

Theater Airlift Lessons from Kosovo

by

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This basic doctrine presents the guiding principles of our Service and our view of the opportunities of the future... As airmen, we must understand these ideas, we must cultivate them and, importantly, we must debate and refine these ideas for the future.¹

General Michael E. Ryan
Chief of Staff, USAF

Operation Allied Force, the North Atlantic Treaty Organization (NATO) military operation to compel Serbia to cease hostilities against ethnic Albanians in Kosovo and allow a peacekeeping presence on the ground, was the first major war in history fought exclusively with air power. NATO air forces flew over 38,000 sorties from 24 March through 9 June 1999 to allow NATO to achieve its political objectives in Kosovo.² Although you may not have heard or read much about them, air mobility forces were key to the success of the air war over Serbia. The air mobility team moved enough airmen and equipment to increase the number of air expeditionary wings in Europe from three to ten, provided aid directly to thousands of Kosovar refugees, and deployed a large US Army contingent to Albania—all at the same time. In the words of Colonel Scott Gray, the USAFE Assistant Director of Operations during Operation Allied Force, "This was a phenomenal success, enabling the forces which forced Milosevic to back down while sustaining the refugees he created until they were able to go home."³

According to AFDD1, "Air and space doctrine is an accumulation of knowledge gained primarily from the study and analysis of experience, which may include actual combat or contingency operations as well as equipment tests or exercises."⁴ I am a firm believer that doctrine is key to warfighting. I also believe that airmen have a responsibility to record what worked well and what did not work so well in past conflicts to improve our capabilities in the future. My purpose in this article is to record theater airlift lessons I learned as a C-130 squadron commander during Operation Allied Force. After a brief summary of theater airlift support to Operation Allied Force, I will review humanitarian airdrop, total force, logistics, and command and control issues to point out areas for potential improvement. Then I will address several things theater airlifters did well that we need to record for future operations. Some of these lessons learned are general and apply to all expeditionary aerospace operations in general, while others are very narrowly focused on theater airlift. I do not claim to have all of the answers to the issues raised, but if this work does nothing more than stimulate debate over airlift doctrine then I have met my goal.

I have attempted to "stay in my lane" and focus primarily on observations I made while commanding the 50th Airlift Squadron (50 AS) while deployed from Little Rock Air Force Base, Arkansas, to Ramstein Air Base, Germany, from 20 May through 21 July 1999. The 50 AS

became the 38th Air Expeditionary Squadron, also known as "Delta Squadron," assigned to the 86th Airlift Wing (86 AW) at Ramstein, which was renamed the 86th Air Expeditionary Wing for Operation Allied Force. Over the course of the deployment, 10 C-130 aircraft and 284 men and women from the 50 AS supported Operation Allied Force, NATO combat operations in Kosovo, and Operation JOINT FORGE, the sustainment of NATO peacekeeping forces in Bosnia-Herzegovina. At the same time, the 50 AS flew missions in support of Joint Task Force SHINING HOPE, humanitarian assistance to Kosovo refugees in Albania and Macedonia. After the cease-fire, the airlift effort immediately turned to Operation JOINT GUARDIAN, the deployment and sustainment of NATO peacekeeping forces in Kosovo.

My analysis centers on intratheater airlift and does not cover all issues under review by Air Mobility Command (AMC) or U.S. Air Forces in Europe (USAFE).⁵ Lieutenant General William J. Begert wrote an excellent Aerospace Power Journal article in the Winter 1999 issue entitled "Kosovo and Theater Air Mobility" that provides an overview of theater airlift and tanker accomplishments and issues from an operational level of war perspective. The more "tactical" issues addressed in this article should complement General Begert's article nicely.

Airlift Support to Operation Allied Force

Make no mistake that this operation was really a victory. It was a victory for NATO; it was a victory for the United States of America and its leadership; it was a victory for air power; and it was a victory for the mobility air forces and global mobility concepts.⁶

General Charles T. "Tony" Robertson, Jr.
Commander in Chief, U.S. Transportation Command (CINCTRANS)

As the USAF moves toward becoming a more expeditionary force, based predominately in the Continental United States, it will obviously need to rely more on the "Reach" core competencies in "Global Reach, Global Power" to project aerospace power around the world. Air mobility combines airlift, air refueling, and air mobility support assets, processes, and procedures to build a system of systems. General Michael Ryan, USAF Chief of Staff, stressed the importance of air mobility when he said, "Whatever it is, relieving friends or repelling foes, U.S. airpower relies on the dedication, sacrifice and professionalism of the members of our great Air Mobility Team. Air Mobility Command is our leading edge, it's what takes us to the fight."⁷ Air mobility forces played a vital role in supporting and sustaining Operation Allied Force combat operations.

According to a December 1999 article in Air Force Magazine entitled "Airlift Reality Check" by John A. Tirpak, "In Operation Allied Force, Air Mobility Command did a masterful job, delivering everything U.S. and NATO officials asked, and more. USAF's airlift and aerial tanker fleets logged 7,600 sorties during the deployment and redeployment of NATO's forces, transporting 32,000 passengers and 52,645 tons of equipment."⁸ Airlift maintainers and logisticians performed superbly and kept the aircraft ready to fly. For example, C-130s and C-17s had departure reliability ratings near 97% for the operation, as compared to around 95% for peacetime.⁹ Tanker Airlift Control Elements, or TALCEs, did an excellent job controlling airlift flows, loading/unloading, and servicing aircraft throughout the theater, from the international airport at Budapest, Hungary, to the bare bases at Balikesir and Bandirma in Turkey. The

combined AMC-USAFE effort at Tirana was at the cutting edge of the Expeditionary Air Force. A USAFE briefing entitled "The Balkans: A Mobility Perspective," aptly concluded, "Without these combined efforts, USAF assets could not have gotten into place or been sustained. In addition, humanitarian relief efforts would have remained chaotic and slow, and many more refugees would have gone hungry, lived without shelter, or died for lack of proper medical care."¹⁰

The venerable C-130 and the versatile C-17 were the two aircraft that primarily performed intratheater airlift during Kosovo operations. The 86 AW, a USAFE wing under Third Air Force, normally has one squadron of 16 C-130 aircraft in the 37th Airlift Squadron (37 AS) permanently assigned to Ramstein Air Base. Since 1995 when the U.S. became more heavily involved militarily in Bosnia-Herzegovina, AMC has deployed eight or more C-130s continuously to Ramstein. This unit was known as "Delta Squadron" or the 38th Air Expeditionary Squadron, which "CHOPS" (changes operational control) to USAFE and augments in-theater airlift assets. To better support Joint Task Force SHINING HOPE humanitarian relief operations, AMC deployed eight additional Air Reserve Component (ARC) C-130s from various Air Force Reserve (AFR) and Air National Guard (ANG) units that also "CHOPPED" to USAFE to increase intratheater airlift capability. This unit was known as "Delta II." The USEUCOM Joint Movement Center validated all intratheater airlift mission requests, which were then centrally planned and scheduled by the USAFE Air Mobility Operations Control Center (AMOCC) and executed through the 86th Operations Group Current Operations Division at Ramstein.

CINCTRANS gave tactical control (TACON) of 12 C-17s and 24 aircrews to USAFE for several weeks to complete the movement of Task Force Hawk, a U.S. Army unit with 24 Apache Helicopters, 36 M1 Abrams Tanks, 58 M2 Bradley Fighting Vehicles, 7,745 troops, and 22,000 short tons of equipment.¹¹ AMC also provided a Director of Mobility Forces (DIRMOBFOR) to coordinate theater airlift requirements with AMC and U.S. Transportation Command and integrate the inter/intratheater airlift effort, as well as personnel to augment the USAFE AMOCC staff. The Regional Air Movement Control Center (RAMCC), a combined organization set up to control the NATO airlift flow into Bosnia-Herzegovina, coordinated airlift missions with combat missions planned and executed at the Combined Air Operations Center (CAOC) at Vicenza, Italy.¹² The AMOCC, with assistance from the RAMCC, primarily planned and executed the intratheater airlift piece of the air war, while the CAOC ran the shooting war. Figure 1 illustrates the command relationships of all USAF forces for Operation Allied Force.

