

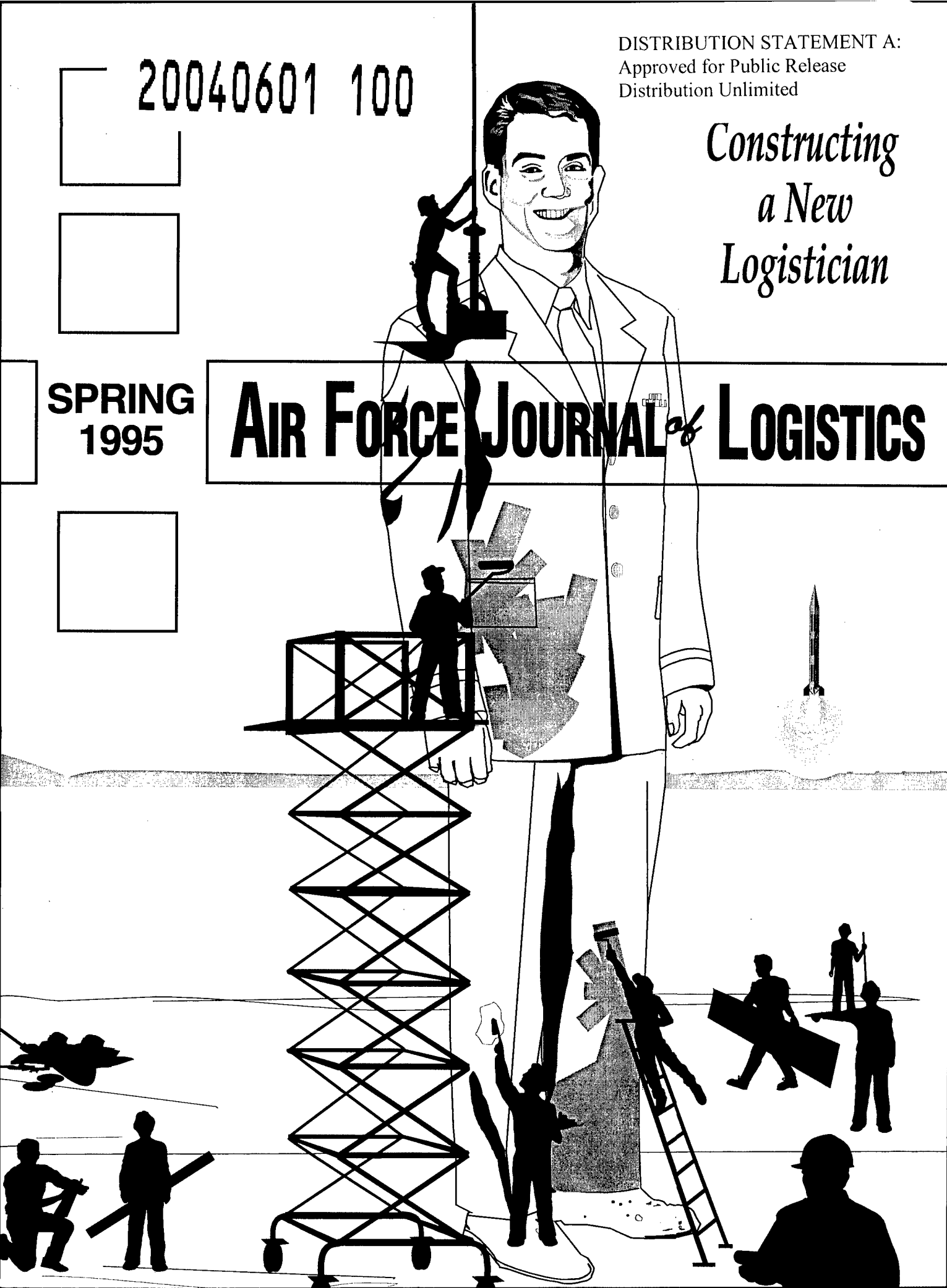
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*Constructing  
a New  
Logistician*

SPRING  
1995

# AIR FORCE JOURNAL *of* LOGISTICS



# AIR FORCE JOURNAL of LOGISTICS

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Air Force Logistics Management Agency

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## *Logistics Career Development—A Reality*

*Lieutenant General John M. Nowak, USAF (Ret)*

It is indeed a pleasure to have a final opportunity to discuss the new logistics career development path. I consider this one of the most significant changes to the professional development of logistics officers in Air Force history! The new career path adjusts logistics professional development to the changing environment while fulfilling future Air Force needs. It provides the foundation for training and experience in two or more logistics disciplines and will prepare our young officers for senior leadership in the Air Force of the future. This project started over a year ago, and from the start, I have insisted this effort capitalize on all viewpoints and the full range of logistics experience. My objective was to do this consolidation right the first time. Everyone did a remarkable job in ensuring our new career development path meets not only the needs of the Air Force, but also those of the individual logistics officer. As a result of everyone's hard work, the new logistics career development path becomes a reality in October 1995!

Now you all realize as we reduce our manpower and integrate the elements of our processes, we must also adjust the way we develop the managers for these integrated logistics processes. Our reasoning did not change from the start of this project. In fact, it is validated by the continued reduction in resources. Tomorrow's senior officers *must* understand the whole logistics picture. They *must* understand the interrelationships between maintenance, supply, and transportation to include wholesale, retail, and joint logistics. Our senior officers *must* use the attributes of one element, such as express delivery, to minimize other elements such as maintenance people or supply inventory. Senior logistics leaders of the future, who are broad-based and understand more than one logistics discipline, will be fully prepared to deal with the complexities of modern logistics.

We start by developing broadly trained and experienced logistics officers from day one. Each initial training course will be built around a common core of instruction that encompasses the whole logistics process and how one's functional specialty fits. As they grow, officers will cross flow to another logistics area to gain experience in a minimum of two disciplines. Once these multidisciplinary logistics officers become lieutenant colonels, they will be eligible for a "Logistician" AFSC. The logistics group commanders, operations group commanders, and wing commanders are the key to assessing mission needs and the needs and capabilities of their officers. They will move company grade officers to jobs that develop experience within their

discipline and identify those ready for cross flow to other disciplines.

Remember, the goal of this consolidation is to produce a highly trained, experienced, educated, and motivated officer corps possessing widely diversified logistics experience. We cannot get there from here unless we give logistics officers the tools to succeed. That essential element is **training**. As previously stated, a core block of instruction will be included in every initial course. When officers are selected for cross flow, courses will be available to bridge that cross flow. Cross flow officers will initially be assigned to their new functional area and then attend a bridge course. This will allow our cross flow officers to become better students because they will be familiar with the new functional area and better prepared to learn. This, in turn, will shorten the bridge course and lead to more efficient training.

Finally, the Air Education and Training Command (AETC) is currently developing a logistics graduate-level course which will allow our field grade logistics officers to put the final touches on their experience and knowledge. This will be the Advanced Logistics Officers Course (ALOC). Students will receive course material to study prior to attendance. Case studies, computer simulation, and problem solving exercises constitute the format of the in-residence portion of the course. The thrust is to put their experience and knowledge to test during the course. The exercises will focus on the interrelationships and complexities of joint warfighting, wholesale and retail logistics, the acquisition process, and finally, the integrated logistics processes at both the unit and staff levels. The idea is to make the logistics officer fully aware of and able to manage tradeoffs across the whole logistics process. I am really excited about this course and the learning experience that will be realized through the cross flow of information.

It is important we develop a career path that meets Air Force needs—that, I am confident, we have done. It is just as important we develop a path that meets the needs of the logistics officer. This career path should be flexible and versatile. It should provide plenty of challenges and opportunities to allow our logistics officers to succeed. I believe the new logistics career development path does just that. There is no one path to success, but numerous crossroads opening avenues to expand logistics knowledge and expertise.

I recognize changes to career development affect each logistics officer personally. Naturally, there is some apprehension. Officers are comfortable within their current functional area and may be hesitant to leave a familiar environment. However, I believe the performance of a leader outside one's comfort zone is a true test of character and leadership abilities. It also builds confidence and self-esteem. Remember, the same work habits and dedication you used in your current functional area will earn

(Continued on bottom of page 3)



## *Now Is the Time for Career Development*

*Major General Marcelite J. Harris, USAF*

I cannot remember a time in my career when the Air Force has experienced such dramatic changes as we have seen in the last few years. Changes in the security threat have created a reformation of our Air Force. This resulted in the Air Force adjusting and reorganizing to train the way we will fight future wars. This changing environment has evolutionary consequences on our national security strategy. Thus, theater battlefield management, the logistical philosophy necessary to support the war fighter, and our highly mobile warriors have changed in conjunction with the world environment.

As our nation adjusts to the changing faces of various threats, we find that our national requirements (medical, education, crime fighting, and national defense, etc.) are all competing for the same tax dollar. While the immediate threat of war has diminished, threat perceptions and resource priorities have changed simultaneously. The American people are demanding that more of our scarce tax dollars be placed on domestic issues. Concurrently, they are demanding at least the same national security effort from its Armed Forces as that provided before "peace." To meet the latter demand, our Air Force leadership quickly realized that we could no longer operate as we did to gain our cold war win.

Thus, the Air Force reduced force structure, reorganized internally, and aggressively looked for ways to use resources more efficiently. As a part of that effort, the logistics community was quick to realize that it could no longer support the war fighter with a logistics tail that required large numbers of spares, bits and pieces, equipment, and people. Processes and procedures dictating these resource requirements are no longer affordable. Resources are not available. Additionally, we still have the burden of the Services competing for airlift and seallift. Therefore, the logistics community is looking for ways to improve logistics processes. We are wrestling with innovative programs such as Lean Logistics, including Two-Level Maintenance, Express Delivery, Inventory Reduction, Weapon System Cost Reduction, etc. Quality and business principles are continuously being applied to improve and streamline our logistics functions. These functions are being tweaked and improved to maintain combat capability with reduced resources, while ensuring our national security at an even greater level.

This introspective look, with the process changes being made,

has pointed out the need to better prepare our logistics officers to manage the dynamics of integrated logistics. The way we developed logistics officers in the past does not prepare logisticians for the multidisciplinary tasks that lie ahead. It appears that we as logisticians, already have plenty on our plates, and that a complete revamping of officer career development may be out of the question. Not!! There is not a more opportune time for such an undertaking than now! Remember, the drawdown drastically affects the number of logistics officers available. We do not have the luxury of drawing from a tremendous wealth of specialists for our senior logistician's positions. Secondly, the drawdown has reduced some disciplines to a level in which they can no longer support career progression. Finally, even today, our senior logistician responsibilities are no longer specialized, but are multidisciplinary and deal with all functional areas.

Modern logistics blurs the lines of demarcation between our separate logistic disciplines. Lean Logistics basically looks at all logistics processes and integrates logistics into a single process or function. We have streamlined our repair processes, maintenance concepts, inventory management, and delivery modes. We have even streamlined how we plan to go to war. Therefore, the senior people managing, directing, and leading will no longer be called suppliers, planners, transporters, or maintainers, they will be called "Logisticians." Furthermore, there is plenty of justification for consolidating the separate disciplines at the right leadership level. It would, therefore, be negligent not to adjust the way we develop our logistics officers. **Now** is the right time to revamp logistics officer career development!

The very excitement about the career field consolidation is electric. We are doing what is right for the Air Force and our people. Logisticians must be knowledgeable of all facets of logistics processes. They must understand how they interrelate and mesh to provide the support needed for our Air Force warriors to fight and win. Our new career development path is geared to groom and prepare our officers throughout their Air Force careers. The goal is to develop a career path that provides the experience and training required for logistics officers to reach career maturity at 16 years of logistics experience (approximately the lieutenant colonel level). The new Logistician's career development path prepares logistics officers to succeed in meeting the challenges and opportunities of a senior logistician.

The basic concept is to broaden the logistics officer's experience and gain knowledge and expertise in more than one functional area. First, officers will develop depth on their first assignment by gaining experience both as an officer and a functional manager expert. A minimum of four years of experience is recommended before cross flowing into a second functional area. Two years of experience is required to become fully qualified in the second functional area. Logistics officers

will also gain valuable experience in their development while assigned to a headquarters staff position and during a tour as a squadron commander. As they progress, officers will gain experience and depth that will ultimately lead to becoming a fully qualified Logistician. Initially, we are gauging the 16-year experience point as a target in time when the logistics officer will be fully qualified and prepared to succeed at any senior logistician position. This is around the present time period when officers are generally promoted to lieutenant colonel.

Training is a basic requirement in assuring our logistics officers are prepared for success. A graduate-level course is being developed for field grade officers—the Advanced Logistics Officers Course. I am really enthusiastic about this course because it is designed to hone and sharpen the officer's skills by actual application in near "real" scenarios. The course is designed to enhance and test the career knowledge and expertise that has developed over a logistics officer's career. Role playing, computer simulation, case studies, and operational exercises will be the primary tools of instruction. Bridge courses are also being developed to bridge the crossover from one logistics discipline to another. Training is a top priority in ensuring our logistics officers are prepared to accept the next challenge in their career progression.


In summary, in order to become fully qualified, a logistics officer must have hands-on experience in two logistics disciplines. Field grade logistics officers will attend ALOC. Preparation and experience ensures we have qualified personnel serving as our senior logistician leaders and managers.

Additionally, it is important to remember that as we drawdown and resources are reduced, it is critical our senior leaders are aware of all aspects of logistics. The new career development path was built to ensure our officers broaden and gain the necessary experiences across all disciplines. This career path is

dedicated toward career development and should not be used as a square filler. Logistics officers should use the career path to develop themselves to fulfill Air Force needs. In turn, this will make a better Air Force officer with potential for more and more leadership opportunities. As we proceed toward the future, dedicated logistics professionals who put service before self will be the ones who are given the reins to help assure our nation's security.

As we transition to new career development, it is essential the program has the support of all; especially our senior leaders in both maintenance and operations. The success of the consolidation and the future development of our logistics officers rests squarely on the shoulders of our group and wing commanders. These senior leaders will make the decisions to develop depth of knowledge and cross flow timing. Commander involvement and support to logisticians as individuals is the critical link to success.

In closing, the consolidation of logistic functional disciplines and the creation of a new logistics career path are *definitely appropriate* and *absolutely necessary*. The career path adjusts not only to the changing environment, but also creates the mechanism required to ensure future logisticians are prepared and qualified to do their Air Force jobs. This transition to a seamless career path that embellishes multifaceted experiences guarantees a better prepared officer meeting Americans' security needs. The future of the logistics community has never been better. The logistics officer's future is also full of promise, magic, and excitement. The new logistics career development is a solid brick in the capability foundation of our Air Force as we aim for the vision—global reach, global power.

*Major General Harris is the Air Force Director of Maintenance, HQ USAF, Washington, D.C.* 


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(Continued from page 1)

you the same success in your new functional area. Our goal is to develop a multidisciplined logistics officer capable of filling senior logistician positions. Do not sell yourself short. Get involved. Logistics officers need to work with their logistics group and operations group commanders to carefully manage and plan their careers. I am convinced the consolidation meets the logistics officer's professional needs.

In closing, I would like to thank all the logisticians for making my last 32 years in the Air Force a terrific experience. Upon my

retirement, I take with me a lifetime of happiness and memories. Logisticians will always have a special place in my heart. I fully believe that the success of the Air Force can be traced directly to our logisticians. Their dedication and professionalism guarantee combat capability—past, present, and future. Thanks to all of you for your dedication and efforts. I salute all logisticians!

*Lieutenant General Nowak is the former Deputy Chief of Staff for Logistics, HQ USAF, Washington, D.C.* 

# *Logistics Officer Career Development Path: An Overview*

*Lieutenant Colonel Harry DeVault, USAF*

## **Introduction**

Change! Change is all around us. It would appear by now that the Air Force would finally be stabilizing, but adjustments continue. We are now looking at further change with the consolidation of logistics AFSCs. Significant changes in the world politically has had drastic ramifications in how the Air Force prepares to fight. In turn, the logistics community has felt the effects of change in our logistics processes. In the fall of 1993, Lieutenant General Nowak, Air Force Deputy Chief of Staff for Logistics, recognized that the current logistics career development did not prepare logistics officers for senior logistician positions. He established an Air Staff working group, consisting of functional managers, to study the concept of logistics discipline consolidation.

General Nowak insisted that the Air Staff not work in a vacuum. Representatives from all major commands (MAJCOMs) and disciplines were involved from the start. The basic premise of consolidation was approved by the Air Force Logistics Board of Advisors (BOA) in April 1994. The working group laid the basic foundation for the consolidation, and their ideas and concepts were approved at the November 1994 BOA meeting. A Utilization and Training Workshop met in December 1994 to put the final touches on the Advanced Logistics Officers Course. A complete review of the implementation rules, procedures, concepts, guidelines, and all levels of training was conducted at the March 1995 BOA meeting. Currently, all details are being finalized to complete the consolidation by 31 October 1995.

The purpose of this article is to explain, in as much detail as possible, the history and specifics of the coming consolidation. Furthermore, it should help to dispell misinformation or rumors. Please remember that since the details are in the final stages of work, variations can occur prior to implementation. If you have questions, contact your career field manager. Names and phone numbers are listed at the end of this article.

## **Background**

The Air Force has responded to the change in threat and lessons learned from Desert Storm by adjusting the way it will fight future wars. In other words, the Air Force we knew five years ago has been reshaped according to the changing world environment. As a result, the Air Force has basically undergone a reformation: the major commands were reorganized; the objective wing concept was applied across the Air Force; and Air Force resources were cut.

Through all this, logistics did not stand still. As in other functions in the Air Force, logistics is affected by the turmoil of change. The logistics community is aggressively looking for ways to improve efficiencies and still have an effective logistics

support structure. The Air Force can no longer afford a large, cumbersome, and awkward logistics tail. The logistics community is now wrestling with innovative programs such as Lean Logistics, Two-Level Maintenance, Express Delivery, Stock Funding, and Weapon System Cost Reduction. Quality and business principles are continuously being applied to improve and streamline our logistics discipline processes. All logistics processes are being tweaked and improved to insure combat capability. In light of all these changes, it is obvious that how we develop our logistics officers must also be modified. This thought was captured by General Nowak in October 1994,

As we reduce our manpower and infrastructure, we must raise logisticians who understand the interrelationships between maintenance, supply, and transportation . . . Logisticians who are broad-based and understand more than one aspect of the logistics process.

## **Purpose of the Consolidation**

The Lean Logistics initiatives, Two-Level Maintenance, and other programs to streamline our logistics infrastructure have broken down barriers between our stovepiped disciplines. The challenges facing our logistics officers today are extremely complex and require an understanding of the interrelationships of all logistics disciplines. Modern logistics blurs the lines between wholesale, retail, and joint communities. Therefore, we must learn to manage logistics as a complete process that encompasses the whole picture—transportation, supply, maintenance, logistics plans, and contracting to include wholesale, retail, and joint arenas. Modern logistics is the integration of all the logistics disciplines into a single process. Integrating logistics disciplines recognizes the influence and impact that one logistics process has on the others.

This integration, coupled with reductions in infrastructure and manpower, require an adjustment in the way we develop logistics officers. Officers must be more intimately knowledgeable of the whole logistics picture. They must understand the interrelationships between maintenance, supply, and transportation. In other words, we must ensure that our company grade logistics officers are cross utilized so that we may develop broad-based, experienced field grade logisticians. Logisticians who are broad-based and have a technical understanding of more than one aspect of the logistics process epitomize the future senior logistic leader.

A new logistics career path which emphasizes cross flow and development of logistics officers is needed to meet the future needs of Air Force leadership and the individual officer. Without cross flow, a logistics officer receives concentration in only one discipline, and with the lack of broad-based experience, loses effectiveness at the field grade level. The writing is on the wall—

depth and breadth is a necessity for career development and advancement.

### Proposal

The proposal is to start developing holistic logistics officers from initial accession. New officers will gain experience in a minimum of two disciplines, and once they gain sufficient logistics experience, they will be eligible for a "Logistician" Air Force Specialty Code (AFSC). Company grade officers will establish adequate depth in their initial discipline prior to obtaining a second discipline. Logistics group commanders or senior logistics officers at staff levels, working with other senior leadership, are key to moving company grade officers from job-to-job to develop experience within their discipline. Once they establish a base of expertise, young officers should move to another specialty to increase their logistics experience. This career enhancement will prepare the junior officer for field grade and senior officer logistics positions.

### Logistics Progression Pyramid

The logistics progression pyramid captures career progression in a nutshell (Figure 1). One of the advantages of the consolidation, as illustrated by the logistics progression pyramid, is that it allows all logistics officers the opportunity for a full and rewarding career. Reorganization under the objective wing concept basically created dead ends as far as career progression.

The consolidation reopens these dead ends to freeways of opportunity. Both the logistics progression pyramid and logistics career path illustrate the opportunities available to our logistics officers.

