



KC-767



## The choice of Northrop Grumman/EADS for the Air Force refueling tanker is making waves throughout

**The Airbus A330-200** won out over the Boeing 767-200 when the Air Force announced its selection in the KC-X competition for a new air refueling tanker on February 29.

The decision covers 179 new tanker-transporters at a cost of \$35 billion-\$40 billion. The Pentagon decided in 2006 that the airplane chosen in the KC-X competition would be known as the KC-45A. That designation now applies to the Air Force A330. Other names that have been widely applied to the two competing tanker candidates, including KC-30 and KC-767, were industry terms without official status.

A team led by Northrop Grumman and Airbus's parent company, EADS, offered the winning A330 tanker. Although final assembly of Airbus commercial aircraft takes place in Toulouse, the winning team plans to assemble the military A330 at a new facility in Mobile, Alabama. Boeing, which manufactured the nation's first generation of tankers and delivered the last of these in the 1960s, planned to assemble its military 767 at Everett, Washington, where the company also makes the commercial 787 Dreamliner and where production of civilian 767s will end in 2012.

Since the announcement, Boeing has filed a 133-page protest of the decision.

by **Robert F. Dorr**  
Contributing writer

The KC-45A will begin the process of replacing the Air Force's geriatric fleet of 529 Boeing KC-135E/R Stratotanker and 59 Douglas KC-10A Extender air-refueling planes.

"Air refueling is an integral part of air operations around the world," says Gen. Arthur Lichte, commander of Air Mobility Command, which will use the planes. "It's absolutely important and critical for us to get on with this. Anything that would slow down the process has an impact on the warfighter. [Even] if everything goes smoothly and everything progresses, we will still have KC-135s flying late until the 2040s, which makes that airplane well over 80 years old, and in some cases close to 90. And from the warfighter's point of view, we need to get on with this."

The need for a new tanker is a pressing priority, but the Northrop Grumman/EADS "win" has additional consequences. The winning team will have a leg up on future tanker competitions, dubbed KC-Y and KC-Z, slated for 2020 and 2025, to bring the number of new tankers to about 530. The A330 will now stand a strong chance of becoming a future replacement for the Air Force's RC-135 Rivet Joint reconnaissance, E-3 Sentry early warning, and E-8 Joint STARS overhead surveillance platforms.

# THE AIR FORCE CHOOSES A



KC-45

## *the industry and in Washington, while manufacturers await a ruling on a protest by Boeing.*

Although experts differ on exact figures related to age and structural fatigue of the existing air-refueling fleet, no one disputes that the Air Force needs new tankers. As recently as last May, Air Force Chief of Staff Gen. T. Michael “Buzz” Moseley, who calls the new tanker “my top priority,” made a transatlantic round trip in a KC-135E bearing a fiscal year 1957 serial number. Moseley and Lichte often use the term “Eisenhower era” to describe the KC-135 fleet. The average age of an Air Force tanker is 47 years, as compared with 23.5 years for the average Air Force aircraft, and even the latter figure is a concern: During the Vietnam War era, the average age of an Air Force aircraft was less than nine years, during WW II less than three.

### **Antiquated airplanes**

The oldest KC-135E models are so decrepit they cannot be flown at all, yet Congress is prohibiting the Air Force from retiring most of them. Lichte says, “We had 85 KC-135Es remaining in inventory at the start of FY08. Only 16 are now flying. Thirteen have been retired and taken to the bone yard. We have 56 in what we call XJ status, which means ‘semistored/mothballed at the unit and awaiting a one-time flight to the bone yard when retirement is approved.’”

In that last group are 28 planes that probably will not fly again because of corroded engine struts. Lichte says Congress will not allow him to dispose of any more of his unflyable ancient aircraft until KC-X is finished, meaning until the protest that has ensued from the contract award is resolved.

