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AIRLIFT/TANKER QUARTERLY
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Turbulence Ahead?

A Look at the Challenges Facing
America's Air Mobility Mission

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Four Fans of Freedom

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A photo-enhanced (turbulence added for artistic effect) C-17 Globemaster III, from the 7th Airlift Squadron, 62nd Airlift Wing, McChord Air Force Base, Wash., refuels from a KC-135R from the 909th Air Refueling Squadron, 18th Wing, Kadena Air Base, Japan, Feb. 5 over the South China Sea. Four C-17s from McChord delivered humanitarian aid, tents and blankets, to earthquake victims in India. Aerial refueling by KC-135s from the 203rd ARS from the Hawaii Air National Guard and from Kadena helped get U.S. humanitarian aid into India in 27 hours. (U.S. Air Force Photo by Master Sgt Marvin Krause).

Air Mobility at the Crossroads

By Lieutenant Colonel Greg Cook

Introduction

In the midst of dynamic change, the road ahead for air mobility forces is filled with uncertainty. Strategic imperatives in the new administration, US budget realities and changing requirements all have significant impact on the potential size, structure and future of the mobility force. Increasing capabilities may also alter traditional mission and command relationships and open up new operational possibilities. Key questions regarding the makeup of the mobility force must be addressed, and difficult choices lie ahead, with political considerations looming large in every potential decision and fork in the road. The next several months should prove crucial as a new US defense strategy is hammered out and budget decisions are made by the Bush administration. Air mobility force planners and decision makers will be relied upon to make tough choices and recommend force alternatives that meet new strategic and fiscal guidance. Air mobility is truly at a crossroads, and the decisions we make in the near future will have lasting impact on the security of our Nation, and the overall capability of our Armed Forces.

Strategic Imperatives in the New Administration

The Cold War is history. In its aftermath, the US military has struggled to adjust to a new international order characterized by regional instability and turmoil, while simultaneously drawing down and restructuring its forces and dramatically reducing its share of federal expenditures. During a decade of increased peacetime operations, punctuated by a few short-duration, high-intensity combat operations, the US military managed to maintain both a high operations tempo and a high state of readiness despite declining overall budget authority. Many consider this success a residual effect of the Reagan administration's military buildup of the 1980s, when the military was able to invest in the next generation of weapons and stockpile munitions, spares, and other essential readiness items. Unable to continue this pace of modernization and readiness investments in the 1990s, coupled with increased consumption of resources related to the high operations tempo, the military Services now find themselves in a quandary.

During these ten years of budget reductions in real terms, the Armed Forces curtailed or eliminated many modernization and acquisition programs in order to maintain readiness, retain experienced personnel and execute the high pace of current operations. By 2000, however, readiness trends were heading downward as weapons systems began to show their age and the strain of sustained operations. Delayed modernization and acquisition programs only added to the dilemma. With warning signs mounting, the Clinton administration provided modest budget increases to the Department of Defense beginning in 2000, primarily focused towards critical readiness concerns and personnel issues such as pay and health care. The Bush Administration, after campaigning heavily on the promise to rebuild the military, sought additional readiness and personnel funds for fiscal years 2001 and 2002, but little was sought for modernization and acquisition accounts until an ongoing strategy review is completed. Continuing the trend of the last decade, reprogramming requests for 2001 recently submitted by the Services once again took funds from modernization accounts to support readiness and personnel programs. Thus the Amended Program Objective Memorandum for fiscal years 2003-2007 promises to be the critical marker for force structure and budget decisions under the new administration.

Following an initial internal strategy review by the Secretary of Defense, the ongoing Quadrennial Defense Review being conducted with the military Services will provide the foundation for a

new National Military Strategy and guide upcoming programming and budget submissions. It now appears likely that the new administration intends to back off from the long-standing requirement for the military to fight two major theater wars (2-MTWs) at once, choosing instead to support a force structure capable of fighting and winning one major conflict while carrying out a holding action on a potential second front. Missile defense is gaining in priority, and DoD civilian leadership seems interested in identifying force structure tradeoffs that might free up additional resources to fund the next generation of weapons and multi-Service transformation efforts. The basis for this strategy presumes that the forces necessary to combat future threats are far different than those required to face near-term threats such as Iraq and North Korea, and that maintaining our current force structure will consume resources that could otherwise be used for modernization and transformation efforts.

