

CRS Report for Congress

Received through the CRS Web

Air Force Aerial Refueling

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Summary

Aerial refueling aircraft are key to air operations. The U.S. tanker fleet is large and effective, but old. Modernizing or replacing the current fleet of tankers presents the Department of Defense (DOD) with difficult choices in terms of desired capabilities, force structure, and budget. How this fleet will be maintained or replaced, and on what schedule, has proven controversial. This report will be updated as events warrant.

Background

Modern military air operations require aerial refueling. Refueling aircraft, or tankers, extend the range of fighters, bombers, and other aircraft. Tankers increase the amount of time that combat and surveillance aircraft can stay “on-station,” and they boost combat aircraft lethality. According to senior Air Force officials, “Clearly the tanker fleet is really some of the very fiber that holds our Air Force’s unique global capabilities together. It is an essential enabler for getting to the fight and fighting the fight.”¹ Navy aircraft can be configured to refuel other Navy aircraft, but the Navy prefers to use “big wing” Air Force tankers for long-range flight operations.²

The Air Force’s latest study (Tanker Requirements Study -05) estimates that it will need up to 600 KC-135-like aircraft. Yet the need for aerial refueling could grow in the future. Over the past several years, the United States has reduced by two-thirds the number of forward bases from which it can operate. Major overseas en route air bases have declined 69%.³ Thus, to maintain the same level of engagement, U.S. forces must

¹ Amy Butler, “Air Force Mulling Replacement for Aging, Maintenance-Needy KC-135,” *Inside the Air Force*, May 4, 2001.

² Department of the Navy (N78) provided to CRS by USN LLW via email Sept. 2, 2005.

³ *Basic Air Force Structure and Expeditionary Aerospace Force (EAF) Operations*, Maj. Gen. Howie Chandler, Presentation to U.S. Air Force Caucus, Bolling AFB, Mar. 23, 2001.

deploy more frequently and over greater distances. DOD's Global Posture Review might recommend an additional reduction in forward basing.⁴

Air Force Capabilities. The majority of the Air Force's tankers are Boeing **KC-135 Stratotankers**. The Air Force owns 531 Stratotankers: 114 E models, and 417 R models. The average KC-135 is approximately 44 years old. The KC-135 can carry 200,000 lbs of fuel that it dispenses to USAF aircraft through a flying boom. A drogue can be attached to refuel Navy, Marine Corps, or allied-country aircraft. The Multi-Point Refueling System Program will outfit 45 KC-135Rs with wingtip pods so the aircraft can simultaneously refuel two probe-equipped aircraft. The KC-135 can also carry 35,000 lbs of cargo in addition to its fuel payload. The Stratotanker is expected to fly until 2040.

The Air Force also owns 59 Boeing **KC-10A Extenders**. The KC-10 has an average fleet age of 20.5 years. The KC-10 can carry 356,000 lbs of fuel, almost twice as much as the KC-135. All KC-10s can simultaneously use the flying boom and two wing tip probe and drogue systems. KC-10s can be refueled in the air to increase their delivery range. The KC-10 can carry up to 75 troops and 170,000 lbs of cargo in addition to its fuel payload, representing approximately 12% of all of DOD's organic airlift capability. Current plans call for the KC-10 to remain in the active inventory through 2040.

A brief review of recent conflicts underscores the importance of tanker aircraft. In both Iraq and Afghanistan, U.S. military aircraft projected power over long distances and in theaters with less than desirable access to forward bases or neighboring airspace. Thus, combat and support aircraft had to fly great distances both to the theater and while in theater, increasing aerial refueling demands. A large proportion of the Air Force's aerial refueling fleet (149 KC-135s, and 33 KC-10s) participated in Operation Iraqi Freedom, flying over 6,000 sorties and offloading over 300 million pounds of fuel.

Modernization Controversy. Modernizing or replacing the Air Force tanker fleet has been a point of contention for 10 years. In 1996, the General Accounting Office (GAO) asserted that the long-term viability of the KC-135 fleet was questionable and advocated expeditiously studying replacement options. DOD countered that KC-135 airframe hours were low and that the fleet was sustainable for another 35 years.⁵ In 2001, the Air Force reported that the KC-135 fleet would incur "significant cost increases" between 2001 and 2040, but "no economic crisis is on the horizon...there appears to be no run-away cost-growth," and "the fleet is structurally viable to 2040."⁶ At that time, the Air Force position on tanker modernization was to conduct an analysis of alternatives (AOA) to determine the optimal replacement option for KC-135s. Recapitalization would begin in the 2012 time frame to meet the KC-135 2040 retirement.

