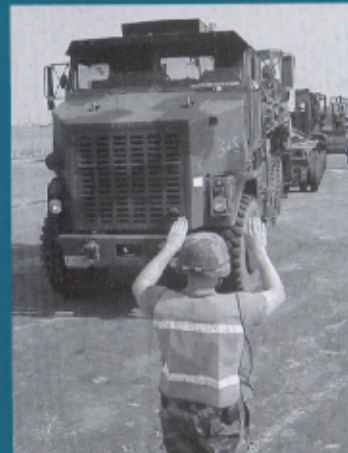


# ARMY LOGISTICIAN

JANUARY-FEBRUARY 2000



## Deploying to Kosovo



# ARMY LOGISTICIAN

PROFESSIONAL BULLETIN OF UNITED STATES ARMY LOGISTICS

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**Mission:** *Army Logistician* is the Department of the Army's official professional bulletin on logistics. Its mission is to publish timely, authoritative information on Army and Defense logistics plans, programs, policies, operations, procedures, and doctrine for the benefit of all logistics personnel. Its purpose is to provide a forum for the exchange of information and expression of original, creative, innovative thought on logistics functions.

**Disclaimer:** Articles express opinions of authors, not the Department of Defense or any of its agencies, and do not change or supersede official Army publications. The masculine pronoun may refer to either gender.

**Submissions:** Articles and information on all facets of logistics operations and functions are solicited. Direct communication is authorized and should be addressed to: EDITOR ARMY LOGISTICIAN/ALMC/2401 QUARTERS RD/FT LEE VA 23801-1705. Phone numbers are: (804) 765-4761 or DSN 539-4761; Fax (804) 765-4463 or DSN 539-4463; e-mail alog@lee.army.mil. Articles may be reprinted with credit to *Army Logistician* and the author(s), except when copyright is indicated.

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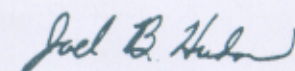
With the successful conclusion of the air war over Yugoslavia, the Army assumed the mission of restoring peace in a divided Kosovo. The article beginning on page 24 explains how the Military Traffic Management Command deployed equipment for the initial contingent of Army peacekeepers. The photos on the cover show the arrival and unloading of equipment destined for Kosovo at the port of Thessaloniki, Greece.

This medium is approved for the official dissemination of material designed to keep individuals within the Army knowledgeable of current and emerging developments within their areas of expertise for the purpose of enhancing their professional development.

By Order of the Secretary of the Army:

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## *Coming in Future Issues—*

- Sea-Based Logistics: An Option for the Army?
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- Improving Wartime Parts Reliability Estimates
- Redesigning USAR Garrison Support Units
- Alternatives to the Soldier Canteen
- Interview With Assistant Secretary of the Army Paul J. Hoeper

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Official Business





# SYSTEMS

*The information presented in Army Logistician's Systems is compiled, coordinated, and produced by the Army Combined Arms Support Command (CASCOM) Information Systems Directorate (ISD). Readers may direct questions, comments, or information requests to Lieutenant Colonel Thet-Shay Nyunt by e-mail at [nyuntt@lee.army.mil](mailto:nyuntt@lee.army.mil) or phone (804) 734-1207 or DSN 687-1207.*

## GCSS-ARMY UPDATE

Over the last couple of years, we have tried to keep you informed on the development of the Global Combat Support System-Army (GCSS-Army), mostly Tier I. In a nutshell, Tier I takes the functions found in current logistics systems and delivers them in a single software application and graphic user interface. Tier II is a bit more complicated.

**What is Tier II of GCSS-Army?** Tier II is the integration of wholesale and retail logistics to create a single, seamless system. The Tier II capability will build upon, enhance, and modify the Tier I capability. Tier II will consist of two blocks. Block I is the Army Materiel Command (AMC) Wholesale Logistics Modernization (LOGMOD) initiative. It will outsource the maintenance of the two major national-level materiel management systems, the Commodity Command Standard System (CCSS) and the Standard Depot System (SDS); technically upgrade the systems; and bring them into compliance with the Army Technical Architecture (ATA) and the Defense Information Infrastructure Common Operating Environment (DII COE). Block II seeks to reengineer the wholesale-retail business process. This business process reengineering (BPR) initiative is made possible by new concepts of operation and new or expanded operational capabilities. In addition to working with AMC, BPR will integrate wholesale logistics operations of the Defense Logistics Agency (DLA) and the General Services Administration (GSA) where appropriate.

**Who is working on this integration, and what else is going on in pursuit of Tier II?** This is a two-part question, and it comes with a two-part answer. Tier I is the work of the Joint Application Development (JAD) team, which consists of design and programming special-

ists from the office of the Program Manager, GCSS-Army; and Army logistics functional experts from the Information Systems Directorate, Army Combined Arms Support Command (CASCOM). Tier II is the work of another organization, the Standing Integrated Concept Team (ICT). The ICT formulates strategies and coordinates proposals and actions with organizations such as the Lead AMC Integration Support Office, the DLA Modernization Working Group, and the Single Stock Fund Program Office. The ICT works for the GCSS-Army Council of Colonels and is charged with the following in support of development of GCSS-Army—

**Anticipatory maintenance.** To extend GCSS-Army functionality to include this capability, the ICT works closely with Army organizations that are pursuing use of advanced on-board diagnostics and other state-of-the-art maintenance support initiatives. This is happening in the ground and aviation maintenance areas.

**Single Stock Fund (SSF).** SSF will have a significant impact not only on the finance side of logistics, but also on maintenance and supply. The ICT works closely with the Department of the Army SSF Program Office and with a special CASCOM team assessing the new business rules and their doctrinal impact. Out of this will come changes to GCSS-Army to implement SSF business rules.

**Data base.** ICT has cataloged all known combat service support (CSS)-related initiatives into a master data base. Using this data base as a research and synchronization tool, the team is helping the Council of Colonels to guide the evolutionary development of Tier II. Over 100 initiatives and programs have been cataloged in the data base. One version, the CSS Compendium, is on the CASCOM homepage.

**Coordination.** Members of the ICT coordinate directly on inclusion of GCSS-Army in major Department of Defense and joint information systems initiatives. Foremost among these is the GCSS-Joint, but the effort extends to all CSS areas from legal to medical to personnel services.

More information is available on the CASCOM website at <http://www.cascom.army.mil>.

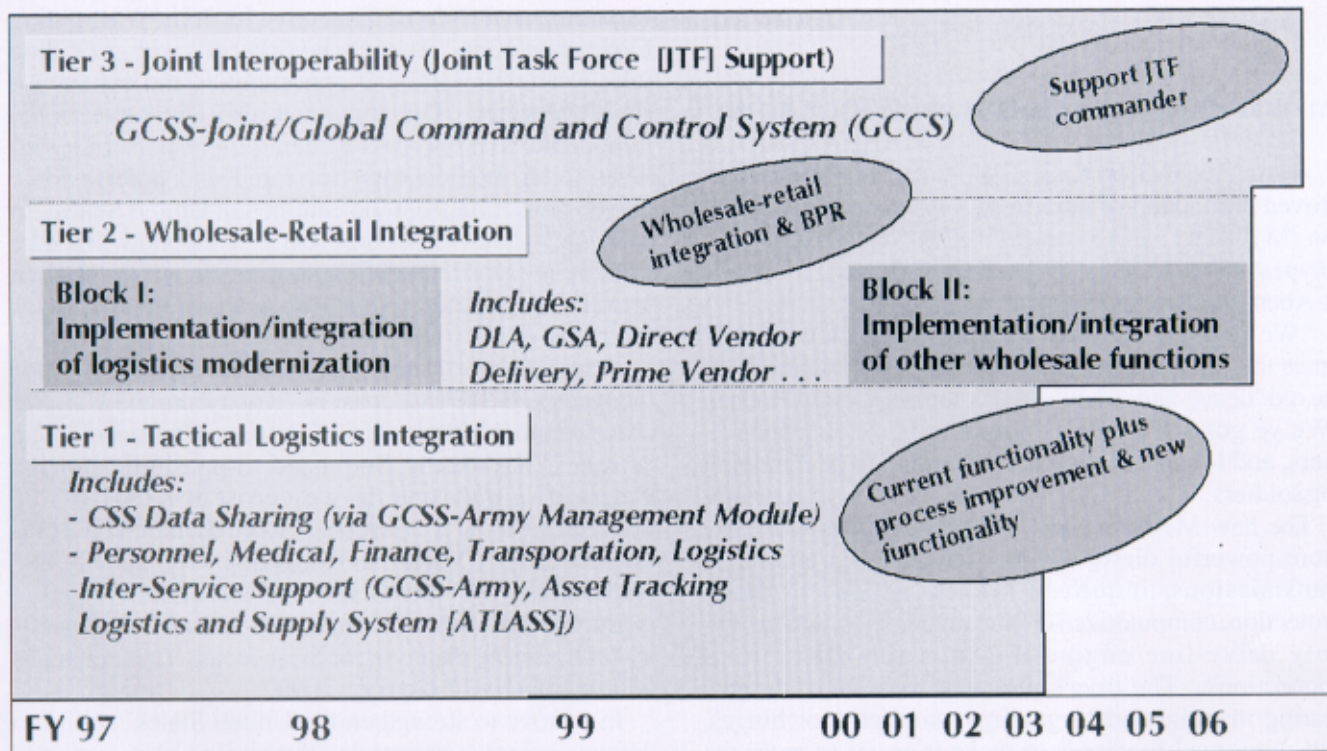
## CD ROM TRAINING PRODUCTS AVAILABLE

Standard Army Retail Supply System-Level 1 (SARSS-1) operator training is available on three CD's. It was revised last June to include System Change Package 18 and changes in the Solaris operating system. A general mailing was made to all authorized users. Mailing address errors prevented us from reaching everyone.



# Three-Tiered Approach

## 3 tiers working in parallel...



If you are an authorized user and did not receive a copy, call (804) 734-1281 or DSN 687-1281, or send an e-mail to wilkinsc@lee.army.mil.

### CSSAMO TRAINING OFFERED IN LITTLE ROCK

Logistics computer support training continues at the Army National Guard Professional Education Center in Little Rock, Arkansas. The Combat Service Support Automation Management Office (CSSAMO) Course is for personnel assigned to CSSAMO's by modification tables of organization and equipment and tables of distribution and allowances and for personnel assigned logistics computer support duties as additional duties.