Expeditionary Air Forces

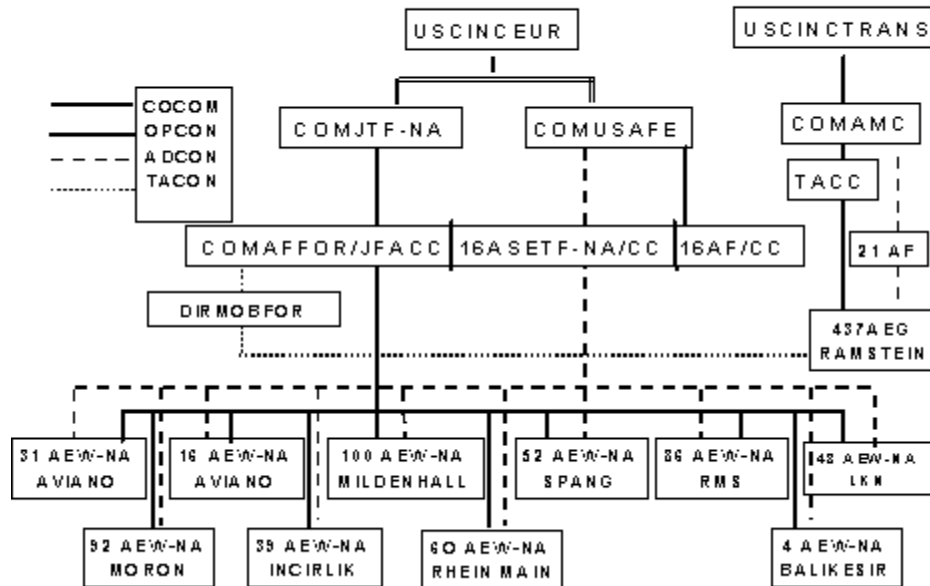


Figure 1: Expeditionary Air Forces¹³

Intratheater airlift played a major role in several phases of the operations in Kosovo. The USAFE and AMC team of C-130s flew 78 missions in late February and mid April 1999, transporting 734 passengers and 630 tons of cargo to deploy USAFE fighter units from England and Germany forward to Italy. C-17s flew 468 missions and C-130s flew 269 missions from 8 April through 27 June 1999 to deploy Task Force Hawk from Ramstein to Tirana, Albania. Concurrent with the Task Force Hawk move, C-130s flew 117 missions in support of humanitarian relief efforts in Albania and Macedonia under Joint Task Force SHINING HOPE, transporting 892 passengers and 2,637 tons of relief equipment. To sustain the air campaign, intratheater C-130s flew 324 missions to bases throughout Europe that airlifted 3,611 passengers and 2,534 tons of munitions, spare parts, and other cargo. At the peak of the air war, C-130s were flying 69 regularly scheduled channel missions per week throughout the theater. When combat operations over Kosovo came to an end, intratheater airlift forces turned toward the tasks of redeploying Allied Force units, deploying the peacekeeping force into Kosovo via Macedonia and Albania, and sustaining NATO peacekeepers in Kosovo. C-130s flew 357 missions that redeployed 1,582 troops and 203 tons of equipment, while C-17s flew 42 missions that redeployed 617 troops and 1,998 tons of equipment.¹⁴

The airlift effort in Operation Allied Force was a major success. However, there were situations where theater airlift forces had to struggle through difficult challenges. They often ended up getting things done the hard way. This article now turns to its primary task, an analysis of theater airlift lessons learned during the air campaign in Kosovo, beginning with a discussion on issues raised during humanitarian airdrop planning. These issues included preparing troops for operations other than war, integrating a large airborne force package into an air tasking order (ATO), archiving procedures for airdropping humanitarian relief supplies and other special

missions, analyzing current airlift and airborne tactics, and addressing the need for large aircraft self-protection measures.

We Train like We Fight—Some Time

Operation Allied Force was extremely successful because our expeditionary commanders and their people performed magnificently. As is every great endeavor, we also learned there are things we can do better. It is important that we now take the time to remember and codify those lessons, make them part of our expeditionary culture, and use them to ensure success in the next conflict.¹⁵

Major General Roger A Brady
USAFE Director of Plans and Programs during Allied Force

On or about 3 June 1999, USAFE tasked the 86 AW at Ramstein Air Base, Germany, to be prepared to conduct humanitarian airdrops over Kosovo.¹⁶ The purpose of the airdrops, as communicated by various USAFE staff officers during mission concept development, was to send a political statement to the world that combat operations had ceased in Kosovo and NATO had entered a new stage of peace operations. Aircrews tasked to plan the airdrops immediately coined the nickname "Operation Provide Closure" due to the emphasis on using media crews to broadcast a political message sent through military means. Intelligence and operations staffs at the U.S. European Command (USEUCOM) and USAFE had located potential drop zones near large concentrations of Kosovar-Albanian refugees inside Kosovo. The 86 AW developed a plan to airdrop up to approximately 330 tons of humanitarian daily rations, or HDRs, which are a meal package similar in weight and size to a U.S. military meal ready to eat (MRE), each day over Kosovo using C-130s and aircrews from the wing. The wing also went to work to be prepared to undertake this huge humanitarian effort if ordered to execute.

Men and women from the 86 AW and the Army's local quartermaster unit worked nonstop over a two-day period to be ready to execute limited airdrops within 24-hours of initial tasking by USAFE, and large-scale airdrops within 72-hours. The wing gathered Army rigging experts and key people in the wing who had done similar airdrops over Bosnia-Herzegovina in 1994-95 during Operation PROVIDE PROMISE. These experts put their heads together and developed ground handling, rigging, loading, and flight procedures that were promulgated to all key players on Ramstein who would have to execute this mission. Aircrews were identified and placed on alert status, and aircraft with proper self-protection equipment were equipped with additional cargo rollers to support the specially rigged boxes of HDRs, which cannot sit unsupported for more than 24-hours without breaking. A large assembly line for rigging boxes was built inside a special tent rented for the operation, and key personnel were trained on proper rigging/handling procedures. The three C-130 units at Ramstein for Allied Force—the 37 AS, the 50 AS from Delta Squadron, and the reservists and guardsmen from Delta II—preflighted 12 aircraft and built 24 aircrews to conduct around-the-clock airdrop operations if necessary. In the end, the airdrops never took place because of a potential threat on the ground to Kosovo refugees from land mines near drop zones and the rapid movement into Kosovo by NATO ground troops that negated the need for a humanitarian gesture. (Leaders recognized the airdrop effort, planned to be of short duration, would not sustain the Kosovo refugees for any extended length of time. For

example, there were only approximately 500,000 HDRs in Europe, approximately one for each of the estimated 500,000 Indigenous Displaced Persons, or IDPs, as refugees inside Kosovo were called.)

As the nickname "Operation Provide Closure" for the airdrops indicates, some airmen grumbled about the explicit use of military means for a political statement, but overall the people at Ramstein were excited and ready to contribute. Leaders explained the effort in terms of assisting people who needed help, and this message harmonized among the troops and dependents. For example, the wing had so many people volunteer to load HDRs into boxes that they had to turn people away. USAF people will work hard to make things happen and do ingenious things when the mission is clearly explained to them. After participating in the planning and preparation for this operation, I relearned the lesson that military forces will be used for political ends, and military leaders should be prepared to use airpower, particularly airlift forces, in this manner. USAF leaders must prepare their troops to conduct military operations short of war to further national security objectives. These types of operations, such as humanitarian assistance, peace keeping and disaster relief, are arguably the most likely use of USAF airlift capability in the future.

The method of how the humanitarian airdrops were planned highlighted potential problems that need attention. Because the tasking came directly from USAFE, it appeared to bypass Lieutenant General Short, the Combined Force Air Component Commander (CFACC), and his staff in the CAOC. As a commander of the aircrews who would have to fly planned airdrop missions into Kosovo, I never felt comfortable that the plan was fully integrated into the CFACC's concept of operations or planned well enough to properly orchestrate the missions through an air tasking order (ATO).¹⁷ Because the status of Serbian radar guided surface to air missiles and antiaircraft artillery was unclear immediately prior to the cease fire, we wanted airdrop missions entering Kosovo to have a fully integrated support package with electronic warfare, suppression of enemy air defense, and counter-air capabilities. We thought these assets were critical to protect the airlift strike package.

The 86 AW planning team (which included C-130 weapons officers and squadron commanders) stressed to wing and USAFE leadership that a force package designed to ensure the survivability of large airlift aircraft would have to be thoroughly integrated into the ATO by air campaign planners at the CAOC. After reviewing the potential threat to airlift aircraft, planners concluded to use delivery tactics similar to those used by strike aircraft over Serbia and Kosovo—nighttime airdrops from altitudes above 15,000 feet. Despite personally talking to airlift planners in the CAOC, I never saw any planning work that integrated an airdrop package into an ATO in preparation for execution. Maybe it happened—and I certainly hope it did—but the expertise required to build large strike packages with airlift aircraft as "bomb droppers" is lacking throughout the USAF.

This shortfall needs to be addressed at exercises such as Red Flag, because in any potential large-scale airborne operation—be it forcible entry to secure an airfield or maneuver and resupply of ground forces—airlift aircraft will have to operate as strike aircraft in a large force package. This is particularly true given the lethality of current ground air defense technologies and the potential costs of losing up to 70 or more U.S. servicemen with the loss of one airlift aircraft. Today, airlift

forces regularly practice large-scale airborne operations, but they seldom participate in exercises as an integrated package with fighter and electronic combat aircraft. This is a weakness that commanders, weapons officers, and exercise planners need to address.

Another lesson the humanitarian airdrop planning exercise highlighted was how perishable specialized tactics, techniques, and procedures can be. Airdrop planners had no formally approved and published directives to reference when they began to plan the high altitude airdrops of specially-rigged HDR packages—despite the fact that C-130s had conducted extensive humanitarian airdrops over Bosnia-Herzegovina during Operation PROVIDE PROMISE only four years earlier. To get the job done, 86 AW leaders found key people who were involved in the PROVIDE PROMISE airdrops and tasked them to build checklists and teach others the key tasks based on their experience. This mission was no big surprise to the C-130 units at Ramstein, who had anticipated an airdrop tasking ever since the humanitarian crisis began in Kosovo, but they still had to scramble at the last minute to put together the details of aircrew and rigging procedures. They lacked formal checklists and manuals, plus they did not regularly train for this mission.