Section 8159 of the FY2002 DOD Appropriations Act (P.L. 107-117) authorized the Air Force to lease 100 Boeing KC-767 aircraft to replace the oldest KC-135Es. This proposal proved controversial, because Section 8159 appeared to depart from traditional acquisition processes and to weaken congressional oversight. It was also established that

⁴ See [<http://fpc.state.gov/fpc/35246.htm>] for more information on the Global Posture Review.

⁵ GAO/NSIAD-96-160.

⁶ "KC-135 Economic Service Life Study." Technical Report F34601-96-C-0111. Feb. 9, 2001.

a lease would cost more than procuring the aircraft, and many found Air Force arguments in favor of the lease to contradict its position of just a year prior. The proposed lease was debated in four congressional hearings, culminating with a pair of Senate hearings in September 2003.⁷ Subsequently, alleged and admitted ethical violations by government and industry representatives involved in the lease proposal added to the controversy.

The FY2004 Defense Authorization Act (P.L. 108-136, Sec. 135) forged a compromise between opponents and proponents of the KC-767 by giving the Air Force permission to lease 20 tanker aircraft and purchase no more than 80 aircraft. Section 134 of this act prohibited the Air Force from retiring in FY2004 more than 12 KC-135Es. (The Air Force wants to retire 68 E-models). In September 2004 it was announced that the Air Force had grounded 29 KC-135Es due to safety concerns. Conferees also mandated that the Air Force conduct an aerial refueling AOA (Sec. 134) and that an independent assessment be conducted on the condition of the KC-135E fleet (Sec. 345).

On February 1, 2004, former Deputy Secretary of Defense Paul Wolfowitz requested that the Defense Science Board (DSB) conduct the independent analysis of the KC-135E fleet, and on February 24, 2004, former acting Undersecretary of Defense for Acquisition Michael Wynne directed the Air Force to conduct an aerial refueling AOA. Although it had the statutory authority to proceed, DOD did not request any funds for FY2005 to lease 20 aircraft or procure 80 aircraft. Defense Department leaders instead deferred executing either action until the completion of the DSB report, and an internal investigation by the DOD Inspector General (IG) on potential improprieties by Boeing Company executives and whether these activities negatively effected the Tanker lease program.

On April 20, 2004, Darleen A. Druyan, the former lead Air Force negotiator on the tanker lease program, pleaded guilty to one charge of criminal conspiracy. Ms. Druyan admitted to secretly negotiating an executive job with the Boeing company while still overseeing the \$23 billion deal between the Air Force and Boeing.⁸ Lease supporters argued that Ms. Druyan was a single “bad apple” and that her actions did not negate the KC-767’s merits. In February 2005, however, it was reported that the DOD IG found that Air Force Secretary James Roche misused his office when he lobbied the Office of Management and Budget (OMB) to support the lease concept.⁹ The IG’s final report found that four other senior DOD officials were guilty of evading OMB and DOD acquisition regulations that are designed to demonstrate best business practices and to provide accountability. The DOD IG found that senior DOD officials knowingly misrepresented the state of the KC-135 fleet and aerial refueling requirements.¹⁰ In a June 7, 2005 hearing before the Senate Armed Services Committee, DOD IG Joseph Schmitz testified that criminal charges may be filed by the U.S. Attorney’s office.¹¹

⁷ See CRS Report RL32056, *The Air Force KC-767 Tanker Lease Proposal*, by Christopher Bolkcom

⁸ Renae Merle, “Ex-Pentagon Official Admits Job Deal,” *Washington Post*, Apr. 21, 2004.

⁹ R. Jeffrey Smith. “Roche Cited for 2 Ethics Violations.” *Washington Post*. Feb. 10, 2005.

¹⁰ *Management Accountability Review of the Boeing KC-767A Tanker Program*. Report No. OIG-2004-171. Office of the Inspector General of the Department of Defense. May 13, 2005.

¹¹ Hearing of the Senate Armed Services Committee. “Management Accountability Review of the Boeing KC-767A Tanker Program.” *Federal News Service*. June 8, 2005.

Issues for Congress

The FY2005 Defense Authorization Act (P.L. 108-375) contained a provision (Sec. 133) that terminated the leasing authority granted by P.L. 108-136, Section 135. Resurrecting the KC-767 lease, or initiating a similar lease, appears unlikely. As DOD considers new efforts to modernize or replace the Air Force aerial refueling fleet, at least three issues (addressed below) appear to compete for congressional attention.