This course provides systems maintainers with hands-on training in the fundamentals of hardware and software troubleshooting, data recovery, and reloading of software. It covers the legacy Standard Army Management Information Systems such as the Standard Property Book System-Redesign; Unit Level Logistics Sys-

tem (ULLS); ULLS-Ground, -Aviation, and -S4; Standard Army Retail Supply System (SARRS)-1; and Standard Army Maintenance System (SAMS). Core training includes an overview of all the systems, their operating environments (Windows and DOS), local area networks, and system communications in both tactical and garrison settings. SARSS training includes UNIX and Solaris web server instruction. The core training is followed by 56 hours of system-specific troubleshooting instruction. This course is being conducted by Logistics Management Resources, Inc., of Prince George, Virginia.

Commanders are encouraged to send their personnel, especially those in the reserve components, to the CSSAMO course. Non-school-trained personnel designated to perform logistics information support should contact the logistics headquarters on their installation to schedule training. Army National Guard personnel should contact the director of logistics at their respective state area commands, and Army Reserve personnel should contact the Deputy Chief of Staff for Logistics in their regional support commands.





# NEWS

## IMPROVED TRUCKS OK'D FOR PRODUCTION

Army Acquisition Executive Paul J. Hoepfer has approved production of modified (A1) versions of the 2½-ton (M1087A1) and 5-ton (M1083A1) trucks after prototypes successfully completed 90,000 miles of testing at Aberdeen Proving Ground, Maryland.

"We're going to produce and field a truck with eight times the reliability, availability, and maintainability of the old 'deuce-and-a-half' truck it replaces," said Hoepfer. "We've got a truck we're proud to be buying for soldiers, and I think the contractor is proud to be making it for soldiers."

The new M1087A1 and M1083A1 trucks will have more powerful diesel engines, seven-speed automatic transmissions, improved brakes, added corrosion protection, computerized engine diagnostics, and heavy-duty drive-line engine-transmission-differential connections. The trucks also will have more durable seating material and cargo tarps, sturdier door hinges, and reinforced footholds to make it easier to enter the cargo section.

The A1's will be manufactured according to military specifications, but the family of medium tactical vehicles (FMTV) contractor, Stewart and Stevenson, Inc., of Houston, Texas, will use commercial components. This process will enable the Army to purchase more trucks at less cost. The new trucks have been engineered to make them easier to airlift, and some models will be designed specifically for airdrop.

According to officials, the Army needs 85,000 new trucks to replace its aging fleet. Soldiers should start receiving the new A1's in March. FMTV trucks issued to Army units since January 1996 will be refitted with stronger U-joints and flywheel housings and larger diameter drive shafts.

## NEW UNIFIED COMMAND EMPHASIZES JOINT WARFIGHTING IMPROVEMENTS

Changes to the Unified Command Plan approved by President Clinton on 30 September resulted in the establishment of the U.S. Joint Forces Command to re-

place the U.S. Atlantic Command. The redesignation ceremony was held on 7 October in Norfolk, Virginia, home of the command headquarters. The commander of the Joint Forces Command, Admiral Harold Gehman, also will continue to serve as the North Atlantic Treaty Organization's Supreme Allied Commander, Atlantic.

The Joint Forces Command has been assigned as the Department of Defense Executive for Joint Warfighting Experimentation. As such, it is charged with providing joint warfighting training opportunities and experience for all services. The command also will serve as the joint deployment process owner, with responsibility for developing methodology for rapid and precise force power projection from the continental United States. In addition, its Joint Task Force for Civil Support will render military assistance to civil authorities in the event of an attack or accident involving weapons of mass destruction.

Other changes to the plan transfer responsibility for the waters off the east coast of Africa from the U.S. Pacific Command to the U.S. European Command. The current U.S. Atlantic Command responsibility for the waters off Europe and the west coast of Africa will be transferred to U.S. European Command. The commander of U.S. European Command, who already had responsibility for all U.S. land and air military planning in Europe and most of Africa, will assume responsibility for maritime planning for those areas. These changes will be effective 1 October 2000.

In a move to strengthen the United States' ability to defend against cyberattacks, the revised plan reassigns the Task Force for Computer Network Defense from the Defense Information Systems Agency to the U.S. Space Command.

## ACQUISITION TRAINING CONSOLIDATED

On 21 October, Deputy Secretary of Defense John J. Hamre approved the consolidation of the Defense Acquisition University (DAU) to streamline the management of Department of Defense acquisition education and training programs. The consolidation reflects the recommendations of the September 1997 Report of the Acquisition Education and Training Process Action Team and the August 1997 Management Reform Memorandum 3 Report. The resulting unified structure will enable DAU to achieve economies, improve quality, and establish the faculty required to meet the academic standards to be established by the Chancellor of Education and Professional Development. The consolidation will be completed within 12 months.

As part of the consolidation, DAU-funded positions (faculty and staff) were transferred from their current



organizations to DAU. The Department of the Army transferred 48 civilian positions and 7 military officer positions to the consolidated organization. These positions constitute the DAU Fort Lee campus and will continue to be located at the Army Logistics Management College, Fort Lee, Virginia.

## DSCP TESTS SUBSISTENCE SUPPORT

Defense Supply Center Philadelphia (DSCP) used Exercise Roving Sands '99 to test large-scale deployment of operational rations. Specifically, the exercise assessed new individual and group field-feeding ration menus, as well as a new tracking and distribution system and direct vendor delivery.

Key players in the operational rations community were involved in all phases of Roving Sands '99. These included the Army Center of Excellence, Subsistence; the Army Combined Arms Support Command, Directorate of Combat Developments for Quartermaster; the Army Quartermaster Center and School, Logistics Training Department; and the Army Soldier and Biological Chemical Command.

The 13-day exercise, which took place last June at Fort Bliss, Texas, was designed to test the military's joint theater and air missile defense systems. More than 16,000 active and reserve component soldiers, sailors, airmen, and marines from the United States, as well as troops from Germany, The Netherlands, and the United Kingdom participated.

"DSCP's objective at Roving Sands was to meet the Army Field Feeding System-Future standard of providing each soldier with three quality meals a day—two hot meals and one meal, ready-to-eat (MRE)—while streamlining ration programs' ordering and distribution systems and labor intensive meal preparation," said P.J. Carr, Deputy Chief of the Operational Rations Business Unit. "We were confident we could meet that objective using a combination of quality operational rations field-feeding programs, innovative strategic packaging concepts, supporting equipment, total asset visibility, and commercial distribution methods."

Lessons learned from the Gulf War indicated a need to revamp the field-feeding system, and the loss of nearly 2,000 field cooks created a need for a more efficient method of feeding troops.

For Roving Sands '99, DSCP reconfigured the unitized group ration-A (UGR-A), or cook-prepared ration, from a 100-man module to one that feeds 50 soldiers. The UGR-H&S (heat and serve) also was reconfigured. The added advantage of the UGR-H&S is that it is a

completely shelf-stable meal that can be prepared without kitchen facilities.

DSCP also tested the most recent MRE XIX program, which provides a full 24-menu variety. The MRE's received excellent feedback from the troops, according to Carr. The new menu replaces many casserole entrees with more meats and vegetarian meals. Along with new beige-colored packaging, the meal also includes more commercial items like M&M's.

The rations were delivered using STRATPAK (strategically packaged) pallets. Each STRATPAK contained enough UGR meals to feed 200 soldiers for 2 days. They included UGR breakfasts and dinners, MRE's for lunch, pouch bread, ultra-high-temperature (UHT) milk, and cereals.



□ A container roll-on-roll-off platform removes a STRATPAK from a van for transfer to a flatbed truck.

The STRATPAK is designed to provide the rations needed to feed a specific number of troops for a specific time period and eliminate line-item ordering. It is loaded into a 20-foot van that can be taken to a drop-off point in the field. A radio frequency tag attached to the van allows contents of the van to be tracked from their point of origin to their final destination. Upon arrival, a handheld interrogator is used to determine the contents of the van without disturbing the pallets. The STRATPAK then is removed from the van by a container roll-on-roll-off platform, placed on a flatbed truck, and moved as far forward into the field as possible.

## PRIME VENDOR CONTRACTS AWARDED FOR FOOD SERVICE EQUIPMENT

The Defense Supply Center Philadelphia awarded food service equipment prime vendor contracts to Dietary Equipment Company of Columbia, South Carolina; Lankford SYSCO of Pocomoke City, Maryland; JAL Enterprises—The Source of Hampton, Virginia; and Gill Marketing Company of Phoenix, Arizona.

The contracts will support all U.S. military dining halls



and shipboard galleys worldwide at an estimated annual cost of \$24 million. Each contract is for a 1-year base period and can be extended for four option periods. The contractors will provide full life-cycle support for a range of equipment, including supplies, parts, and value-added services such as design, layout, and installation. They also will meet surge and sustainment requirements. Ordering methods will be at the discretion of the customers who can select brand-name products of their choice and receive them through direct vendor delivery. The contracts offer more product options, one-stop shopping, ease of use, and individualized service.

For additional information, send e-mail to [fse@dscpl.dla.mil](mailto:fse@dscpl.dla.mil).

### MTMC SYMPOSIUM PLANNED

The Military Traffic Management Command, the Department of Defense's surface transportation manager, will hold its annual training symposium 3 through 6 April at the Atlanta Hilton & Towers, Atlanta, Georgia. This year's theme is "The Highway of the 21st Century . . . Strengthening the Customer Bridge."

Approximately 1,700 transportation professionals from the armed services, industry, and throughout the transportation community are expected to attend. Special panels, service meetings, and exhibits will focus on maintaining and improving the quality of transportation service to Department of Defense customers.

For more information, call (703) 681-3754 or DSN 761-3754.

### JOINT-SERVICE PROTECTIVE MASK DEVELOPED

The Department of Defense Joint-Service Team has developed a new protective mask to replace five different masks now used by soldiers, sailors, airmen, and marines. According to Army Colonel Steven V. Reeves, Project Manager for Nuclear, Biological, and Chemical Defense Systems at the Army Soldier and Biological Chemical Command, the joint-service general purpose mask will be the lightest, most comfortable protective mask service members have ever used.