### Logistics Career Path

The logistics career path diagram illustrates logistics career progression with the barriers between disciplines removed (Figure 2). Initial accessions will enter their core discipline where they are expected and required to develop an in-depth working knowledge. Following an officer's first four years in this logistics specialty, the time is right to take advantage of a wide range of opportunities available for cross flowing. In the past, logistics officers have developed a "comfort zone" within a specific discipline, which many young officers have been reluctant to leave. Also, we had built in barriers that did not allow logistics officers to cross flow freely. Cross flowing will challenge our young officers outside of the so-called comfort zone. The goal is to develop a solid logistics foundation to prepare our logistics officers for intermediate and senior logistics positions. As the career path illustrates, the stovepiped paradigm is eliminated, and our young officers are forced to look across the traditional discipline barriers. As reflected by the career path spectrum, logistics officers of the future will have the depth and breadth required to fill our senior logistician positions.

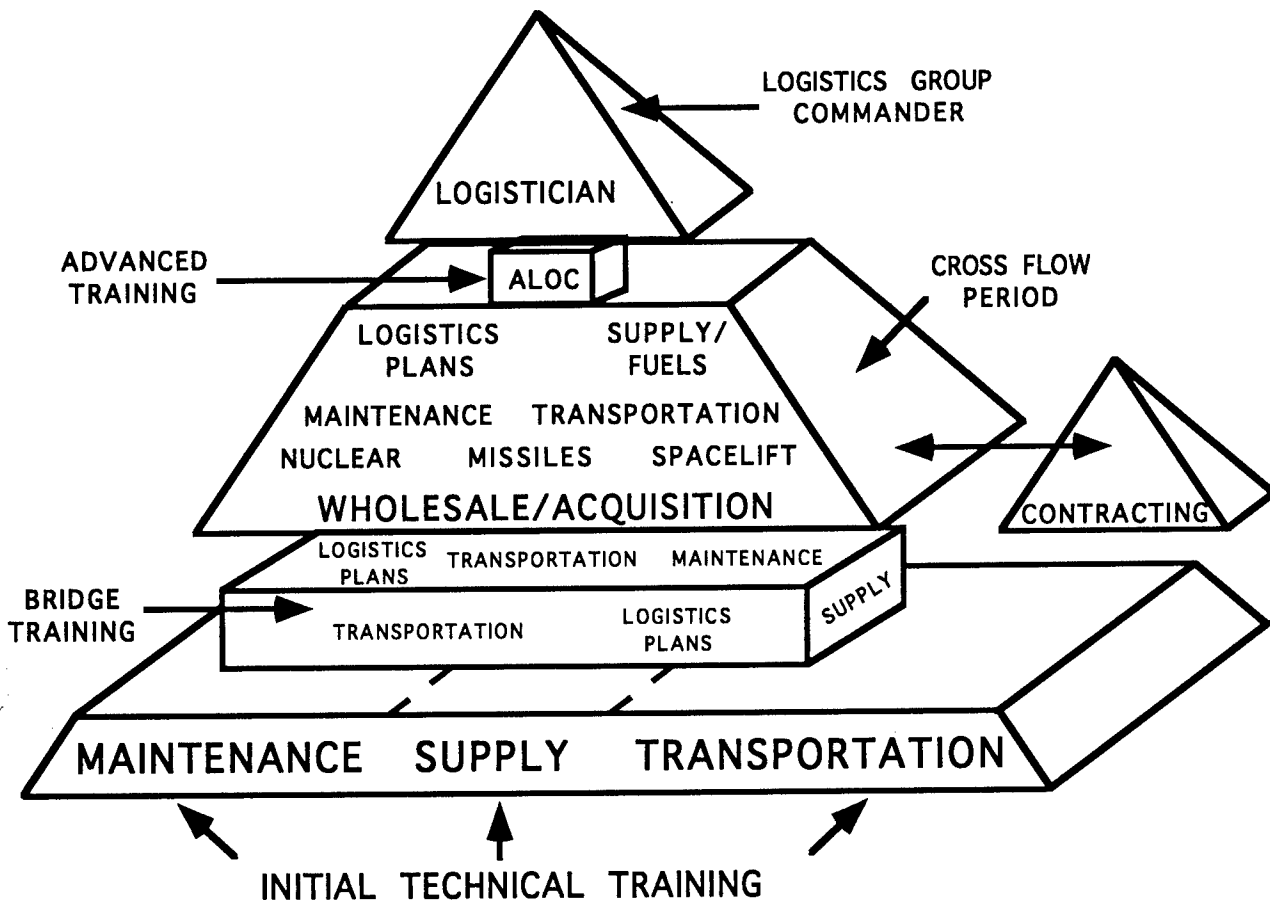
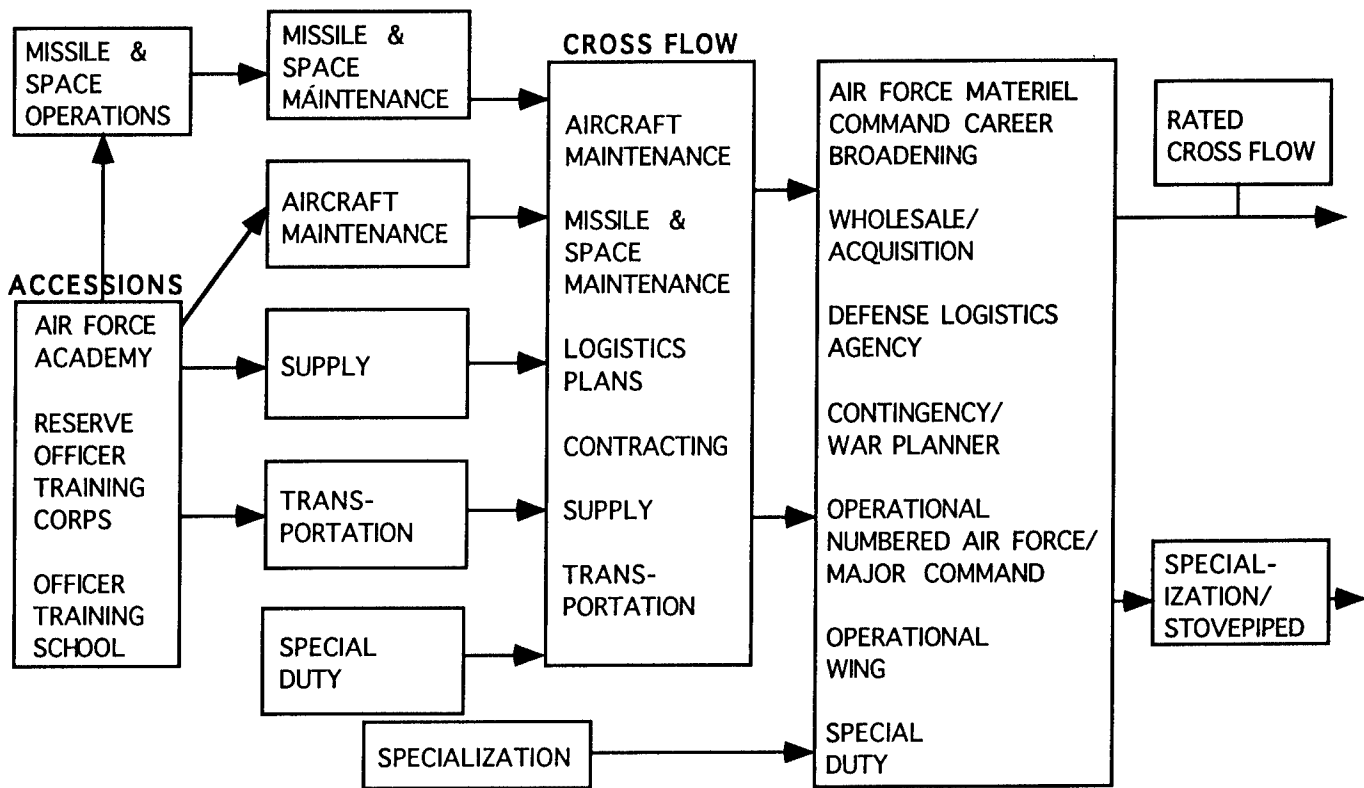


Figure 1. Logistics Progression Pyramid

# LOGISTICS

DEPTH

BREADTH



TRAINING

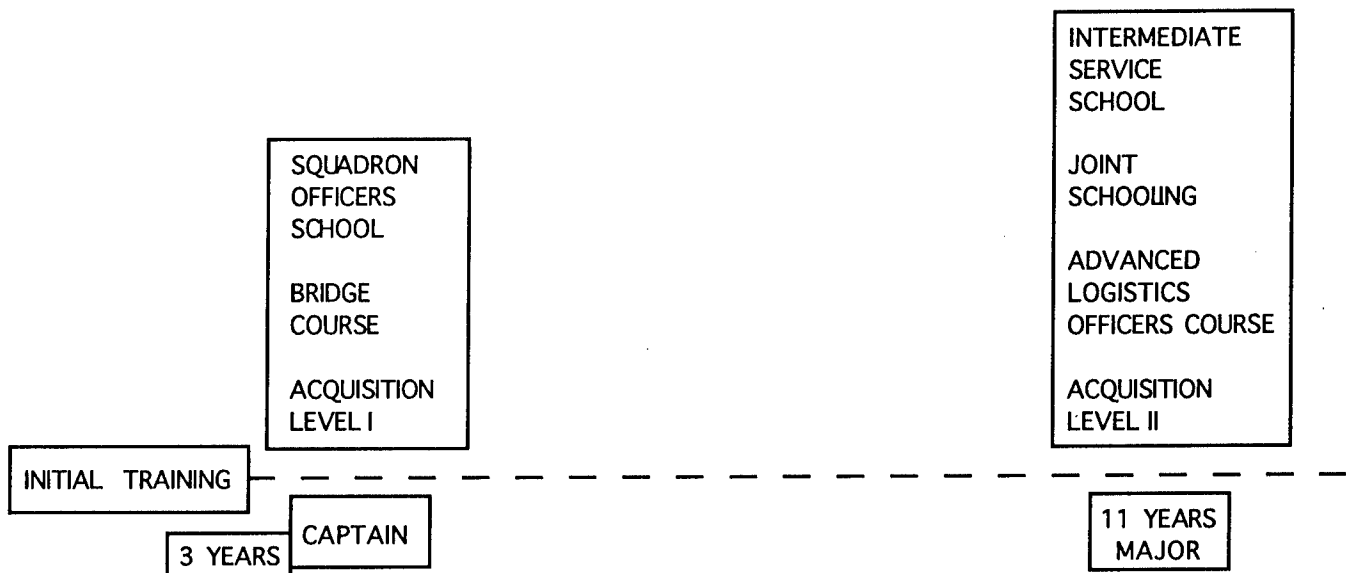


Figure 2. Logistics Career Path

# CAREER

# PATH

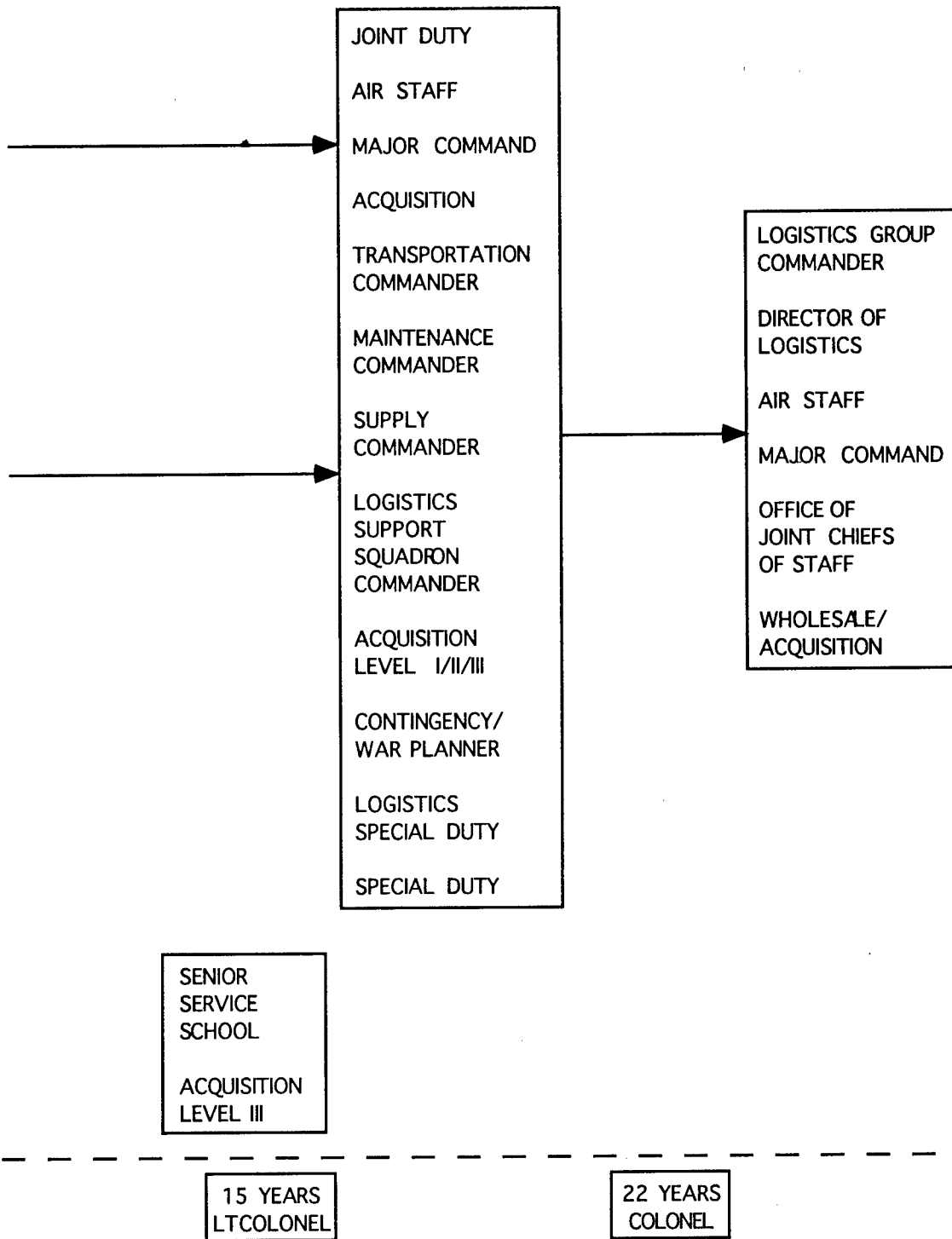


Figure 2. Logistics Career Path (continued)

## Training

The goal of the consolidation is to produce a highly-trained, experienced, educated, and motivated officer corps possessing a widely diversified logistics experience base. The key to accomplishing this goal is **training**. Quality training with a consistent theme of integrated logistics is a necessity. All initial technical training courses will include a short core block of instruction on all logistics disciplines. Bridge courses (condensed functional area courses) will be mandatory anytime a logistics officer cross flows from one discipline to another. Since resources are constrained, exportable training (correspondence or video-based courses, seminars, etc.) will be utilized to the maximum extent possible.

The Air Education and Training Command (AETC) has been assigned the difficult task of developing a graduate-level hybrid logistics course for all field grade officers. The course will be called the Advanced Logistics Officers Course (ALOC). The goal of the ALOC will be to develop officers who understand an integrated logistics approach to support war fighting, operational, and training requirements. The ALOC will focus on the interrelationships and complexities of joint war fighting, wholesale and retail logistics, the acquisition process, and finally the integrated logistics processes at unit and staff levels. The idea is to train logistics officers that are fully aware of the complexities of supporting a weapon system from initial conception to dismantlement after its service life.

Currently a consolidated Career Field Education and Training Plan (CFETP) is under development. This training plan will provide recommended career phase points toward becoming a qualified logistics officer. It will also provide a road map or a guide to a full Air Force career that is satisfying and rewarding to all logistics officers. This plan will illustrate that there is more than one route to travel in our consolidation career path. In other words, there will not be one set route along our career path that guarantees success, but numerous routes that allows plenty of opportunities to succeed.

## Criteria

The criteria to become a fully qualified Logistician will be standardized across the Air Force. The criteria for awarding the Logistician AFSC (21LX) can be summarized this way: Officers will attain full qualification in at least two logistics disciplines. A minimum of four years experience is required in at least one of those disciplines. Upon completion of bridge training, at least two-years experience is required in the second logistics discipline. In addition, upon promotion to field grade, officers will complete the Advanced Logistics Officers Course. Finally, the fully qualified Logistician AFSC will be awarded when an officer meets this criteria and fills a Logistician position (Figure 3). (Note: Criteria is pending final approval by HQ USAF/DP.)

There are some special considerations for those in the Air Reserve Component. Representatives of the Air National Guard and the Air Force Reserve met in January 1995 to determine how best to implement this criteria in their organizations. These organizations determined that their objective is to take the best of the active duty criteria and adapt it to the military styles of both the guard and the reserves. The underlying goal is still the same;

to develop a multidisciplinary officer prepared to assume senior logistics officer positions.

Fully-Qualified Logistician (21LX) Criteria	
Qualified in at least two logistics disciplines	
1st - 4 years experience	
2nd - 2 years experience	
Complete ALOC	
Fill a Logistician (21LX) position	

Figure 3. Logistician (21LX) Criteria.

## Grandfathering

The Air Staff and the consolidated major air command working group are currently developing options for how to most effectively grandfather officers who have already built their functional experience base. The procedures are being finalized. Currently, the guidelines for grandfathering are as follows:

- (1) Mandatory completion of ALOC. An exportable version of ALOC is currently under development. This course will be a shortened version of the resident course covering the most critical objectives.
- (2) Must be qualified in at least one logistics discipline.
- (3) Must be serving in a 21LX position.

We are proposing that the waiver authority for grandfathering field grade officers be delegated to the logistics group commander or senior logistician level.

## AFSC Structure

The new structure for the logistics area AFSCs will take effect on 31 October 1995. Figure 4 identifies this realignment.

New Air Force Specialty Codes (31 October 1995)		
Career Area	AFSC	AFSC Title
Logistics	20C0	Logistics Group Commander
	21LX	Logistician
	21AX	Aircraft Maintenance
	21GX	Logistics Plans and Programs
	21MX	Space and Missile Maintenance
	21SX	Supply
	21TX	Transportation

Figure 4. New Air Force Specialty Codes.

## Authorizations

All colonel and lieutenant colonel positions will be designated with the Logistician AFSC. The goal is to inspire young officers to strive and grow to be a Logistician, making him or her eligible and competitive for senior logistics command and executive positions.

## Implementation Plan Milestones

See Figure 5 for a summary of the implementation plan milestones.

Milestones	
USAF Chief of Staff approved concept to consolidate logistics AFSCs	Jul 94
Logistics Board of Advisors approved concept	Nov 94
Field Grade Utilization and Training Workshop met	Dec 94
Description of duties and tasks presented to Air Force Military Personnel Center	Feb 95
Logistics Board of Advisors approved final implementation rules	Mar 95
Implementation instructions provided to major commands	Jun 95
Positions identified for conversion to Logistician AFSC	Jul 95
Core block of instruction, bridge courses, Advanced Logistics Officers Course on-line	Oct 95
AFSC conversion complete	31 Oct 95

Figure 5. Implementation Plan Milestones.

## Questions

If you have any questions or concerns about how you specifically play in the consolidation, please contact your career field manager at your MAJCOM or at the Air Force Military


Personnel Center (AFMPC). If you need additional information, feel free to contact your Air Staff career field manager.

## Air Staff Career Field Managers

<b>Supply</b>	Col Allan Smith DSN: 225-7222	AF/LGSP
<b>Transportation</b>	Col Keith Heinemann DSN: 227-7335	AF/LGTR
<b>Missile/Space Maintenance</b>	Lt Col Harry DeVault DSN: 227-0771	AF/LGMW
<b>Aircraft Maintenance</b>	Lt Col Sy Caudill DSN: 227-8164	AF/LGMM
<b>Logistics Plans and Programs</b>	Maj Sue Eaves DSN: 225-4960	AF/LGXX
<b>Contracting</b>	Lt Col Tom Gilmore DSN: 224-5373	SAF/AQC

## Conclusion

The intent of this overview was to discuss the details associated with the logistics discipline consolidation. The idea was to erase those misconceptions and half-truths about the consolidation and discuss the associated facts. There were no secret agendas associated with this project. Everything was up front and representatives from all MAJCOMs and all disciplines were involved. There may have been some reservations at the start of this project, but as we come to an end, all working group members are convinced that the consolidation is the right thing to do for the Air Force and for all logistics officers. They believe they created a career path that provides plenty of opportunities and challenges for all up-and-coming logistics officers. The goal of everyone involved was to develop a career path that was right on target. The consensus is that we hit a bullseye.