AMC needs to establish a repository for manuals and checklists covering these out of the ordinary employment missions at the Air Mobility Warfare Center, the Combat Aerial Delivery School, and AMC Tactics. This would prevent units from having to recreate checklists and procedures when they are in the field and tasked to perform one of these "divested" missions no longer in the regular training program. Low-Altitude Parachute Extraction System (LAPES), Special Operations Low Level (SOLL) I and II, and flare airdrops are examples of C-130 missions that fit this case. If AMC were to maintain a library of procedural manuals and checklists for these missions, it could quickly reconstitute this capability if required in wartime.

The humanitarian airdrop planning experience in Kosovo also showed the need for airlift commanders to seriously examine and analyze their entire airdrop operational concept—and for the Army to review its airborne doctrine. During the air war over Serbia, strike aircraft used a 15,000-foot floor to protect aircrews from Serb hand-held surface-to-air-missiles, low caliber antiaircraft artillery, and small arms fire. According to General Short, the 15,000-foot floor offered "our best opportunity to survive [in conjunction with night attack and precision guided weapons], and I continue to believe that."¹⁸

If fighter aircraft that can maneuver at over 600 knots and sustain G-forces up to nine times the force of gravity are threatened in this type of air defense environment, then airlift aircraft are even less survivable. Obviously, airlift aircraft fly much slower, are much larger targets, and are much less maneuverable than fighters. The training and tactics airlift forces practice today continue to focus on low-level operations with large formations of aircraft, tactics similar to those used in Vietnam, Korea, and World War II. Kosovo lessons point out the need for AMC to develop high-altitude airdrop procedures and equipment for airlift aircraft to survive the proliferation of hand-held, accurate, and cheap air defense systems. High-altitude airdrops at night seem to be the most survivable tactical environment for large, slow aircraft. These procedures, once refined and promulgated, need to be incorporated into regular training requirements and evaluated during inspections.

Lastly, the potential threat situation airlift aircrews might face during humanitarian airdrop missions over Kosovo illustrated the need for AMC to investigate and fund self-protection systems for airlift aircraft. The self-protection systems currently installed on large USAF aircraft, such as airlifters and tankers, offer inadequate protection against modern air defense systems. General Robertson, commander of AMC, stressed this issue in a recent news release when he stated, "Credible defensive systems are a must. This is not a cheap program and we may have to start small but I promise you we will get our foot in the door this year."¹⁹ In another interview with Air Force Magazine, General Robertson described the threat to humanitarian airdrop missions over Kosovo:

Every day ... there was a lot of talk about airdropping relief supplies to the [ethnic Albanian] refugees who were still in-country but had fled their homes in Kosovo. We were facing a real dilemma because the threat environment would not allow us to do that. There is no protection for our strat airlifters against [infrared surface-to-air missiles], particularly those of the shoulder-fired variety.²⁰

Airlift aircraft offer a vulnerable, high-payoff target to opposing military or terrorist forces. Imagine the impact on the national will and domestic political support for a military operation, particularly one short of major theater war, if an airlift aircraft with 200 American men and women was shot down. This is a major force protection issue that must be solved or the USAF will not be able to operate airlift aircraft in environments necessary to support the military mission without excessive risk. It is an expensive and technically difficult problem to solve.²¹

The aircraft self-protection issue concludes this discussion of theater airlift lessons learned from planning potential humanitarian airdrop missions into Kosovo. Issues included preparing troops for operations other than war, integrating a large airborne force package into an ATO with adequate fighter protection, archiving procedures for airdropping HDRs and other special missions, analyzing current airlift and airborne tactics, and addressing the need for large aircraft self-protection measures. Next I will address lessons learned from working with and observing reserve component units during Operation Allied Force.

The Total Force Works—Sometimes Better Than Others

Operation Allied Force has been a Total Force activity for Air Mobility Command from day one. Active duty, Guard and Reserve personnel are working together on a daily basis to achieve the military objectives of the campaign. That shows the great teamwork that's going on, Total Force at its best.²²

General Charles T. "Tony" Robertson, Jr.
Commander in Chief, U.S. Transportation Command

Air mobility forces rely on the contributions of Reserve component as well as active duty and commercial aircrews and aircraft to function, particularly during a wartime surge operation. As AFDD 2-6, Air Mobility Operations highlights, "The air mobility triad [of airlift, air refueling, and air mobility support] depends on the combined efforts of active duty forces, Air National Guard (ANG) forces, Air Force Reserve (AFR) forces, government civilians, and civil air

transportation partners."²³ The percentages of aircrews flying air mobility platforms that reside in the Reserve component illustrate this point well. Using 1998 data, 63% of C-141 and C-5, 70% of C-130, 40% of C-17, 43% of KC-10, and 60% of KC-135 aircrews are in the Reserve component.²⁴ Guardsmen and reservists made huge contributions to the success of Operation Allied Force. 42% of the 151 USAF KC-135 aircraft deployed for Allied Force were from the Air Reserve Component (ARC), and additional KC-135 and KC-10 Guard and Reserve aircrews were key to sustaining tanker operations.

Numerous Guard and Reserve tanker units were activated in the Presidential Selected Reserve Call-up (PSRC), and many aircrews served in the war on a volunteer basis.²⁵ As mentioned previously, the ARC deployed eight C-130s and approximately 280 personnel to Ramstein for Joint Task Force SHINING HOPE and sustained that operation on a volunteer-only basis for over 120 days. The USAF could not have won the war in Kosovo without the outstanding performance of the reserve component. There were, however, lessons to learn from the utilization of guard and reserve forces, particularly in the area of unit call-up versus relying upon volunteerism.

I had the opportunity to work directly with a Reserve component C-130 expeditionary squadron while commanding Delta Squadron at Ramstein from 20 May through 21 July 1999. The Reserve component unit relied upon an all-volunteer effort where personnel would deploy to Ramstein for two-weeks at a time to support the mission. Although initially deployed to the EUCOM area of responsibility (AOR) to support the Joint Task Force SHINING HOPE humanitarian effort, the unit (called "Delta II") flew the same conglomeration of airlift missions as the other two active duty C-130 units assigned/attached to the 86th Airlift Wing at Ramstein.

C-130 intratheater airlift operations at Ramstein were truly a Total Force effort. The guardsmen and reservists from Delta II with their eight C-130s integrated well into the host USAFE active duty wing and its one permanently assigned squadron with 16 C-130s, plus the provisional Delta Squadron with 10 active duty C-130s from AMC. All three C-130 units at Ramstein received their operational mission tasking from one agency, the USAFE Air Mobility Operations Control Center (AMOCC), and worked day-to-day for the 86th Operations Group Commander, Colonel Joseph Reheiser. The three squadrons worked well together. For example, one tactics cell manned by personnel from all three units planned and briefed all combat C-130 missions. AMC units also flew longer missions when USAFE aircraft came close to flight hour limits that triggered additional maintenance inspections, and units shared scarce spare parts and aircrew members when necessary. This was a real team effort.

Reliance on volunteers to man Delta II, however, created problems for squadron and wing leadership, and ultimately made the ARC unit less effective than if a single squadron had been called-up for operations in Kosovo. Because the unit swapped-out 50% of its approximately 280 airmen every week, unit leadership spent much of its time coordinating replacement personnel and equipment with mobility planners at 22nd Air Force, the Air Force Reserve headquarters that managed the effort. A mobility staff worked full time to keep track of departing and arriving personnel, manage billeting room assignments, and provide transportation to airmen departing and arriving from Frankfurt International Airport. Unit commanders, maintenance officers, and

operations officers also rotated every two-four weeks, so maintaining policy and leadership continuity was a constant challenge.

USAFE policy required briefings on intelligence and special instructions prior to an aircrew's first combat mission. Therefore, 86 AW weapons officers and tactics planners worked continuously to train newly arrived ARC aircrews every week. Since an aircrew typically took two combat missions to learn theater procedures and become fully effective, by the time Delta II aircrews were comfortable with the environment they only flew four or five additional missions before it was time to redeploy. Additionally, Delta II leadership had difficulty manning airlift missions on weekends—particularly Sundays when the majority of personnel swap-outs took place—and often had to borrow crew members from their active duty partners to fully man crews. Guard and Reserve C-130 troops were dedicated Americans who worked hard (several volunteered for multiple tours) but they expended precious resources and man-hours managing a constant rotation of personnel caused by all-volunteer manning.