The need for a mask used by all services was realized during the Gulf War. "We set up a repair facility, and we had soldiers, sailors, airmen, and marines bringing us seven different types of masks," said Rick Decker, mask project team leader. "We had a heck of a job trying to establish the logistics trail, getting the spare parts for each mask." Military officials said that the services experience the same type of environment, so there re-



□ A soldier models the joint-service general purpose mask.

ally was no need for each service to develop its own mask.

The joint-service mask will protect wearers from battlefield concentrations of chemical and biological agents and toxic industrial chemicals. It is lighter and easier to see through than the current M-40 mask. The filter canister used on the M-40 will be eliminated, and the filter will be integrated into the new mask. The team is working on an extra-strength filter that is easy to breathe through. A color patch inside the filter will indicate when the filter needs to be replaced. Color-coded parts inside the mask will indicate those parts that need maintenance.

The mask will be tested aboard an Aegis cruiser and at Eglin Air Force Base, Florida; Camp Lejeune, North Carolina; and Fort Polk, Louisiana. Anticipated release date for the mask is 2005.

### SHOCKING NEWS IN FOOD PRESERVATION

The Army Soldier Systems Center, Natick, Massachusetts, has teamed up with Ohio State University and industry partners such as General Mills, Kraft Foods, and others to explore the potential of pulsed electric field (PEF) processing to produce fresher, safer, and more nutritious food products. The goal of the project is to develop high-quality commercial food products that also can be used as combat rations. The project is part of Natick's Department of Defense Combat Feeding Program efforts to improve the variety, taste, nutrition, and shelf life of combat rations provided to military personnel.

According to Natick officials, PEF is ideal for pasteurizing fluid foods, such as orange, apple, and cranberry juice, dairy products, and carbonated beverages. PEF inactivates the vegetative forms of harmful microorganisms without adversely affecting the quality of the food.



## DOD GULF WAR ILLNESS INVESTIGATORS NEED TO HEAR FROM VETERANS

The Department of Defense (DOD) is seeking eyewitness accounts of potential environmental exposures from individuals who served on Army field sanitation teams during the Gulf War. DOD investigators are looking for links between environmental exposures and the illnesses that some Gulf War veterans have experienced. DOD wants to incorporate as many first-hand accounts in their findings as possible.

According to one investigator, "We really don't know a lot about what the Army field sanitation teams did and what they saw during the war. Their observations could have an impact on a variety of investigations." Topics under study include food service sanitation, water supplies, waste disposal practices, control of insects, medical threats associated with heat and cold, and sanitation team training.

Individuals who served on field sanitation teams during the war should call the Office of the Special Assistant to the Deputy Secretary of Defense for Gulf War Illnesses toll free at 1-800-497-6261.

## NEW ARCTIC HEATER SAFER, MORE EFFICIENT

The first heating unit fielded by the Army in 7 years has been unveiled by the Army Soldier Systems Center, Natick, Massachusetts.

The Field Services Equipment Team in the office of the Product Manager, Soldier Support, "cooked up" the new space heater arctic (SHA) to replace the Yukon

stove. The Yukon stove is used currently to provide heat for personnel and equipment inside 5- and 10-man Arctic tents. The upgraded heater eliminates serious safety hazards and operational deficiencies that soldiers have had to contend with for more than 50 years.

The SHA is highly mobile, easy to assemble, and inexpensive to operate. It can burn both liquid and solid fuels, which include diesel and jet fuels, wood, coal, and kerosene.

"It reduces fuel use by 20 percent and maintenance requirements by 40 percent," said Lieutenant Colonel Charles G. Coutteau, Product Manager for Soldier Support. "Replacing the 5,000 Yukon heaters in use in the Army with SHA's will save \$1 million in fuel and \$2 million in maintenance costs over the course of a single heating season. The SHA will pay for itself in one season."

The Army awarded a 2-year production contract to Hunter Manufacturing Company of Cleveland, Ohio, last June. The agreement also includes 3 optional years. Officials estimate a production rate of 1,000 heaters annually.

The new heater will be available to certain units in the field this winter. The SHA falls under the Army's common table of allowances (CTA) and may be procured through the Defense Supply Center Philadelphia. Current Army plans call for free issue of 500 Arctic heaters to the 172d Infantry Brigade (Separate), at Fort Wainwright, Alaska; 10th Mountain Division (Light Infantry) at Fort Drum, New York; Fort Carson, Colorado; 1st Infantry Division at Fort Riley, Kansas; 2d Infantry Division in Korea; and 3d Corps Support Command in Germany.

□ The Military Traffic Management Command's 841st Battalion joined with Army Reserve units to load 1,648 pieces of equipment onto the *USNS Dahl* from 31 August through 4 September. This set a record for the most pieces loaded onto one of the Military Sealift Command's roll-on-roll-off vessels. The *Dahl*, one of the newest and largest roll-on-roll-off vessels, has deck space equivalent to eight football fields.

The *Dahl* was one of three ships loaded at the Georgia Ports Authority Garden City Terminal in Savannah, Georgia, in preparation for Exercise Bright Star in Egypt. The other ships loaded were the *USS Osprey* and the *USNS Capella*, which loaded 800 and 700 items, respectively.

Reserve units participating in the exercise included the 1173d Transportation Battalion of Brockton, Massachusetts; the 1181st Transportation Battalion of Meridian, Mississippi; the 1189th Transportation Terminal Brigade of Charleston, South Carolina; and the 6632d Port Security Company of Irvine, California.







REPLY TO  
ATTENTION OF

DEPARTMENT OF THE ARMY  
UNITED STATES ARMY COMBINED ARMS SUPPORT COMMAND AND FORT LEE  
3901 A AVENUE, SUITE # 200  
FORT LEE, VIRGINIA 23801-1809

November 10, 1999

Dear *Army Logistician* Readers:

In September, I assumed command of the U.S. Army Combined Arms Support Command and Fort Lee. One of my new duties is to serve as Chairman of the Board of Directors for *Army Logistician* professional bulletin, and I welcome the opportunity to support this fine publication.

*Army Logistician* has been an official Army publication since 1969. During the past 30 years, the *Army Logistician* staff has relied on the expertise of logisticians throughout the world to provide information and articles for publication. I want to encourage you to continue this practice. The *Army Logistician* staff welcomes your calls and letters. If you have information that would be of interest to other logisticians, you can depend on the *Logistician* staff to help you produce a quality article for publication. The staff's editing and publishing skills recently were recognized by the Secretary of the Army when he named Robert D. Paulus "Army Editor of the Year" and cited the *Logistician* staff as runners-up for publications improvements in 1999.

*Army Logistician* serves as a forum for discussing issues affecting Army logistics, exploring new concepts, and sharing good news about the accomplishments of the Army. The mission of the publication is to provide timely and pertinent logistics information. In that light, many articles were published last year that addressed the Revolution in Military Logistics. You can review those articles and others by exploring the *Army Logistician* website at [www.almc.army.mil/alog](http://www.almc.army.mil/alog). This year, *Army Logistician* plans to publish articles describing the efforts that are under way to carry out the Army Chief of Staff's new vision for a more strategically responsive force. If you have expertise in this area, please consider writing an article for publication.

Remember that logisticians like you who are willing to share their experiences and knowledge with others provide the material that appears in *Army Logistician*. This is your professional publication. Don't be just a reader—be a participant in sharing the Army logistics story.

*Billy K. Solomon*  
BILLY K. SOLOMON  
Lieutenant General, U.S. Army  
Commanding



# Joint Medical Evacuation

by Major Nacian A. Largoza

**A**n important factor in an army's success is the timely treatment of soldiers injured on the battlefield. To accomplish this, injured personnel must be removed to an area where their wounds can be treated properly. There are two critical junctures in the patient evacuation chain. The first is at the point of injury, where medical personnel acquire the casualty. Here the casualty is triaged, treated, and stabilized for initial evacuation to a medical treatment facility (MTF) that has treatment and surgical capabilities commensurate with the patient's wounds. This is the "golden hour," when trained medical personnel initiate treatment and initial evacuation to prevent loss of life, limb, or eyesight.

The second critical juncture in the medical evacuation process occurs after battlefield ground or air evacuation and treatment and is the follow-on evacuation, when Army medics transfer casualties to the Air Force for movement to the corps rear area or the communications zone. This follow-on evacuation is for casualties who cannot be returned to duty within 48 hours in light divisions or 72 hours in heavy divisions, or whose medical needs exceed the theater evacuation policy or the capabilities of hospitals within the theater of operations. Air Force C-130 and C-9A aircraft are used for intratheater tactical patient evacuation. Aeromedical evacuation-configured Civil Reserve Air Fleet B767's along with C-141 and C-17 transports are used for intertheater strategic evacuation.

In addition to timely evacuation to MTF's that can meet patients' needs, the medical evacuation process also requires trained medical personnel to monitor casualties continuously during transport and to provide care en route. This is what distinguishes patient evacuation from the movement of other precious commodities on the battlefield—trained medical personnel who provide full-time supervision and are prepared to provide medical intervention to ensure the survival of injured soldiers. The U.S. Army is one of the few armies in the world that has dedicated ground and air evacuation platforms designed solely for moving patients and medical assets.

Army medical personnel routinely train for initial

patient evacuation and build it into every concept of the support plan. Initial patient evacuation is a critical task in all operations and is addressed in every unit's standing operating procedures and in every commander's plan. It also is built into all rotations at the combat training centers. Though initial patient evacuation is still an imperfect system, Army medics routinely execute this mission with high rates of success. However, medics seldom train on follow-on evacuation from the Army to the Air Force. Once Army medical units master initial patient evacuation, the next challenge is to train them with Air Force personnel on the follow-on joint medical evacuation.

Recently, elements of the 25th Infantry Division (Light) from Schofield Barracks, Hawaii, conducted a 5-day joint medical evacuation exercise, Operation RIMFIRE, with Air Force active and reserve component elements. This rare occurrence—Army medics actually training with Air Force medical units—provided a unique opportunity for all parties involved. This article will share the planning, execution, and most importantly, the joint lessons learned from conducting medical evacuation from echelon II, division-level medical companies to the strategic aerial point of embarkation.