Potential Tanker Options. Two studies that are central to making informed decisions on tanker recapitalization — the tanker AOA and the Air Force’s Mobility Capabilities Study — have not yet been completed. Therefore, there is currently little rigorous analysis of the conditions shaping tanker recapitalization (e.g. numbers of aircraft required, desired range, payload, and mix of refueling booms and hose-and drogues) or of the options available. Boeing advocates portray tanker recapitalization as a binary choice between the KC-767 or a foreign aircraft, most likely one produced by Airbus, Boeing’s top competitor. Others contend that other credible options exist.

In May 2004, the Defense Science Board (DSB) published its independent assessment of the condition of the aerial refueling fleet. In addition to rebutting Air Force claims that the KC-135 fleet urgently needed to be replaced, the DSB recommended that “serious consideration be given” to purchasing and converting used aircraft for aerial refueling (especially the DC-10), re-engining some KC-135s, and increasing the use of commercial aerial refueling services. While others have also suggested these options (See CRS Report RL32056), the DSB is DOD’s most respected group of scientific and technical advisors, and its recommendations tend to be influential.

The DSB also noted that a tanker fleet consisting of two different types of aircraft — large, long-range tankers and smaller, “tactical tankers” — is likely most prudent and effective. This recommendation may be gaining some traction within the Air Force. In August 2005, two important Air Force leaders, Chief of Staff Gen. John Jumper and Air Mobility Command’s Chief Gen. John Handy, recommended acquiring more large tankers, like the KC-10.¹² Larger tankers could potentially be based on aircraft such as the Boeing 777, the Airbus A330, or the C-17 airlifter. In the past, the Air Force has resisted suggestions to equally combine the airlift and refueling missions on a single large aircraft, but new budgetary constraints and the potential closing of the C-17 production line in January 2007 may increase the appeal of this concept.

Industrial Base Concerns. Since 2001, discussions about replacing the KC-135 fleet have featured debates over potential consequences for the U.S. aviation industrial base generally and the Boeing Co. specifically. Some claimed that the KC-767 lease was a financial “bailout” for Boeing, while others noted that U.S. aircraft manufacturers had suffered from reduced business after the September 11, 2001 terrorist attacks. Replacing KC-135s with American aircraft would have a dual benefit, they argued. The industrial base debate appears to have taken on increased focus beginning in the Spring of 2005. The European Aeronautic Defense & Space Co. (EADS) announced that it would build

¹² Marc Selinger. “U.S. Air Force Needs more ‘KC-10-like’ tankers, general says.” *Aerospace Daily*. Aug. 3, 2005. John Bennett. “Jumper Forecasts Changes for USAF Aerial Refueling Tanker Fleet.” *Inside the Air Force*. Sept. 2, 2005.

the Airbus A330 aircraft in a new factory in Mobile, AL rather than in Europe. Northrop Grumman Corp. announced that it would team with EADS to compete for future aerial refueling aircraft contracts. The KC-30, as the refueling aircraft would be named, would, according to Northrop officials, create 1,000 new American jobs and would be composed predominantly of American parts.¹³

Boeing supporters have complained that EADS receive direct government subsidies, making them unfairly competitive. In May 2005, the House Armed Services Committee published its version of the FY2006 Defense Authorization Act (H.R. 1815, H.Rept. 109-89), which some argue “levels the playing field” for the U.S. aircraft industry. Section 817 would prohibit DOD from entering into a contract with any foreign company (including a joint venture) that received subsidies from a government in the World Trade Organization. This would appear to bar EADS from future tanker competition.

Supporters of limiting competition for future Air Force tanker contracts to U.S. companies argue that such action is warranted and vital to the health of the industrial base. Airbus, they note, was created in the early 1970s for the express purpose of maintaining and fostering the European commercial jet aircraft industry. Airbus’ growing international success, it is argued, is due to heavy and unfair subsidies from European governments, some of which violated the General Agreement on Tariffs and Trade (GATT).¹⁴ European defense firms are increasingly successful in winning U.S. defense contracts, such as the VXX Presidential Helicopter contract award. This success comes at the expense of U.S. companies, and U.S. jobs, and makes the United States dangerously dependent on foreign defense companies, it is argued. Further, the consolidation of the U.S. defense industrial base could reduce both domestic competition and innovation, ultimately resulting in less competitive and effective future products.