A Headquarters AMC briefing entitled "Kosovo Hot Wash" raised the Reserve component rotation policy during Operation Allied Force as an issue to study. According to the briefing, "The theater rotation policy was not clearly defined. Volunteer ARC aircrews on two week rotations lacked the continuity required in a complex, dangerous, high sortie rate environment."²⁶ I had the opportunity to visit other Reserve component units who deployed to support Kosovo operations as a unit under the PSRC. For example, KC-135 aircraft and aircrews from two separate Reserve component units deployed to Budapest International Airport, Hungary. I spent four hours one day visiting and talking to key members of the ARC expeditionary refueling group at Budapest, and found their experiences to be in stark contrast with those of the ARC C-130 unit at Ramstein. AMC activated two KC-135 squadrons to active duty and deployed them to Hungary as units with all of their normal aircraft, aircrews, maintenance and support equipment and personnel, and key leaders. The KC-135 units activated under the PSRC maintained unit integrity and went to war with familiar friends and leaders. The KC-135 aircrews and support personnel at Budapest, although thrust into a challenging environment in an unfamiliar foreign country, seemed well organized, settled into their working and living quarters, fully committed to and focused on the mission at hand, and were in the fight for the long run. These tasks were made easier, in my observation, by being activated and deployed as a unit rather than manned by two-week all-volunteer rotations.

One of the theater airlift lessons learned from the operations in Kosovo, therefore, is that for long-term combat operations, it is better to activate an entire ARC unit to man a deployment than rely on two-week all-volunteer rotations to fill operational requirements. In the operation over Kosovo, many different Reserve component C-130 units sent personnel to man the squadron at Ramstein. This caused a major upheaval in people's lives at these units. The activation of one entire unit, while it caused potentially serious hardship for the people in that one unit, the hardship was localized and partially offset by the sense of shared sacrifice in that unit. Based on conversations with over 10 C-130 Reserve component lieutenant colonels and colonels I met during Operation Allied Force, the consensus was that the better way to man the Delta II mission was through a unit activation. The personal hardships and retention implications of activating one unit were, in collective opinion, no greater than spreading a long-term deployment commitment amongst many different units and people.

ARC units activated and deployed as a unit also had better continuity in theater and were able to learn from their early mistakes and improve as the operation continued. With all-volunteer manning, lessons learned kept getting learned again by newly arrived personnel one or two weeks later. Units that rely on two-week tours of volunteers also spent a large portion of their time on a constant mobility/deployment footing, in- and out-processing up to 50% of their people every week. I understand the political constraints, and the desire in the AMC leadership to man contingency deployments with ARC personnel on an all-volunteer basis, if possible. However, military effectiveness of units deployed to a theater during combat operations is greater for ARC air mobility units that are activated as a unit instead of manned by volunteers on short, two-week rotations. C-130 Guard and Reserve airlifters at Ramstein integrated well into the intratheater airlift structure and got the job done, but the rotation policy made their effort much more difficult and challenging than it would have been if one unit had been activated and deployed instead. It is unlikely, however, that a different rotation policy would have solved the shortage of spare parts active, Guard, and Reserve units alike faced during Kosovo operations, the topic this paper turns to next.

Expeditionary Logistics—Where's the Part?

It was a tremendous logistical effort to bed down and sustain this dispersed force throughout the conflict. Our airlifters and logisticians did a fantastic job—there is no question about the expeditionary capabilities of this air force of ours, and it's our incredibly dedicated airmen who make it happen. They serve above and beyond.²⁷

General Michael E. Ryan
Chief of Staff, USAF

My observations on logistics are based upon an admittedly narrow perspective of a C-130 deployed squadron commander during the last weeks of Operation Allied Force. The 50 AS deployed to Ramstein for Kosovo operations from Little Rock Air Force Base, Arkansas, with 10 C-130H3 aircraft and 144 maintenance personnel. I had commanded an earlier deployment to Ramstein only 16 months earlier for Operation JOINT GUARD in support of NATO peacekeeping troops in Bosnia-Herzegovina. As a result, the 50 AS had the advantage of being thoroughly familiar with our bed-down facilities, host wing operating procedures, and the theater logistics system. In addition, Ramstein was an excellent base for C-130 operations since there was a permanent-party C-130 squadron there with nearly all required backshop maintenance support. We developed an excellent working relationship with base supply, a deployed Reserve component C-130 unit, and the host C-130 squadron. All C-130 units at Ramstein shared spare parts, and even performed maintenance for one another at times. With new, reliable 1992 and 1993 model C-130H3 aircraft and a group of superb maintenance troops, the 50 AS was able to maintain a 90% mission-capable rate and a 96.4% departure reliability rate during a 60-day deployment. The 50 AS also sustained a daily aircraft commitment rate of 80%; i.e., the squadron flew at least eight out of 10 available aircraft every day.

Despite the advantages the 50 AS had of being deployed to a familiar base with full C-130 maintenance support, the biggest headache the squadron faced day-to-day was procuring required spare aircraft parts through the supply system. The unit had to maintain one

cannibalization aircraft, or "cann-bird" in maintainer terms, for nearly 45 days of a 60-day deployment to provide necessary replacement parts for the other nine deployed unit aircraft. If a part required replacement, and that part could not be sourced quickly in the supply system, maintenance troops removed the part from the cann-bird and installed it on the aircraft that needed the replacement part. Supply troops attached to the maintenance unit then ordered the required part against the cannibalized aircraft, which remained parked for up to 10 days, when it was normally rotated with another aircraft to preclude excessive downtime on one airframe. Now this may be standard practice throughout the USAF, but one must admit that this is a very expensive way to transport and provide spare parts to a deployed unit. Despite being deployed to support combat operations with one of the highest priorities for spare parts in the world, we had to wait an average of four days for shipments of parts to arrive from the U.S.

Another transportation issue arose when critical parts sat impounded in customs offices over a weekend or holiday, which kept aircraft off the flying schedule. An AMC briefing on lessons learned from Kosovo operations stated, "[The] Moron Air Base issue highlights a bigger Air Force problem. For instance, Spanish customs only worked Monday through Friday 0800-1400. Any part that arrived after 1400 on Friday sat in Customs until the following Monday. All parts, to include MICAPs [mission critical aircraft parts], were affected by this policy."²⁸ This operation took place in a mature theater regularly served by commercial air carriers, who transported most of this unit's parts. While maintenance and supply troops in theater worked spare parts orders quickly, it was the transportation system, and sometimes the local customs office that often kept aircraft sitting on the ramp.

Transportation, however, was not the only problem with the aircraft spare parts system. There also was insufficient inventory of spare parts in the aircraft depot system. Either due to lack of funding or poor management of the spare parts inventories at the depots, there was a lack of C-130 spare parts available, particularly C-130H3-unique parts. Before deploying to Ramstein, the 50 AS had to cannibalize one of its assigned aircraft at home station to fill its deployable spare parts kit to a 90% stock level. We could not obtain other key spare parts through the normal supply system—there were none available at depot or anywhere else in the system for us to fill our mobility kit prior to deployment. In fact, cannibalized parts from other aircraft that remained at home station were often the only source of some key spare parts, particularly avionics, for deployed aircraft. At one time we had three of 14 assigned aircraft cannibalized to allow the 10 deployed aircraft at Ramstein to fly missions.

The USAF cannot have light, lean expeditionary logistics if it does not have a well-funded and well-stocked supply of spare parts in depots that it can send forward when needed. Rapid transportation capability and a robust spare parts inventory are both key to sustaining an Expeditionary Aerospace Force. Cannibalization of one aircraft to keep another flying leads to more broken parts and double the number of maintenance man-hours because parts are handled twice, compared to only once when a new part is installed. Maintenance troops will work hard to keep jets airborne, but with no intermediate-level maintenance capability with the USAF's current two levels of maintenance concept, operators and logisticians in the field rely on the depots, the supply system, and the transportation system to give them the spare parts they need.

Although long transportation shipment times and the shortage of spare parts in the supply system were notable logistics shortfalls the 50 AS faced during Operation Allied Force, another more annoying problem was the poor quality of spare parts often issued to the unit's maintainers. In one example, we had to order a spare engine tailpipe three times before we finally received one that was serviceable. The first two tailpipes issued to the unit from the supply system had cracks which rendered them unusable. We also received three parts from the depot that still had unserviceable tags on the parts. Apparently the parts were turned into the depot and put back in the "good spare parts" system without first being repaired at the depot.

A second case caused maintainers to expend over 100 man-hours troubleshooting a pressurization problem on one C-130 aircraft that had a bad pressure controller. After replacing the pressure controller once, the system still would not work properly, so technicians kept troubleshooting and replaced four other main parts in the system. It still would not work. All evidence still pointed to a bad pressure controller—but that did not make any sense since the technicians had just replaced that component. Finally, maintainers replaced the pressure controller again, which fixed the problem. Astonishingly to the troops, the original pressure controller received from supply was bad. Logistics statistics at Ramstein did not appear problematic because units were receiving parts in a somewhat timely manner, but nearly 20% of the parts the 50 AS received from the system were bad and had to be reordered. The problem of poor quality spare parts caused maintenance supervisors more morale problems among their troops than long delays in the issuance of good, serviceable parts. It was very frustrating.

