

KC-46A

Executive Summary

- The Air Force accepted delivery of the first KC-46A in January 2019.
- DOT&E approved the KC-46A IOT&E test plan in April 2019. The Air Force Operational Test and Evaluation Center (AFOTEC) began operational test activities at McConnell AFB, Kansas, in May 2019, with first flight test in June 2019.
- Flight testing to certify the first eight aircraft for air refueling (AR) receiver operations with the KC-46A began in October 2017 and continued through FY19.
- The KC-46A currently carries four primary deficiencies: (1) lack of visual acuity in the Remote Vision System (RVS), (2) no indication of high boom radial loads presented at the air refueling operator's station, (3) boom stiffness while refueling lightweight aircraft, and (4) cargo locking latches inadvertently becoming unlocked. Boeing and Air Force offices are identifying solutions to remediate the deficiencies. Until these deficiencies are resolved, the KC-46A will not be fully mission capable.

System

- The KC-46A AR aircraft is the first increment of replacement tankers (179) for the Air Force fleet of more than 400 KC-135 and KC-10 tankers.
- The KC-46A design uses a modified Boeing 767-200ER commercial airframe with numerous military and technological upgrades, such as the fly-by-wire refueling boom, the remote air refueling operator's station, 787 cockpit displays, additional fuel tanks in the body, and defensive systems.
- The KC-46A will provide both a boom and probe-drogue refueling capabilities. The KC-46A is equipped with an AR receptacle so that it can also receive fuel from other tankers, including legacy aircraft.
- The KC-46A is designed to have significant palletized cargo and aeromedical capacities; chemical, biological, radiological, and nuclear survivability; and the ability to host communications gateway payloads.
- Survivability enhancement features are incorporated into the KC-46A design.
 - Susceptibility is reduced with an Aircraft Survivability Equipment suite consisting of Large Aircraft Infrared



Countermeasures (LAIRCM), a modified version of the ALR-69A Radar Warning Receiver (RWR), and a Tactical Situational Awareness System. The suite is intended to correlate threat information from pre-flight planning, the RWR, and other on- and off-board sources, and to generate a crew-selectable alternate route suggestion in the event of an unexpected threat.

- Vulnerability is reduced by adding a fuel tank inerting system and integral armor to provide some protection to the crew and critical systems.

Mission

Commanders will use units equipped with the KC-46A to perform AR to accomplish six primary missions to include nuclear operations support, global strike support, air bridge support, aircraft deployment support, theater support, and special operations support. Secondary missions will include airlift, aeromedical evacuation, emergency AR, air sampling, and support of combat search and rescue.

Major Contractor

The Boeing Company, Commercial Aircraft in conjunction with Defense, Space & Security – Seattle, Washington

Activity

- The Air Force accepted delivery of the first KC-46A from Boeing in January 2019.
- The Air Force completed two outside the continental United States Integrated System Evaluations (ISE) of the KC-46A in

early FY19 to assess system development progress. During the ISE events, the Air Force tested avionics, cargo transport, mission planning, and electronic warfare systems.

FY19 AIR FORCE PROGRAMS

- Flight testing to certify the first eight aircraft for AR receiver operations with the KC-46A began in October 2017 and continued through FY19.
- The KC-46A program attained AR certifications for boom refueling the F-16, F-15, C-17, B-52, and KC-46A and centerline drogue refueling the F/A-18C/D. The A-10 and F/A-18E/F receiver certifications were delayed due to technical and scheduling difficulties.
- AFOTEC began operational test activities at McConnell AFB, Kansas, in May 2019 in accordance with the DOT&E-approved test plan.
- The Air Force conducted a Cooperative Vulnerability and Penetration Assessment in 4QFY19.
- Operational data collection and analysis is ongoing.
- Boeing and the Air Force are exploring options to resolve the four primary system deficiencies: (1) lack of visual acuity in the RVS, (2) no indication of high boom radial loads presented at the air refueling operator's station, (3) boom stiffness while refueling light-weight aircraft, and (4) cargo locking latches inadvertently becoming unlocked.
- The KC-46A program completed thermal curtain materials qualification testing in June 2019 at Sandia National Laboratories to support the manufacture of thermal curtains for crew survivability to nuclear threats.
- Air Force analyses are ongoing to assess the KC-46A inherent nuclear hardness to blast, radiation, flash, thermal, and

electromagnetic pulse effects and to assess base safe escape in the event of a nuclear attack.

- The Air Force is coordinating with the Defense Threat Reduction Agency on future testing of KC-46A against operationally realistic electromagnetic pulse effects. The Defense Threat Reduction Agency will provide funds and test plans to support continuous wave and electromagnetic pulse testing expected to occur in FY20.

Assessment

- Operational testing has verified deficiencies observed during developmental testing for the RVS during AR operations.
- Until the stiff boom deficiency is resolved, lightweight receiver aircraft will have difficulties refueling from the KC-46A.
- Until the cargo lock deficiency is resolved, flight operations requiring cargo pallets will not be allowed to occur.
- Schedule analysis identified the completion date for IOT&E will have two key drivers: (1) certification and testing of all 18 receiver aircraft planned to participate in IOT&E, and (2) delivery of production-representative wing air refueling pods for operational testing.

Recommendation

1. The KC-46A program should advocate for any changes necessary to ensure the RVS is mission capable under all expected air refueling conditions.