Opponents of limiting competition for future Air Force tanker contracts to U.S. companies argue that such protection is unnecessary and potentially counterproductive. Such protections are unnecessary, it is argued, because DOD’s 2005 *Annual Industrial Capabilities Report to Congress* states that the U.S. defense industrial base is healthy and a world leader in 236 of 255 critical defense technologies.¹⁵ Further, the United States enjoys a foreign trade surplus in aerospace products, which is growing in 2005.¹⁶ European companies have argued for years that U.S. companies like Boeing also receive indirect government subsidies, and this perspective was implicitly recognized by a 1992 agreement on aircraft trade between the United States and the European Community.¹⁷ Finally, some argue that increased European success in the U.S. defense market proves

¹³ Jonathan Karp. “Northrop, EADS Join on Air Force Proposal.” *Wall Street Journal*. Sept. 8, 2005.

¹⁴ For more information, see CRS Report RS21002, *Boeing/Airbus: Size, Speed, and Subsidies*, by John W. Fischer.

¹⁵ Sharon Weinberger. “Annual Report Paints Rosy Picture of Defense Industrial Base.” *Defense Daily*. Mar. 28, 2005.

¹⁶ “Aerospace Foreign Trade Surplus Growing.” *Defense Daily* Sept. 6, 2005.

¹⁷ CRS Report RS21002. *Boeing/Airbus: Size, Speed, and Subsidies*. John W. Fischer, p. 3.

that this increases competition, which ultimately benefits U.S. civilian and military end-users, and more such “globalization” is to be promoted.¹⁸

Roles and Missions. Following the publication of the DOD IG’s report on the KC-767 lease, and as the 2005 Quadrennial Defense Review nears completion, some may argue that now is an appropriate time to reexamine the aerial refueling mission and the roles played by the various Services.

Advocates of reviewing aerial refueling roles and missions could argue that the Air Force has been a poor steward of DOD’s aerial refueling fleet and is largely responsible for today’s recapitalization challenges. The Air Force could have prevented the KC-135 fleet’s widespread corrosion if it had implemented proactive maintenance like that practiced by the Navy. The Air Force ignored GAO warnings in 1996 that the fleet was aging, it could be argued, and postponed tanker recapitalization in favor of funding other aviation priorities. The DOD IG found that following the terrorist attacks of September 11, 2001, Air Force officials took an active and inappropriate role in developing and promoting the KC-767 lease proposal. Further, it could be argued, when tailoring the aerial refueling operational requirements document (ORD) to correspond with KC-767 capabilities, the Air Force abandoned Navy requirements for a tanker aircraft that could simultaneously refuel two probe-and-drogue equipped aircraft. The 2004 decision to ground 29 KC-135 aircraft for flight safety reasons is highly questionable, some might say, and appears designed to circumvent statutory constraints on KC-135 retirements. Advocates of a roles and missions review could point out that the Navy flies large, land-based aircraft, and the Marine Corps flies KC-130 tankers that refuel rotary-wing aircraft. It may be prudent and effective, they might say, to diversify DOD’s “big wing” aerial refueling capabilities among the Services to best meet future requirements.

Those who would argue against a roles and missions review could argue that Air Force stewardship of the KC-135 fleet has been more than satisfactory. No other Service has more experience nor does a better job maintaining 40-year-old aircraft than the Air Force, it could be argued, and KC-135s date from an era where corrosion was less understood than it is today. The corrosion problems encountered were unforeseen. Air Force tankers have successfully formed the backbone of several long-range *joint* air operations, advocates say. The Navy considered purchasing its own KC-10 aircraft following the 1991 Gulf War, but the associated costs made this less attractive than relying on Air Force tanker support. Neither the Navy nor the Marine Corps has lodged any official complaints regarding the tanking support they receive from the Air Force, nor have any Navy officials said that they want this mission. Air Force supporters also point out that the aerial refueling ORD for the KC-767 was approved by the Joint Requirements Oversight Council and that Navy requirements were appropriately considered. Air Force supporters would argue that KC-135 aircraft have been grounded only for safety reasons and would deny that such groundings have been an attempt to undermine congressional restrictions on retirement. Advocates may also add that the Air Force’s desire to retire 68 KC-135s is supported by the DSB. Air Force advocates might argue that Congress initiated the KC-767 tanker lease proposal and that those responsible for aerial refueling should not be penalized now that this proposal has fallen out of favor.

¹⁸ Dave Ahearn. “Heritage Foundation Urges Further Defense Industry Globalization.” *Defense Today*. July 29, 2005.