*Lieutenant Colonel DeVault is presently Chief, Strategic Missile and Space Systems Logistics, Headquarters United States Air Force, Washington, D.C.* 

## SOLE International Logistics Conference and Exposition

The Society of Logistics Engineers (SOLE) 30th Annual International Logistics Conference and Exposition will be held 22-24 August 1995, at the Hyatt Regency Hill Country Resort, San Antonio, Texas. The theme of the conference is "Forging Logistics Partnerships." The keynote speaker will be General Henry Viccellio, Jr., Commander, Air Force Materiel Command, Wright-Patterson Air Force Base, Ohio. Technical panels will discuss The Continuing Depot Controversy, Commercialization and Its Impact on Logistics and Supportability, Changes in Logistics Analysis, Current Environmental Issues and New Technology Solutions, Space Logistics, Environmental Life Cycle Cost, and other interesting topics. For more information, call Glenn Wisbey at SOLE Headquarters (301) 459-8446.

Below is the Specialty Description for the Logistician AFSC to be found in Air Force Manual 36-2105, *Officer Classification*, that will become effective 31 October 1995.

Staff AFSC 21L4  
Qualified AFSC 21L3  
Entry AFSC 21L1

## Logistician

**1. Specialty Summary.** Integrates the spectrum of the logistics processes within the operational, acquisition, and wholesale environments. Included are aircraft, spacelift, and missile maintenance; transportation; supply; and logistics plans. Directs maintenance and modification of aircraft, conventional, and nuclear munitions and associated equipment. Directs and manages supply, equipment, and fuels management systems; transportation activities, including vehicle operations and maintenance, traffic management, combat readiness, and air terminal operations; and spacelift and missile maintenance activities on launch facilities. Plans and programs logistics support for wartime requirements. Related DoD Occupational Group: 8A.

### 2. Duties and Responsibilities.

2.1. Directs the integrated logistics process. Develops logistics support policies, procedures, and systems, and provides implementation guidance. Prepares and implements directives to assure effective logistics support. Establishes and enforces standards, and ensures assigned work force is properly trained and equipped. Assesses unit capability and coordinates with other agencies on issues impacting personnel, weapon systems, and equipment readiness. Advises the commander on readiness of personnel, weapon systems, and equipment. Assesses, evaluates, and determines effectiveness of data systems through analysis and application of output products. Identifies and corrects systems deficiencies to meet mission requirements and enhance safety. Coordinates programming of resources with functional managers and participates in fiscal policy and budget formulating and managing. Directs negotiation of support agreements and management of war reserve materiel.

2.2. Supports joint requirements. Accomplishes joint logistics planning for warfighting support and sustainment with the Joint Staff, Unified Commands, other military services, and Office of the Secretary of Defense agencies. Serves as logistics focal point to coordinate with DoD, joint organizations, major commands, representatives of foreign governments, and government contractors for international logistics and security assistance matters. Advises Allied Air Forces in developing policies and procedures to integrate all facets of logistics and logistics support concepts.

2.3. Directs acquisition and wholesale logistics activities. Plans for and manages systems, subsystems, and equipment throughout their life cycle, including integrated logistics support activities during the acquisition phase. Develops, initiates, integrates, and manages all logistics actions associated with life cycle management of weapon systems, subsystems, and equipment. Serves as program office focal point for logistics throughout the acquisition life cycle. Plans and develops logistics support for current and emerging systems. Helps formulate fiscal policy for managed weapon systems.

### 3. Specialty Qualifications.

3.1. Knowledge. Knowledge is mandatory of: total logistics process encompassing aircraft, spacelift, and missile maintenance; supply; transportation; and logistics plans from operational to acquisition logistics; and an understanding of an integrated approach to logistics disciplines to support warfighting, operational, and training requirements.

3.2. Education. For entry into this specialty, an advanced degree in logistics management, acquisition logistics, transportation, supply, or business administration is desirable.

3.3. Training. For award of AFSC 21L3, completion of the Advanced Logistics Officers Course is mandatory.

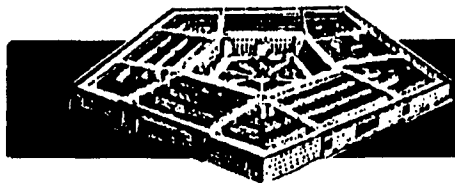
3.4. Experience. For award of AFSC 21L3, one of the following is mandatory:

3.4.1. Prior qualification in and possession of two logistics AFSCs, 21X3/4; or,

3.4.2. Prior qualification in and possession of AFSC 20C0 and one logistics AFSC, 21X3/4; or,

3.4.3. Prior qualification in and possession of one logistics AFSC, 21X3/4, and AFSC 64P3/4; or,

3.4.4. Two years' experience in a 21LX position and completion of a logistics bridge course.



# USAF LOGISTICS POLICY INSIGHT

## Travel Reengineering

An Air Force Task Force is working with a Department of Defense (DOD) team to simplify the expensive, burdensome temporary duty travel system. The reengineered process will be paperless and will simplify entitlements, centralize all travel arrangements, maximize use of the government travel charge card, and reimburse travelers using electronic funds transfer.

DOD policies and procedures are being finalized. The concept will begin testing in July 1995 at Bolling, Dover, Langley, Peterson, and Randolph Air Force Bases. The one-year test will baseline each base's current process and evaluate phases of the reengineered system.

(Mr Grier, AF/LGTT, DSN 247-9560)

## Space Available (Space A) Air Travel

The Chief of Staff recently stated Air Force policy on Space A travel aboard Air Force aircraft. Previously, air terminals, air crews, and senior-ranked travelers decided when excess space could be made available for Space A travelers. The Chief's new policy is: Except when Space A is not prudent due to safety, security, or border clearance considerations, the travel system

must make seats available at every opportunity. When travelers are movement-ready and the only available aircraft is carrying hazardous materials, apply for appropriate waivers. Bottom line: make every effort to move Space A travelers.

(Mr Grier, AF/LGTT, DSN 247-9560)

## Alternative Fueled Vehicles

The Energy Policy Act of 1992 (EPACT) mandated federal agencies begin acquiring Alternative Fueled Vehicles (AFVs) in FY93. The law applies to light-duty vehicles (under 8,500 pounds gross vehicle weight). In FY95, the federal government is charged with acquiring 15,000 AFVs; the Air Force share is 1,400. By FY99, our requirement grows to 75% of light-duty acquisitions. Presently, the Air Force has over 800 AFVs in service at 19 installations, the majority of which are compressed natural gas conversions. Limited availability of AFVs from the automobile industry will present a challenge in meeting goals; heavy reliance on conversions will likely continue. MAJCOMs need to step up to the challenge by developing the infrastructure and programming resources.

(Lt Col Dave Cook, AF/LGSR, DSN 225-7047)

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## Senior Officer's Perspective

Colonel Phil Harris, USAF

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As a "broadened loggie," I have been asked to share my views on the move to have all logistics officers receive at least two AFSCs. Here they are. Not all may be politically correct, but this is how I see it nevertheless.

We have long lamented the "stovepiping" of the various logistics disciplines which normally translated into, "I wish those other folks would be reasonable and do what I want them to." Today, our logistics support systems are no longer as stovepiped as they were in the past. For example, supply is now interfaced with maintenance as well as transportation and civil engineering. These interfaces are, to a large extent, patchworked and difficult to maintain, but they are there, they work, and we are working to make them better. What I continue to observe, however, is "stovepiping of the mind." Sometimes I think our systems can talk to each other better than our people can.

I started my logistics odyssey in maintenance, and I knew that everyone else had it easier and that no one understood the mission like the maintainers. In fact, I was pretty convinced that only flight line maintenance officers had the absolute grasp of the mission, but at least it could be shared with the maintainers at the higher (and superfluous) headquarters. All others were a total loss.

Later, I was assigned to a higher headquarters and found, to my amazement, that there were some base-level maintainers who seemed to lack the pristine view of the mission that I had only a few months before. Then came a real awakening. I was selected to cross train into supply. My ego suffered considerably when I learned that some of the neat things I had done in my flight line days had actually detracted from the mission I had been trying so hard to support. I also found that supply folks were dedicated, hard working, and smart. In the course of working in supply, I had reason to work with transportation people who also seemed more rational than I expected. I was ultimately pulled back into

the maintenance world, but ever since, I have thought of myself as a logistician.

Today, programs like Lean Logistics are increasing our interdependence not only among base-level functions but among wholesale functions as well. Add to that the DOD desire to standardize processes among Services and the need for logistics systems to more actively support Theater Battle Management, and it is obvious we need "no-kidding" loggies who can see the whole process.

Is this new? No. Have we tried it before? Yes. Has it worked? If it had, we wouldn't need to try it again. Why hasn't it taken hold in the past? It's not the lieutenants and captains; they have been more than willing. The problem has been with the majors, colonels, and generals. We gave lip service to how we want broad logistics officers, but when it comes to actually hiring officers for the best jobs, we have pleaded for a "professional" whatever. The message was not lost on our shrewd company grade officers, and support for the program was confined to rhetoric.

Do we need to broaden loggies? Yes. Can this program work? Yes. Will it work? It depends. When we see our best jobs going to broadened officers, it will take off like brush fire. Are we really committed this time? I think so, but it is a little early to tell. Should you get on board? Absolutely, and right away! One, if the program takes hold, you need to be at the head of the line. Two, and more importantly, it is the right thing to do. No matter how the program goes, you will be a better logistician and better able to serve the mission of the Air Force, and that is the real bottom line. Literally.

*Colonel Harris is presently Director, Logistics Support Systems, Headquarters Standard Systems Group, Maxwell AFB, Gunter Annex, Alabama.*



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## *Junior Officer's Perspective*

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*Captain David W. Brown, USAF*

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The new Logistician AFSC is a good initiative, but many officers may be concerned about the experience requirement for two logistics disciplines. We all like to have comfort blankets, and going into a different discipline can conjure up many apprehensions. I learned, however, there are common missions and expectations across logistics, forming a bond for all logistics personnel. Let me relate my experience to encourage giving the prospect serious consideration.

As a young second lieutenant in 19XX (Aircraft Maintenance) assigned to the 479th Tactical Fighter Wing, Holloman AFB, New Mexico, I thought my next 20 or so years in the Air Force were etched in stone—work the backshops, move over to an aircraft maintenance unit and work my way up to squadron commander, and eventually become deputy commander for maintenance (DCM). For the first few years everything was rolling right along. While at Holloman, I became a fully qualified aircraft maintenance officer. I was fortunate to work in both the 479th Tactical Training Wing with four squadrons of AT-38B aircraft and the 49th Tactical Fighter Wing and its three F-15A/B squadrons.

I was then reassigned to the 343rd Tactical Fighter Wing, Eielson AFB, Alaska, as the Munitions Accountable Supply Officer (MASO) and Officer in Charge (OIC), Munitions Branch. After picking up a second AFSC in munitions, I became the OIC of the maintenance operations center, still at Eielson.

Then one day the rumors of reorganization had become a reality. A great deal of turmoil erupted as the proposed wiring diagrams for the new composite wing emerged. What would the career path for maintenance officers be? Would we really work for Operations?

Once the dust settled and the wiring diagrams were approved, I had the privilege of working with the newly formed 11th Tactical Air Support Squadron. I was initially the OIC, Sortie Generation Flight, and ultimately became the Chief of Maintenance for a squadron of A/OA-10 aircraft in one of PACAF's first objective wings. Many fears of the reorganization proved unfounded—this new structure worked.

Before I knew it my DEROS was coming up, and it was time to look for a new job. No longer certain of the "expected career path" for a maintainer in the "new Air Force," I listened to as many opinions as I could. I eventually took the advice of a former DCM who persuaded me to become a supply officer. My initial impression was about the same as it was when the Logistics Officer Professional Development program was born in the late 1980's—"no way!"

With the reorganization and drawdown underway, I considered a new logistics discipline as an opportunity. With fewer maintenance jobs available and the opportunity to advance as a


career maintainer waning, it simply seemed the right thing to do. After all, Two-Level Maintenance and Depot Level Repairables were becoming realities that made the link between supply, maintenance, transportation, and plans very critical.

I was reassigned to the 3rd Supply Squadron, Elmendorf AFB, Alaska, as a supply officer. I walked into the squadron with mixed emotions. After six years as a maintainer, comfortable with the language, I was entering one of the largest supply accounts in the Air Force with only a very basic understanding of supply. I was also a little apprehensive about the way an aircraft maintainer would be accepted by the commander, my peers, and supply technicians. I was immediately put at ease by my new boss. I was given a short but comprehensive overview of the squadron and spent a few days within each flight learning what they do and how each was interrelated.

I was then assigned as Chief, Supply Mobility Operations, responsible for all required chemical warfare equipment, weapons, Mobility Readiness Spares Packages (MRSP), and the training and execution phases of the squadron's mobility program. This was in a wing whose commitment had just increased significantly. I was subsequently assigned to the Materiel Management Flight, where I really learned what supply was about. This flight is the backbone of any supply account. They are responsible for managing a myriad of programs critical to all aspects of a wing's mission. The requisitioning and managing of a \$48 million inventory, maintaining command-directed ratios for a \$28 million stock fund, and ensuring sufficient stocks of cold weather clothing are but a few of the major taskings handled by the flight.

My final assignment in supply was to the Materiel Storage and Distribution Flight, known to many as "the warehouse." The warehouse at Elmendorf encompasses over 330,000 square feet of storage space for over 109,000 line items. They also process an average of 15,500 transactions monthly, providing around-the-clock support to 82 organizations and 19 remote sites throughout the state.

Overall, I consider my indoctrination to the supply community extremely beneficial. Not only did I have the opportunity to learn the aspects of another logistics career field, but I also met a team of professionals who were just as concerned about the wing's mission capable rate as were the men and women on the ramp. I would highly recommend to anyone considering an assignment outside of their main AFSC to take it. It is a challenging experience you will not forget.

*Captain Brown is presently Chief, Requirements and Policy Section, Maintenance Engineering Division, Headquarters Pacific Air Forces, Hickam AFB, Hawaii.* 

# Training Future Logisticians: Vision Becomes Reality

Captain Jody Baker, USAF

The Advanced Logistics Officers Course (ALOC), scheduled to begin in October 1995, has the goal to turn out logisticians who understand an integrated approach to logistics disciplines to support war fighting, operational, and training requirements. The ALOC will be the capstone formal training course to achieve the goal put forth by General Merrill McPeak of developing broad-based logisticians who understand joint, wholesale, and acquisition logistics.

Before attending ALOC, an officer will have already achieved a level of breadth and diversified logistics experience not previously encountered by the highly specialized and stovepiped officers of only a few years ago. An officer can now follow a versatile and flexible Career Field Education and Training Plan (CFETP) that outlines a logical growth plan for the developing professional. The CFETPs are carefully crafted guidance encapsulating into a comprehensive, multipurpose document the entire spectrum of education and training for a career field.

Starting in a core competency of aircraft or missile and space maintenance, contracting, supply, or transportation, an officer will receive initial technical training. A portion of the initial training consists of a logistics core block of instruction designed for a better understanding of today's logistics working environment. The officer will then go into the field to become fully qualified in his or her respective logistics specialty. Next, a wide window of countless and challenging opportunities await the developing future logistician leader.

At the four- to five-year point, cross flowing into another logistics discipline is encouraged. A series of bridging courses will provide the avenue in obtaining the basic tools needed to succeed in another logistics related discipline. These courses, two to four weeks in length, are specifically designed to take into account an officer's previous job experience. The only exception is in contracting, where regulatory guidance mandates additional training. As a result, the bridging courses will be specifically focused in nature and will provide training geared to junior captains. For example, a transportation officer who has been involved in deployments and has an interest in mobilization may consider the logistics plans and programs field as an option. A supply or transportation officer could cross flow into aircraft maintenance, logistics plans and programs, supply, or transportation. The key player is the logistics group commander, in close coordination with the operations group commander, and involvement with the Air Force Military Personnel Center (AFMPC) to make this happen. An officer can anticipate spending at least two years in the cross flowed area to become fully qualified in the second logistics specialty.

Working from a career path grounded in emphasizing depth in an initial discipline, followed by rounding via a bridging course and cross flowing, an officer is now poised, at seven to ten years of commissioned service, to take on even greater levels of

responsibility and breadth of experience. Career possibilities include: acquisition, wholesale logistics, special duty, joint duty, or assignment to numbered Air Force, major command (MAJCOM), or the Air Force Materiel Command's (AFMC) Career Broadening program.

After selection to major, an officer is now ready to complete ALOC and obtain the entry level 21LX Logistician specialty. The ALOC is geared to be a ten-day intensive learning experience tailored directly to the officer who has been on the career path just described. The ALOC graduate should have a working knowledge of the following upon graduation:

- (1) Role of the Air Force logistics officer.
- (2) Purpose, procedures, and data systems of logistics disciplines at the wholesale and command level.
- (3) Purposes, procedures, and data systems of logistics disciplines at the retail or unit level.
- (4) Fundamentals of the acquisition process and their relationships to logistics.
- (5) Fundamentals of the War Reserve Materiel (WRM) program and the Mobility Readiness Spares Package (MRSP).
- (6) Process and relationships of the Defense Business Operations Fund (DBOF).
- (7) Roles, missions, and integration of the Air National Guard and Air Force Reserve in supporting Air Force and joint Services missions.
- (8) Responsibilities and liabilities associated with the Air Force Environmental Compliance program.
- (9) How logistics activities are integrated to achieve mission accomplishment.
- (10) Air Force and joint planning systems and their interrelationships.
- (11) The contingency planning tools available to the unit-level logistics officer.
- (12) Methods used to justify and acquire manpower.
- (13) Career options available to logistics officers.

What is a Logistician 21LX officer specialty? The Logistician is someone who is trained, and has gained extensive experience for the purpose, to command logistics units, manage logistics support of weapons systems, equipment and related infrastructure, and plans and programs logistics resources to meet contingency, peacetime, and wartime requirements. In addition, the Logistician plans for and manages systems and subsystems throughout its life cycle to include integrated logistics support activities during the acquisition phase.

In summary, the vision of consolidating logistics AFSCs into one career field is becoming a reality. The three-tier formal training schools of initial, bridge, and ALOC, combined with an expanded broad base of logistics experience, will produce

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# *Educating Tomorrow's Logistician*

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*Dennis P. Dragich*

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... tomorrow's logistician must have a much better, more complete understanding of the entire flow of our logistics processes. No longer can we afford to build discrete specialists in maintenance, or munitions, or supply, or transportation. To understand your particular discipline is no longer enough; you must fully understand the part you play in the entire logistics process and be able to see where you are helping or benefiting that process. That does not mean that you should not know your own mission area well. On the contrary, you must know it better than ever and also those that impinge on it. (1:2)

These words certainly reflect the times in which we live as well as the feelings of many of our logisticians in the Air Force today. Now, more than ever, we can see the importance and value of looking beyond our functional specialty to realize the impact and benefit of our actions upon the logistics system as a whole. It is interesting to note that these are not the words of today's logistics leadership, but of yesterday's. Lieutenant General Leo Marquez, the Air Force Deputy Chief of Staff for Logistics and Engineering, wrote those words for the lead article in the Fall 1985 edition of the *Air Force Journal of Logistics*. That also was an issue devoted largely to the issues of training and educating the logistics force. What I find most interesting is that before Panama and Desert Storm, before the fall of the Warsaw Pact and the Soviet Union, and before the start of a drawdown now in its eighth year, the logistics community was focused on a need to change the way in which logisticians view themselves. The information presented in this issue of the Journal is the culmination of a process that began when this year's crop of newly commissioned officers were just leaving elementary school.

Rather than reinforce the importance of education and training to the logistician of today, the fact that this has been ten years in the making may do exactly the opposite. Is this just another "fad" that will disappear again once the current group of proponents get promoted, move on to their new jobs, or retire? Do we only need to hunker down, stay close to our home career field, and ride out the storm? Or is this new round of career reorganizations really different from those which have come (and gone) in the past? In 1985, the thrust for changes in the logistics career paths stood largely on its own. The doctrinal, organizational, and operational changes that would be necessary for this to work had not yet solidified. The story in 1995 is different. Changes in each of these areas have been made over the past few turbulent years that make changes to the education and training of logisticians a logical and necessary extension of recent events.

The mid- and late-eighties saw the most public and involved examination of Air Force logistics doctrine since the Vietnam Era. Logistics doctrine as stated in AFM 400-2, *Air Force Logistics Doctrine*, had remained essentially unchanged from the 1960s until 1987. (2) The publication of AFM 1-10, *Combat Support Doctrine*, put the Air Force logistics world into turmoil.