The ability to obtain spare parts in an expeditionary mode is even more difficult in a more austere theater, such as Southwest Asia. I commanded two squadron deployments, one in 1997 and one in 1999, to Prince Sultan Air Base, Kingdom of Saudi Arabia, in support of Operation SOUTHERN WATCH, the defense of the Iraqi no-fly zone. Problems faced obtaining parts not in the unit's mobility spares kits were greater there than in Germany due to longer supply lines and bigger customs problems. In some instances we had to wait for up to 20-days for spare parts to arrive from the U.S. This long delay was not isolated to C-130 parts. It was a serious problem for nearly all fighter and heavy squadron commanders I met in theater. Again, theater supply troops were working problems hard, but Southwest Asia is simply a long way away for transportation requirements. In addition, C-130 operations at Prince Sultan Air Base were not co-located with a permanent-party unit with the same type of aircraft, as was the situation at Ramstein. This meant that the supply system had to source more spare parts from outside the theater than was the case during Operation Allied Force.

The expeditionary logistics effort in Allied Force was good, but we need to get better. In a speech outlining the USAF's success in Kosovo, Secretary of the Air Force F. Whitten Peters said, "We employed an extremely effective logistics system—93 percent of the replacement parts got to forward bases in just 3.7 days and the forces directly engaged in the fight averaged a 92 percent mission capable rate."²⁹ My experience as an airlift squadron commander deployed to the theater contrasted with the above conclusion. For example, 3.7 days of in-transit time resulted in an aircraft possibly being grounded for at least four days—assuming an optimistic scenario where parts are handled expeditiously at the supply depot and the forward base, then installed quickly on the aircraft. Is this good enough to keep a leaner aerospace force in the fight? With the USAF having fewer numbers of front-line aircraft it cannot afford to have aircraft dedicated

to cannibalization for unavailable parts. It also cannot allow aircraft to sit on the ramp out of the fight waiting for parts to be repaired and then delivered from the depots. Admittedly, I am an operator, not a logistician, but my experience gained from four major unit deployments over the past two years suggested something must be fixed for expeditionary logistics to work. We have a long way to go.

Nothing was more frustrating to me than having to cannibalize aircraft back at home station to fly the part to a deployed location to fix an aircraft. This was certainly not a great way to run a logistics system, yet it was the only way to source certain C-130H3-specific parts. Parts still under warranty had to be shipped back to the supplier who had 30 days to repair the part, and of course we had no spares for these on the shelf. Because the USAF migrated to a two-levels of maintenance concept, relying primarily on flightline and depot maintenance capabilities without unit organic capability to repair many aircraft components, it is most likely too expensive to recreate an intermediate maintenance capability again. Therefore, the USAF must have well-funded and well-stocked sources of spare parts in depots and the means to move them forward quickly. The USAF might also consider moving more toward reliance on commercial sources of spare parts, and acquiring more new aircraft components from commercial off-the-shelf sources where possible. Commercial spares might work for large aircraft, like airlifters and tankers that are similar to commercial aircraft, but probably not for more militarily unique aircraft like fighters.

Additionally, the USAF must be cautious about relying on commercial transportation sources. What if commercial carriers refuse to fly into a combat zone? The USAF must maintain some military airlift capability similar to express commercial carriers who may not operate to locations we may be forced to fight. However, there is not enough airlift capability to position large numbers of spare parts forward. According to a USAFE briefing, one of the lessons learned from operations over Kosovo was, "Being expeditionary means being light, lean and prepared. [This] requires a change from a 30-day [War Readiness Supply Kit] to a 3-7 day initial sustainment culture." Expeditionary logistics also requires a robust information management system to quickly and accurately locate spare parts and send them to the user in the field. The USAF must develop quick, accurate, and easy to use supply information management systems to locate sources or spares quickly, monitor their transportation, and ensure their prompt deliver to the right unit at the right time. Abundant stocks of spare parts are useless if logisticians do not have the proper information management tools to locate the parts and ship them to the proper location.

The above observations are intended to stimulate debate on several issues I noted concerning expeditionary logistics during Operation Allied Force. These are not simple problems, and their solution is certainly beyond the scope of this article. In my opinion, much more work must still be done in the USAF to improve its ability to logistically sustain expeditionary operations, particularly in the areas of depot stock levels, intertheater transportation, and information management systems to better source and control spare parts. The area of interest this paper addresses next concerns the command and control of airlift and its relationship to doctrine.

Centralized Control of Airlift—Getting our Doctrine Right

The air mobility team needs to capture the art of being a DIRMOBFOR [Director of Mobility Forces] using [Colonel] Rod Bishop as its model. He has set the standard for all future DIRMOBFORs and should provide a wealth of information for the [Air Mobility Warfare Center] as they update their DIRMOBFOR course.³⁰

Major General William T. Hobbins
USAFE Director of Operations

In order to most effectively and efficiently support a Joint Force Commander (JFC) through air mobility, there must be a seamless system of airlift from Aerial Ports of Embarkation (APOEs) in the CONUS through the Aerial Ports of Debarkation (APODs) in-theater to other forward operating locations. Lessons learned and relearned from World War II, the Berlin Airlift, Korea, Vietnam, Desert Storm, and Allied Force point out the need for the centralized management and control of the airlift effort. Airlift is more of a logistics function than combat, and supports the total joint force, not just the air component. For example, Far East Air Force's Report on the Korean War listed four major conclusions concerning airlift in Korea:

1. Airlift missions and the theater commander should establish priorities.
2. Airlift cannot be allocated exclusively for the use of any service except for special one-time requirements.
3. All theater airlift should be concentrated to the maximum degree in one command for flexibility and best utilization.
4. Airlift efficiency can be greatly increased if manning tables are based on twenty-four-hour maintenance and high daily utilization rates.³¹

The USAF had to relearn the value of centralized control of airlift forces again during the Vietnam War. For example, General Curtis LeMay, after a visit to Vietnam in April of 1962, said, "there is no effective airlift system."³² The 834th Airlift Division was established in 1966 to centrally control all intratheater airlift in Vietnam, coordinate intertheater airlift arriving in-theater, and improve overall efficiencies in the airlift system.³³ The question of how to most effectively manage the seam between intertheater airlift assets, normally commanded by AMC, and intratheater airlift assets, normally commanded by the theater air component commander, remains an issue in current USAF doctrine.

The JFC requires an airlift management system that can efficiently take transportation requirements from the Joint Movement Center, a logistics function, then schedule intratheater missions to meet those requirements with available intratheater airlift assets. Intratheater airlift assets are not dependent on aircraft type, but normally include C-130s, operational support aircraft, and some capability from KC-135s. The theater air component commander may be granted tactical control of larger AMC-assigned aircraft, such as C-17s and C-141s, on a case-by-case basis. Also, the airlift management system must coordinate and relay requirements for intertheater missions managed and controlled by the Tanker Airlift Control Center (TACC) at

AMC. These intertheater missions arrive in the theater and either transload their cargo at a main theater port or fly to a forward operating base in a direct delivery mode.

In addition to coordinating intratheater and intertheater airlift, the system must coordinate airlift missions with the combat air forces through the ATO process at an AOC, work airlift corridors into the theater airspace control plan, and work-out procedures for flight following and deconfliction with other air operations. In some cases, such as an airborne operation, airlift forces will have to fully integrated into a force package through the ATO. Most of the time, however, airlift plays more of a logistical function—more coordination in the ATO than integration. The airlift system has to satisfy many concerns and bridge several gaps.

The job is not an easy one. The gaps, both the one between airlift and fighter forces, and between intertheater and intratheater airlift, what used to be called strategic and tactical airlift, are both deep and the source of historical disagreements in the USAF. For example, General William Momyer, Seventh Air Force Commander in Vietnam, wrote the following in his end-of-tour report:

There is one major lesson which stands out above all others with respect to airlift and that is that tactical airlift is distinctly different than strategic airlift. It operates in an environment that demands association and integration with other tactical forces and it must be directed and controlled by the theater air commander, as are the other forces under his jurisdiction.³⁴

Contrast the above statement with the one below by General Joe Kelly, commander of Military Air Transport Service from June 1960 through July 1964:

The consolidation of all long-range deployment aircraft, including the C-130E, under a centralized airlift command would increase responsiveness, produce economies of force and eliminate duplication. Centralization of command would have an additional benefit in permitting the airlift resource to be shifted rapidly to those areas where the need was most apparent.³⁵

The Military Airlift Command (MAC) history summarized the issue of theater command of airlift forces this way:

While the Secretary of Defense decision to designate MAC as single manager for all strategic and tactical airlift would create one airlift system in place of independent strategic and tactical systems, it tended to conflict with the "unity of command" doctrine in overseas theaters. Now it appeared there would be two commanders with overlapping airlift mission responsibilities. On the one hand, MAC had to retain operational control of all airlift forces to achieve the full benefits of a single manager. Yet the Air Force Component Commander (AFCC) needed to have operational control of airlift forces when they required integration with other USAF forces, to insure unity of Air Force effort—especially when airlift was in direct support of combat operations or tactical employment exercises.³⁶

My purpose of highlighting these historical perspectives is not to develop a long treatise on the development of intratheater airlift doctrine, but rather to illustrate that the command and control issues surrounding intratheater airlift have deep roots in the USAF. Lieutenant Colonel Charles E. Miller's book *Airlift Doctrine* offers a more detailed history of these issues for the interested reader.