How old is old? The prototype for the C-135 series first flew on July 15, 1954, and the first KC-135A on August 31, 1956. The other current Air Force tanker, the KC-10, is a derivative of the widebody DC-10 jetliner, which made its first flight on August 29, 1970, and is no longer used for passenger service by any major airline. The first military KC-10A tanker made its maiden flight on July 12, 1980. The oldest tanker in the Air Force today is older than a grandparent of its pilot; the newest is older than all but the most senior pilots.

KC-135s and KC-10s have been upgraded while in service, but they hail from an era when round dials preceded glass cockpits, noise restrictions were nonexistent, and the U.S. military had access to far more runways, of greater length than those being used today. Because even an ambitious new tanker program will take many years, Moseley and Air Force Secretary Michael Wynne frequently tell reporters

# TANKER

that the mother of the last KC-135 pilot has not yet been born.

How new is new? The first Boeing 767 made its initial flight September 26, 1981. The first military tanker version, for Italy, made its maiden flight May 21, 2005, and offloaded fuel to a receiver airplane for the first time on March 5, 2007. The prototype for the Airbus A330 series first flew on November 2, 1992, and the first A330-200 model on August 13, 1997. An A310 being used to develop refueling gear offloaded fuel to a receiver for the first time on February 29 of this year, the day of the KC-X announcement.

Early in this decade, Italy and Japan each ordered four 767 tankers from Boeing. These aircraft are closer to the standard 767 configuration than the version proposed for the USAF. According to *Defense News*, the tankers were slated for delivery in 2005. At this writing, the

LRF with a -400 wing. We bumped up a lot of bits and parts of this so it would be more robust than the Italy and the Japan versions. It was going to be the most advanced and robust tanker that we've ever built."

In fact, the 767 proposed under KC-X has a 767-400 cockpit similar to that of the larger Boeing 777, the heavier load-bearing wing from the 767-300 freighter, flaps from the 767-400 (for better runway performance), and sturdier landing gear from the -400. One observer called it a "Frankenplane" because of its hybrid features: It is different from any other version of the 767, meaning that it has no developmental history or track record. The A330 offered in the KC-X contest was identical to the A330 tanker ordered by Australia.

Both aircraft offered in the KC-X contest had capabilities not found on most current tankers. Each was equipped with a receptacle to

The KC-10 (left) and KC-135 are both ready for retirement.



Italian planes were not yet operational; Japan has received its first two copies.

On the Italian 767s, the design of the pylon that attaches the refueling pod to the wing caused aerodynamic buffeting that limited maximum speed. The problem delayed the project so long that Boeing paid tens of millions of dollars to return to service its 707 tankers, the planes the 767s were supposed to replace. "There's no real excuse for us being late on Italy. We've been very open that we didn't do a very good job on that," Boeing spokesman Bill Barksdale tells *Aerospace America*.

### Refueler and transport

Boeing officials and supporters of the 767 feel they were offering the Air Force a better and more versatile aircraft than the 767-200 models built for Italy and Japan. "Our aircraft [proposed under the KC-X program] has a newer refueling boom," says Barksdale. "It's a 767-200

receive refueling in flight. Each was expected to dispense fuel to as many as three receiver aircraft simultaneously, using both the aerial boom system (the method used by most Air Force receiver aircraft) and the probe and drogue system (used by most Navy, Marine Corps, and allied aircraft).

Both entrants were expected to offer the ability to haul troops and cargo in addition to serving as aerial filling stations. This last capability—the transport half of the tanker-transport mission—is what prompted 767 supporter Rep. Norm Dicks (D-Wash.), whose district is home to many Boeing jobs, to accuse KC-X competition managers of a "bait and switch." It was well known all along that the A330 was larger and had greater transport capacity than the 767.

Air Force officials and A330 supporters insist there was never any change in the competition's requirement for transport capability and that Boeing would have been free to submit a

larger aircraft, such as its 777, had it chosen to do so. Mark McGraw, Boeing's vice president of tanker programs, when briefed on KC-X requirements, said the 767 was "right-sized" for the mission, while a Boeing document says the larger 777 was "not the optimum solution to meet the requirements." The 777 was never proposed as a KC-X candidate.