## Background and Concept

In July 1998, personnel of the 433d Aeromedical Evacuation Squadron from Kelly Air Force Base, Texas, met with the 25th Infantry Division Medical Operations Center (DMOC) to study the feasibility of conducting a joint medical evacuation exercise on the island of Oahu, Hawaii. Apparently, each service had training needs for which the other service could provide resources. The 25th DMOC, the C/725th Main Support Medical Company (MSMC), and the 68th Air Ambulance Company all needed training on preparing patients for evacuation and transferring them to Air Force transports. Active and reserve units of the Air Force had annual medical training and flight requirements, but they did not have the required ground medical units and casualties that had been treated at the division level for evacuation.

The concept was simple. The Army and the Air Force provided a total of 45 soldiers and airmen to act as casualties. A division medical company would be established at a field site to conduct echelon II medical support, which provides care similar to that provided by an emergency room. The company would respond to a mass casualty situation and request Army rotary-wing evacuation and Air Force assistance. The 25th DMOC would provide the command and control for the operation and role-play as the higher medical headquarters elements. Army air and ground assets would evacuate casualties to a mobile aeromedical staging facility. A Hawaii Air National Guard C-130 aircraft would provide tactical



evacuation, and an Air Force C-141 transport would perform strategic evacuation.

## Execution

Since this was the first time that many of the participants were working with another service, it was decided to keep this first exercise simple and to use the crawl-walk-run training method. The decision to keep the operation simple ruled out nuclear, biological, and chemical scenarios.

**Crawl.** Safety is paramount in any military operation, but it becomes a special challenge when the personnel being trained are unfamiliar with another service's equipment and procedures. Based on a risk assessment, a half-day training session on equipment was included in the crawl phase.

Units were given day 1 and the morning of day 2 to establish their sites and conduct precombat checks. The afternoon of day 2 was used to conduct additional safety briefings, classes, and hands-on static load training on each service's evacuation platforms. Each day concluded with an after action review (AAR).

**Walk.** The actual exercise started on day 3. The 25th DMOC staff moulaged the casualties using Multiple Integrated Laser Engagement System (MILES) card standards that dictate wound, location, urgency, and data for proper treatment. Moulaging is the process of using stage makeup and wax to simulate injuries consistent with those that could be expected in combat. They then staged the casualties at the mass casualty site, which was located at Dillingham Army Airfield on the northwest coast of Oahu. (See map on page 4.)

The call for medical support went to the C/725th MSMC, which provided on-site triage, stabilization, and initial ground evacuation to the company treatment and holding area. Once the casualties arrived at the company area, MSMC medical personnel continued to triage, treat, and prepare patients for evacuation. The MSMC requested an Air Force aeromedical evacuation liaison team to help prepare the casualties for fixed-wing evacuation and to arrange for aircraft. [Note: Generally, the Air Force aeromedical evacuation liaison team mission does not include preparing individual patients for movement.] The 433d Aeromedical Evacuation Squadron exercised command and control over all Air Force assets, provided the aeromedical evacuation liaison

team to the MSMC, and established a mobile aeromedical staging facility at the nearest runway.

The mission of the mobile aeromedical staging facility was to act as a transfer point where ground units could deliver stabilized casualties requiring further evacuation by C-130. The facility monitored the medical conditions of the casualties and provided medical intervention as required. The mobile aeromedical staging facility established operations at the nearest C-130-capable runway, which was at Wheeler Army Airfield in central Oahu, and prepared to receive and process casualties from the MSMC.

Casualties were moved to the mobile aeromedical staging facility by air and ground. The 68th Air Ambulance Company provided heli-

copters that transferred the more urgent casualties from the MSMC to the mobile aeromedical staging facility. The MSMC provided the ground evacuation vehicles that moved the less critical casualties. There were two crucial requirements here: first, all of the casualties had to be treated and stabilized before initial evacuation and transfer to the mobile aeromedical staging facility; second, the medics in the ground and air evacuation vehicles had to provide care en route—a key part of the evacuation process.

Once the casualties arrived at the mobile aeromedical staging facility, personnel there re-triaged each individual; checked his bandages, splints, IV's, or other medical paraphernalia; and began preparing him for C-130 evacuation. Once all the casualties were prepared, they were organized by evacuation priority and held in the facility under medical supervision until the aircraft arrived. The mobile aeromedical staging facility arranged to have a critical care air transport team present. The team's mission was to help prepare the most serious casualties for evacuation and provide them with medical care during the flight.

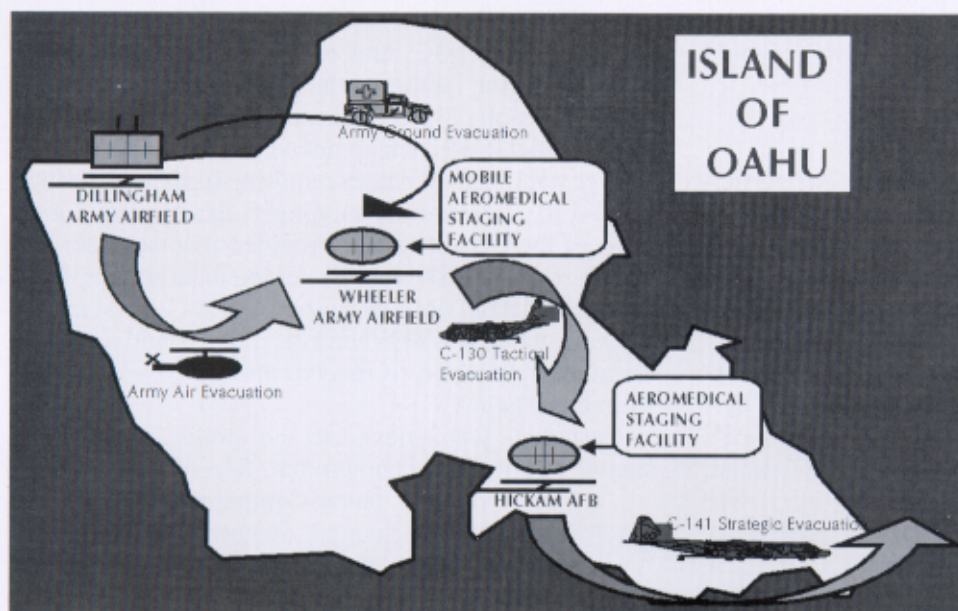
The Hawaii Air National Guard provided a C-130 configured for medical evacuation from Wheeler to Hickam Air Force Base, and casualties were loaded in approximately 15 minutes under a realistic "engine-running-onload" with the aircraft's propellers turning. Under strict ground controls, Army ambulances actually backed up to the C-130 tail ramp to offload patients.

The final leg of the exercise occurred at Hickam Air Force Base. Upon landing, the C-130 parked perpendicular to a C-141 idling on the tarmac. Patients



□ Medics transfer a patient from an ambulance to a Hawaii Air National Guard C-130 aircraft for tactical evacuation.





□ The mass casualty exercise was staged at Dillingham Army Airfield. Patients were transported to Wheeler Army Airfield by ambulance or helicopter, transferred to a C-130 aircraft and flown to Hickam Air Force Base, and transferred again to a C-141 aircraft for movement "out of country."

were transferred from tactical to strategic evacuation platforms by "hot tail-to-tail" patient transfer. Casualties requiring additional treatment before being transferred to the C-141 were treated and further stabilized at an aeromedical staging facility that was located in a fixed hangar.

**Run.** Day 4's schedule of events was similar to that of day 3. However, the speed of the exercise was increased and the locations and wounds of the casualties were modified. Another difference was that the evening AAR was held at the strategic aerial point of embarkation at Hickam Air Force Base. This enabled Army personnel to observe the transfer of patients for the final evacuation leg "out of country."

Day 5 was the recovery and AAR for the entire exercise. Representatives from all participating units conducted a thorough AAR. An important aspect of day 5 was allowing Army and Air Force ground medical personnel to act as casualties and be loaded into the C-130 aircraft. The goal was to give the ground medics a patient's perspective of the evacuation process and a better appreciation of the patient's experience.

### Lessons Learned

Operation RIMFIRE provided a rare opportunity to conduct joint medical training and to highlight strengths in the military healthcare system. In many cases, strengths in the two services' medical systems complemented each other. This was evident in the quality and continuum of care provided by both services as casualties were transferred through the evacuation channels. Operation RIMFIRE also identified unknown weaknesses and highlighted previously identified weaknesses, such as interservice communications.

One of the best lessons learned was that a joint medical evacuation exercise could be conducted at minimal cost to the units involved. For the Army, using units already in the field and medical supplies about to expire minimized costs. For example, the C/725th MSMC was already scheduled to conduct a company field training exercise (FTX) during the dates of Operation RIMFIRE. So RIMFIRE dovetailed nicely with their company FTX and added another dimension to their training. To minimize Air Force costs, reserve component units needing to conduct annual training were used in conjunction with active units. The airframes, aircrews, and in-flight trauma teams task-organized for this exercise all had annual in-flight training requirements. By using these aviation assets, the exercise helped them to meet those requirements without having to ask for additional funding.

While many other lessons were learned by both services, critical lessons learned that will help Army medical units prepare for joint evacuation are—

- **Patient classification.** The Army and the Air Force use categories to classify patients for evacuation, although the categories may differ slightly. The key lesson learned here is not the difference in terminology, but rather the capabilities gained as patients are transferred from one service to another. In the Army medical system, when a patient's chances of survival on the battlefield are low, he is categorized as "expectant," and minimal resources are expended on him. For example, casualties with cardiac distress are categorized as expectant, and once their pain is relieved, their medical care is the last priority until other, more critical casualties have received care. However, at the mobile aeromedical staging facility, the Air Force critical care air



transport team has the capability to provide care to casualties categorized as expectant. These casualties thus have a greater chance for survival. Despite being categorized as expectant, not expected to live, patients actually can survive with rapid transfer to an Air Force critical care air transport team. Although the chances for survival on the ground are low, this team actually can keep these patients alive until they reach an MTF that is able to provide the care they require.