AFM 1-10 explicitly linked principles of logistics to principles of war and proposed a cyclical model of logistics. (3) Already accustomed to hearing that logistics was "a system of systems," we now had a graphical image of logistics as an interlinked series of processes. Many of the principles and processes related directly to the concepts expressed by Rear Admiral Henry Eccles in his book *Logistics in the National Defense* in 1959. (4) None of this should have been considered very radical. Logistics was effectively returning to its roots. However the decision to use the term "Combat Support" raised both eyebrows and blood pressures throughout the logistics and other support career fields. Natural concerns arose from the apparent abandonment of the term (and some would say concept of) "logistics," while some confusion arose over the exact meaning of the term. Combat Support Doctrine, Combat Support Groups, and Combat Support in the joint arena (as opposed to Combat and Combat Service Support) all referred to different, although interrelated, concepts, processes, and organizations.

The doctrine, naturally, went through some changes which were confounded by several changes in the structure of Air Force's publications. The final result to date was the publication of Air Force Doctrine Document (AFDD) 40, *Logistics*, in May 1994. While maintaining our doctrinal ties to Eccles and his predecessors, AFDD 40 has both significance and relevance to the events shaping Air Force logistics today. (5) While a seemingly obvious statement, our doctrine has not always succeeded in remaining relevant in times of rapid change. Its single biggest contribution is the continuing emphasis and argument that we must look at logistics from a process rather than a functional viewpoint. Instead of attempting to relate logistics activities and principles to the functions of maintenance, supply, transportation, contracting, or plans, AFDD 40 portrays the logistics processes as the keys to understanding how logistics works. Any changes or improvement must come within these processes, regardless of our functional organization. I realize that this statement is neither new nor profound, but its appearance in our doctrine was a significant change in how we view ourselves and critical to attacking real world problems that have no single functional solution.

This doctrinal shift has come about as the Air Force has completed the reorganization of the operational base logistics functions. It is not the intent of this article to discuss the relative merits of the new structure of the typical wing. However, there are several changes in wing organizational structure which allow greater effectiveness in implementing not only the doctrine but also the changes forthcoming in logistics career fields and Lean Logistics. There is now a senior logistics commander at the base level. This eliminates what many considered a critical weakness in the former tri-deputy structure. In addition, the alignment of functions so that supply, transportation, and off-equipment

maintenance are under that single logistics commander gives the control and flexibility necessary to implement many of the changes necessary to develop that broad-based logistician proposed by General Marquez.

The changes coming about as a result of the various initiatives under the umbrella of Lean Logistics are well known and have been discussed in this journal. Some critical features are particularly relevant to the discussion here. Lean Logistics crosses traditional functional boundaries between maintenance, supply, and transportation. It requires people who are knowledgeable of more than a single function or even a single process. The interrelationships of systems needed to make the concept work, demand people who can work successfully outside their own system. The restructuring of logistics career fields supports these needs in providing a mix of specialization training in the early stages of a career and increasingly broad education and training as the individual officer progresses.

In the early stages of any logistics specialty, specialization is important in presenting a manageable portion of the field for the new officer to gain qualification. However, this specialized knowledge must be tempered with a more global understanding of how the different fields all fit together. As the officer progresses and ultimately enters a second logistics field, that broader perspective aids in the synthesis of the new knowledge and provides a framework that makes understanding of the new job and its relationship to the logistics processes both deeper and more rapid. The logistician career field, obviously, values breadth of knowledge and understanding. However, we cannot wait until officers reach mid-career to prepare logisticians for the breadth of responsibilities that await them. The development of solid doctrinal and systems orientation beginning at the earliest stages of the officer's career makes the path easier and the grasp of logistics more solid throughout the progression from specialist to Logistician.

Our technical training courses have long provided the functional expertise needed to prepare specialists in each of the logistics fields. In the mid-eighties, the Air Force Institute of Technology (AFIT) continuing education programs were developed to provide the broad, conceptual education needed throughout a career to understand the relationships of the systems and processes and to prepare logistics specialists for increasingly broad areas of responsibility. However, these changes in the structure of education and training were not linked to changes in organization, functional specialty realignments, or process and doctrine such as those which are taking place in the nineties. What we were telling students, in effect, was that they should be taking a process oriented view and should be looking beyond the stovepipes of their individual functional areas. Then we sent them back to a functionally oriented, stovepiped logistics system.

We seem to have arrived at a time when all the parts are coming together to form a new whole. If our logistics doctrine remains sound and applicable to ever-changing realities of budget, threats, and technologies; if Lean Logistics really crosses functional boundaries and rewards people for their contribution to the system as a whole rather than to their unit, command, or specialty; if the restructuring of the logistics career fields truly rewards those who become logisticians; and if the Air Force education and training community provides the right mix of

education and training at the right points in each individual's career, then we will truly have completed an effort that has been decades in the making. Each of us will need to step up to some new challenges to bring this effort to completion.

Both *education* and *training*, properly structured and presented at the appropriate times, are the links that connect Lean Logistics principles with the restructured logistics career fields. *Technical training* provides students with the tools necessary for their specialty and the understanding of *how* they function within logistics. *Education* provides students the conceptual basis to comprehend *why* we function as we do and the opportunity to critically examine the options available to improve logistics systems. Prospective students of logistics need to be aware and take advantage of those education and training opportunities that are available and to actively seek out new opportunities in areas of logistics where they might be less knowledgeable.

Commanders and supervisors have a critical responsibility to the successful completion of their unit's mission. However, they bear a second responsibility to the future Air Force as well. Having a good maintenance officer in a critical position is important. Providing that officer the opportunity to attend a course or to cross train to another specialty at the appropriate time certainly is difficult while supporting current operations. However, if we are serious about making Lean Logistics work and supporting a broader concept of what makes a Logistician, it is a proper course of action. And in an era of increasing change and frustration about the future, we must ask three things of our senior leadership on behalf of those junior members of our service. All they need is your demonstration of consistency and confidence that (1) there actually is a plan, (2) we all know what the plan is, and (3) the inevitable changes to the plan as time goes on will not leave anyone, who did the "right" thing as a junior member, stranded later in their service to the nation.

I do not know the exact course the future will take, but I do know this—the future will come whether we are ready or not. The challenge to tomorrow's logistician is to become exactly that—a complete Logistician. You will not become a complete Logistician until you know or can appreciate the contributions of the separate discrete disciplines to the whole. That complete Logistician will then be able to achieve the synergism required and thus design and operate a logistics system which will indeed be greater than the sum of its individual parts. You have a part to play and it starts with professional development, education, and training. (1:2)

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# Environmental News

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## Speakers Available for Your Environmental Training Seminars and Conferences

The Defense General Supply Center (DGSC) in Richmond, Virginia, is the Defense Logistics Agency's (DLA's) center for excellence in the areas of environmentally-oriented products and hazardous materials programs.

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## Conservation Tip

Did you know that varieties of plants that are native to an area need only about half as much water as plants that are nonnative, or imported?

Xeriscape (from the Greek word *xeros*, meaning *dry*) is a modern approach to landscaping that has become popular due to water shortages in many parts of the country. It involves choosing native varieties of plants for landscaping rather than imported ones, which require more water to thrive. The key to developing a successful xeriscape is identifying plants native to the area in which you live. For example, if you live in the southwestern part of the United States, consider planting vegetation native to the Southwest, instead of trying to plant flora native, for instance, to the mid-Atlantic region. While southwestern plants are accustomed to the rainfall in the Southwest, which may be 8 inches or less each year, plants from the mid-Atlantic region are accustomed to at least 20 inches of rain per year and require

substantially more water to thrive than the native southwestern plant varieties.

Drought-resistant plants aren't limited to cacti and succulents. Some examples of drought-resistant plants are jasmine, bougainvillea, wisteria, sweet alyssum, and daffodil. Low-water use grasses are available as well, such as bluegrass. To help you select native plants that will grow well in your yard, contact your local horticultural society, botanical garden, or plant nursery.

Xeriscape also includes water-saving gardening practices. Some of the principles of xeriscape include drip irrigation, which minimizes evaporation and runoff and allows soil to absorb more water; heavy mulching of plant beds, which minimizes evaporation; and organic soil improvements, which allow for better water absorption and retention. All of these techniques can be applied to almost any garden design.

Reprinted from *50 Simple Things You Can Do To Save the Earth*, The Earth Works Group, 1989.

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## Did You Know?

Water heaters account for 20% of the energy used within our homes. Next to heating and cooling the house itself, water heating is the biggest item in your energy budget. But it doesn't have to be—the water heater can be wrapped with an insulation blanket, and the pipes that transport the hot water can be covered with insulation material. In addition, you can set the temperature of


the water heater on low (110 degrees) to limit the energy needed to heat water, and you can use more cold water and less hot water whenever possible. However, if you have a dishwasher, it may require a water temperature of 140 degrees. Check with the dishwasher manufacturer.

Reprinted from *Global Environment Outreach*, Air Combat Command and Radian Corporation, June 1995.

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(Continued from page 14)

Logisticians of the future who are prepared, trained, and ready for the 21st century's mission.

*Captain Baker is presently Instructor Supervisor, Transportation Officer Courses, 345th Training Squadron, Lackland AFB, Texas.* 

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(Continued from page 16)

*Mr Dragich is an instructor in Logistics Management and course director for the Introduction to Logistics course (LOG 199), Department of Logistics Management, School of Systems and Logistics, Air Force Institute of Technology, Wright-Patterson AFB, Ohio.* 

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# *Logistics Plans and Programs Career Field*

*Major Daniel J. Beal, USAF  
Major Susan E. Eaves, USAF*

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## **Operational Logistics**

*Major Daniel J. Beal, USAF*

Just what is the Logistics Plans and Programs career field? Who are these “log planners” I keep hearing about? Would I want to become one? The Logistics Plans and Programs career field has two distinct sides: operational and wholesale/acquisition logistics. The operational logistics plans and programs officer works retail logistics support issues from squadron to higher headquarters level. Acquisition/wholesale logistics planners work cradle-to-grave weapons system support. Whether working in wholesale/acquisition or operational logistics, Logistics Plans and Programs jobs are diverse and challenging.

The starting point for most logistics plans officers is the wing level. Depending upon the command, logistics planners may work in the combined plans shop (XP) on the wing staff, or in the logistics plans and programs office within the Logistics Support Squadron. A logistics planner will gain insight and understanding into logistics plans and develop essential relationships with other logistics disciplines and base agencies. This officer may be responsible for organizing and processing 3,500 personnel and 1,200 short tons of cargo from more than 20 squadrons on very short notice. Additional responsibilities will include: preparing logistics annexes to support plans and programming plans, drafting base support plans (BSPs), monitoring logistics readiness through exercises, administering support agreements, and supervising the base War Reserve Materiel (WRM) program. Understanding the purpose and the responsibilities of logistics planners in the overall planning process of the Department of Defense (DOD) is essential to effective combat readiness.

Logistics planners are skilled integrators who, through day-to-day taskings over the years, become extremely knowledgeable of aircraft maintenance, transportation, supply, and contracting disciplines. Logistics plans officers are key players in the planning process, charged with determining the players or coordinating agencies to be involved in all aspects of the planning process. Let us now look at some of the specific activities you will perform at the base level.

The base logistics plans office is traditionally the wing office of primary responsibility (OPR) for deployment management, WRM management, support agreement management, and plans management. As a plans manager, you will initiate, review, monitor, coordinate, or consolidate logistics inputs to every plan on the base. You will then determine if the plan is logistically feasible through capability assessments. To complete the planning process, an airfield site survey may be required.

As the wing support agreements manager, you are the single

point of contact for all base support agreements which can include memorandums of understanding (MOUs) or memorandums of agreement (MOAs). Your duty is to exercise staff surveillance over the entire agreements program. You are the commander’s expert. With properly documented agreements, you ensure your base receives its part of the budget through reimbursements of money and manpower. More importantly, the support agreement is one of the few vehicles available to rapidly identify cost/reimbursement figures used to build the wing financial plan. As the Air Force continues to drawdown and restructure, this cost data from agreements will grow in importance and will ensure appropriate funding adjustments are accomplished.

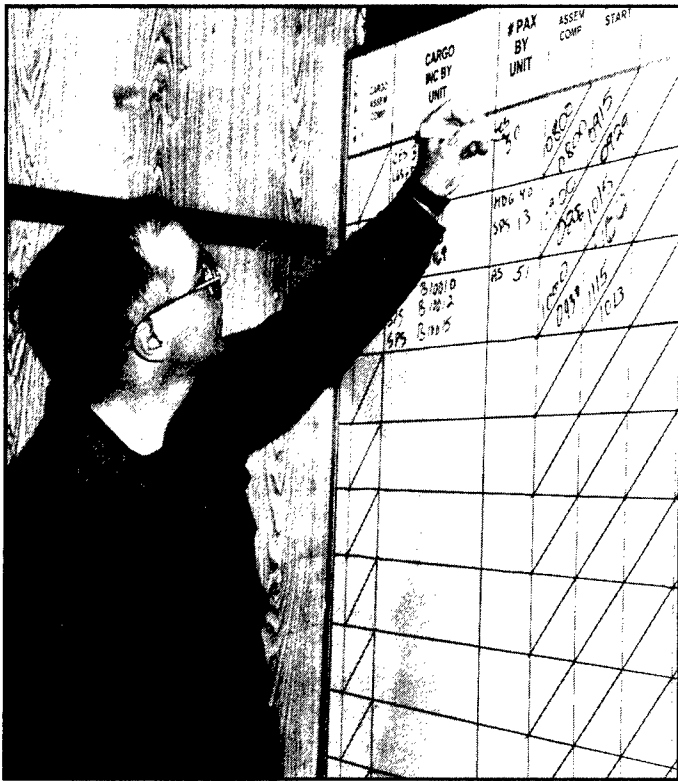
Base support planning is part of the deliberate planning process. As a host, you will be responsible for the accurate development of BSPs. This becomes a very important document overseas. The deploying units normally assist in building the BSP to ensure their requirements can be supported at their deployed locations.

WRM is additive items required for contingencies that are not needed during peacetime. As the WRM functional manager, you are the OPR for all WRM matters. WRM includes consumables associated with sortie generation, such as: munitions, aircraft external fuel tanks, racks, adapters, and pylons (TRAP); vehicles; 463L systems (pallets/nets, etc.); materiel handling equipment (MHE); aircraft engines; bare base assets; individual clothing and equipment; and subsistence (MREs). WRM officers (WRMOs) perform staff assistance to base activities on WRM issues, conduct periodic inspections, and are responsible for the wing WRM budget submission.

Deployments will consume most of your time at the wing level. Real world contingencies, Joint Chiefs of Staff (JCS) exercises, operational readiness inspections (ORIs), or periodic wing exercises require a lot of output from most of the wing populace. As a logistics plans officer, you will continuously make quick decisions under pressure during the course of the deployment, employment, and redeployment phases of a contingency. You must be on top of every phase of the movement and keep the wing staff and higher headquarters decision makers informed.

If you are the senior logistics plans officer, you will normally be the installation deployment officer (IDO). While manning the deployment control center, you will have several functional and unit work centers that report directly to you. You are responsible for the orchestration of the deployment process. As part of this, you will be responsible for developing and monitoring the deployment training program for work center personnel. The infrastructure of the deployment machine varies by base and is influenced by the installation’s wartime tasking.

If you are employed during contingency operations, you will



monitor and coordinate the overall logistics support to maximize your unit's capability to survive and operate. You will coordinate with supply and transportation to ensure resupply or sustainment channels are established, coordinate with contracting personnel to ensure essential in-place contracts are initiated, and will be the focal point for coordination of US and host nation mutual support. Last but not least, you will ensure all requirements are identified and prepare plans for follow-on unit moves or redeployment.

Logistics plans officers also fill joint positions in JCS, unified commands, and field operating agencies (FOAs). Because logistics support is a Service responsibility, the primary thrust of joint logistics operations is to coordinate Service programs and integrate them with the joint commander's concept of support. A lot of integration is required between the Services to make a joint operation successful.

Air Staff, major command (MAJCOM), and numbered Air Force logistics plans officers work many of the same issues and problems as the wing, group, or squadron logistics planners do, but at a different level. Three to four years experience at wing level is a must before migrating to a staff job. The headquarters logistics plans and programs officer works additional programs, such as strategic planning, budget, functional management issues, mission area planning, and integration of support between the MAJCOMs and sister Services.

There are 833 logistics plans positions—the second largest logistics officer discipline next to aircraft maintenance. Operational or retail jobs account for 593 of the positions of which 115 are operational joint positions and 35 are commander positions. There are several other logistics plans jobs requiring special qualifications: Foreign Internal Defense, education and training, research at the Air Force Logistics Management Agency (AFLMA), and Air Force Military Personnel Center (AFMPC), to mention a few. The career field is still growing and expanding

into new areas of information warfare, logistics intelligence, space, and quality.

Logistics planning is more an art than a skill. It requires the officer to be proactive and open-minded towards the future, not merely reactive to the situation at hand. Logistics plans and programs officers must have commitment to the mission, be able control the complexity of the task, and earn the credibility of their commanders.

## Wholesale/Acquisition Logistics

*Major Susan E. Eaves, USAF*

There is no better way to round out your experience in logistics than with a tour in the wholesale and/or acquisition arena. In addition to possibly gaining Acquisition Professional Development Program (APDP) certification for Level I, II, or III, a tour in wholesale/acquisition logistics will give you credit for a second AFSC, which is necessary to achieve the Logistician AFSC when you reach the grade of lieutenant colonel. Encompassing one-third of the logistics plans and programs authorizations, the wholesale/acquisition sides are as diversified and exciting as they come. To make the most of an assignment at, for instance, an air logistics center (depot) or acquisition (product) center, you should have at least one tour in operational logistics plans and programs. This background provides the solid foundation necessary to understand what integrated logistics is all about.

Logistics plans and programs officers in the wholesale/acquisition arena tie together the entire spectrum of the traditional logistics disciplines of maintenance, supply, and transportation into one logistics system. Some of the opportunities awaiting you in this environment include the acquisition and sustainment responsibilities of weapon systems and their support systems such as aircraft, spacecraft, missiles, security assistance, etc.

Another excellent opportunity to gain some wholesale experience is the Logistics Career Broadening Program (LCBP), a rigorous, executive-level logistics management development program. Through selective assignments within various directorates of an air logistics center, officers gain knowledge and experience throughout the wholesale logistics spectrum in preparation for future leadership positions.

The logistics plans and programs major command (MAJCOM) functional managers recently developed a Career Field Education and Training Plan (CFETP) outlining the specific training needed for your career development as a logistics plans and programs officer, whether assigned in wholesale, acquisition, or operational logistics. This will be published in July 1995, and a copy will be provided to each logistics plans and programs officer from their MAJCOM functional manager.

Whether cross flowing from operational logistics plans or another logistics AFSC, a tour in wholesale or acquisition logistics can enhance your potential as a logistician and a future leader in logistics.

*Major Beal is presently Chief, Logistics Plans, Programs and Integration, Headquarters Air Force Special Operations Command, Hurlburt Field, Florida. Major Eaves is the Air Force Career Field Manager for Logistics Plans and Programs, HQ USAF/LGXX.*



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## Supply Career Field

*Lieutenant Colonel Grace A. Moore, USAF*

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It is an exciting time to be a supply management officer. Austere times, with continuing congressional downsizing efforts, accompanied by reduced budget, necessitates looking at more cost-effective and efficient processes to provide supply support to the war fighter. This field encompasses a wide spectrum of materiel management disciplines. The supply officer provides supply support to a variety of non-sophisticated and sophisticated ground, airborne, and technical Air Force weapon systems. Supply leaders work mainly the retail supply, but provide a significant volume of support to the wholesale community. They define mission requirements, manage high dollar inventories, and provide timely distribution of assets. These difficult times and new challenges in materiel management afford unique leadership opportunities.

A little over 50% of all authorized supply officer positions are at the company grade level and are normally found at the unit level. The remainder are field grade staff officer positions. The



majority of these are found at the higher headquarters level. (1:11)

The base supply organization consists of five flights under the leadership of a supply squadron commander. The squadron commander, which is normally a field grade officer, wears two hats; one as the accountable officer or the chief of supply, and the second as the commanding officer. To command a squadron is truly one of the most rewarding positions to any officer. In the supply arena, this is especially challenging because of the high dollar inventories which range in the millions of dollars, and the leadership responsibility for many personnel.



The five flights are generally organized into materiel management, combat support, management and systems, storage and distribution, and fuels management. The flight chiefs of each of the above are usually company grade officers who plan, organize, direct, manage, and operate supply and fuels management systems. The fuels management officer generally is the accountable officer for the petroleum account.

Supply officers plan and organize programs which support the wing mission for both airborne and non-airborne activities. They determine and establish organizational structure, personnel and facility requirements, and make use of the most efficient space available for weapon system inventories. This also involves planning, determining, organizing, and scheduling formal training requirements to ensure their personnel are properly trained. (1:5) For example, in the Combat Support Flight, the flight chief ensures the Mobility Readiness Spares Packages (MRSP) are always maintained in optimum condition for rapid deployment in support of any contingency.