The airlift command and control system for Operation Allied Force was built upon an established system in the European Theater. The USAFE Air Mobility Operations Control Center (AMOCC) at Ramstein Air Base scheduled and controlled US-only intratheater airlift missions supporting Allied Force, sustainment of forces in Bosnia, humanitarian relief and any other intratheater airlift missions. The Regional Air Movement Control Center (RAMCC), a combined NATO unit co-located with the CAOC in Vicenza, continued to schedule NATO and humanitarian flights into four airfields in Bosnia. After operations in Kosovo increased, the RAMCC managed flights into Skopje in Macedonia, Tirana in Albania, and Thessaloniki in Greece as the airlift effort into those airports expanded. The RAMCC managed the airlift flow of all NATO, United Nations humanitarian, and U.S. aircraft into these fields using a system of slot times to ensure safe and effective ground operations. The RAMCC also was the airlift agency that primarily coordinated with combat air force planners in the CAOC, ensuring airlift missions were represented in the ATO and coordinating airspace use for airlift missions with airspace control planners. Figure 2 illustrates the overall Allied Force airlift command and control structure.

Air Mobility Structure in the AOC

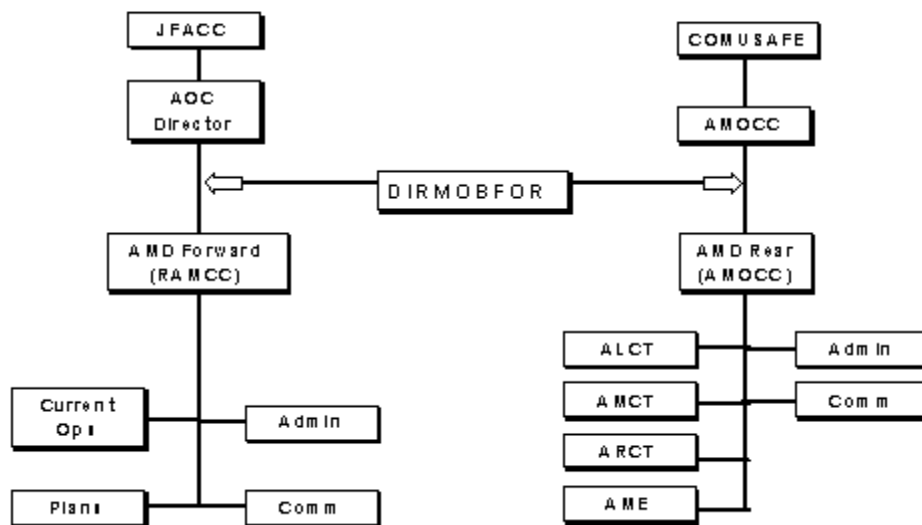


Figure 2: Air Mobility Structure in the AOC³⁷

Ramstein Air Base in Germany was the airlift hub for Operation Allied Force. Nearly all intratheater airlift assets for operations in Kosovo were located at Ramstein, approximately 4.5 hours flying time in a C-130 from Tirana, Albania, with the assigned routing during the war. The

CFACC had operational control (OPCON) of up to 31 U.S. C-130s at Ramstein from one Reserve component and two active duty squadrons. Intertheater assets moving cargo directly into the combat zone usually staged in Ramstein before flying forward into combat area of Bosnia, Albania, and Macedonia for theater indoctrination briefs and ATO special instructions (SPINS) familiarization. These forces were normally OPCON to CINCTRANS, who exercised control through AMC's Tanker Airlift Control Center (TACC) at Scott Air Force Base, Illinois, but placed under tactical control (TACON) of the theater commander for specific operations, such as moving Task Force Hawk. Other intertheater airlift assets flew directly into other airfields in England, Spain, France, Germany, Italy, Turkey, Hungary and other locations to deploy, sustain, and redeploy U.S. assets at those locations. These intertheater missions outside the combat zone were managed by TACC who retained OPCON of those aircraft and coordinated the missions with the AMOCC.

Other changes were made to the airlift system specifically for Operation Allied Force. AMC sent a Director of Mobility Forces (DIRMOBFOR), Brigadier General-Select Rod Bishop, Commander of the 437th Airlift Wing, from Charleston Air Force Base, South Carolina, who had been deployed to the European Theater as a DIRMOBFOR several times previously. The USAFE leadership praised Brigadier General-Select Bishop for doing a model job orchestrating AMC, USAFE, AMOCC, TACC, and RAMCC airlift control efforts and coordinating airlift operations with combat power operations managed in the CAOC.³⁸ The DIRMOBFOR deployed members of his 437 AW staff to Ramstein to act as his DIRMOBFOR staff, and maintained communications with the RAMCC and CFACC through video-teleconferences and frequent personal trips from Ramstein to Vicenza. The AMOCC basically accomplished the doctrinal tasks of an Air Mobility Division (AMD), with the exception of air refueling planning which was run through the strategy, planning and current operations divisions of the CAOC for combat support missions. The DIRMOBFOR staff and the AMOCC also served the functions of an Air Mobility Element (AME), coordinating intertheater missions with TACC, with DIRMOBFOR oversight.

The DIRMOBFOR did not co-locate with the CFACC in Operation Allied Force due to space limitations at Vicenza and the fact that there was an already established intratheater airlift control system in place in Europe with the AMOCC and RAMCC. The RAMCC did not serve as the official AMD-forward, but continued its primary role of integrating NATO airlift with a secondary function of coordinating U.S.-only airlift missions and airspace corridors with the CAOC combat planners, insuring airlift missions were included in the ATO. AMC deployed extra planners into the RAMCC who primarily worked to coordinate U.S. airlift ops planned by AMOCC and TACC into ATO and slot times to de-conflict with other NATO and humanitarian missions. The RAMCC only worked airfields inside the combat zone of Bosnia, Albania and Macedonia—AMOCC and TACC through normal ATC and scheduling means managed missions into other airfields. The 86 AW at Ramstein maintained a planning and tactics cell for all C-130 and operational support, and some C-17, C-141, and C-5 airlift missions into AOR. Charleston's 437th Air Expeditionary Group of 12 C-17s, when moved forward to Ramstein, brought their own planners and ran a separate operation from the 86 AW effort. The C-17 operations were integrated with other intratheater missions through DIRMOBFOR coordination between the AMOCC, RAMCC, TACC, the 86 AW, and the 621st Air Mobility Operations Group, also located at Ramstein.³⁹

The airlift system worked and got the job done, but not without problems. Coordination between airlift planners at Ramstein and the combat air force planners in the CAOC at Vicenza was difficult throughout the operation over Kosovo. For example, airspace planners in the CAOC took all airspace away from airlift missions during the first week of war. This stopped all airlift into Bosnia, and created problems with commercial carriers and other NATO countries. In the opinion of more than one airlift planner in the RAMCC, fighter planners just did not understand or care about airlift airspace operational requirements.⁴⁰ Airlift planners—particularly weapons officers whose expertise proved invaluable—had to force their way into the airspace management and ATO generation processes in the CAOC to ensure airlift missions were integrated with the combat air forces.

Another lesson learned was the need for airlift and tanker planners in each division of the CAOC, cross-matrixed into the strategy, planning, and combat operations divisions to ensure the airlift and air refueling efforts are properly coordinated in the theater air campaign plan and ATO. The primary airlift planning effort should be separated from the CAOC combat air forces planning effort because it is more of a logistics function, but airlift expertise needs to be built into the CAOC structure for orchestration with the combat air force effort. Figure 3 shows the organization of the CAOC.

The Air Operations Center

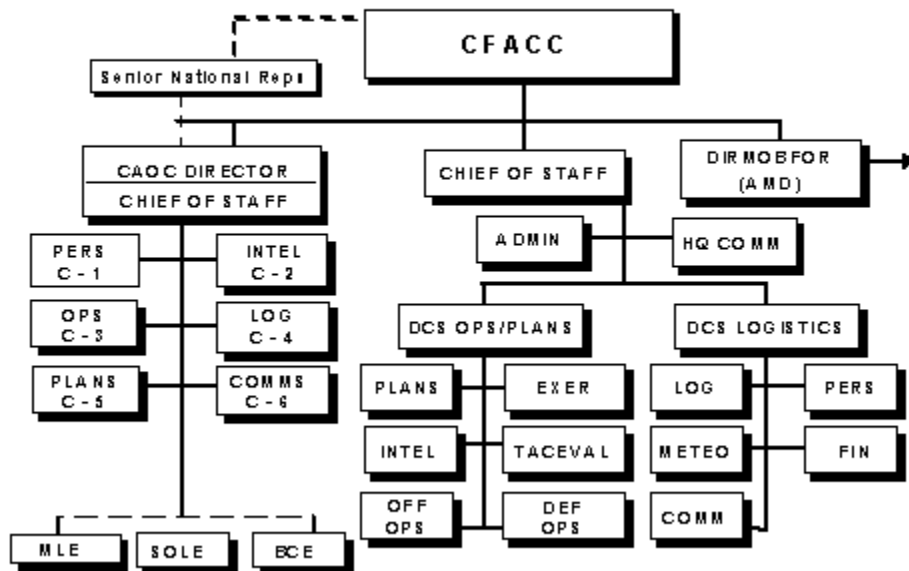


Figure 3: Combined Air Operations Center⁴¹

A second area where problems arose was in the use of C-17s and other intertheater airlift aircraft in a direct delivery mode, where they flew missions from bases in the CONUS direct into an airfield in the combat zone, such as from Fort Bragg, North Carolina, to Tirana, Albania. AMC did not have access to NATO classified message traffic, so AMC flying units could not get theater SPINS and other information to brief aircrews departing CONUS on critical procedures

before they flew directly into the combat zone.⁴² It also proved difficult to coordinate slot times at the RAMCC for AMC direct delivery missions arriving from CONUS—we finally got the process down but it took some time. TACC retained operational control of the missions while in the theater, but theater control of missions entering the combat zone was crucial for coordination with support assets, such as the combat air patrols established near Tirana. In the future, these direct delivery missions may need to change OPCON enroute after entering the combat zone, which means crews will have to be fully briefed and orientated in CONUS prior to departure. The crew preparation and briefing process worked better when the crews flying into the combat zone staged out of Ramstein and were briefed in-theater.