- **Medical equipment.** The Army medical supply system has converted to the use of nylon litters. Nylon litters facilitate patient decontamination, whereas canvas litters soak up chemical agents. Because patients can slip from smooth nylon litters during take-off and landing, they are not used on Air Force transport. This means that Army ground units evacuating to the mobile aeromedical staging facility cannot conduct litter exchange. This is in keeping with the guidance in FM 8-10-6, Medical Evacuation in a Theater of Operations—Tactics, Techniques, and Procedures, which states, "There is no property exchange of equipment with the Air Force." Many Army ground units are not aware of this. Instead, Army medics must transfer patients physically to Air Force canvas litters and return the nylon litters to their units. While this solves the issue of accounting for medical equipment, it also presents several challenges. This process of exchanging litters is time consuming, and the more a casualty is physically moved the greater are the chances for aggravating his injuries. Thus, Army units must take this physical transfer from litter to litter into account and build ample time into their evacuation plans to allow for this process.

- **Patient documentation.** At the division level, Army medical personnel primarily use Department of Defense (DD) Form 1380, Field Medical Card, to document injuries and the medical care provided. However, unbeknown to most Army medics, the originating MTF is required to complete three additional forms before Air Force air evacuation. According to FM 8-10-6, "The originating medical facility must complete the following administrative procedures prior to entering the patient into the Theater Evacuation Aeromedical System: the baggage tag (DD Form 600), patient manifest (DD Form 601), and patient evacuation tag (DD Form 602)." [Note: The DD Form 1380 can be substituted for the DD Form 602.] The first lesson learned here is that Army medical personnel at least need to familiarize themselves with these forms and have them on hand in the event of a joint evacuation requirement. The second lesson is that Army units should use the expertise of the aeromedical evacuation liaison team personnel who are pre-positioned with the originating MTF for liaison and communication between the Army and the Air Force. These airmen can show your staff how to complete the forms and, more importantly, can teach the providers

how to prepare the casualties for air transportation to reduce further aggravation of their wounds while in flight.

- **Communications.** This is one area that always presents a challenge to Army units. Communication becomes even more challenging when the operation incorporates a sister service that uses different equipment and procedures. Standard Army medical units have FM [frequency modulated] secure radios and mobile subscriber equipment (MSE). Air Force units primarily use unsecure UHF [ultra high frequency] radios, and their secondary equipment is AM HF [amplitude modulated high frequency] or VHF [very high frequency]. The major lesson here is that Army ground units must request and use the aeromedical evacuation liaison team. Once collocated with an Army activity, the aeromedical evacuation liaison team is the critical bridge for communication between the Army and the Air Force's mobile aeromedical staging facility during joint evacuation.

Operation RIMFIRE was a tremendous experience for all parties involved. There were critical lessons learned at all levels, internal and external, of each participating unit. The low cost of this exercise, achieved by using existing field problems and flight requirements, ensured minimal fiscal impacts on both services. Also, the integration of this exercise into existing field problems and training requirements served to minimize the disruption of customer service or the operating tempo of the units involved. In addition, this exercise served to complement and enhance the already-scheduled training exercises, providing greater depth to the continuum of medical care.

Initial planning and discussion for follow-on exercises in coming years were begun at the final AAR for Operation RIMFIRE. Representatives from the Navy, the Marine Corps, the regional medical center, and others were present in an effort to broaden the scope of future joint evacuation exercises. Given the success of Operation RIMFIRE and the interest and planning for next year, these exercises hold the promise of achieving truly joint medical operations on the modern battlefield.

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# Sustaining Combat in Korea

by John Di Genio

A key factor in achieving a quick and decisive triumph in the Gulf War was Iraq's failure to take advantage of the Allies' weak theater-level support base during the early stages of their deployment. This costly error enabled the United States to build up a log base that facilitated victory with minimal casualties. Many lessons learned in that conflict can be applied in other situations. However, the Gulf War experience should not be used as the exclusive template for solving the logistics problems that our military forces could encounter in another theater or conflict. The Korean Peninsula is a case in point.

Almost 50 years after the end of the Korean War, Korea remains one of the world's flashpoints—a place where the flames of the Cold War have yet to be extinguished. North Korea maintains one of the largest armies in the world, and one that is forward deployed. Their offensive posture, coupled with their recent development of ballistic missiles and weapons of mass destruction, cause the Korean Peninsula to be highly volatile. Military planners within the United Nations Command (UNC)/Combined Forces Command (CFC)/U.S. Forces Korea (USFK)/Eighth U.S. Army (EUSA) expect that a resumption of hostilities will begin with a sudden, rapid North Korean invasion of South Korea. This command's logistics mandate therefore is twofold: timely, economic, and effective support of U.S., combined, and allied units deployed in a hostile environment, and swift evacuation of noncombatants from the area of operations.

Although some lessons learned in the Gulf War have been implemented in Korea, logistics concerns unique to this theater remain. Should hostilities resume, the United States will need to take advantage of force enablers, commercial initiatives, host nation infrastructure and support, and new logistics concepts to minimize those concerns during mobilization.

## Force Enablers for Power Projection

During the Gulf War, the military required a means of projecting and sustaining a force capable of delivering a decisive victory, but the logistics arteries became clogged. Renewed conflict in Korea will create similar problems. General John G. Coburn, now Commander of the Army Materiel Command, observed in 1997—

Today's Army is a mostly continental U.S.-based power projection force that must be capable of rapidly deploying and sustaining its forces. The Army's strategic mobility program depends on a critical triad of pre-positioned unit equipment, strategic sealift, and strategic airlift.

Should fighting break out in Korea, power projection and reception platforms could prove to be inadequate to support the massive influx of manpower and materiel needed to deter one of the largest standing armies in the world. Offloading supplies and military personnel during actual combat poses another concern since the United States has not attempted such an operation in the last half century. Once in theater, large trucks and railcars will find it difficult to navigate Korea's narrow, winding roadways and railroads—potentially clogged with refugees—which will hinder timely delivery of essential personnel and materiel.

As the Army embraces the velocity management concept—substituting speed of supply delivery for forward-deployed stockpiles of materiel—sealift, airlift, and pre-positioned supplies should become the “force enabler triad” that will play a key role in the successful defense of the Korean theater.

## Sealift and Airlift

Assuming that the Pacific sealanes remain open, the ocean will be a natural “highway” for personnel and materiel, much as it was during the Korean War of 1950 to 1953. Swiftness in getting needed personnel and materiel into Korea to sustain operations and throttle the rapid advances of the North Korean Army will be essential to achieving a decisive victory.

To project the force expeditiously anywhere in the world and to improve lift capabilities, the National Defense Authorization Act for 1999 authorized the Air Force to procure 13 C-17 aircraft for fiscal year (FY) 1999 and allotted over \$300 million for advanced procurement of 15 additional C-17's in FY 2000. The Navy, meanwhile, has been assembling a fleet of large, medium-speed roll-on-roll-off (RORO) vessels. A 1992 report to Congress addressing sealift and airlift capabilities during the Gulf War concluded—

The advantages of RORO and container vessels were clear . . . Most of the RRF [Ready Reserve Fleet] consists of breakbulk ships which generally have a smaller cargo capacity and take two or three days longer than RORO's to load and unload . . . Had events moved more quickly, the two or three days of delay caused by the lack of containerized cargo shipments might have been crucial.

These joint transportation initiatives are vital to responding quickly to crisis situations, especially in Ko-



rea, where the superior number of enemy forces will attempt to push combined and allied forces off the peninsula rapidly. The U.S. armed services continue to solicit commercial initiatives to provide superior airlift and sealift capabilities to sustain military operations.

### Pre-positioned Supplies and Stockpiles

World War II reserve stocks in Japan proved to be a great force enhancer during the Korean War, supplying Korean and allied forces during the initial stages of the conflict. Today, USFK takes advantage of pre-positioned supplies as a force enabler. As reported in the Army Program Objective Memorandum for FY's 2001 to 2005, "The brigade set in Korea . . . will . . . be refurbished and stored inside newly completed humidity controlled warehouses." However, recent legislative initiatives are decreasing the value of additional stockpiles on the Korean Peninsula, opting instead to rely on the tenets of velocity management and thereby trading "speed" for "stockpiles."

During Operation Desert Storm, the Marine Corps successfully demonstrated how pre-positioned supplies and equipment could better support a rapid deployment force. The Marines offloaded pre-positioned supply ships early in that conflict to give their fighting forces an immediate armor and sustainment capability. Following the Marine Corps success, the Army adopted pre-positioning of equipment on ships to project the force rapidly anywhere in the world. Army Pre-positioned Stocks (APS)-3 consists of ship-loaded equipment and cargo that are forward deployed near major theaters of war.

The pre-positioned vessel forward deployed to support the Korean theater has been the *MV Gibson*, operated by Mearsk Lines. However, Mearsk Lines recently lost its contract to Crowley Maritime. So the supplies on the *MV Gibson*—consisting of 1,500 twenty-foot-equivalent units of sustainment stocks and 45,000 square feet of RORO cargo—had to be transferred to the Crowley Maritime vessel *MV Seawolf* (which was redesignated the *MV Gibson*). USFK used the transfer as an excellent training opportunity to rehearse the discharge of APS-3 cargo within an actual theater of operations. This training will prove invaluable to support expeditious reception, staging, and onward movement operations.

### "Second Door" Transportation

Bringing personnel and war materiel to the port of Pusan in South Korea is one thing. Rapidly moving them forward to meet mission requirements is another matter. "Just-in-time" delivery is now the fundamental logistics strategy employed to sustain mobilization. In Korea, this is especially challenging because of the ex-

pectation that North Korea will commence hostilities with little warning. Just-in-time delivery would need to be expedited significantly to meet the threat of a massive, rapidly moving opponent.

Turbo Intermodal Surge (TIS) is a U.S. Transportation Command (USTRANSCOM) initiative that allows a contractor to move deploying-unit cargo to its final destination using containers. If successfully implemented, TIS can increase the load capacity of vessels coming into a theater by as much as 35 percent and expedite forward delivery of personnel and materiel. USTRANSCOM advertised this concept as a "door-to-door" move. That is, the "first door" can be anywhere within the continental United States (CONUS), while the "second door" can be anywhere in a deployment theater. Contractor support is a key element of this concept, because contractors will use commercial systems to move containers to their final destination. This can be very tricky in the Korean theater because of the total mobilization of assets in a contingency. In other words, contractors will have to work through military channels to move containers in Korea.