Supply officers administer and direct the retail supply, equipment, and fuels activities. These activities consist of financial, inventory, materiel facilities, and environmental management. The challenges involve determining, procuring, and projecting materiel requirements, and assessing current stock

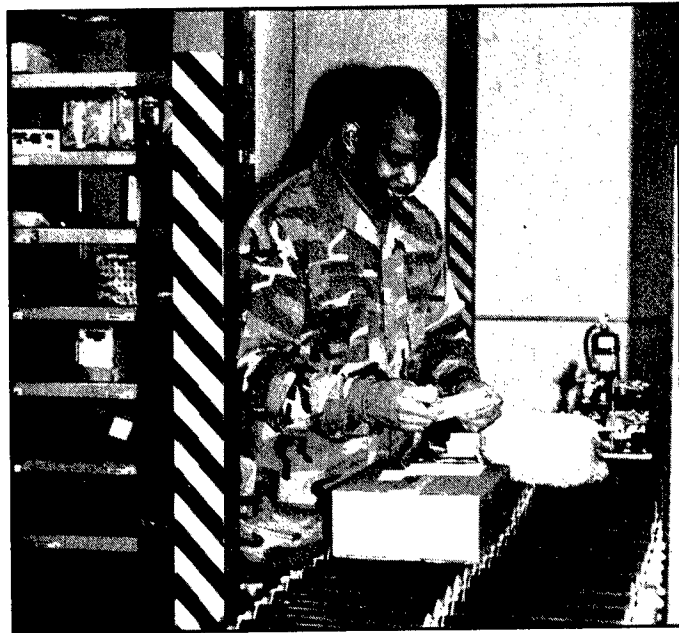
levels, equipment allowances, and authorizations. In the Fuels Management Flight, officers direct all fuels operations activities such as receipt of fuel from pipelines, trucks, rail cars, or marine vessels. In addition, they are responsible for the fuel dispensing systems, bulk storage facilities, cryogenics productions and storage, and the test and evaluation of fuels samples. (1:5)

One of the main responsibilities of any officer is to prepare one's organization for both its peacetime and wartime missions. This also applies to the supply field. Supply officers coordinate with both wing and higher headquarters staffs and operating units on spares, equipment, and fuels activities necessary for mission accomplishment. This involves wartime planning and conducting exercises for mobility readiness.

Officers in the supply field are also responsible for the accountability of all supply and fuel assets. This means strict compliance with all directives. Accountable officers implement approved standards, criteria, and safety measures. In addition, fuels officers resolve technical problems to safeguard against fire hazards. (1:5)



At the wholesale level, supply officers support the Air Force Materiel Command's (AFMC) five air logistics centers: Warner Robins (WR-ALC), Sacramento (SM-ALC), Oklahoma City (OC-ALC), Ogden (OO-ALC), and San Antonio (SA-ALC). They are responsible for depot weapon system programs and life cycle support. This is a very challenging and interesting aspect of materiel management consisting of many different wholesale support and inventory disciplines. Many of the functions described above with the overall planning, organizing, directing, managing, and operating of supply and fuels management




systems apply to the depot level as well. In addition, supply officers have the opportunity to work in the joint arena with the Defense Logistics Agency (DLA) and their many centralized support centers. Jobs in both AFMC and DLA involve materiel management responsibilities in support of the air logistics centers and support to the retail community, whereas the retail supply job provides operational support to the war fighter missions.

As you can see, a supply officer gains invaluable leadership and managerial experience. In short, the supply field will enhance one's knowledge and compliment one's experiences in the other logistics disciplines.

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4. Air Force Pamphlet (AFP) 144-3, *Pamphlet for Fuels Managers*, Department of the Air Force, Headquarters US Air Force, September 1988.

*Lieutenant Colonel Moore is presently Chief of Supply Division, Headquarters Air Intelligence Agency, Kelly AFB, Texas.* 

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# Transportation Career Field

Colonel Keith C. Heinemann, USAF

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Welcome to an array of diverse and challenging assignments in the world of transportation. Transportation officers comprise approximately 13% of the total logistics officer force, serving in virtually every part of the globe. As in other logistics career specialties, total transportation officer billets have been reduced from close to 1,000 only ten years ago to approximately 600 in FY95.

Depending upon how you view it, transportation is big business and a large part of the US economy, with a big impact on the DOD and the United States Air Force. The United States Transportation Command's (USTRANSCOM's) 1995 Fact File states it this way:

A robust and responsive national Defense Transportation System (DTS) is a critical element of America's national security strategy. The ability to move sufficient numbers of forces and equipment enables the U.S. to defend vital national interests anywhere in the world. This is especially true as the country continues to draw down forward deployed forces.

A strong defense transportation capability gives credence to the nation's alliance commitments. America and the world's democracies place a high priority on U.S. responsibilities to those alliances. Further, our nation is committed to protecting democracies, which requires an ability to deliver economic and security assistance, and—when needed—military force.

These are big words, painting a broad picture, but you will find transporters helping to deliver on these goals every day.

Let us now take a look at transportation in a different light; from the perspective of the USAF Deputy Chief of Staff for Logistics (USAF/LG). The USAF/LG has emphatically stated that transportation is the cornerstone of Lean Logistics. Indeed, as we cope with reduced budgets and reduced manning, logisticians are seeking new schemes to provide capable, useful

logistics support to war fighting capability. Not long ago, large amounts of supplies and maintenance personnel could be counted upon to provide the logistics support needed for combat superiority. However, the reduced budgets of the 1990s have led to the reduction of large inventories of people and things, to reduce our mobility footprint while still providing combat capability. The key ingredient to the success of our new philosophy of Lean Logistics requires the use of faster, more reliable transportation to compensate for the reduction in inventories. Transportation officers will be called upon to craft the new systems to make the Lean Logistics philosophy a reality.

Transportation billets are commonly thought of as belonging to one of two schools—surface or air. Traditionally, close to one-third of all transportation billets are ascribed to the air function, and most of those billets reside in the Air Mobility Command. These positions commonly are aligned to the operations (DO) side of the world, as opposed to the pure logistics (LG) arena. As a transporter, you will move between these areas, to broaden your perspective on the entire transportation career field.

Let us next review the types of activities that transportation officers may expect to find themselves leading.

## Organization

### Traffic Management Flight

The Traffic Management Flight (formerly known to most as the Traffic Management Office or TMO) is principally responsible for the movement of personnel household goods, and freight, usually by commercial means. As you might guess, it is heavily involved in customer relations (again, most of us have been travelers or have moved our residence across the country or the globe). No less important, the freight section also serves the internal customers of the Air Force and other DOD customers.

Personnel assigned to the traffic function are often heavily involved with the deployment and/or reception responsibilities of the parent wing. With the advent of the Objective Wing, however, many of the billets formerly occupied by transportation officers have been civilianized, placing an even bigger premium on officer understanding of this important function.

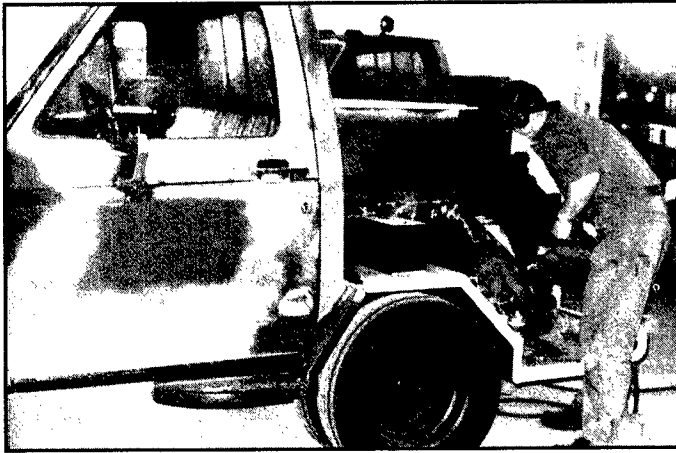
### Vehicle Operations Flight

The Vehicle Operations Flight provides passenger, cargo, taxi, and U-Dive-It vehicular support to a wide range of customers, principally through the Operations section. It also provides for the overall management of all base vehicles through the Fleet Management section, working with other base agencies with large or small vehicle fleets.

### Vehicle Maintenance Flight

The Vehicle Maintenance Flight is tasked to maintain government vehicles in a safe and serviceable condition, with





considerable attention to labor and expense accounting. Maintenance Control and Analysis (MCA) is the heart of shop activities, and performs a function similar to Job Control in aircraft maintenance. MCA plans, schedules, monitors, and analyzes vehicle maintenance actions. Other major divisions include Materiel Control, which works closely with base supply and contracting; the repair work centers, specialized by types of vehicles; and Administration and Training.

Maintenance is often headed by a senior civilian in the WS pay ranks. Again, with the advent of the Objective Wing, some units will consolidate all vehicle responsibilities under one vehicle officer.

### Combat Readiness and Resources Flight

The Combat Readiness and Resources Flight is probably the most nonstandard of all work centers in transportation as each major command tends to tailor the organization to suit its particular needs. Principal duties include all aspects of deployment and attention to resources in the unit. The establishment of this function as a separate entity in the early 1980s marks one of the most significant organizational improvements in transportation units.

A typical transportation unit is depicted in Figure 1.

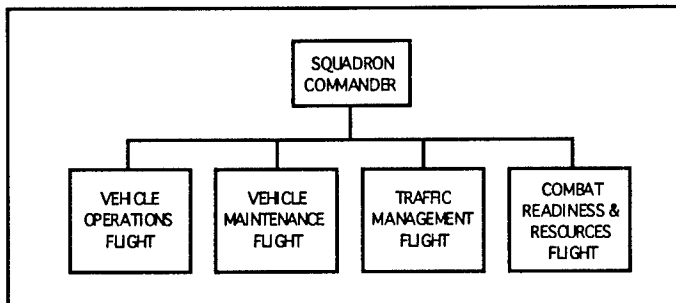


Figure 1. Typical Transportation Squadron.

### Aerial Port Operations

As noted previously, many of transportation's billets fall under the air side of the career field, mostly within Air Mobility Command. Recent reorganization of the aerial port operations and the various units are too complex to examine here, but a generic outline of the "typical" aerial port squadron is shown in Figure 2.

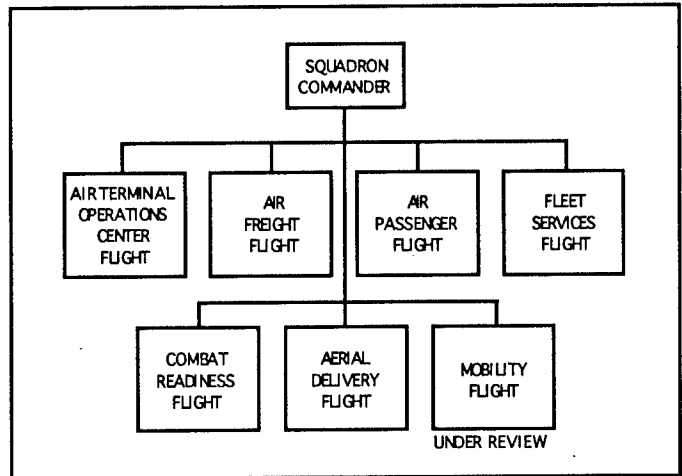


Figure 2. Typical Aerial Port Squadron.

The major functions of an aerial port unit are as follows:

#### Air Terminal Operations Center

The Air Terminal Operations Center is responsible for aircraft load planning, capability forecasting, ramp control, and general oversight of most operations activities.

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## Aircraft Maintenance Career Field

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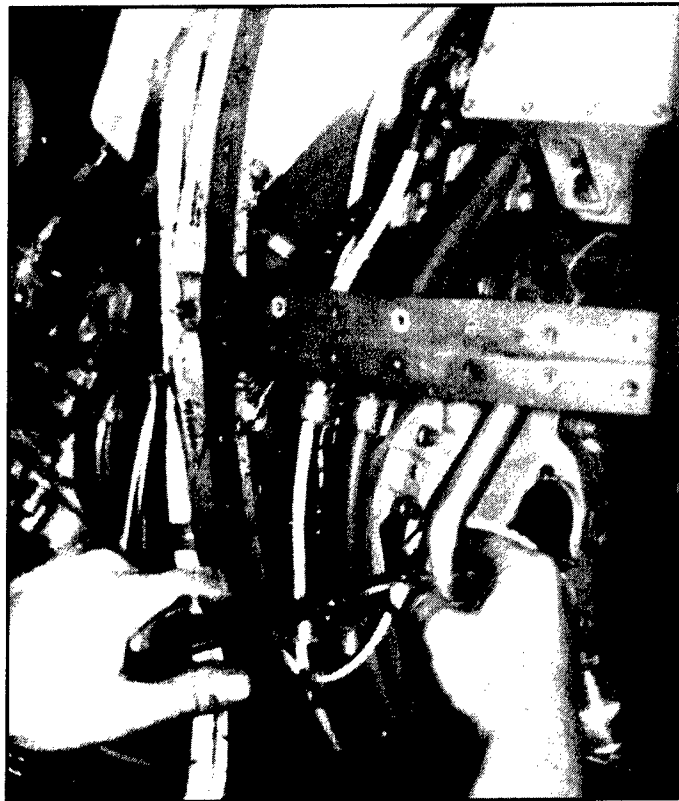
*Lieutenant Colonel James D. Pauly, Jr., USAF*

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In the beginning there was the Chief of Maintenance who ruled a kingdom known as the maintenance complex. For the subjects, the maintenance complex was more than a place—it was a state of mind. Now, many months past the demise of centralized rule, the maintenance complex lives on in the hearts and souls of anyone who labors to “keep ‘em flyin’.” The complex manifests itself within any maintainer who works impossibly long hours and yet, loves it. The spirit of the complex lies in some set of masochistic genetic markers which makes certain people proud that they work harder than anybody else on the planet. It is a similar pathology to the one found in people who populate the northern climatic regions—they know it is really damn cold outside, but they figure they are tougher because of it. And, so it goes with maintenance. Joining the maintenance community and enduring its rights of passage ultimately gives a person bragging rights and the right to wear the T-shirt “I survived the maintenance complex.” This article is for those who think they might want to give it a try.

The rest of this article will provide a broad-brush perspective of the aircraft maintenance career field, and what you can expect when you join. The key point of this article is that the field of aircraft maintenance has this sort of inexplicable narcotic effect on people. There are not any schoolchildren who, when asked what they want to do when they grow up, respond “I want to be an aircraft maintenance officer!” But, for some sort of unknown reason, you begin to love a job you never envisioned doing. It just kind of grows on you. The appeal of the job has been, and almost always will be, the proximity to the mission and the caliber of people you get to work with.

In today’s aircraft maintenance environment, the newly assigned maintenance officer will usually be assigned to a flight-level position. Most likely, the new maintenance officer will



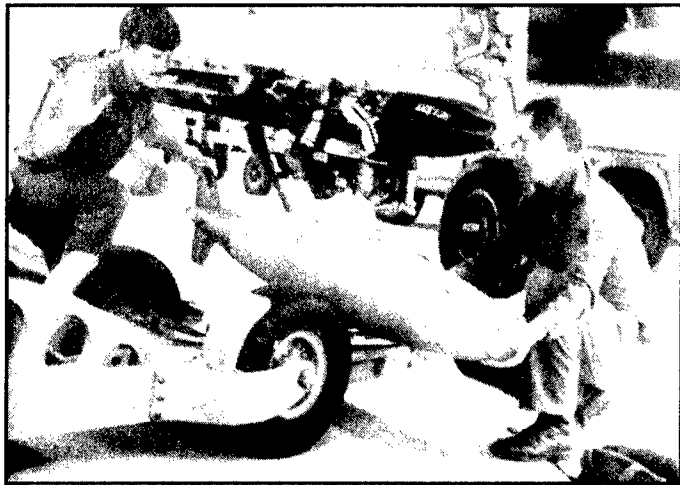
work with a large number of junior enlisted personnel, a fair number of more senior technicians, and usually one chief master sergeant. In general, this will account for 100 to 150 personnel supporting a significant number of aircraft. Very few jobs in the Air Force place so many people under the supervision of a new officer. In this aspect, new maintenance officers most closely resemble Army officers taking over a platoon. This immersion in leadership can lead to rapid personal development characterized by independence and self confidence that will stay with the officer for the rest of his or her career. During the first baptism, the new maintenance officer will have to make many difficult decisions. For example, he or she will have to build a flying schedule that exceeds aircraft availability and, simultaneously, try to hold down flying hours on several aircraft to avoid over-loading the phase inspection dock. No matter which way one turns, the choice may be among unacceptable alternatives!

As a new maintenance officer your immediate superior could be the maintenance supervisor, the squadron maintenance officer, or possibly the squadron commander. In any case, your boss will be working with other base or maintenance agencies to get you the resources you need to do the job. While they depend on your inputs and observations, and oversee your operation, their



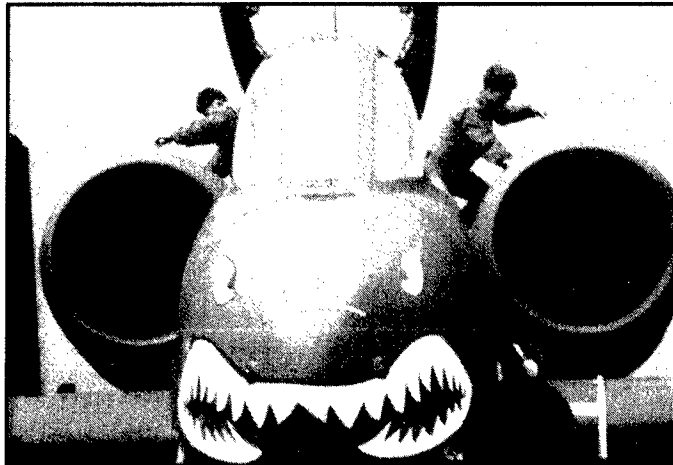
primary focus will be elsewhere. This decentralizes the decision making process to the maintenance officer at the production level. Typically you will be responsible for the generation and repair of 18 aircraft assigned to your squadron. You can expect what we refer to as "mission orders," that is you get general guidance and goals, but not micro management. Your superiors will be there to guide and critique you, not to directly supervise your every action. This aspect of autonomy is a major career attraction. The maintenance officer's day is usually their own to decide what to do with. Theoretically, if everything is running perfectly, the maintenance officer has no job. But, since things are always far from perfect, the maintenance officer will always be gainfully employed.

Because the scope of responsibility is so enormous, as a new maintenance officer, you will continually seek guidance and advice. Inevitably that search will lead to the chief master sergeant assigned with you. Maintenance chiefs are an indispensable aid to the new officer. They will provide sage advice and help you learn about the job, the people, and the aircraft. You will be well served by watching how the chiefs handles the people and problems, then adjust these practices to suit your own personality and style. Suffice it to say there is an ally in managing the troops and aircraft, and that ally is the maintenance chief.



That brings us to the troops, who, in my view, are the operation's best feature. Ask any maintenance officer what the best part of the job is and you will be told it is working with the people. Query a bit further and you will find that they are universally referring to the "wrench turners" who get the job done! Why this deep and abiding affection? Again, I think it lies in the job at hand and the adverse conditions that fortify the spirit. Sure the troops complain, but they do not complain about the small stuff; they complain about being cold or hungry or not getting paid. You will not hear a maintenance troop saying "I just didn't like the way he looked at me." These people, day in and day out, just keep getting the job done—no matter what. I have never put forward a challenge to a group of maintenance people that they have not conquered. In your initial assignment

in maintenance you will work directly with these heroes. In time, you will become unalterably committed to them and find yourself defining success, not in terms of missions launched and repairs made, but in terms of how you helped your people and bolstered their morale. You will find your contribution lies in laying out a plan that achieves the "mission orders" while supporting and taking care of the maintenance work force.



The Chief Master Sergeant of the Air Force recently stated that the morale account is like a bank account and that you can only withdraw so much without going bankrupt. The role of the maintenance officer, and the challenge of maintenance, lies in avoiding unnecessary withdrawals on the account. By getting the resources, training, and equipment for the maintainers, you can put something back in the morale account. In my experience, the source of all job satisfaction, the source of all opportunity and challenge, and the basis of success in the maintenance organization hinges on taking care of the people who take care of the planes.

Many aspects of being a maintenance officer have changed since my contemporaries and I were second lieutenants. The A-7s, F-106s, and F-105s, have been replaced by A-10s, F-15s, and F-16s. Aircraft such as the C-17 and B-2 have brought leading-edge technology to the flight line. The tools and test equipment used by our technicians have evolved from "whatever is available," to state-of-the-art equipment. Maintenance facilities no longer look like a want ad for urban renewal and are often times the best on a base. At the same time, many things have not changed. Young airmen still walk out on the flight line well before dawn to prepare an aircraft to fly. Aircraft still break, and technicians still repair them—often times in driving rain or snow, or temperatures well above 100 degrees or below 0 degrees. The major thing that has not changed is the tremendous sense of pride and accomplishment when your people overcome seemingly impossible hurdles and successfully achieve the mission. This is a regular occurrence in maintenance and is part of its allure. It makes up for the long days and weekend duty.