Budget Realities

Various governmental and private industry studies indicate a need for an additional \$50-100B per year in defense spending over the next several years to make up for readiness shortfalls and to invest in weapons and technology necessary to support our National Security Strategy and military transformation initiatives. Every Service in turn has produced an extensive list of programs and requirements that reinforce the need for this level of defense expenditures. Yet budget realities, given the 10-year, \$1.35 trillion tax cut enacted by Congress this year, provide little hope that the Department of Defense will realize any budget increases near that amount. To put this in perspective, consider what happened with the DoD budget request for additional funds for fiscal year 2002. An initial request for over \$35B in additional DoD budget authority was pared down to \$18.4B, an increase of 6% in the Pentagon budget and the largest percentage increase since 1985. Yet changing federal surplus projections from the Congressional Budget Office indicate that there may not be enough of a surplus even to support this level of defense funding in the 2002 federal budget. Many are quick to point out, however, that the current dilemma was ten years in the making, and that it will take some time to resolve these funding issues. This brings us to the central question facing military planners today — how to transform and modernize our forces while maintaining our readiness to support an evolving National Security Strategy. Budget realities indicate this task may prove to be difficult or beyond our means. The implications for mobility forces are immense.

Changing Air Mobility Requirements

The size and structure of US air mobility forces has been driven largely by the requirement to fight and win 2-MTWs at nearly the

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same time. The airlift and air refueling fleets are designed primarily to support this most demanding scenario, with the assumption that any smaller scale contingencies (SSCs) would be adequately covered by this force. Yet the number and scale of SSCs the US military became involved in during the 1990s pointed out a major flaw in this assumption. Ironically, a strategic airlift force structured to efficiently support the 2-MTW strategy is not well suited for multiple SSCs occurring simultaneously, primarily because of the limited availability of aircraft. Under the 2-MTW scenario, airlift flows are focused through a few major en route and offload destinations with significant efficiencies realized as a result. The size of the C-17 fleet was determined by this construct, which with half the number of aircraft carries roughly the equivalent of the C-141 fleet it replaces. Yet the decreased number of available aircraft overall exacerbates our ability to support varying combinations of SSCs and other major operations, where aircraft are more likely to be dispersed in less efficient flows than realized under the 2-MTW scenario. Furthermore, the latest review of the 2-MTW airlift requirement, the Mobility Requirements Study '05, concluded that there is still a significant shortfall in overall strategic airlift capacity to support this scenario. Chronic problems in the C-5 fleet that result in a low mission capability rate also complicate this shortfall.

The 2-MTW strategy, along with the requirement to support the bomber force in a nuclear exchange, also drives the size of the tanker fleet. While the latest Tanker Requirements Study validated the size of the tanker force, KC-135 depot problems and low mission capable rates drive a lower aircraft availability rate that raises doubts about our ability to support these scenarios as well. The rising cost of maintaining the aging KC-135 fleet is also draining resources away from other modernization programs. Recognizing the need to address a follow-on tanker aircraft to replace the KC-135, the Air Force has identified FY04 as a "fork in the road" decision point about the future of the tanker force. While various studies are underway to look at replacement aircraft alternatives, the potential expense of replacing a 600-airplane fleet is difficult for Air Force programmers to contemplate.

Service transformation initiatives further complicate force structure planning for the airlift and air refueling fleets. Recognizing the need for forces that can respond rapidly to contingencies and crises at any point of the globe, the Services are building expeditionary forces that are dependent upon airlift and air refueling support for rapid deployment and employment of capabilities. The Army strategy of "5 divisions in 45 days," and new Marine Corps' concepts are both dependent on greater air mobility resources, as are the Air Force's evolving Air Expeditionary Force (AEF) and Global Strike Task Force (GSTF) operational initiatives. The common thread through all these efforts is the assumption that there will be adequate and ready strategic airlift and air refueling forces to complete the task. Given existing shortfalls and problems in the mobility fleet, these are risk-laden assumptions. Before these concepts gain acceptance, the air mobility requirements to support them should be determined both for feasibility and affordability.

Key Assumptions Regarding Air Mobility Force Structure Planning

Several key assumptions are vital to underpin air mobility force structure planning. The first is that demand for airlift always exceeds the supply available. Commanders want forces quickly to reduce operational risk, yet limited airlift resources mean that only the highest priority items and forces can move by air. Those forces that carry the greatest combat power or required capabilities for the least amount of lift will provide greater value to future warfighting commanders. As a result, land forces must be smaller, lighter, and more lethal to remain air transportable, and air forces must reduce their logistics footprint and provide greater combat capability per platform and weapon. Another key assumption is that air-refuelable mobility platforms have greater flexibility, range,

and payload than those without this capability. Ideally, every mobility platform should be air refuelable to enhance strategic capability and operational flexibility. Other operational improvements can also increase lift available without additional assets, such as reduced aircraft ground times, increased reliability or improved flight performance and range.