Problems encountered by airlift aircraft at Tirana pointed out another potential lesson learned concerning the theater airlift command structure. The initial operation at Tirana was primarily a UN humanitarian airlift operation. On 8 April 1999 the decision was made to move Task Force Hawk into Tirana. To increase airlift throughput, USAFE and AMC made unilateral decisions to move U.S.-only airlift operations into Tirana, which was also being used for humanitarian airlift by the UN High Commissioner for Refugees and NATO airlift. According to the director of the RAMCC, "There were four TALCE [Tanker Airlift Control Element]"like" [aerial port units] at one time at Tirana, one AMC, one USAFE, and two NATO national—they did not work together, some would refuse to offload/service other NATO aircraft, etc."⁴³ Tirana airspace and aircraft parking areas became quickly saturated, making safety a major concern. Airlift operations into Tirana were known as the "Wild West" by airlift crewmembers that had to fly there in the first two weeks of Task Force Hawk airlift operations. The RAMCC, after much struggle, began to flow control all flights into Tirana, but had to play catch up, and the system never was efficient. Eventually improved air traffic control procedures were established, and through the distinguished efforts of the 86th Contingency Response Group, a USAFE unit deployed to Tirana to establish airfield operations, some order was brought to the chaos on the ground.⁴⁴

Airfield operations at Skopje International Airport in Macedonia, with the NATO system in place, offer interesting comparisons to the operations at Tirana. The Supreme Allied Commander Europe (SACEUR) directed by message that all NATO countries were required to coordinate airlift missions into SKOPJE—before hostilities hit. SACEUR direction concerning Tirana came after the bottleneck caused by Task Force Hawk and was too late to prevent the collision there. The RAMCC was given the task of coordinating all airlift into Skopje with SACEUR's initial tasking. French officers on the RAMCC staff coordinated with the French aerial port detachment that ran the airfield. NATO controlled the base, so all operations had to be coordinated, and a system was in place when the humanitarian crisis hit so the surge in airlift missions was handled smoothly. In contrast, the airfield at Tirana was never under total NATO control, there were several different operations going on at the same time, including Task Force Hawk which was U.S.-only. One potential lesson learned from Tirana operations is that it might have been run better than it was if it had been a NATO field from the beginning. Initial U.S. concerns with throughput and speed of closure may have been less critical than ensuring proper coordination with all air operations going into a very congested airfield. Safety and coalition operations may have to take a back seat to speed.

Operation Allied Force also validated the need for the DIRMOBFOR in doctrine. It is a fact of life that the CFACC or JFACC will normally not be a mobility officer, although doctrine does allow this if the operation is primarily humanitarian or mobility orientated. There needs to be a senior mobility officer on the C/JFACC staff to orchestrate the air mobility effort. This requires subject matter expertise not normally found in combat air force officers. Doctrine must recognize that air mobility is different than air combat, and while the C/JFACC remains the one airman in command, s/he should delegate orchestration of the air mobility mission to a DIRMOBFOR. The DIRMOBFOR, for his/her part, must ensure that air mobility forces remain focused on the JFC's and C/JFACC's overall theater objectives. The air mobility effort should be coordinated with combat operations in the AOC, and air refueling planning in particular should be fully integrated into the AOC to support combat operations. Airlift, however, is primarily a logistics function and should be planned first in the Air Mobility Division, then coordinated with the other divisions of the AOC for integration into the ATO and theater airspace plan, to be most effective. This structure is already depicted in AFDD 2-6, Air Mobility Operations.

A final lesson learned from Allied Force is that you may likely have other coalition airlift and commercial air transportation operations going to the same fields as US mobility assets. This points out the possible need for one mobility officer to coordinate all coalition airlift, a combined DIRMOBFOR. The DIRMOBFOR does not have to be co-located with the C/JFACC, as operations in Kosovo proved. However, if NATO had gone to a true combined airlift operation during Operation Allied Force, and not just relied on a primarily U.S.-only system, then the DIRMOBFOR would probably have to co-locate his/her staff with the CFACC to streamline command and control. The combined mobility effort would have to be fully integrated into CAOC operations, which would likely require combined mobility representation in the same location as the CFACC. The established airlift control system in theater dictated how airlift forces for Allied Force were organized—it worked, but our doctrine can be improved with lessons learned. The air mobility team has to get beyond this struggle for who "owns" airlift assets in or between theaters and get the doctrine clearly defined so airlift command relationships are known and agreed upon, otherwise the USAF will keep relearning past lessons over and over again.

This brief review of air mobility command and control during Operation Allied Force brought forward some important lessons and implications for airlift doctrine. These included the need for close coordination between airlift and fighter planners in the AOC, the need to improve intertheater airlift direct delivery operations, and differences between the airfield command and control methods at Tirana and Skopje. Other lessons included the validation of the DIRMOBFOR concept in USAF doctrine and the need to account for combined airlift operations in doctrine. Up to this point, this article has concentrated on analyzing lessons learned with an emphasis on doing things better. Next I will address some things that must be remembered because they worked so well.

We Need to Remember Those Things we did Very Well.

The campaign in Kosovo was solely an application of air power. The Air Force performed well under very difficult circumstances and enjoyed a relatively spectacular operational, if not strategic, success.

But there were problems that must be addressed. Ducking hard questions and wanting a sanitized, politically correct view of what happened is not a sound base for future planning.⁴⁶

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Professor at Air War College

The air mobility effort during Operation Allied Force was very successful by any measure. An AMC/USAFE airlift team deployed, sustained, and redeployed U.S. combat air forces, deployed the Army troops and equipment of Task Force Hawk, and carried humanitarian relief supplies to help ease the suffering of Kosovo refugees—all at the same time. Previously, this paper focused on ways the USAF airlift system, particularly intratheater airlift, can improve based on lessons learned from operations in Kosovo. The airlift force also learned some good lessons it needs to remember and record in doctrine for the future. These lessons include the RAMCC and DIRMOBFOR concepts, airlift weapons officers, force protection, expeditionary airfield operations, combined airlift operations, and the value of the C-17.

The concept or function of the RAMCC needs to be recorded in doctrine. When mobility forces are faced with a limited number of airfields, with limited throughput capability in a theater, there will be a need for one coordinating and scheduling office for U.S.-only, allied, and commercial airlift going into that theater. This is particularly true if there is other commercial or United Nations air traffic, that is not directly involved in the armed conflict, using those same airfields. This was the case in Operation Allied Force, particularly at Tirana and Skopje. The RAMCC accomplished this task in the Balkans. Of 4809 airlift missions flown into the Balkans AOR between 24 March and 5 June 1999, 3185 or 66% were flown by other than US military operators.⁴⁷ The slot time concept for these airfields was critical, and needs to be remembered for future use. In the slot time process, landing times are scheduled based on an airfield's capability to turn aircraft, missions are scheduled into an airfield at a given "slot" time, and aircraft must meet their slot time by a given time constraint to be cleared for landing. When airlift forces from several nations join together into a coalition for a military operation, the agency scheduling missions into a few airfields, such as the RAMCC did during Kosovo operations, should have representatives from each nation and be a combined staff to increase effectiveness.

The success of airlift operations in support of Allied Force also proved the concept of the DIRMOBFOR. The CFACC was able to focus primarily on the combat air force aspect of the air campaign, while the DIRMOBFOR worried about the theater mobility effort. He kept AMC intertheater airlift missions coordinated within the theater, helped pass theater lift requirements back to AMC, and coordinated intratheater missions flown by AMC aircraft. The DIRMOBFOR also provided a critical link between the supported commander and the air mobility structure in CONUS. The doctrine worked!

Another success story was the theater airlift employment and mission planning expertise graduates from the Air Mobility Warfare Center Combat Aerial Delivery School C-130 Weapons School brought to airlift operations in Kosovo. Several C-130 weapons officers augmented the DIRMOBFOR and RAMCC staff. They worked particularly critical issues in airspace control, airlift corridor operations, and force protection of airlift assets. These weapons school "patch wearers" were able to walk into the CAOC and talk on the same level with fighter weapons

officers. This proved crucial to the orchestration of the air mobility effort with the combat aspects of the air campaign. The outstanding contributions made by C-130 weapons officers to Kosovo operations proved the value of this concept for mobility platforms, and highlighted the need for the program to be expanded to other AMC weapons platforms. The KC-135 program is already in works. AMC needs it for the C-17, C-5, and KC-10 too.