If military authorities in Korea allow contractors to move containers into and around the Korean Peninsula, then there are two options. First, the containers can be unloaded at the port (Pusan) and the unit moved through normal reception, staging, and onward movement procedures. This will cause the unit to stay in port longer, thereby delaying the delivery of precious materiel and personnel to forward-deployed forces and hindering just-in-time delivery.

The second option is for the contractors to offload the containers and move them through the military system further into the Korean theater, where the receiving unit can unload the containers and fall in on the equipment at a designated assembly area. USTRANSCOM tested this system during Exercise Foal Eagle 1999. The 4th Infantry Division (Mechanized) containerized cargo at the railhead at Fort Hood, Texas. The contractor loaded a number of containers and moved them to the port of Beaumont, Texas. The equipment was shipped to Pusan, where the contractor moved the containers to the "second door" near Camp Casey. The unit fell in on the equipment at this location and moved to the designated assembly area. If properly executed, this process will contribute greatly to the timely delivery of materiel to forward areas on the Korean Peninsula, thus reducing the risk of another "Task Force Smith" and the creation of another "Pusan Perimeter."

### Commercial Initiatives

Delays caused by an inability to expeditiously deliver the right materiel to an exact location could have severe operational consequences in future deployments. Should



hostilities resume on the Korean Peninsula, North Korea will not allow combined and allied forces the luxury of establishing a fully operational logistics base without opposition. Combined and allied forces expect that North Korea will take immediate action to disrupt logistics operations and lines of communication. Considering the anticipated swiftness of attack, time will be of the essence. The logistics elements in Korea during the early stages of the war probably will be forced to use offshore operations to unload vessels in a combat environment. The commander in chief (CINC) of the U.S. Pacific Command (USPACOM) and the CINC of the UNC/CFC/USFK will need the flexibility to direct cargo to a destination and determine the priority in which that cargo is offloaded. Cargo entering the Korean theater of operations that is not a "war stopper" will be given a lower priority.

Private sector transportation networks, such as railroads, use laser optics, radio frequency cards, and satellite tracking to monitor cargo while in transit. The Army currently is implementing total asset visibility through the use of these commercial off-the-shelf technologies. In Haiti, radio frequency tags and portable interrogators were used successfully to quickly identify assets needed to sustain operations. More importantly, transmitting cargo data by telephone lines or satellite to a central computer data base enables logisticians to perform ad hoc queries, track and locate assets, and provide the military departments with a sophisticated tool for achieving total asset visibility over the distribution systems. This technology will prove to be a force enhancer that will help to give combined and allied forces the materiel needed to counter any attack North Korea can muster. The professional military logistician now has the tools needed to meet the future challenges of supporting a modern projected force anywhere in the world.

### **Host Nation Infrastructure**

FM 100-10, Combat Service Support, states, "An objective area's infrastructure is a key source of support." Before the Gulf War, Saudi Arabia used the huge revenues it received during the 1973 oil embargo to build a modern transportation infrastructure that greatly facilitated military operations. However, one of U.S. Central Command's (CENTCOM's) shortcomings during the Gulf War, and a lesson learned for other unified commands, was its failure to establish host nation support agreements that specifically enumerated the responsibilities of local labor during the early stages of the conflict. Without this crucial support firmly established, military authorities had difficulty taking advantage of the technologically advanced Saudi Arabian infrastructure. A report presented to Congress on the conduct of the Gulf War stated—

Saudi Arabian infrastructure—especially airfields and ports—was well developed . . . Ramp space at these airfields was . . . limited, as were ground refueling facilities . . . These constraints highlight several key points. First, it is imperative to have pre-existing host nation support arrangements to ensure access to arrival facilities whenever possible. A second factor illustrated by air deployment is that there were difficulties in servicing aircraft, even though Saudi Arabia has some of the most up-to-date facilities in the world. These difficulties would certainly be exacerbated were there a requirement to deploy a similar sized force to less developed airfields.

Like Saudi Arabia, the Republic of Korea has a modern transportation and communications infrastructure. Unfortunately, roads through mountainous terrain tend to narrow, so huge trucks laden with heavy cargo find it difficult to navigate these steep, winding roadways. Main rail lines tunnel through mountains, but the tunnels are not wide enough to handle oversized shipments on a flat-car, such as a standard U.S. main battle tank. Consequently, before being transported, tank skirts have to be removed at the port so the railcars can fit through the tunnels.

### **Host Nation Support**

The Persian Gulf War demonstrated the need for solid host nation support. FM 100-10 asserts, "Provision of support from the host nation reduces the requirement to deploy Army CSS [combat service support] units. This allows more combat power to deploy quickly." During the Korean War, allied forces procured items from Japanese vendors. Should fighting resume, U.S. forces would contract for goods and services from Korean sources.

Fortunately, the Korean theater has a solid, functional wartime host nation support program. The Korean Government has pledged to provide facilities, materiel, and equipment to help sustain forces and maintain operations. The defense of the Korean peninsula and any attempt to deter North Korean aggression would be limited severely without adequate support from the Korean Government.

The Republic of Korea recognizes the need for an American presence to maintain stability in the Far East. Furthermore, the United States wishes to maintain a logistics infrastructure in this part of the world in the event hostilities resume. Under the provisions of the Special Measures Agreement for 1999 to 2001, the Korean Government agreed to furnish logistics equipment, supplies, and services in such areas as ammunition storage and maintenance, transportation, equipment repair and maintenance, and nontactical vehicles (to include railcars). The Mutual Logistics Support Program "buys" and "sells" supplies and services to and from the Republic



of Korea. Under this program, supplies are limited to nonoffensive weaponry, spare automotive and machine parts, and general supplies.

USFK maintains a comprehensive data base that delineates the current level of support from Korea, the support that each Service within the theater requested, and the support that has been provided. Among the field services covered under the wartime host nation support umbrella are potable water, shower facilities, waste disposal, laundry and dry cleaning, ice, and selected mortuary affairs items. Korea also provides bulk fuel and several other items of support to U.S. forces. The establishment of bilateral agreements with Korea prevents any misunderstandings over host nation requirements needed to support a mobilization.

Host nation support has been one of the areas regularly practiced during major exercises in the theater. For example, recent exercises rehearsed the procedures for obtaining bottled water from the host nation and acquiring supplies to assist with mortuary affairs. During these exercises, the logistics and resource management communities have joined to develop the most economical and effective means of procuring quality support and sustainment items from local sources in a timely manner. Learning from past mistakes in Operation Desert Storm, and understanding the urgent requirement to maintain robust host nation support agreements and functional procedures, USFK will continue to work on wartime host nation support during exercises.

## Logistics Concepts

**Joint doctrine.** Joint doctrine needs to be revised to standardize logistics and transportation concepts. For example, during the Gulf War, the differences in air clearance authorities caused confusion. The Air Force challenges any cargo intended for air shipment that weighs more than 250 pounds, but the Army will not challenge any cargo under 10,000 pounds. The lack of joint guidance in this area contributed greatly to the breakdown of the priority system during the war. A similar breakdown would have grave consequences during renewed war in Korea. Personnel and materiel would become backlogged, and moving wartime supplies would take longer. Transportation needs to be a joint endeavor to rapidly deploy and sustain a CONUS-based projection force. Parochialism within the Services will hinder future deployments.

**Noncombatant evacuation operations (NEO).** Removing noncombatants from a combat area expends logistics resources. NEO planners have to factor in the number of vehicles that will be used to transport noncombatants to evacuation sites within Korea and the fuel that will be expended in the effort. They also will have to consider the amount of provisions that will be required to house and feed large numbers of noncombatants.

Given the probable suddenness of a North Korean attack, the processes of removing noncombatants and deploying troops could overlap. As NEO progress, military personnel and emergency-essential civilians will deploy to their wartime duty stations and reserve component personnel will begin to trickle into the theater. These military and civilian personnel will compete with evacuees for subsistence and supplies. To further complicate matters, military units will be tasked to move the families of those Korean national employees designated mission essential further south, past the Han River. So, if there should be fighting on the Korean Peninsula, the military logistician will have to plan for the support of military and emergency-essential civilians, the temporary provision of supplies and subsistence to noncombatants, and the movement of the families of the indigenous work force out of harm's way.

General Coburn has observed, "The revolution in military logistics is the catalyst for a new Army capable of decisive victory today, tomorrow, and into the next century." The tenets supporting velocity management—pre-positioned supplies, airlift and sealift, host nation support, and total asset visibility—are the cornerstones to deploying a force rapidly to counter a swift and sudden North Korean attack. Joint operations will play a larger role in future deployments to the Korean Peninsula. Therefore, joint doctrine should be structured to include the tenets of velocity management and thus prevent some of the confusion and misunderstandings with the priority system encountered during the Gulf War. Pre-positioned vessels and modernized airlift and sealift capabilities will be force enhancers should hostilities resume in Korea. Commercial off-the-shelf technology will continue to be a major component to total asset visibility, ensuring that the CINC's of USPACOM and UNC/CFC/USFK get the right equipment into the theater to sustain operations. The professional logistician in the theater will have to plan to provide support to deployed personnel as well as to aid noncombatant evacuees. The primary purpose of this revolution in military logistics will be for the CINC's and all of their subordinate commanders to "stay focused." If the Korean Peninsula erupts into war, logistics preparations must be set to repel the attack.

**ALOG**

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# Radio Frequency AIT in the Korean Theater

by Lieutenant Colonel Bryan D. Richardson and Captain Christine Pacheco

According to the authors, total asset visibility from the depot to the foxhole is very near and very "doable" for all classes of supply.

**A**utomatic identification technology (AIT) provides accurate and timely information on the status of assets, whether they are in storage, being processed for shipment, or in transit. AIT is a suite of tools used to capture, assemble, and transfer data. The strength of AIT is its capability to obtain detailed information rapidly and to interface easily with other automated information systems (AIS) with minimal human intervention.