Another assumption underlying mobility force planning is that commercial airlift capabilities will be used to the maximum extent possible. Civil airlift capabilities are vital to meeting US defense airlift needs, and can provide a large portion of it at substantially lower cost than military airlift forces. Since commercial forces can satisfy the majority of non-combat missions without specific military requirements, core military airlift forces should be structured to meet military-unique needs such as the ability to carry outsize cargo, airdrop, air refuel, or to land on short, austere airfields.

The mobility fleet is large and old, with operations and maintenance costs increasing dramatically. Aircraft service life projections contain many unknown variables and questionable assumptions. Program deferrals and delayed upgrades only exacerbate the dilemma. One assumption holds the greatest implications for the future mobility force: large aircraft and large fleets are expensive to replace. With stable or declining defense budgets, mobility acquisition programs could easily swallow the entire USAF procurement budget.

While large aircraft are expensive, they can be operationally effective for a great many years, thus can provide great utility over their service lives - if they can be widely employed and continue to meet operational requirements. Their large size, long range, and endurance provide many employment options and opportunities. Force planning and acquisition priorities must therefore consider the longevity and evolving roles of large aircraft. Flexibility must be incorporated from the very beginning to ensure adaptability to changing strategies and new or emerging operational requirements.

Given these assumptions, it makes little sense to procure large aircraft fleets dedicated solely to a single mission. Aircraft that can satisfy multiple operational demands provide far greater utility and flexibility for warfighting commanders, probably at lower overall cost. If a single aircraft type (or a few) can satisfy multiple operational requirements, then the total number of planes required to meet them - and the investment required - may be substantially less. Adaptability to changing mission needs over time further increases their worth and value, to both the military and the taxpaying public. If the twin challenges of how to size and allocate a smaller, more flexible force can be resolved, then large potential savings and operational advantages may be realized.

New capabilities in mobility aircraft and future acquisition opportunities also have the potential to alter long-standing force employment concepts and command relationships while increasing our ability to mass mobility resources towards a given objective.

Strategic Versus Tactical/Theater Airlift Forces.

Emerging capabilities alter the traditional distinctions between strategic and tactical/theater airlift forces. In particular, the C-17's short field and tactical capabilities make it a formidable theater force multiplier, and it has proven its tactical utility many times since its operational debut. The C-130J further blurs the dividing line between tactical and strategic airlift forces, with a cruise speed, altitude and range that approach those of strategic airlifters. With an air refueling receptacle and a stretched fuselage, the C-130J becomes a capable strategic aircraft, and may help to fill the shortfall in strategic airlift during contingency or peacetime operations if procured in significant numbers.

Towards a Multi-Role Tanker Aircraft.

As work continues on alternatives for a future tanker aircraft, strong consideration must be given to a multi-role tanker aircraft based on a commercial derivative with significant resident airlift capacity. While primarily assigned to the air refueling role, the

existence of a large cargo compartment provides built-in flexibility to assume a larger array of other roles and missions as required by evolving national military strategy. In particular, it may contribute significantly to strategic airlift operations, especially during AEF deployment operations, where its dual-role refueling/airlift capabilities can move combat air forces and their support equipment simultaneously.

While not always categorized as "air mobility" missions, large, mobility-type aircraft uniquely modified or equipped to perform specialized roles satisfy many other tasks. They contribute to electronic warfare, reconnaissance and surveillance, airborne command and control, weather observation, treaty verification and special operations, among other missions. C-130 and C-135/B707-based aircraft, in particular, are used extensively to project various aerospace capabilities. Large aircraft operations are also expanding into other mission areas, including information support for the suppression of enemy air defense, theater missile defense, and in the future, as a platform to house the airborne laser. The ever-increasing role of large aircraft in combat operations reflects an inherent flexibility and operational suitability due to their long range, high endurance, or payload capacity. These and other characteristics make them ideal platforms from which aerospace power may be applied. A multi-role tanker fleet has the potential to fulfill some or all of these and other large aircraft requirements in the future.

Advantages of a Flexible Mobility Fleet.