While most observers in industry and in Washington find Dicks' argument without merit, 767 supporters feel they have fair questions that were not fully answered when Air Force acquisitions boss Sue Payton briefed Boeing on March 7 on why it lost.

What no one disputes is that all parties put ethics first throughout the competition. Boeing received high marks for rehabilitating itself after a failed tanker deal earlier in the decade went sour, shook the company to its roots, and sent two people to prison. Northrop Grumman and EADS also received high marks for integrity. Air Force officials won praise for conducting a clean, careful competition. Everyone involved knew all along that one side would win and the other would be disappointed.

Payton said the KC-X contest looked at five key evaluation factors—capability, risk, past performance, cost/price, and overall fleet refueling capability. "Overall, Northrop Grumman did have strong areas in aerial refueling and in airlift...their past performance was excellent, they offered great advantage to the government in cost price, and they had an excellent fleet aerial refueling rating," Payton told reporters. Payton and other officials confirmed that the KC-X competition did not take into account the creation of jobs or the impact on the economy.

### The jobs factor

"This is a triumph for Alabama and for Mobile," said Samuel Jones, the Democratic mayor of Alabama's third-largest city. In interviews with the author over several months, Jones spoke of anticipating a future day, now expected in 2012, when the first cloud-gray, cigar-shaped Northrop Grumman KC-45 rolls out of the new Mobile assembly plant. The facility's location is the former Brookley AFB, a one-time B-52 Stratofortress base that was closed down by the Strategic Air Command in 1964.

Each side in the KC-X contest said its aircraft would create more American jobs than the other. Jones and Sen. Richard Shelby (R-Ala.) say the A330 will create about 40,000 new jobs, and that this is double what the 767 would have provided. Others dispute that figure.

If and when the first KC-45A emerges from the Mobile facility, it will be a large, attractive

flying machine festooned with refueling gear, with strong military capabilities and significant U.S. content. Powered by two General Electric F138-GE-100 (the military term for the CF6-80E1A4B) turbofan engines rated at 72,000 lb thrust, the 192-ft 11-in. KC-45A with its 197-ft 10-in. wingspan will have the capacity for 250,000 lb of fuel and will gross out at a maximum takeoff weight of 513,000 lb. With its low-slung, wide-track appearance, the craft will have a crew of just three—commander, copilot, and boom operator.

The two pilots have sidestick controllers like the one on the F-16 rather than a traditional yoke. They have digital, fly-by-wire controls. The boom operator will sit up front to run the digital, fly-by-wire refueling boom.

Unlike current tankers, neither KC-X candidate offered a boom operator position in the ventral position on the rear fuselage. "We're used to being out back, but we can adjust," says a technical sergeant and instructor boom operator at Altus AFB, Oklahoma, where the 97th Air Mobility wing will receive the first KC-45As and train the first KC-45A crews. The base and wing will continue to train KC-135 crews. Because the KC-10 is stationed at only two bases, the crews for that tanker receive their training on the job.



Although the Air Force's KC-X decision appeared very solid, the A330 selection has met with some resistance from Washington, and also from some ordinary Americans. The American KC-45A will not be assembled in France (apart from four initial developmental airplanes) and will have almost no French content, but the award was still a tempting target. Retired Air Force tanker pilot Maj. Gen. Robert W. McDonald called the KC-X selection "treason." Sen. Sam Brownback (R-Kansas), whose home state includes the Boeing Wichita facility, said: "It's stunning to me that we would outsource the production of these planes [to France] instead of building them in America."

With Boeing's formal protest to the Government Accountability Office, some speculate that the tanker deal is not yet final. Others agree with Defense Secretary Robert Gates, who says, "I believe, based on the briefings that I've received, that it was a fair competition and a merit-based decision."

*Both candidates were expected to dispense fuel to as many as three receiver aircraft simultaneously.*