The G4 Transportation Division of Eighth U.S. Army (EUSA) proactively sought a reliable means to provide intransit visibility (ITV) from the port to the foxhole. In early 1996, EUSA began building a theater radio frequency (RF) AIT infrastructure under the guidance of the Logistics Integration Agency (LIA), which is a field operating agency of the Office of the Deputy Chief of Staff for Logistics, Department of the Army.

## How AIT Works

RF AIT is a commercial off-the-shelf (COTS) system. The RF AIT system consists of RF tags, fixed interrogators, and handheld interrogators. RF tags can be attached to a box, pallet, vehicle, or containerized shipment. Each RF tag has 128 kilobytes of memory for storing cargo content and transportation control data. Fixed interrogators at key nodes along the lines of communication record the progress of RF-tagged shipments from origin to final destination. A handheld interrogator is used "in the yard" to collect cargo location and content data. When incorporated into logistics procedures, the RF AIT components enhance the logistician's warfighting capabilities by providing initial source data, reducing processing times, and improving information accuracy. More importantly, RF AIT provides timely ITV of cargo as it travels through the Defense transportation system.

Currently, EUSA uses RF tags to provide ITV of pallets of class IX (repair parts) being shipped to Korea. The RF interrogators automatically record the passage of RF-tagged shipments. (This process is referred to as "choking.") EUSA and LIA have established RF interro-

gators ("choke sites") at key logistics nodes in the transportation system between Defense Distribution Center San Joaquin (DDJC), California, and the class IX supply support activities (SSA's) in Korea. Federal Express (FedEx) is contracted to transport shipments from DDJC to the SSA's. LIA equipped the FedEx terminals at San Francisco and Kimpo International Airports to provide AIT.

## Ammunition Tracking

EUSA, in conjunction with LIA and contractors from Unisys Corporation, conducted a test of class V (ammunition) cargo tracking using RF AIT. EUSA established an RF AIT architecture for class V in time to provide ITV for U.S. Transportation Command's (USTRANSCOM's) Exercise Turbo Cads '98. During Turbo Cads '98, Crane Army Ammunition Activity in Indiana shipped 81 RF-tagged containers to Korea. LIA "burned" the data using an RF tag docking station. ("Burning" is the process of writing data to an RF tag either from a data base or by entering the data manually.) The RF-tagged containers passed through a network of interrogators within the continental United States (CONUS) before arriving at the port of embarkation. EUSA installed interrogators at five locations in Korea to track the RF-tagged containers from their port of debarkation to ammunition depots and ammunition supply points.

During the exercise, container-handling equipment damaged many RF tags, so LIA designed a new RF tag that fits into the corrugated sides of the container. As a result, the actual tracking of RF-tagged cargo during Turbo Cads '98 was a success. The exercise demonstrated the potential for tracking all classes of supply from CONUS depots to final destinations in Korea.

## ITV in Remote Locations

Currently, all theater class IX SSA's have fixed interrogators. Fixed interrogators rely on DSN [Defense Switched Network] lines as the communications conduit



to the regional ITV server. During contingencies, all of the 2d Infantry Division SSA's relocate to remote locations. These remote locations do not support fixed interrogators. This problem can be solved by fly-away interrogator kits, which use satellite data links to connect the choke site to the regional ITV server. The kits allow SSA's to provide the same data collection as provided by fixed interrogators.

The regional ITV server is located at the 6th Support Center, 19th Theater Army Area Command, in Taegu, South Korea. It collects data and feeds information to the Logistics Support Activity, Global Transportation Network (GTN), and Joint Total Asset Visibility (JTAV) data bases. Units may access the U.S. Forces Korea (USFK) ITV homepage to query the RF ID tag data base on the Internet at <http://147.242.140.92>. This data base provides detailed historical and current information on class IX pallets en route to Korea from DDJC. In addition to ITV data, parts files from the Automated Manifest System and transportation control and movement documents are available in the data base.

The USFK ITV homepage is easy to use and requires no special net browser or password for access if the user is in the military domain. Currently, data transmitted over the regional ITV server are only accessible by computers with a ".mil" address. Outside the military domain, users must request access from an installation information management office or directorate of information management. Management of passwords is the responsibility of the EUSA G4 Transportation Division's ITV section.

Representatives from LIA, Unisys, and the EUSA G4 Transportation Division explored avenues that would enhance the security of the regional ITV server data base while not hampering the availability of information to the customer. They determined that data-encryption server software would provide the level of security required to meet Department of Defense (DOD) standards and cause minimal inconvenience to the customer. It is anticipated that this initiative will be funded by LIA and implemented in the near future.

### Other ITV Information Sources

Two other sources of ITV information are the GTN and JTAV command and control systems. The GTN, a USTRANSCOM system, is the primary worldwide transportation information system. It consolidates data from numerous existing systems into an integrated data base. The GTN provides integrated and automated support for planning airlift, sealift, and terminal services for deploying and sustaining DOD forces globally during peacetime and contingencies. It also provides rapid, accurate ITV information between the port of embarkation and the final destination. Transmitted RF AIT data are essential to filling GTN's blind spots. This capability to transmit data

from the EUSA regional ITV server to the GTN is a significant milestone for ITV in Korea.

JTAV is a logistics capability tool for the joint world. It consolidates data from numerous logistics systems into an integrated data base. JTAV is the Defense Logistics Agency's command and control information system. It provides users with timely and accurate information on the location, movement, status, and identity of units, personnel, equipment, and supplies. Logisticians also can use the information provided by JTAV to improve the overall performance of DOD's logistics operations. Transmitted RF AIT data help enhance JTAV's capabilities. This data transmission from the regional ITV server to JTAV is another significant milestone in the maturation of this theater's ITV.

GTN and JTAV take the logistician another step closer to achieving Joint Vision 2010 focused logistics capabilities. These systems also mark a departure from the Army's dependence on the traditional "stockpile" supply mentality. The query capabilities of GTN and JTAV can resolve transportation and supply questions quickly. As RF AIT technology matures, GTN's and JTAV's capabilities for the logistician also will improve.

EUSA has implemented RF AIT initiatives aggressively to improve ITV of all classes of supply. EUSA plans to purchase fly-away interrogator kits and issue them to SSA's. This will allow SSA's to provide continuous ITV of supplies when they relocate to remote support sites during contingencies.

LIA has several initiatives underway for labeling items at depots and factories, which will help the RF tag-burning process. They also are installing AIT equipment in the ports of Concord and Hadlock in the San Francisco Bay area, which are key CONUS seaports for supplies shipped to Korea. These initiatives, along with recent technological advances, will help theater logisticians track all classes of supply from CONUS depots to SSA's throughout Korea. The Army's ability to fulfill the commander's vision of "total asset visibility" of all classes of supply from the depot to the foxhole is very near and, more importantly, very "doable." **ALOG**

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# RSOI and Regeneration

by Colonel Jeffrey R. Earley and  
Major Eric A. Wiedemann



German Field Marshal Erwin J. Rommel once stated, "The logisticians decide the outcome of the battle before the first bullet is ever fired." This statement remains true today whether we are conducting combat operations, operational deployments, or training deployments to the National Training Center (NTC) at Fort Irwin, California.

Last year, in a rotation at the NTC in which logisticians played key roles, the major training objective was the reception, staging, onward movement, and integration (RSOI) process. Several units participated from the 101st Airborne Division (Air Assault), Fort Campbell, Kentucky: 1st Infantry Brigade Task Force; 101st Aviation Brigade(-); and parts of the 101st Corps Support Group (CSG), including the 561st Corps Support Battalion (CSB). Also participating was the 3d Squadron, 7th Cavalry, 3d Infantry Division (Mechanized), from Fort Stewart, Georgia. The support operations section of the 101st CSG functioned as materiel managers for the rotation. The 561st CSB replicated the division main support battalion while performing their traditional CSB



role. The task force conducted a strategic deployment via sealift to Port Hueneme, California, and executed a ground and air self-deployment to the NTC.

The 101st Division focused on two RSOI principles: unity of command and flow management. During the first weeks, the units drew equipment from pre-positioned stocks—a very demanding process that required detailed planning and leader involvement at all levels. At the same time, the task force planned and prepared for combat operations.





□ Soldiers from the 101st Corps Support Group offload 4,000-pound forklifts (top left) during the first week of training. Slingload (bottom left) was the primary means of resupply during the rotation. The photo at the top of this page shows the rotational unit's forward maintenance area. Daily LOGPAC's of food, fuel, and water were pushed to the brigade task force during force-on-force operations (above).

Soon after the task force began force-on-force and live-fire operations, the planners had to begin planning for regeneration. They made plans to turn in the equipment and supplies, turn over the bivouac and maintenance areas to incoming units or to the installation, and redeploy all soldiers back to their home stations. When the 1st Brigade commander realized how much of his combat power was being focused on the RSOI process, he decided to allow the 101st CSG to plan, coordinate, and manage the regeneration process. This allowed the executive officers from the brigade headquarters to focus on the fight and not on regeneration. The 101st CSG commander became the single point of contact for interfacing between the Theater Support Command (TSC) at NTC and the task force, which was a new concept for the NTC and the division.

The CSG commander attended daily maintenance meetings, shifted maintenance priorities as needed, reallocated inspectors based on unit requirements, and assessed the

progress of the turn-in process on a daily basis. With this information, the CSG could ensure that the correct number of soldiers was present to complete the regeneration process.

The role of the CSG in RSOI and regeneration in this exercise could be duplicated easily by any other CSG or division support command (DISCOM). RSOI is a critical operational challenge, not just a logistics problem. The logistician can play a vital role by anticipating the need to be an interface between a TSC and supported units.

**ALOG**

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# Creative Scheduling for Training

by Major Leslie J. Pierce and Captain Clemens S. Kruse

**T**raining is the foundation of successful military operations. But finding the time to conduct meaningful training that meets the expectations and schedules of senior leaders is often a source of much frustration for the people who shoulder the greatest responsibility for preparing our soldiers—the junior leaders at the company and platoon levels.

When we served at the 704th Main Support Battalion, 4th Infantry Division (Mechanized), at Fort Hood, Texas (as battalion executive officer and company commander, respectively), we heard some company commanders and platoon leaders talk about the inflexibility of the training calendar and about training events that were planned but not conducted through no fault of the unit. To add to their frustration, their senior commanders wanted the eight-step training plan to be integrated into company training schedules. The company commanders were not keen on this idea, because it forced them to schedule and account for training events for certain dates and times when, in their view, the scheduling was too restrictive and unrealistic in the Army's current fluid environment.