Airlift planners in the CAOC did some great work with airlift force protection and airspace coordination. They established combat air patrols near Tirana to protect airlift aircraft going there from Yugoslav fighters stationed in Montenegro. CAOC planners also established combat air patrols near other airfields in Bosnia and Macedonia used by airlift aircraft to protect them and other NATO forces from Serb air attack. Airlift assets had to make positive contact with the Tactical Air Control System, through Airborne Warning and Control System (AWACS) or naval forces, prior to entering the combat zone for flight following and to ensure combat air patrols were airborne. Airspace control planner developed airlift corridors to expedite movement into and out of airfields located in the combat zone. The air control system made novel use of AEGIS cruisers as airspace controllers in the southern part of the Adriatic Sea to ease the workload of AWACS, who were primarily controlling the shooter war over Serbia. Airlift sorties were listed in the ATO and coordinated with the CAOC. The orchestration of airlift missions within the air campaign was not always pretty, particularly at the beginning of the war, but planners worked together to eventually develop these procedures which really worked. Airlift planners in the AOC need to plan these types of airlift procedures ahead of time when they help prepare theater and air campaign plans.

An additional mobility success story for both USAFE and AMC was the upgrading and improving of Tirana airfield operations in the heat of war. One major factor in this success story was USAFE's 86th Contingency Response Group (86 CRG)—a unit stood up in March of 1999 to establish contingency bases in an expeditionary environment. "The 86 CRG is designed to be a multidisciplinary, cross-functional team whose mission is to provide first on-scene Air Force forces trained to command, assess, and prepare base for expeditionary aerospace forces."⁴⁸ AMC has organized and trained Tanker Airlift Control Elements (TALCEs) to perform a similar mission since air mobility support forces are often the first U.S. forces on the ground during expeditionary operations at a contingency base. The CRG played a key role in establishing mobility operations and organizing the humanitarian effort at Tirana. A briefing by USAFE listed these key CRG accomplishments:

When [the] CRG entered Tirana, they encountered barely controlled chaos with numerous U.S. and foreign IGOs [International Governmental Organizations] and NGOs [Non-Governmental Organizations] trying to conduct relief operations in a vacuum. Within 3 hours of arrival, the CRG was providing order to chaos, moving food and aid to refugees, and putting in place the framework to coordinate relief efforts. [They] brought airfield capacity from 10 events per day to over 400 events per day and provided assistance in bedding down over 6,000 people.

The CRG concept worked well at Tirana. The USAF must further organize, train and equip units with capabilities like the CRG to establish operations at austere contingency bases. This capability is key to being expeditionary.

Although the CRG played a key role in organizing Tirana, other agencies made important contributions as well. The RAMCC got its arms around scheduling all aircraft into the airfield, which eased congestion and improved throughput. U.S. Army and humanitarian relief helicopters were integrated into the airspace plan around airfield by USAF air traffic controllers deployed to Tirana, which improved flight safety. USAF controllers were critical to expanding the operational capability of Tirana. The 86 AW sent a flight safety officer from Ramstein to observe operations and recommend improvements—many were adopted which reduced the chance of aircraft accidents. Communications and airfield operations personnel installed airfield navigation aids to improve the airfield's all-weather capability. Deployed commanders from various units set up meetings to coordinate airfield ground operations. Although all operations at Tirana were never put under one commander, the players worked together to help each other and stayed focused on the overall mission at hand. Tirana was a muddy, austere location. Dedicated airmen deployed there with little more the gear they carried and built a major aerial port operation from scratch, and also helped build a refugee camp. Air Force people made it happen.

Operation Allied Force also offered lessons on conducting combined air mobility operations. Airlift missions into Skopje International Airport in Macedonia in particular showed NATO's ability to work as a combined team. Macedonian air traffic controllers, with some French and U.S. assistance, controlled the airfield. French aerial port operators offloaded and loaded airlift aircraft from all countries, with some assistance from a deployed AMC TALCE. RAMCC aircraft flow-control procedures into the airfield helped prevent over-congestion and kept air operations safe. NATO preplanning before hostilities helped operations there to transition from peacetime to war smoothly. According to the Director of the RAMCC during Allied Force, Skopje was a "model" operation.⁴⁹ How it was organized, with specific NATO countries given responsibility for coordinating all assigned tasks, and using a unit like the RAMCC to flow control aircraft into and out an airfield, should be studied for future operations. The Skopje model could prove useful for future combined mobility operations, including the integration of commercial and UN missions.

Finally, airlift operations during the Kosovo crisis proved the value if the C-17 and the concept of direct delivery. AMC transferred tactical control of C-17s to the theater for specific operations, such as moving Task Force Hawk from Ramstein to Tirana. The temporary change in ownership was a "tremendous success story," according to General Robertson, Commander of AMC. "It's something we're going to have to go back and write into the doctrine, as to how that's done."⁵⁰ However, General Robertson did note dedicating C-17s to one theater exclusively was only possible because of light airlift requirements in rest of world. "Only because of the unusually light demand for strategic airlift at that time were we able to dedicate the C-17 to the theater."⁵¹ Perhaps the most publicized airlift lesson learned thus far was the fact that the C-17 performed very well in its first major test. "It did everything ... we asked ... with a 97 percent reliability rate," said General Robertson.⁵² In another positive lesson, a C-17 unit from Charleston deployed forward to Ramstein—this is a big change in culture for the intertheater airlift force, and an important step to becoming more expeditionary. Other areas of the USAF who do not traditionally deployed forward for contingencies can study the C-17's experience to ease their own transition to the Expeditionary Aerospace Force.

Conclusion

Air mobility's speed and range transform global mobility into rapid global mobility. Rapid global mobility provides the United States with unequaled reach underpinning our nation's role as a global power. The ability to move rapidly to any spot on the globe ensures that tomorrow, just as today, the nation can respond quickly and decisively to unexpected challenges to its interests—air mobility makes this possible.⁵³

AFDD 2-6, Air Mobility Operations

This article reviewed theater airlift lessons learned from Operation Allied Force in an effort to add to the debate over future airlift doctrine. I primarily relied on my personal observations as a C-130 squadron commander during Allied Force, and focused on things the USAF could have done better and things we did well from an airlift perspective. This article reviewed humanitarian airdrop planning, total force, logistics, and command and control issues to point out areas for potential improvement. It also recorded airlift things that worked well, including the RAMCC and DIRMOBFOR concepts, airlift weapons officers, force protection, expeditionary airfield operations, combined airlift operations, and the C-17. Studying lessons learned from operations in Kosovo is an important exercise that airmen need to take seriously to be a more effective Expeditionary Aerospace Force in the future.

As part of this process, airmen need to record and debate lessons learned from the air war over Serbia. There has been much written to date from the air campaign perspective, particularly overall NATO strategy and the effectiveness of strike aircraft, but very little published on air mobility operations. I focused on theater airlift issues because I wanted to "stay in my lane," discuss lessons where I had personal experience, and rely on information in the public domain. Many other air mobility lessons learned need to be recorded, discussed, and debated. For example, the entire USAF would benefit from personal lessons learned by the DIRMOBFOR, RAMCC director, and CAOC tanker planners. There remains much fertile ground to plow, and many opportunities for future study.

The bottom line in Allied Force, according to General Ryan, was that "a very, very well run air operation ... brought a cessation of hostilities and the withdrawal of the Serbian forces from Kosovo. That fact can't be rewritten, no matter how hard the pundits try to rewrite it."⁵⁴ Air mobility was a major contributor to the operation's success. Airmen should be proud of their accomplishments. They must also learn from their mistakes and successes to improve future USAF capabilities.

Endnotes

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25. "Kosovo: Air Force and Air Mobility," 6.
26. "Kosovo Hot Wash," slide DO-5.
27. General Michael E. Ryan, "Remarks at the Air Force Association National Convention," September 14, 1999.
28. "Kosovo Hot Wash," slide DO-9.

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30. "Kosovo: Air Force and Air Mobility," 33.
31. Charles E. Miller, *Airlift Doctrine* (Maxwell Air Force Base, Alabama: Air University Press, 1988), 201.
32. *Ibid.*, 311.
33. *Ibid.*
34. *Ibid.*, 347.
35. *Ibid.*, 284.
36. *Ibid.*, 350.
37. "The Balkans: A Mobility Perspective," 7
38. "Kosovo and Theater Air Mobility," 17.
39. A complete description of airlift command relationships can be found in the USAFE Briefing entitled "The Balkans: A Mobility Perspective," 7 and 59, and "Kosovo and Theater Air Mobility."
40. The author talked to four officers from his squadron who deployed to Vicenza to work on the RAMCC staff during the conflict, and one who worked on the DIRMOBFOR staff at Ramstein. All expressed similar opinions on how airlift operations were integrated into the ATO and airspace control processes at the CAOC.
41. "Kosovo: Air Force and Air Mobility," 22.
42. "Kosovo Hot Wash," slide DO-4.
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45. Inputs from the RAMCC Director, 4.
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