Maybe the scope of what has been described here seems a bit daunting. Maybe you feel a bit anxious about getting mixed up in this career field. Let me assure you that the anxiety you may

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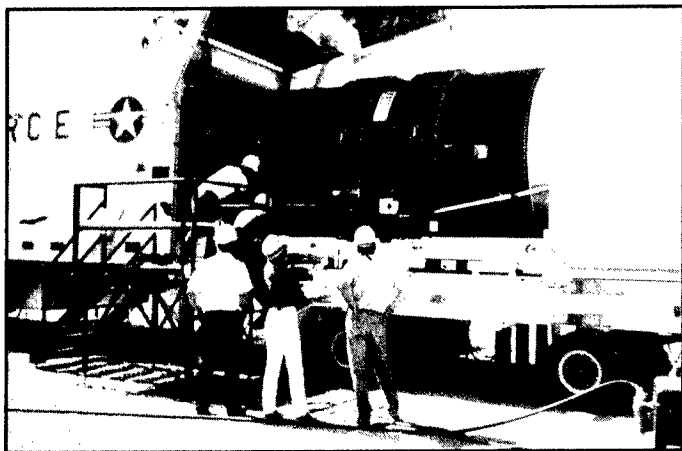
## Missile Maintenance Career Field

*Lieutenant Colonel Kai Lee Norwood, USAF*

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Looking across the high plains of the United States, one does not see the awesome power lying beneath the surface of these rolling plains—weapons poised and ready to respond when called upon by National Command Authorities. Current generations of intercontinental ballistic missiles (ICBMs), the vanguard of America's security for the past 37 years, lie quietly below the surface. Along with the missiles exists a proud heritage of missile maintainers ensuring "missiles on alert" for prompt Single Integrated Operations Plan (SIOP) execution when ordered by the President. In this short article, I will attempt to familiarize you with this heritage, the weapon system, and those who maintain them.



Readiness has always been the watchword for missileers. To a missileer, readiness means missiles on alert and ready for execution. Despite an aging weapon system, the FY94 missile alert rate was 99.3% for missiles assigned a SIOP commitment. This alert rate is a result of untiring efforts of the maintenance, operations, and security personnel assigned to the missile units. This country's ICBM force is assigned to the Air Force Space Command (AFSPC) and is under the command of the United States Strategic Command (USSTRATCOM). Operational ICBMs are currently deployed at four locations: Minot and Grand Forks AFBs, North Dakota; F.E. Warren AFB, Wyoming; and Malmstrom AFB, Montana. These missile units are organized under the 20th Air Force located at F.E. Warren AFB. Additionally, the 30th Space Wing (SW) located at Vandenberg AFB, California, supports all Follow-On Test and Evaluation (FOT&E) launches verifying the integrity and reliability of the Minuteman III and Peacekeeper weapon systems. The 30 SW is organized under 14th Air Force also at Vandenberg AFB.

There are many areas of responsibility in the missile maintenance career field. There are two missile maintenance squadrons per missile wing/group and approximately 12 sections in both squadrons. Each of those sections have officers assigned as officers in charge (OICs) and assistant OICs. Missile maintenance is an exciting career field with many areas for young officers to gain valuable leadership experience. In this career field, not only do you have a chance to exercise your leadership abilities, but you also have the opportunity to learn about the nuts and bolts of the maintenance business. You learn how test equipment works and which end of the missile is up (the pointy end). You will also learn the importance of depot-level repairables (DLRs) and their associated costs, the importance of the supply interface, and exactly how important it is to comply with federal, state, and local environmental laws.

Missile wings/groups have operations squadrons typically controlling 50 missiles each. For example, Grand Forks has three squadrons for a total of 150 missiles. Malmstrom, on the other hand, has four squadrons for a total of 200 missiles. Each squadron has five flights of missiles, each controlled by one launch control center (LCC), and each flight has 10 launch facilities (LFs) containing one missile each.

The LF housing the missile and its support equipment is in a ready-to-launch configuration. The support building provides auxiliary power and air conditioning. The upper floor in the launcher is shock isolated to protect electronic equipment from nearby explosions during attack; the lower floor is abutted to the ground. The personnel access system is a 42-inch wide, 25-foot vertical tube through which technicians access the equipment rooms. Through this access tube, missile support equipment is raised and lowered. This is also the way maintainers gain access to the missile to perform maintenance. Access is purposely long for security reasons and includes an A-vault (locking mechanism for primary door) that is opened by security escorts. A 2,700-pound hatch is then manually cranked open allowing access to a 14,000-pound B-plug (secondary door) which maintenance has the combination to open. This split handling of combinations between security police and maintenance is one of many procedures used for nuclear surety purposes.

Additionally, missile maintainers maintain critical equipment at the LCCs. There is one LCC for every ten missiles. The topside facility, known as the Missile Alert Facility (MAF), houses the facility manager, flight security controller, and food service specialist that are on duty 24 hours a day. The MAF has spare rooms for maintenance and security teams to remain overnight. The maintenance teams maintain the equipment located underground which includes computers, monitoring equipment, suspension, power generation, and environmental control systems.



## Missile Maintenance Unit Organization

What does a missile maintenance officer do? To explain fully, it is necessary to explain how missiles maintenance units are organized and then to describe each of the different maintenance teams and their tasks. Missile maintenance officers will provide oversight to these teams.

Missile maintenance was reorganized several times. The last move was from Air Combat Command to Air Force Space Command. There are two missile wings (F.E. Warren and Malmstrom) and two missile groups (Minot and Grand Forks). At the missile wings, maintenance is aligned under the Logistics Group (LG). Maintainers can be assigned to one of two squadrons: the Maintenance Squadron or the Logistics Support Squadron. The missile groups, on the other hand, are organized with two maintenance squadrons and there is no Logistics Group. The squadron commanders report directly to the missile group commander.

The Maintenance Squadron is made up of four flights with a total of 12 sections in those flights. Those four flights are the Accessories Flight, Aerospace Ground Equipment (AGE) Flight, Minuteman/Peacekeeper Maintenance Flight, and Shops Flight. The Accessories Flight is composed of the following sections: facility maintenance teams (FMT), corrosion control teams (CCT), periodic maintenance teams (PMT), and pneudraulics (PNEU). The AGE Flight is composed of the vehicle and equipment control sections. The Minuteman Maintenance Flight is composed of missile maintenance teams (MMT) section, missile handling teams (MHT) section, and electro-mechanical teams (EMT) section. The Peacekeeper (PK) Maintenance Flight (F.E. Warren) is comprised of EMT, MMT, and MHT just like the Minuteman Maintenance Flight; however, the majority of the MHTers are civilians. The Shops Flight is composed of electronics laboratory (E-Lab) section, mechanical shop (Mech) section, and power, refrigeration, and electrics (PREL) section.

The Logistics Support Squadron is made up of three flights with a total of nine sections in those flights. Those three flights are the Maintenance Training Flight, the Logistics Plans Flight, and Maintenance Operations Flight. The Maintenance Training Flight is composed of the training management section and the team training section. The Logistics Plans Flight is composed of the maintenance data section, the technical order (TO) library section, and the maintenance programs section. The Maintenance Operations Flight is composed of the plans and scheduling control

section, material control section, technical engineering section, and the job control section.

## Maintenance Squadron

The Maintenance Squadron is dedicated to organizational maintenance, on-equipment repair of aerospace vehicle equipment (AVE) and operational ground equipment (OGE), organization maintenance on OGE, and intermediate maintenance on OGE and missile support equipment.

## Minuteman Maintenance Flight

### *MMT Section*

Missile maintenance teams remove and install reentry systems. They also remove and replace post boost control systems which are comprised of two sections, the missile guidance set and the propulsion system rocket engine (PSRE). The PSRE physically relocates the reentry system in space before each reentry vehicle is deployed to its target. Of course to perform these tasks, they must open the launcher closure door using a hydraulic pusher unit. They also perform maintenance on secondary ordnance such as the ballistic gas generators that open the 110-ton launcher closure door in just three seconds; explosive bolts on the missile suspension system that facilitate moving the articulating arms away from the missile; and the squib which separates the upper umbilical from the missile guidance set. In addition, they maintain the on-board computer which receives its cooling, electrical power, and computer updates through the umbilical; and the retract mechanism which pulls the umbilical out of the missile's launch path. Their most complex task is a missile guidance set removal and replacement, known more commonly as a "CAN change." This task has 1,663 technical data steps and requires handling a hazardous chemical called chromate which is used to cool the guidance set and the ordnance devices already described.

The MMT is comprised of a five-person team: the team chief, the cage-person, the board-person, and two topside individuals. They are trained as an integral team with each member performing only their specific tasks. Initial training is hands-on with inert devices and takes approximately 110 days.

### *MHT Section*

Missile handling teams are four-person teams usually with a staff sergeant team chief. They remove and emplace rocket stages as a single unit for the Operational Test and Evaluation (OT&E) sorties and the periodic depot maintenance (PDM) program. Each unit performs between 48 missile recycles per year during a PDM year and 20 missile recycles per year for routine maintenance.

Missile handling teams receive a missile by C-141 aircraft, rail, or missile transporter (MT). The missile comes in a ballistic missile shipping and storage container (SSCBM) which is transferred from the plane, MT, or rail car onto a ballistic missile transporter (BMT). The BMT is driven from either the flight line or the rail head to the missile handling building where another transfer takes place. The missile is then moved from the BMT into the transporter erector (TE).

The typical dispatch requires a convoy from the missile

handling building (on base) to a launch facility (off-base in the missile field). The special purpose TE vehicle is then maneuvered into place so it can be secured to the tie down pylons. It is then erected, the 110-ton launcher closure door is opened by MMT, and the raising or lowering of the missile begins. As soon as the missile is emplaced (removed from the TE), the reverse sequence of tasks occur to get the TE back to base. All missile handling team activity takes place above ground at the launch facility. Operations are limited to temperatures above minus 35 degrees to keep hydraulic systems working and winds steady at or less than 45 knots. The TE cannot be erected with winds above 45 knots because of its size and the danger of blowing over. The Peacekeeper missile, on the other hand, is installed one stage at a time. Each stage is brought to the LF and transferred to the emplacer (conceptually similar to a crane). The emplacer is then erected and the stage is lowered via an elevator.



#### *EMT Section*

Electro-mechanical teams (EMT) remove and replace the electronic drawers that monitor, control, and launch missiles. They also perform startup/shutdown and coding of missile systems. They maintain the guidance cooling system, launcher batteries, motor generator, and the Improved Minuteman Physical Security System (IMPSS) which uses Doppler radar to detect intruders. Each EMT is comprised of two persons who stand ready 24 hours daily to respond to priority faults at LFs and LCCs. They are the first to respond to critical weapon system conditions which could take the missile off alert.

## **Accessories Flight**

#### *FMT Section*

Facility maintenance teams perform power generation, distribution, and environmental control system maintenance. Each LF and LCC has standby power, a brine chiller (conditioned air for the launcher), an air conditioning system, and launch tube heater. The loss of any of these systems could cause costly equipment damage and loss of an alert sortie. The FMT is comprised of two persons and are available 24 hours daily to provide quick reaction maintenance.

#### *PMT Section*

Periodic maintenance teams perform scheduled phase inspections on LCCs twice per year and on LFs annually. As in aircraft phase inspections, ICBM inspections require different inspection cards for each trip. The periodic maintenance team is normally comprised of five individuals with one designated as the team chief. The team chief is a working team chief and not just a supervisor.

#### *PNEU Section*

Pneudraulic teams maintain the hydraulic and pneumatic systems associated with the weapon system. Their primary job is on-base; however, they also dispatch to the launch control facility to support shock isolator and blast valve maintenance requirements. The pneudraulic team is comprised of four individuals with one designated as the team chief.

#### *CCT Section*

Corrosion control teams are comprised of four individuals. Several years ago the ICBM community converted from a blue suit operation for corrosion to DOD civilians. They provide corrosion control expertise to maintain and extend the life of missile facilities and components.

## **Shops Flight**

#### *E-Lab Section*

The electronics laboratory (E-Lab) does checkout, troubleshooting, replaces circuit cards, and performs some component repair. They certify Emergency War Order (EWO) critical drawers, issue and control communication security equipment, and repair the computers used to perform weapon system maintenance. They also store, buildup, and issue missile guidance sets. Buildup includes installation of the missile guidance set (MGS) battery and electrical interface tests to confirm the guidance set's readiness/worthiness for installation.

#### *Mech Section*

The mechanical shop inspects, repairs, lubes, and adjusts all the mechanical working parts of the hoists in the special purpose vehicles. Most important is the maintenance of work cages. These work cages are used by MMT to transverse the launch tube to perform maintenance on the missile. Work cages must be disassembled, inspected, lubricated, and proof-loaded frequently to ensure reliability, and thus, the safety of maintenance personnel required to work in the work cage. The mechanical shop also

performs off-equipment repair of actuators, the A-vaults, and the B-Plugs.

#### *PREL Section*

The power, refrigeration, and electric shop repairs missile support equipment. They condition, service, and maintain the 1,300-pound storage batteries used for emergency power; repair auxiliary power; and repair environmental control systems on the payload transporters and transporter erectors.

### **AGE Flight**

#### *Vehicle Control Section*

The vehicle control section provides dispatching teams with serviceable general purpose and special purpose vehicles and survival equipment. They maintain, on an average, over 100 vehicles, mostly special purpose, but also many general purpose trucks and vans.

#### *Equipment Control Section*

The equipment control section maintains 100,000 separate pieces of equipment including items such as common hand tools, calibrated test equipment, torque wrenches, and specialized test equipment, valued at over \$14 million, for dispatching maintenance teams. The section is manned 24 hours daily to recover vehicles and gear. Each evening they build dispatch loads to match scheduled lines of maintenance. This usually amounts to 15 to 20 dispatches per day.

### **Logistics Support Squadron**

The Logistics Support Squadron (LSS) was established to facilitate management of maintenance. The LSS is responsible for training, maintenance operations, logistics plans, and the Rivet Minuteman Integrated Life Extension program (MILE). They provide all manpower, financial planning, production control support, and sustainability for the maintenance complex.

### **Maintenance Training Flight**

#### *Team Training Section*

The team training section provides initial qualification training that is similar to the aircraft maintenance qualification program. MMT, EMT, and FMT technicians attend team training courses for up to 140 days. The other shops use on-the-job training (OJT) with designated trainers. They also maintain configuration of all the ICBM trainers used by the Maintenance Training Flight.

#### *Training Management Section*

Training management provides all quarterly recurring and ancillary training such as explosive safety, first aid, and cardiopulmonary resuscitation (CPR). CPR training is mandatory for all dispatching technicians.

### **Logistics Plans Flight**

#### *Maintenance Data Section*

The maintenance data section maintains the Expanded Minuteman Data Analysis Systems (EMDAS). EMDAS was

embedded as part of the weapon system 30 years ago, and as such, ICBMs did not attempt to integrate into the Core Automated Maintenance System (CAMS) for maintenance data collection. The EMDAS keeps track of 7,000-plus weapon system discrepancies at each wing and provides valuable trend analysis. The new system being implemented, the Improved Maintenance Management Program (IMMP), will integrate with future information management data systems.

#### *TO Library Section*

The TO library section maintains over 2,700 technical orders in kit form provided for each dispatching team. Their other responsibilities are the same as other TO libraries in the USAF.

#### *Maintenance Programs Section*

The maintenance programs section provides long-range planning, centralized manpower, and financial management to the missile and logistics group commanders. This section establishes the manpower and personnel management program for the maintenance complex, is the central manager for all maintenance facilities, provides financial management support, and establishes a mission support equipment (MSE) management program.

### **Maintenance Operations Flight**

#### *Plans and Scheduling Control Section*

The plans and scheduling control section provides a daily, weekly, and monthly plan for maintenance that is coordinated with all work centers and support agencies, including security police, air rescue, civil engineering, and weather.

#### *Material Control Section*

The material control section provides liaison to base supply, maintains a 600-item bench stock for dispatching teams, and maintains a holding bin for each sortie.

#### *Technical Engineering Section*

The technical engineering section solves weapon system problems beyond the scope of normal technical data and technician capability.

#### *Job Control Section*

Job control monitors the weapon system, generates quick reaction maintenance teams, and implements the daily schedule. They also conduct briefing/debriefing of dispatching and in-shop technicians.

### **Quality Assurance**

Quality Assurance (QA) personnel are the eyes and ears for the group commander and help permeate the quality culture. They evaluate maintenance capability and effectiveness by inspecting personnel, procedures, facilities, equipment, vehicles, technical data, and managerial guidance. In 1991, the evaluation program was rebuilt and the Maintenance Standardization and Evaluation Program (MSEP) was restructured. Performance grading was eliminated, the QA "black hat" image changed to one of team player and mentor, and shop chiefs were empowered with

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### *Air Freight*

Air Freight processes cargo, unloads and offloads cargo to aircraft, and provides special handling to hazardous and other special category cargo.

### *Air Passenger*

Air Passenger determines passenger eligibility, processes intransit and inbound and outbound passengers, and provides terminal security.

### *Fleet Services*

Fleet Services removes and disposes of aircraft waste, and delivers flight meals, water, and other passenger convenience items.

### *Combat Readiness*

Combat Readiness, similar to their surface cousins, works deployment and resources issues.

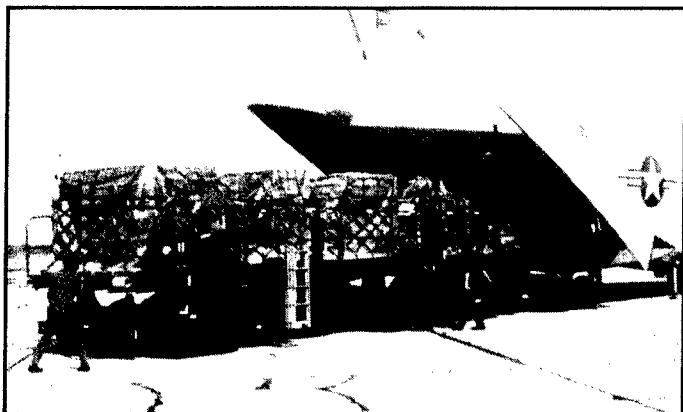
Regardless of where you might fit in the transportation picture, you will be working in an area that provides direct mission support, with considerable emphasis on customer service.

## **Command Opportunities**

There are currently 77 transportation squadron commander billets, split roughly 50/50 between major and lieutenant colonel authorizations. Transportation units have enjoyed a good reputation for providing leadership opportunities for mid-grade officers. Most units have only a few officers, and many junior enlisted and civilian team members share in the provision of combat support.

## **Joint Duties**

Transporters have traditionally served in a wide variety of billets in the joint arena. Opportunities to serve on unified command staffs (such as Pacific Command (PACOM), United States Transportation Command (USTRANSCOM), Central Command (CENTCOM), etc.); defense agencies (Defense Logistics Agency (DLA)); the Joint Staff; or other Transportation Operating Agencies (the Army Military Traffic Management Command and the Navy Military Sealift Command) have been



plentiful. As in the rest of the career field, these slots are being reviewed and manning decisions tailored for the new downsized force.

## **Overseas Rotation**

Transportation officers serve virtually around the globe. Roughly one-third of all transportation billets are overseas.

## **Education Opportunities**

Qualified officers may obtain a master's degree in Transportation Management from the Air Force Institute of Technology (AFIT). Approximately nine slots are offered for this program annually. Continuing transportation education is also available for field grade officers through a competitive series of professional continuing education short courses offered through AFIT, both in residence at Wright-Patterson AFB and at selected civilian institutions.

## **Field Grade/Senior Transportation Billets**

As in the rest of the logistics family, the old assignment system is about to be modified with the activation of the Logistician Air Force Specialty Code (AFSC) to take effect in October 1995. Many of the jobs will be coded 21LX, vice the straight 24TX (Transportation) that most of us have been accustomed to. Some turbulence in this area may be expected as we refine the new assignment, coding, and hiring processes.

## **Orientation**

While you will work closely with other logisticians in the USAF logistics family, you will find that transportation officers also spend a significant portion of their time dealing with customers outside of logistics and the Air Force in the course of daily mission accomplishment. Transportation officers will interact with commercial transportation companies and other DOD customers, transporters, and outsiders alike.

