### Independent Cost Estimate Source

Event: Annual Non-Advocate Cost Assessment  
 Type: Independent Cost Estimate  
 Approved by: Air Force Cost Analysis Agency, February 13, 2024

#### Current Cost Estimate Source

Type: Program Office Estimate  
 Approved by: AFLCMC/FZC, September 26, 2023

#### Cost Estimate Variance Explanation

The variance between the FY 2023 POE and the FY 2024 ICE is primarily due to removal of Other costs (Indirect Support) no longer carried or estimated by the Program Office and updated inflation rates utilized in ICE.

## Annual Operating and Support Estimates by Cost Element

### KC-46A Tanker Modernization

#### System: KC-46

Source for TY-CY Conversion: OSD Inflation Indices issued 2 Mar 2023; 2023 PPI 336411 rates

Operating and Support Cost Elements							
fiscal year	1.0 Unit-Level Manpower	2.0 Unit Operations	3.0 Maintenance	4.0 Sustaining Support	5.0 Continuing System Improvements	Other	Total CY2016 (\$M)
<b>Total</b>	<b>34,511.1</b>	<b>20,332.3</b>	<b>31,533.2</b>	<b>9,205.8</b>	<b>6,295.7</b>	-	<b>#####</b>
2017	48.510			0.866	-		49.4
2018	55.463			5.017	1.833		62.3
2019	56.859	18.646	4.623	37.589	2.608		120.3
2020	91.695	46.683	25.879	47.039	1.694		213.0
2021	148.950	66.200	75.001	54.061	3.547		347.8
2022	266.698	96.579	68.628	82.863	22.726		537.5
2023	417.795	192.794	161.501	107.827	43.438		923.4
2024	530.920	222.022	200.100	133.939	42.009		1,129.0
2025	574.586	250.365	266.925	149.199	127.293		1,368.4
2026	654.810	274.969	290.862	157.257	199.686		1,577.6
2027	745.764	293.978	359.370	163.116	269.706		1,831.9
2028	766.819	316.795	430.287	203.321	260.302		1,977.5
2029	800.106	425.959	645.835	209.244	219.896		2,301.0
2030	803.092	503.114	729.355	211.112	180.305		2,427.0
2031	806.092	505.067	818.505	208.337	164.623		2,502.6
2032	809.105	506.753	800.036	201.270	165.026		2,482.2
2033	812.133	508.445	797.999	201.677	150.096		2,470.4
2034	815.174	510.144	747.211	202.475	135.856		2,410.9
2035	818.230	511.850	797.241	204.731	132.967		2,465.0
2036	821.299	513.562	775.196	203.417	133.323		2,446.8
2037	824.382	515.281	807.974	204.912	133.683		2,486.2
2038	827.480	517.007	808.968	203.754	134.048		2,491.3
2039	830.592	518.739	913.887	204.177	134.417		2,601.8
2040	833.718	520.478	829.586	207.439	134.791		2,526.0
2041	836.859	522.224	812.871	205.255	135.168		2,512.4
2042	840.014	523.977	798.207	205.742	135.551		2,503.5
2043	843.184	525.737	850.058	207.491	135.938		2,562.4
2044	846.368	527.504	860.470	206.330	136.328		2,577.0
2045	849.567	529.277	844.236	209.044	136.724		2,568.8
2046	852.781	531.058	832.109	207.836	137.124		2,560.9
2047	856.009	532.845	906.750	207.656	137.529		2,640.8
2048	859.253	534.640	891.317	208.388	137.938		2,631.5
2049	862.511	536.441	893.691	210.169	138.351		2,641.2

**System: KC-46**

Source for TY-CY Conversion: OSD Inflation Indices issued 2 Mar 2023; 2023 PPI 336411 rates

<b>Operating and Support Cost Elements</b>							
<b>fiscal year</b>	<b>1.0 Unit-Level Manpower</b>	<b>2.0 Unit Operations</b>	<b>3.0 Maintenance</b>	<b>4.0 Sustaining Support</b>	<b>5.0 Continuing System Improvements</b>	<b>Other</b>	<b>Total CY2016 (\$M)</b>
2050	865.784	538.250	813.567	211.500	138.770		2,567.9
2051	869.073	540.066	851.296	209.691	139.192		2,609.3
2052	872.376	541.888	843.415	210.321	139.619		2,607.6
2053	875.695	543.718	861.023	210.381	140.052		2,630.9
2054	879.029	545.555	864.166	211.135	140.488		2,640.4
2055	882.378	547.400	946.451	215.269	140.930		2,732.4
2056	885.743	549.251	901.778	212.015	141.376		2,690.2
2057	889.123	551.110	924.129	212.257	141.827		2,718.4
2058	892.518	552.976	883.569	213.139	142.283		2,684.5
2059	854.067	523.771	860.961	209.857	139.457		2,588.1
2060	740.776	449.934	728.291	201.022	130.426		2,250.4
2061	684.775	430.942	651.805	186.958	125.469		2,079.9
2062	617.295	387.592	601.351	172.373	120.207		1,898.8
2063	543.427	339.796	556.517	161.868	114.098		1,715.7
2064	413.810	246.198	423.906	153.924	105.928		1,343.8
2065	324.612	177.626	293.146	151.512	88.565		1,035.5
2066	263.398	135.441	213.495	147.763	71.576		831.7
2067	188.314	82.098	162.473	147.528	54.221		634.6
2068	115.283	36.006	77.125	147.227	36.816		412.5
2069	46.828	13.584	30.056	147.479	19.875		257.8