Developing a more flexible fleet with both strategic and tactical capabilities allows us to mass mobility forces to achieve specific objectives at the strategic, operational, or tactical level. For planning and modeling purposes, apportionment becomes the key issue, and determines the ultimate size and mix of aircraft in the mobility fleet. In this context, the value of an aircraft's primary versus secondary or corollary roles must be considered. At execution, the National Command Authorities, the warfighting Commanders in Chiefs, and the Air Component Commander must then prioritize and allocate how highly flexible, multi-role aircraft may be used. Although acquisition of future mobility aircraft should emphasize multi-mission capability, each aircraft will likely be allocated to primary and secondary roles. For example, a force of 150 C-17s might have 120 allocated to strategic airlift and 30 assigned to a theater role, even though all are capable of "swinging" to their alternate role when necessary. Likewise, in times of limited air refueling demand, a multi-role tanker may be used to augment strategic airlift operations or other specialized missions, even though the force will primarily be structured and apportioned according to the overall air refueling requirement.

"A truly versatile power projection force for theater operations cannot focus on old stereotypes of how air and space power are applied. Aircraft are platforms designed to achieve effects — it is how they are used that determines whether the effect will be strategic or tactical."

—Global Reach - Global Power, 1992

Defining Requirements.

The first task for air mobility planners is to define operational requirements quickly once our strategic and fiscal priorities are known, as long developmental lead times require timely requirements definition. Next, alternative fleet capabilities must be analyzed to estimate the operational effects of various force mixes, with the wide range of procurement and technology options considered to match future forces and capabilities to projected requirements. Finally, cost-benefit analyses must be conducted in order to maximize limited defense resources.

Political considerations also loom large in every potential decision and fork in the road for mobility force structure decisions. While Congressional support for mobility programs remains gen-

erally strong, altering force sizing and basing to achieve operational efficiencies and maximizing capabilities is especially challenging given the number of legislative districts affected by mobility operations. The large number of Air National Guard and Air Force Reserve units with air mobility operations is a significant factor in itself, with intense scrutiny given to any decision affecting those units. Planners must take into account these factors when defining mobility requirements as well.

Conclusion

No one doubts that the United States will remain the world's premier military power in the near future despite profound changes in the international geopolitical and strategic environment. Meanwhile, the Nation will face immense challenges in an era characterized by regional conflict and instability, the proliferation of advanced weapons and technology, and other transnational dangers. In this environment, the ability of US forces to respond rapidly and effectively to any crisis, conflict, or national priority remains vital to meeting our national security requirements.

In the years to come, rapid global air mobility will continue to be the linchpin of our National Military Strategy and an Air Force core competency. Air mobility supports the nation throughout the spectrum of conflict, from peacetime engagement, deterrence, and conflict prevention to fighting and winning our Nation's wars. Its complementary missions of airlift and air refueling provide critical rapid response capability, and the means by which the US can project power and conduct military operations on a truly global scale today. In the future, the tremendous capabilities of air mobility aircraft may provide the foundation for even greater roles in our Nation's defense. In order to do so, mobility forces must be flexible and adaptable to meet changing national security requirements and do so within federal budget constraints.

Changing warfighting requirements may dramatically alter the size, shape, and function of the mobility force structure, even though the primary missions of airlift and air refueling will endure. Scarcity of defense resources will impact mobility operations immensely, as the investment required to recapitalize, maintain, and operate the fleet remains large. A prudent, well-planned, all encompassing modernization and investment program is essential to maintaining or expanding the capability of air mobility forces, as is a comprehensive discussion of mobility aircraft roles, missions, and responsibilities throughout the spectrum of Air Force operational requirements.

While the road ahead for air mobility forces is filled with uncertainty, options will become clearer as a new US defense strategy is hammered out and budget decisions are made in the months to come. Yet air mobility force planners and decision makers will still face tough choices as they recommend force alternatives that meet new strategic and fiscal guidance. At this historic crossroads for air mobility forces, the decisions made will ultimately determine the overall capability of our Armed Forces and the security of our Nation.



Colonel (select) Greg Cook is a command pilot with over 3700 hours in the C-5, KC-135, C-21 and trainer aircraft. A veteran of multiple combat and contingency operations across the globe, he has also commanded both an Expeditionary Air Refueling Squadron and an Operations Support Squadron, and served as a mobility force strategic planner at Air Mobility Command and USAF Headquarters. After completing an assignment as the Chief of Program Integration in the Program Integration Division of the Directorate of Programs at HQ USAF, he is now attending the National War College in Washington, DC. Colonel Cook is a Life member of the Airlift/Tanker Association, serves as its Public Affairs Coordinator, and is a frequent contributor to A/TQ.