## **Camaraderie**

Traditionally, a small career area (and now getting smaller), transporters will always find a friend no matter where they may travel, as there is a transportation unit at most locations around the globe. Most transporters get to know quite a few of their comrades-in-arms across the world, and this spirit should become even more pervasive as more officers take a tour (or more) in the transportation arena.

Moreover, transporters, like their fellow logisticians, are usually among the first to deploy in support of global operations and contingencies, and are often among the last to head home when business is done. Transporters learn to become adaptive and cope with many challenges that many other career fields may not always get to experience. In other words, keeping a mobile mindset is helpful to being a good transporter.


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feel over the challenges is more than offset by the people you will be working with on the flight line.

I was supposed to address the opportunities in maintenance. I think I have. The opportunity is the chance to work with the world's finest work force—aircraft maintenance technicians. Everything else about the career field pales in comparison. If you think you would like to work with this team, and do not mind

working as hard as they do, then maybe you have already gotten “latent maintenance complex.” There is only one known cure—hope to see you on the flight line!

*Lieutenant Colonel Pauly is presently Chief, Future Maintenance Concepts, Headquarters United States Air Force, Washington, D.C.* 


(Continued from page 29)

increased authority to correct and enforce maintenance policies and procedures. After four years under the new Maintenance Inspection Program (MIP), the wind has shifted once again. An extensive rewrite and restructure is currently under way to combine both the MIP and MSEP program's best features and provide the missile unit personnel with a better product.

### Summary

As you can see, the job opportunities in missile maintenance are numerous and diversified. The missile maintenance career

field definitely teaches young officers leadership and responsibility in a short period of time. It also teaches individuals how to interface with the NCO corps, and if you ever choose to work in missile maintenance, you will discover on your own the difference between an effective and ineffective leader. It is definitely a challenging and rewarding career field.


*Lieutenant Colonel Norwood is presently Chief, Maintenance Management Branch, Headquarters Air Force Space Command, Peterson AFB, Colorado.* 

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### Summary

Transportation will continue to play a key role in the evolving world of logistics as the concepts of Lean Logistics become commonplace for the Air Force. As the Air Force continues to search for ways to downsize, outsource, or reorganize to best provide mission support, the transportation industry, and the officers within, will continue to be in the midst of the changes

affecting logistics. The demand for logisticians who understand transportation and its role in providing effective mission support will continue to grow.

*Colonel Heinemann is presently Chief, Mobility Planning and Training, Headquarters United States Air Force, Washington, D.C.* 



# CAREER AND PERSONNEL INFORMATION

## *Logistics Professional Development*

### **Logistics AFSC Consolidation**

Headquarters Air Force Military Personnel Center's (AFMPC) primary role in the new logistics consolidation is to work with the logistics community to develop logisticians through career broadening within logistics career fields. While our goal is to serve our customers, we are also obligated to work within the constraints of the new Officer Assignment System.

As a review from the last issue of the *Air Force Journal of Logistics*, the Air Force Specialty Code (AFSC) structure for logistics officers effective 31 October 1995 will be:

20C0	Logistics Group Commander
21LX	Logistician
21AX	Aircraft Maintenance
21GX	Logistics Plans and Programs
21MX	Space and Missile Maintenance
21SX	Supply
21TX	Transportation

Officers will enter the Air Force through one of four logistics AFSCs: 21AX, 21MX, 21SX, or 21TX. AFMPC will assign these accessions to their first assignment based on vacancies and training opportunities. Assignment officers will consider the officers' desired locations against the needs of the Air Force; however, we are not always able to accommodate each officer's requests. All company grade officer logistics AFSCs are currently overmanned so many accessions are being assigned as overages to the base.

Officers are expected to complete four years in their initial AFSC before considering cross flow. There are two ways to get experience in another logistics AFSC: intrabase movement and interbase movement. Any cross flow action which changes an officer's duty AFSC must be approved by AFMPC in the form of an assignment action for interbase or intercommand moves, or through approval of an intrabase move with submission of the AF Form 2096, Classification/On-The-Job Training Action, to AFMPC through the local Military Personnel Flight (MPF).

Logistics group commanders (LG/CCs), in making intrabase cross flow decisions, need to coordinate their plans with AFMPC prior to making any moves. While we encourage one-for-one swaps to maintain each AFSC's manning levels, there may be circumstances that warrant a single officer's move into another AFSC. Other limiting factors in intrabase cross flows include Air Force Institute of Technology (AFIT) commitments and time on

station (TOS). Officers assigned to advanced academic degree (AAD) billets to fulfill their AFIT commitment cannot be moved from their positions without prior approval from AFMPC. Time on station at any given base is generally three years, but we will consider extending the TOS up to four years to allow intrabase cross flow. Officers with approved extensions to their TOS will receive an assignment availability code (AAC) 39 at AFMPC. After coordination between the logistics group commander and AFMPC, the base can initiate the AF Form 2096 to reassign the officer.

Interbase cross flow selections will be made by AFMPC for base-level positions; however, the base will specify in the special qualifications section of their ad if a career broadener may apply. If the ad specifies AFSC experience, a cross flow will not be selected without prior coordination with the base. AFMPC will nominate up to two officers for staff-level advertisements. Again, the special qualifications designated by the base will be the basis for selecting nominees. All volunteers for commander ads will be forwarded to the gaining major command (MAJCOM) for consideration.

If there are no volunteers for an ad in the 30 days it is advertised, AFMPC will select the first qualified nonvolunteer based on the special qualifications listed in the advertisement. If a MAJCOM does not want a nonvolunteer, the ad will be deleted. If time permits, AFMPC will allow the advertisement to continue to run more than 30 days up to 90 days before the report date; however, a nonvolunteer will still be designated at the 30-day point.

### **Personnel Update**

There is one change to the logistics assignment team: Captain Tom Jett will replace Major Heimerman on the Transportation Officer Assignments team, teaming up with Major Toby Seiberlich. To review the changes mentioned last quarter, Logistics Support Officer Assignments and Maintenance Officer Assignments have combined into the Logistics Officer Assignment Branch (DPMRSL) with Major Ed Hayman as the branch chief. Maintenance Officer Assignments is manned by Major Steve Shinkle and Captains Roger Rostvold and Catricia Mills. Captains Deborah Elliot and Craig Bond will work Supply Officer Assignments while Captain Keith Quinton will work with Captain Ricky Cornelio in Logistics Plans Officer Assignments. Our phone numbers will remain the same.

(Major Cheryl Heimerman, HQ AFMPC/DPMRSL, DSN 487-4024)

## **Logistics Civilian Career Enhancement Program (LCCEP)**

The LCCEP PALACE team receives many calls from our registrants seeking information about the program. The questions asked range from how does the Whole Person Score work to why aren't they automatically registered for jobs at their local installation? Here are the answers to a few of the most frequently asked questions.

### **Whole Person Score (WPS)**

*What is the WPS and how does it work?*

The WPS is LCCEP's method for measuring the experiential and educational development of our registrants. The WPS for those registrant eligible for promotion to GS-14 and GS-15 logistics functional positions also contains points derived from the WPS interview and from a Behavior Inventory (BI) completed jointly by the supervisor and employee to assess managerial competencies. LCCEP uses the total WPS derived from these measurements for competitive job placement and training opportunities.

*If my WPS appears to be inaccurate, how do I get it corrected?*

Annually, the LCCEP team provides an Individual WPS Summary (IWPSS) report to each registrant. If the WPS appears inaccurate, registrants need to visit their local Civilian Personnel Flight (CPF) with appropriate documentation to justify making corrections to their record. The WPS calculation uses the information coded in the Personnel Data System (PDS) by the local CPF. The IWPSS report is one of two opportunities for registrants to see whether their records are correct and up to date. The other opportunity is the annual review of the registrant's career brief. Information that is correct and up to date produces an accurate WPS. Registrants are ultimately responsible for the accuracy of their records in the PDS. The LCCEP team has read only access to the PDS and cannot make any changes to a registrant's records; only the local CPF can enter changes to the PDS.

## **Career Program Registration**

*I'm an LCCEP registrant and I just found out that I wasn't on a LCCEP promotion certificate issued for a position by my base. Why not? I know my WPS is high enough to be competitive.*

The positive decision to register in the career program or to update the registrant's current registration requires completion of an AF Form 2675, Civilian Career Program Registration and Personal Availability. The AF Form 2675 is used by registrants to identify which career program they want to enroll in and to identify the geographic locations for which they wish consideration. Registrants must keep in mind they will only receive considerations for positions they qualify for at those geographic locations identified on the AF Form 2675—that includes the base or installation where the registrant is currently assigned. Registrants will not receive consideration for any fill actions at locations not identified on the AF Form 2675. Bottom line: If you want to compete locally for an LCCEP-covered position, then you must register for your current base/installation and meet the skill qualifications for that position.

These are but a few of the questions we receive daily at the LCCEP office. If you have questions you would like addressed in the *Air Force Journal of Logistics*, please forward them to:

AFCPMC/DPCL  
555 E Street West, Suite 1  
Randolph AFB, TX 78150-4530

We cannot guarantee every question will be addressed, but we will focus on those questions most frequently asked by our registrants.

### **Newsworthy Note**

Effective 1 October 1995, the Air Force Civilian Personnel Management Center (AFCPMC) and the Air Force Military Personnel Center (AFMPC) will stand down. The consolidation of these two organizations will form the new Air Force Personnel Center (AFPC) which stands up on that same date.  
(Dexter Cochnauer, AFCPMC/DPCLR, DSN 487-5351)

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## **DTIC '95 Annual Users Meeting and Training Conference**

The Defense Technical Information Center (DTIC) will present its Annual Users Meeting and Training Conference on 30 October - 2 November 1995. The conference will be held at the Stouffer Renaissance Hotel, Arlington, Virginia. This year's conference will include a variety of speakers and sessions addressing the numerous types of information available to the Department of Defense community through the Internet as well as from DTIC and other government agencies. DTIC's latest products and services will be highlighted in the Exhibit area. For further information, contact Ms Julia Foscue at DSN 284-3848 or (703) 274-3848.

# Implementation of Logistician AFSC into the Air Reserve Components

Vicki Van Buren  
Major James Van Housen, USAFR

## Introduction

The Air National Guard (ANG) and the Air Force Reserve (AFRES) have been deeply involved in the logistics Air Force Specialty Code (AFSC) restructuring and the development of the new Logistician AFSC since March 1994. The ANG and AFRES, commonly referred to as the Air Reserve Components (ARC), are adopting these changes because we are expected to meet the same standards as our active duty counterparts. However, because the majority of our personnel are traditional reservists and guardsmen, working one weekend a month and two weeks annual training each year, cross flow opportunities and training requirements had to be further studied by the ARC. Additionally, the ARC full-time personnel are governed by both military and civilian rules and regulations. The Office of Personnel Management (OPM) dictates hiring practices within the full-time technician force and limits what personnel actions can be accomplished outside of the competitive arena.

Realizing there are numerous differences between the active and reserve components, Lieutenant General John Nowak, the former Deputy Chief of Staff for Logistics, and the former chairman of the Air Force Logistics Board of Advisors (BOA), directed the ARC to prepare a joint implementation proposal.

## ARC Implementation Work Group

The ARC logistics AFSC implementation work group met 9-11 January 1995, at Robins Air Force Base, Georgia, to determine the impact of the new logistician AFSC on the ARC. We had representatives from the ANG, AFRES, and the Air Reserve Personnel Center (ARPC) in attendance. Personnel from each logistics discipline were present, including a logistics group commander. Every category of reservist and guardsmen were represented, both traditional and technician status. Not only did we have Individual Mobilization Augmentees (IMAs) and statutory tour officers, but we also had representatives from the civilian and military personnel communities involved.

The goal of our work group was to determine how the ARC can meet the criteria for award of the Logistician AFSC. Our specific objectives were to:

- (1) Determine the feasibility of adopting the new logistics AFSC structure within the ARC.
- (2) Identify any necessary exceptions.
- (3) Define an implementation strategy.

To better assess cross flow opportunities, we set about defining our respective populations. Figures 1 and 2 are typical AFRES and ANG flying unit structures with the logistics positions

identified.

In a typical reserve flying unit there are three full-time logistics positions (Figure 1). One is the logistics group commander. That leaves only two full-time positions for cross flow purposes: one in wing plans and the other in maintenance. The traditional reserve positions are a little more numerous with nine to twelve billets in three different logistics disciplines. Overall, AFRES units will be limited in their ability to cross flow their logistics officers.

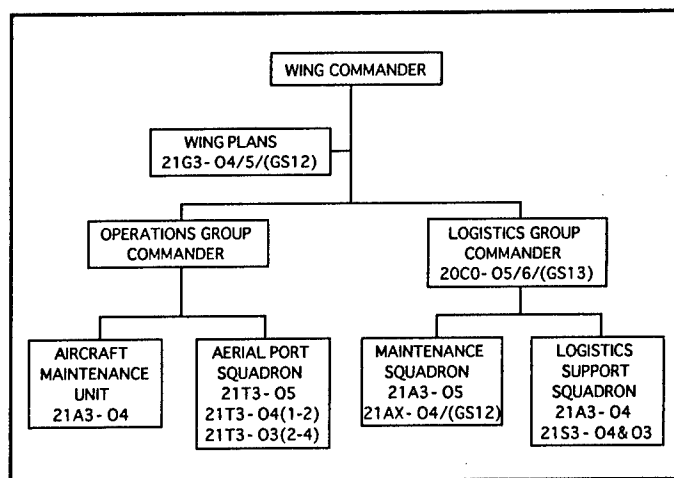


Figure 1. Logistics Billets in a Typical Air Force Reserve Unit.

Air National Guard units are better off than the Air Force Reserve units in numbers of full-time positions but have fewer traditional personnel. Figure 2 reflects where the logistics positions are within a typical ANG flying unit. Seven full-time positions are shown of which one is the logistics group commander. The remaining six positions cut across all logistics disciplines at both the GS-11 and GS-12 civilian grades. Seven to eight traditional positions are represented by three different logistics disciplines.

As you can see, both the Guard and Reserve have their own unique structures and limited numbers of logistics positions. In addition, there is no typical structure to depict IMA assignments. IMAs are usually directly assigned to active component organizations to fill valid wartime needs.

The basics of the logistics officer development program are the same for both active duty and the ARC. However, most ARC officers start their military service on active duty. The cross flow point is where most of the logistics officers are going to enter the ARC. There are different career programs within the ARC.

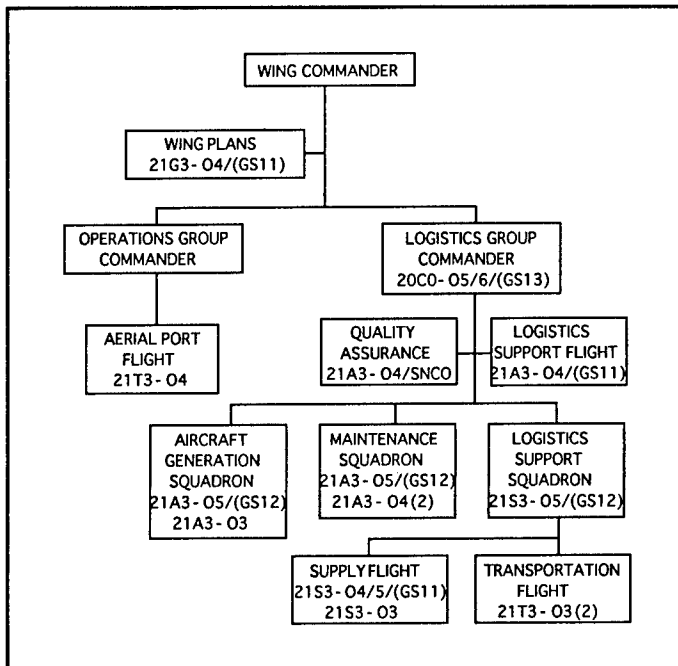


Figure 2. Logistics Billets in A Typical Air National Guard Unit.

Which program the officer comes into will determine whether cross flow is done upon entry into the ARC or after a period of time. For example, to be hired as a civilian technician, the officer will normally have to already have the AFSC to qualify for the position. In that case, cross flow would have to be considered at a later time. Conversely, cross flow could potentially be done upon assignment when coming in as a traditional reservist or guardsman.

Opportunities for cross flow within the ARC can be affected by a myriad of factors: vacant positions, ability to absorb trainees, willingness and/or need for other officers to cross flow, real world operations, school length, training quota and dollar availability, personnel availability, unit needs or circumstances, and civil service rules and regulations. Civil service rules allow for management-directed transfers between positions of the same grade with no waivers needed for qualifications. However, the incumbents of these positions will have to seek lateral reassignments to vacant positions if management-directed transfers within the same unit are not offered.

Not all officers within the ARC will necessarily be able to cross flow. There are ARC units with only a single logistics specialty represented. The Reserve has eight and the Guard has six geographically separate, or stand-alone logistics units. There are also three AFRES flying units with only maintenance officer billets for traditional reservists.

### Baselining

The new logistics career path emphasizes cross flow and broadening of logistics officers. Because of this, we needed to know how many officers already possess two logistics AFSCs. Figures 3 through 7 show this for each ARC population.

Incredibly, almost 55% of the IMA logistics officers already have two logistics AFSCs. Eventually, the entire Air Force logistics officer population will look like this. A large portion of these positions will become Logistician billets (Figure 3).

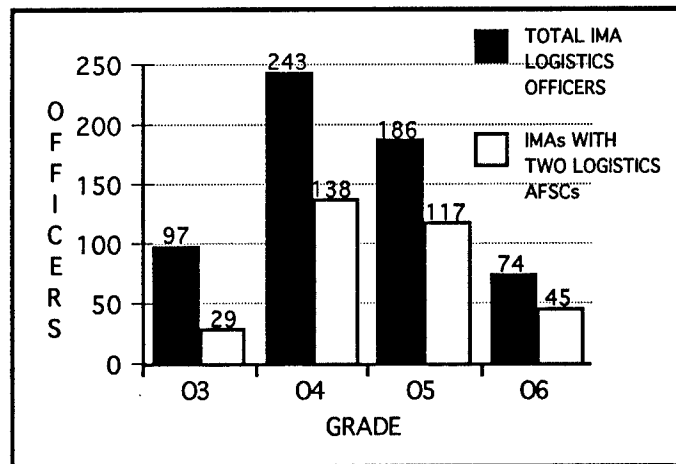


Figure 3. Individual Mobilization Augmentee (IMA) Logistics Officers with Two Logistics Air Force Specialty Codes (AFSCs).

Out of more than 700 logistic officers in AFRES units, almost 20% have two logistics AFSCs (Figure 4).

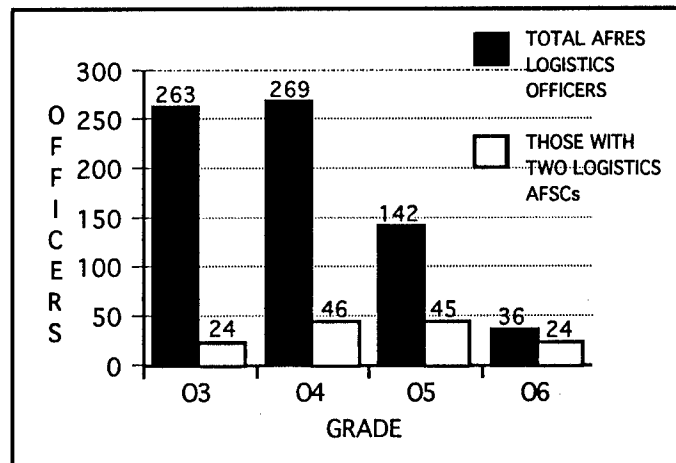


Figure 4. Air Force Reserve Unit Logistics Officers with Two Logistics Air Force Specialty Codes (AFSCs).

The AFRES statutory tour program is well staffed with 42% of the officers possessing two logistics AFSCs. The majority of these positions will require the Logistician AFSC (Figure 5).

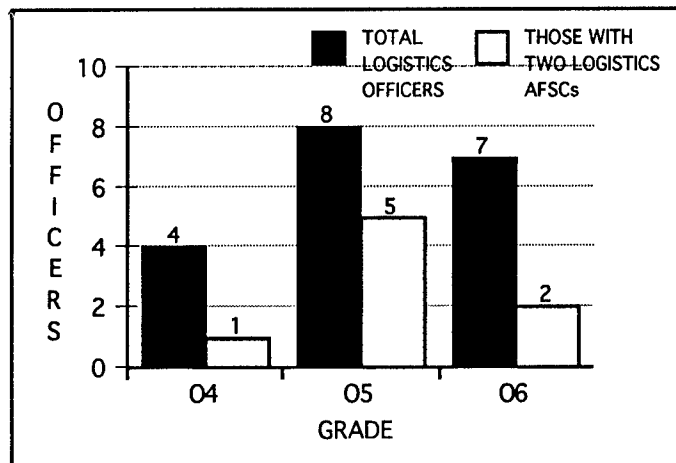


Figure 5. Air Force Reserve Logistics Officers on Statutory Tour with Two Logistics Air Force Specialty Codes (AFSCs).

Almost 18% of the traditional guardsmen who are logistics officers have more than one logistics AFSC (Figure 6).

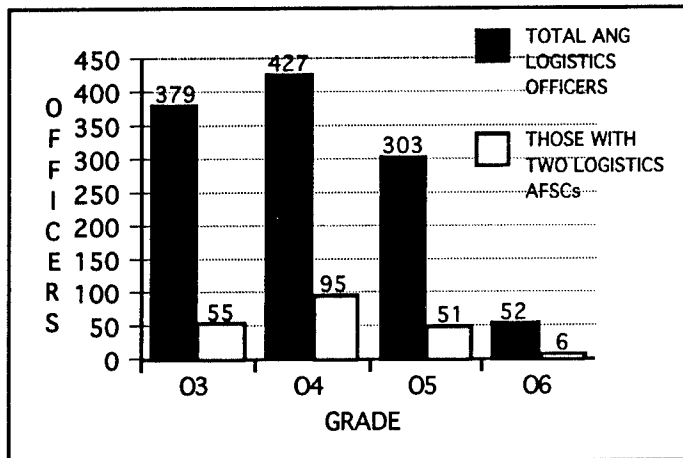


Figure 6. Air National Guard Unit Logistics Officers with Two Logistics Air Force Specialty Codes (AFSCs).

Another area that will require Logisticians in the near future is the ANG statutory tour program. This program already has one out of every four logistics officers with two logistics AFSCs (Figure 7).

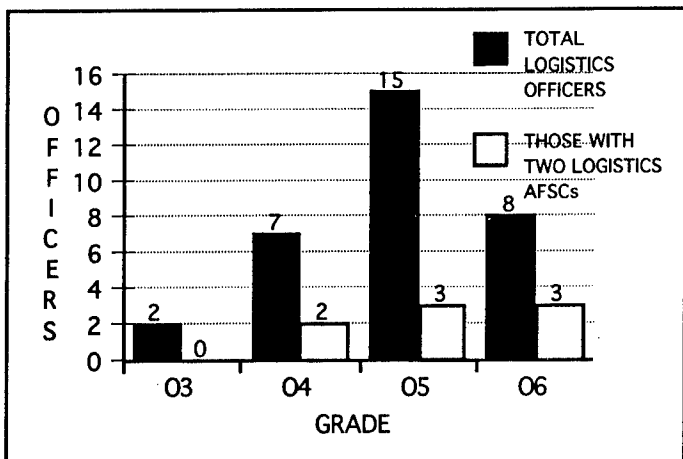


Figure 7. Air National Guard Logistics Officers on Statutory Tour with Two Logistics Air Force Specialty Codes (AFSCs).

## Recommendations

Our group's recommendations were briefed and approved by the BOA in March 1995. Although there are limited cross flow opportunities at ARC units, the ARC has decided to mirror our active duty counterparts as much as possible. The next several paragraphs provide a summary of the ARC's implementation of the new Logician AFSC.

## Positions

All lieutenant colonel and above billets in the logistics arena (except the 20C0, Logistics Group Commander) will be converted to the new Logician AFSC (21LX). This also includes all logistics statutory tour and IMA positions in all

MAJCOMs and at the Air Staff and joint staffs. The most recent changes to the 21LX criteria will enable the ARC to qualify our logistics officers in the new AFSC without need for waivers. Individuals currently assigned to these billets will be grandfathered.

## AFSC Qualifications

With all the cross flow limitations in the ARC, we still have to be able to qualify our logistics officers for the Logician AFSC. While we prefer our officers qualify in two logistics disciplines, ARC members with only one logistics AFSC can qualify as a Logician after two years in the position and bridge course completion. This will also aid officers cross flowing from outside of logistics, such as rated officers, who do this at a point in their career where it is not feasible for them to qualify in two logistics AFSCs.

## Courses

The bridge training courses for cross flowing officers and the Advanced Logistics Officers Course (ALOC) are being developed with the ARC in mind. They will eventually be exportable (completely self-paced), and the in-residence courses should be no more than two weeks long (not including pre-work and read-ahead material). This not only minimizes the costs for both the active duty and ARC, but meets reservist and guardsmen availability. Every effort is being taken to make the ALOC oriented towards managerial rather than technical material. This will aid in keeping the length of the course as short as possible.

The ability of an ARC member to attend training is affected by a variety of factors. First, there are limited numbers of full-time personnel in our units. Circumstances such as exercises, real world operations, and personnel availability can prevent an individual from attending a training course. A traditional reservist or guardsmen has a civilian job concern, plus must meet other training requirements that consume available time. The point is, the shorter the duration of the courses, the more likely the ARC members can attend that training.

## Cross Flow Management

Not all of the logistics officers in a unit work for the logistics group commander. There are transportation officers in Aerial Ports, maintenance officers under the Operations Group, and logistics planners working on the wing staff. To compensate for this, the logistics group commanders will have to work closely with the wing and operations group commanders to manage cross flow of these officers. Command oversight is a numbered Air Force and MAJCOM Director of Logistics responsibility. Management for IMA cross flow still needs to be determined, but oversight could possibly be the responsibility of the MAJCOM senior logistics IMA or perhaps the mobilization augmentee to the USAF/LG.

## Implementation

With implementation of the new logistics AFSC structure coming in October 1995, positions are in the process of being identified for conversion to the Logician AFSC. Career paths and plans for ARC logistics officers will be developed. The new

(Continued on bottom of page 40)

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## *Logistics Consolidation—Questions and Answers*

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*Lieutenant Colonel Harry DeVault, USAF*

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Here are some of the most likely questions and answers we expect regarding the new logistics consolidation.

**Question:** With the rapid change in force structure and downsizing of the Air Force, in what capacity do you foresee the future of Air Force logisticians, and do you anticipate continued job opportunities in that field?

**Answer:** The changes we have experienced over the last five years demonstrate we are not preparing our officers for senior logistics positions. Senior positions now manage a truly integrated logistics process which includes maintenance, supply, transportation, and logistics plans. Currently, we are in the final phase of the process to change the professional development of logistics officers to meet the needs of the Air Force by integrating the traditional stovepiped AFSCs into a single logistics career growth path. The concept will provide more opportunities and challenges for logistics officers than ever before.

As of 31 October 1995, our logistic AFSCs will be consolidated into a new AFSC which will identify Logistician positions at the lieutenant colonel and colonel level. The new career development path and logistics progression pyramid will emphasize the importance of cross flow in developing senior Logisticians who understand the interrelationships between maintenance, supply, and transportation, to include wholesale, retail, and joint logistics.

The career path breaks down the barriers between the disciplines and provides greater job opportunities. It forces young officers to look across traditional disciplines, and develops officers with the depth and broadness required to fill our senior Logician positions. Cross flow will be the key to opportunities for advancement to executive level logistics management positions.

All basic logistics courses will include a short core block of instruction on the interrelationships between the logistics disciplines. Additionally, bridge training will be mandatory anytime a logistics officer cross flows from one discipline to another. The Advanced Logistics Officers Course is currently in development. It will be open to field grade officers and will focus on the interrelationships and integration of joint war fighting, wholesale, retail, and acquisition logistics.

The logistics AFSC consolidation will satisfy the needs of the Air Force by developing multidisciplined Logisticians ready for senior logistics leadership positions and the needs of the officer by offering richer job opportunities than ever before. Bottom line—logistics officers will see increased career opportunities with a greater variation in job options across all logistics disciplines. The logistics officers will find that when they are ready to assume senior Logician positions, they will be prepared!

**Question:** Currently, supply and transportation slots are offered to all logistics officers while maintenance jobs require maintenance experience. If career broadening is the future for logistics officers, will all positions be open to future assignments?

**Answer:** It is not accurate to say that all maintenance slots require maintenance experience and that supply and transportation slots are offered to all logistics officers. In the past, all our logistics disciplines have had some cross flow in which the cross flowed officer had no prior experience in that discipline. However, the current stovepiped career paths for each discipline has limited the number of cross flows.

The AFSC consolidation breaks down the barriers and provides liberal cross flow of officers between all disciplines. Note that our future logistics officers will have the experience in more than one discipline, thereby increasing qualifications for logistics assignments across the spectrum. In the interim, the Air Force Military Personnel Center (AFMPC) is advertising positions which can be filled by career broadening candidates. Some assignments, such as overseas, are critical to mission support. Qualified and experienced officers are essential to fill these critical positions. The bottom line is to get involved and volunteer. As we transition to the new career development path, the ability to cross flow will increase. Contact your AFMPC assignment officer and ask the question, "Will the position accept a cross flow?"

**Question:** What are the assignment procedures associated with cross flowing and the new logistics career development path?

**Answer:** Logistics officers must attain at least four years experience in their initial logistics discipline before they are eligible to cross flow to another logistics AFSC, around the second or third assignment. There are two methods of cross flow: Permanent Change of Assignment (PCA) (intrabase) or Permanent Change of Station (PCS).

PCA (intrabase) cross flow: Logistics group commanders (LG/CCs), in coordination with operations group commanders and wing commanders will be the focal point for cross flowing logistics officers at the base level. In organizations without logistics group commanders, the senior logistician will be the focal point.

When selecting officers for cross flow, LG/CCs or senior logisticians must consider the officer's time-on-station (TOS)/Date Estimated Return from Overseas (DEROS) and strive for a one-for-one cross flow between the disciplines to maintain manning levels. Officers selected for cross flow should have one to two years time-on-station or two years remaining to DEROS to insure qualification in the new discipline.

LG/CCs or senior logisticians must coordinate their plan to PCA an officer into another duty AFSC with AFMPC prior to taking any action to physically move the officer into the new environment. Failure to do so may adversely impact the officer as AFMPC is final approval authority for duty AFSC changes.

After obtaining the AFMPC assignment officer's coordination, the LG/CCs or senior logistician must submit an AF Form 2096, Classification/On-The-Job Training Action, to the local Military Personnel Flight (MPF) formally requesting the PCA action and duty AFSC change.

PCS cross flow: Officers can volunteer for the assignment of their choice by reviewing the list of jobs under the heading "Logistics" on the electronic bulletin board.

AFMPC will make the selection for base-level assignments. For MAJCOM level jobs, AFMPC will nominate up to two officers for the position. AFMPC's final assignment selections are based upon special qualifications designated by the MAJCOM/base.

The above description generally describes the procedures for cross flowing. Each logistics officer's scenario is different, therefore contact your AFMPC assignment officer and discuss the details peculiar to your own situation. Assignment officers at AFMPC/DPMRS are listed below:

Chief, Log Assignments	Maj Ed Hayman	487-3556
Transportation	Maj Toby Seiberlich Capt Tom Jett	487-4024 487-4024
Aircraft Maintenance	Capt Patricia Mills Capt Roger Rostvold	487-3556 487-3556
Missile/Space/ Aircraft Maintenance	Maj Steve Shinkle	487-3556
Logistics Plans and Programs	Capt Rick Cornelio	487-5788
Supply	Capt Craig Bond Capt Deborah Elliot	487-6417 487-6417
Contracting	Capt Brad Oswalt	487-3566

**Question:** Once I am qualified in two or more disciplines, how vulnerable am I to assignments?

**Answer:** Officers who become qualified in more than one logistics AFSC are qualified for positions in any logistics AFSC they possess. They are also eligible for selection as nonvolunteers in any logistics AFSC they possess. Positions advertised as cross flow jobs which do not generate any qualified volunteers may be filled with nonvolunteers from any logistics AFSC.

**Question:** How will the new AFSC consolidation affect my chances for promotion?

**Answer:** Upfront, it is important to emphasize that the purpose of the logistics discipline consolidation was to develop a career path which grooms and prepares our logistics officers for senior


Logistician positions—not to enhance promotion opportunities. Modern logistics blurs the lines between the disciplines as well as the wholesale, retail, and joint communities. The new logistics career development path emphasizes cross flow which builds breath and depth and develops logistics officers to meet the future needs of the Air Force and the individual officer.

Nevertheless it is important to address the question of promotions. Initially, there will not be a change in promotion opportunities. If you are stovepiped today, your promotion opportunity will be no greater or less, but as we transition (there will be a period of time required for logistics officers to become fully qualified in two or more disciplines), job opportunities, especially at the field grade level, may be limited to that discipline. Officers who have two or more AFSCs will become more competitive for career enhancing jobs. These job opportunities provide the chance for the logistics officer to perform and succeed. The performance in these jobs are the ticket to promotion.

**Question:** When will the consolidation be implemented?

**Answer:** The conversion to the new AFSC structure will occur 31 October 1995. All training courses associated with the conversion will be on-line at that time. The date really does not mean anything, because the conversion is going to take place and soon. If you meet the requirements for cross flow, talk to your commanders and the assignment officers at AFMPC. By the time you read the answer to this question, there will be plenty of material available on the conversion. Start now! It is never too early to start planning for career development.

**Question:** When is the best time to cross flow?

**Answer:** Probably the best answer to this question is after you have "mastered" your primary specialty. The most correct answer depends on the individual's career objectives and available opportunities. The one message that stands out loud and clear; logistics officers need to get involved in their own career development. It will no longer take place by happenstance. That is the beauty of the new career development path. It allows logistics officers to plan and be involved with their own individual career planning. The opportunities and the paths to choose are numerous. In conjunction with supervisors and commanders, it is important to assess opportunities (higher headquarters, joint, wholesale, etc.), but cross flowing should be high on logistics officers career development objectives. Remember, the concept is to develop senior Logisticians who have several experiences across all logistics disciplines, the joint community, and the wholesale and retail arenas. 



# CURRENT RESEARCH

## Rome Laboratory

The Electronics Reliability and Electronics System Engineering Divisions of the Rome Laboratory conduct focused research and development efforts in the area of reliability sciences. The basic objective of the reliability sciences thrust is to ensure that Air Force/DOD electronic systems perform their specified mission in diverse military environments. This approach is based on a broad spectrum of science and engineering research that encompasses all aspects of the system life cycle from "cradle to grave." This research includes technology areas that stress development and use of tools and techniques such as modeling and simulation, materials and process characterization, operational assessments, failure modes and effects assessment, and correction. In addition, emphasis is placed on development of diagnostic techniques for implementation of cost effective logistic support capability such as strategies to support Two-Level Maintenance. This technology thrust is utilized by both the commercial and industrial base in the design, development, production, and maintenance of cost-effective, reliable systems that meet customer needs. If you have further interest or questions concerning the following efforts, please contact the respective program managers. We would be glad to provide more detailed information.

### Test Automation Technology Transition

**DESCRIPTION:** A joint Rome Laboratory (RL) and San Antonio Air Logistics Center (SA-ALC) team developed and demonstrated the ability to use advanced software technology concepts to automate the generation of test programs for Automatic Test Systems (ATSS). ATSS are used in the field and at the depot to support the maintenance of weapon systems electronics. Currently, the generation of test programs for ATSS are done manually. As such, the development of test programs are very costly and require a long lead time. Rome Laboratory has successfully performed research in the test program development and has demonstrated automation techniques for such development for digital microcircuit devices. SA-ALC was aware of our work in this area and requested our assistance. A joint team was formed between RL and SA-ALC to address the use of this technology and evaluate its effectiveness to improve the development of test programs for ATSS. Rome Laboratory's responsibility was to develop the software technology and prototype tools to support test program automation. SA-ALC's responsibility was to apply the software tools to generate the test programs on their ATSS and evaluate the effectiveness of using this automation technology.

We developed the prototype tools, and SA-ALC has used these tools to automatically generate test programs. The tools use automation techniques that are based on generic data formats to facilitate the generation of Test Program Sets (TPSS). The TPSS perform test analysis and diagnostics on electronic boards/

modules. We successfully demonstrated TPSS for testing two printed circuit boards on both a GenRad 2751 Automated Test System and a MATE 390 ATLAS-type ATSS. The generation of TPSS for two distinct ATSS from the same test information demonstrates the tester independence of the data formats.

SA-ALC is currently evaluating the effectiveness of these tools in improving test program quality while reducing the time and cost of generation. Additional enhancements are planned to refine the process, including exploring commercialization opportunities.

**EXPECTED PAYOFFS:** The automated generation of Test Programs Sets from nonproprietary test information will decrease both original development and rehost TPSS generation time and expenditures. Tester independence also allows the assignment of workload to various ATSS; thus reducing overhead, mitigating availability problems associated with ATSS, and time to repair printed circuit boards. This capability is estimated to provide a tenfold reduction in test generation costs and can provide millions of dollars in savings by test generation cost avoidance. (Willis J. Horth, RL/ERDD, DSN 587-2241)

### Infrared Imaging System (IRIS) for Phased Array Antennas

**DESCRIPTION:** The intent of this effort is to provide a fast, low cost method for evaluating the operating performance of large phased array antenna systems through infrared (IR) measurement techniques. The IR measurement technique is based on the Joule heating that occurs when electromagnetic (EM) energy is absorbed by a lossy material. As EM energy passes through the material, some of the energy is absorbed and converted into conducted and convected heat energy and into reradiated EM energy. The reradiated EM energy is concentrated in the IR band and can be detected with an IR camera. Rome Laboratory has conducted research that developed a minimally perturbing IR measurement technique to map the EM field intensity over a two-dimensional region; to measure EM field distributions inside metal enclosures; to determine the EM field perturbations and scattering effects caused by conventional EM field measurement probes; and to validate computational electromagnetic models and simulations. Currently, Rome Laboratory is assessing the feasibility of extending this capability to include the evaluation of large phased array antennas. This capability will include the IR measurement techniques to determine the radiation intensity, field of radiation, and antenna alignment. Infrared imaging technology provides a method for measuring the radiation pattern over a large plane rather than at individual points.

**EXPECTED PAYOFFS:** An IR imaging system will reduce the dependence on nongovernment facilities to test and repair phased array antennas. IR measurements will provide a quick diagnostic capability for radar assessments and the capability to

determine the operational status prior to or after repairs. It will allow the evaluation of radars in the field, thus eliminating the need for removing the radar from operational status and shipping it to the contractor. It will also provide a baseline for the scope of repair if a contractor facility is required. An IR measurement capability would reduce overall maintenance costs and improve system availability.

(Michael F. Seifert, RL/ERST, DSN 583-7642)

### **Simulating Helix Traveling Wave Tube (TWT) Interaction Circuit Thermal Behavior**

**DESCRIPTION:** The objective of this effort is to develop a technique to assess the thermal performance of helix traveling wave tube interaction circuits accounting for the thermal contact resistance between the circuit's components.

Iterative finite element analyses and an analytical expression that related contact pressure to thermal contact resistance was employed to determine the effects of interfacial pressure on the tube's operational thermal performance. Temperature gradients across the interfaces between the helix and support rods and between the support rods and barrel increase operating temperatures, which can lead to a decline in the tube's

performance. Since these circuits contain no brazes or epoxy at the component interfaces, these thermal drops become more significant.

Parametric runs were made using this technique for different assembly loads as well as for both beryllia and boron nitride (APBN) support rods. Results showed that the thermal contact resistance effect was more pronounced at lower assembly loads and higher thermal loads. That is, as the thermal loading to the circuit increases, the percent increase of the maximum helix temperature over the helix temperature when the resistance is not accounted for, increases. This effect was also more pronounced when APBN support rods were modeled. The helix temperature increases a greater amount when accounting for the thermal contact resistance for APBN support rods than for beryllium oxide support rods.

**EXPECTED PAYOFFS:** This research will result in an accurate and efficient tool for advancing the state of the art in TWT technology. Cost savings assessments can be made of a device's thermal behavior under expected operational and environmental loads early in the design cycle. Use of this technique will lead to more reliable TWTs fielded in military systems while reducing costly prototyping.

(Mr. Peter Rocci, RL/ERDS, DSN 587-4891)

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(Continued from page 36)

21LX Career Field Education and Training Plan (CFETP) will be used as a guide. Because the CFETP is active duty oriented, relationships and opportunities among the various ARC career programs will have to be defined.

### **Summary**

The ARC has become full-fledged partners with active duty. The unit-level logistics officers have to see a reason to cross flow and therefore need to change a paradigm. Cross flowing into another specialty helps prevent job burnout and keeps job interest high. Cross flowing will help an individual progress to a staff

position where there is most commonly promotion and higher earning potential. Another incentive to cross flowing is preparing for a move into the IMA program, where there are significant promotion opportunities.

*Ms Van Buren is presently Chief, Logistics Plans and Programs Division, National Guard Bureau, Andrews AFB, Maryland. Major Van Housen is currently Commander, 916th Maintenance Squadron, Seymour Johnson AFB, North Carolina. He co-authored this article when he was assigned to the Headquarters Air Force Reserve, Robins AFB, Georgia.* 

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