So we decided to see if we could come up with some solutions to these two problems. We found that the way to solve the flexibility dilemma, simply put, was to plan on flexibility. The other issue was more challenging: getting the eight-step training plan on a training schedule week after week and making it a meaningful tool.

## Incorporating Flexibility in Training

Imagine a scene in which the platoon leader schedules vehicle preventive maintenance checks and services (PMCS) for a given morning and common task training (CTT) for that afternoon. But Murphy's law prevails when severe weather, including a lightning storm, hits that morning. The platoon leader and platoon sergeant think it wise to change the order and conduct the CTT (which can be done indoors) in the morning and then perform PMCS in the afternoon, once the storm blows over. However, they believe that the company commander will chew them out for not having his people doing PMCS as stated in the training schedule.

Our solution to this problem of "locked in" training was very simple: put an asterisk next to training events that can be moved to a certain date/time group whenever weather or a training distracter or a short-notice

event imposed by higher levels disrupts the schedule. We also put an asterisk beside training events that can be added, deleted, or changed when an opportunity arises to conduct other training. This solution gives leaders the flexibility to conduct effective training and to be prepared with worthwhile training events that can fit into emerging timeslots during the week. It also provides leaders with the flexibility to conduct a training event that has been displaced the next week rather than having to wait several weeks to get it back on the training schedule.

## Using the Eight-Step Training Plan

The solution to using the eight-step training plan on a routine basis is a little more complicated. We came up with two ideas. First, plan for certain steps (with the exception of the execution phase of training) to be accomplished during a certain timeframe. Second, organize the room where training meetings are conducted so that everyone can see the training plan. To do this, we devised eight training boards that can be placed side by side, with each board reflecting a different week (from the current week to 7 weeks out) and showing that week's training events. Each week's training board also portrays the eight-step training plan.

During the company training meeting, we conduct an after-action review (AAR) of last week's training, assess the mission-essential task list (METL), and determine dates for reexecuting tasks when necessary. Then we discuss the execution of this week's training event, rehearse the week T-1 training event, develop the operation order (OPORD) for the week T-2 training event, conduct reconnaissance for the week T-3 training event, teach about the week T-4 training event, and plan for the week T-5 training event.

By taking this approach, company leaders are forced to look at each step of the eight-step training plan and have a week to take care of each step as the training event comes closer to execution. Leaders thus are less likely to become overwhelmed by trying to cram all eight steps into a few days before execution and are more likely to properly plan, rehearse, and resource training. We've used the boards for about a year with great results.

## Creating the Right Training Room

Flexibility starts with the company training room. We found training room design to be extremely important, because it sets the tempo not only for the training meeting but also for the training event itself. On the walls of the training room, we posted maps of training areas and the National Training Center (NTC) at Fort Irwin, California; two 90-day calendars; a large white board; and the weekly training boards. The boards were designed and then enlarged to a size of 1½ feet by 3 feet at the post training and audiovisual support center.



## Preparing for Training

With the stage set, we can discuss using the eight-step training plan to schedule training events. At week T-7, the first sergeant and company commander identify which combined training events will be resourced at the company level (based on input from the platoon leaders and sergeants) and identify the primary and alternate instructors. At T-6, those instructors provide a training plan and brief the company leaders. This training plan is attached to the company training schedule and posted at the bottom of the training board, and a copy is sent to the battalion S3. At week T-5, the instructors brief their plan for the leader/teach phase of preparation (which sometimes is integrated with the monthly noncommissioned officer professional development session).

During week T-4, the instructors do a preliminary reconnaissance of the training site and bring back significant observations that may cause a change to the original plan. This recon is listed as an event but is not entered on the training plan because of its vulnerability to being overcome by events. At week T-3, the instructors turn in an approved OPORD (another attachment to the company training schedule posted at the bottom of the board), which then is issued to all leaders and key personnel involved with the training event. By week T-2, the instructors sign for their training aids (which is not in the eight-step plan but is a necessary step for us). By week T-1, the training schedule is locked in and instructors rehearse their training with the first sergeant or observer.

## Conducting the Company Training Meeting

When done properly, the boards present information and lead to resolution of problems at the company training meeting. Each week is discussed; the platoon leaders and sergeants brief their areas of training as the first sergeant and company commander listen and ask questions to ensure that everything is covered. After execution of the training event, the instructor and observer conduct the AAR and provide feedback at the next training meeting. As each instructor briefs his piece, we write the original plan in black dry-erase ink and any changes in red so the training noncommissioned officer can submit changes to the schedule. At the end of the training meeting, we slide the charts down so that, for the next week, T-7 becomes T-6, T-6 becomes T-5, and so on.

FM 25-101, Battle-Focused Training, defines near-term planning as 6 to 8 weeks out. With the use of the boards, our training meeting has made T-8 not only a reasonable but necessary week to discuss plans for. The company leaders now identify training events at T-8 so that our plan to the battalion, due week T-6, is never late. The training boards are evolving continually.

After discussing training, we reassess the METL. Then we talk about ranges and schools (putting notes at the bottom of the boards in appropriate weeks). We discuss maintenance and services (more notes for the bottom of the training plan). Then the first sergeant presents any last-minute issues (for no more than 5 minutes of discussion). The company commander asks for any comments, then adjourns the meeting. We have a pretty good track record of 1 hour for a meeting.

Located next to the training boards is the long-range training calendar that identifies major events out to 6 months. This allows us to create an even flow of our training focus. When we know what is on the horizon, like an NTC rotation, and what our current strengths and weaknesses are, we easily stay focused on our training requirements. Also posted on the walls of the training room are enlarged slides from the most recent quarterly training brief; they show our mission and current METL assessment and the status of physical training, weapons qualification, and CTT. We also keep a list of required classroom training (like Consideration of Others, drown-proofing, and PMCS certification), the last date they were taught, their required frequency of instruction, and the next projected date of training. This also allows us to plan and resource for training opportunities, that may arise on execution day.

Planning for flexibility should be part of the platoon's training schedule and should be agreed to by the company commander. The training board is the tool to focus the training meeting using the eight-step training plan. Although these training boards will undergo revisions as this procedure evolves, the overall productivity we have experienced so far is impressive. We are able to follow the doctrine in FM 25-100, Training the Force, and FM 25-101 more closely. Our training is much better planned, resourced, and executed, while our flexibility to deal with last-minute training distracters has improved greatly. We believe that all company-level units should consider adopting a similar scheme for scheduling their training.

**ALOG**

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# III Corps Warfighter Movement Control Operations

by First Lieutenant William Arnold

The author describes how the 49th Transportation Center at Fort Hood, Texas, used a warfighter simulation of a battle in Korea to validate new movement control concepts.

## South Korea

In December 1998, III Corps hosted a warfighter exercise at Fort Hood, Texas. This event introduced Force XXI concepts onto the corps battlefield. The exercise was a computer simulation of a battle in Korea. Corps Battle Simulation (CBS) and the Combat Service Support Training Simulation System (CSSTSS) were the combat and combat service support models used during the exercise. One of the many III Corps units participating in the exercise was the 49th Transportation Center (TC). The 49th TC is the movement control center (MCC) for the corps.

The Korean terrain that the corps faced was very mountainous, with limited avenues of approach and lines of communication. Although this terrain posed a problem, the 49th TC was able to accomplish its mission with the aid of Field Manual (FM) 55-10, Movement Control in a Theater of Operations; technology; and over 60 movement control teams. The 49th TC kept the roads free from clutter, and convoys moved continuously. During this warfighter exercise, many movement control techniques, methods, and tools were validated, allowing not only the 49th TC, but also the entire Transportation Corps, to take the next step toward the 21st century.

The publication of FM 55-10 in 1998 ushered in a

new era of movement concepts for the Transportation Corps. The FM provides the Transportation Corps with the doctrine needed to modernize its movement control operations for the next century. These concepts, although unproven and untested, provided the 49th TC a bridge to train and test some Force XXI systems and theories while facilitating rapid movement of units and sustainment items in support of corps combat operations during the exercise. The key concepts that the 49th TC tested during the exercise included using new planning techniques and automated communications and exercising situational awareness.

### Planning

FM 55-10 states, "Transportation planning is vital to the success of military operations." Thus the planning of support operations for the III Corps warfighter began weeks before the start of the exercise. Most of the major transportation planning occurred in the planning, programs, and organization section of the 49th TC. The highway traffic division (HTD) collected planned supply requirements and scheduled the times for supply movement.

HTD is composed of two sections—current operations and future operations. The initial phase of sched-



uling began with the future operations section coordinating requirements of the corps support groups (CSG's). These requirements, representing necessary movements, were developed into matrices. The matrices provided projected quantities of class I (subsistence), class III (petroleum, oils, and lubricants), and class V (ammunition) to be delivered to each supply center and also provided unit movement data for a 12-hour period. The future operations section took these matrices and integrated them into detailed sets of march tables for each 12-hour block of time.

The march tables provided information such as push/convoy names, number of vehicles, origin and destination locations, and a required delivery date for each convoy. All of this information was entered and calculated in a Microsoft Excel spreadsheet. Each main supply route (MSR) in the area of operation was represented on a spreadsheet and was linked to information about that route. This information could be used for all calculations. The march tables showed the plan for road space and movement times of the sustainment convoys on each MSR. The result was an integrated movement plan providing uncongested lines of communication.

The future operations section produced march tables for each 12-hour block within a projected 72 hours. A 72-hour packet of march tables was distributed to the CSG's, the division transportation officers, the materiel management center, the military police, and HTD's current operations section. The information in the packet also was placed on the automated tactical local area network (TACLAN), which made the movement programs available to anyone with access to the e-mail system. The march tables were updated and distributed every 24 hours, and each supply center reviewed the tables, submitted them to the future operations section for changes, and sent them to the 49th TC. The future operations section made corrections and notified the current operations section about the changes for their current 24-hour packet. In addition, the next 24 hours were planned, and a new 72-hour packet was produced and distributed.

### **Automated Communications**

To optimize transportation in the warfighter, all of the transportation platforms were linked to automated information and communications systems. This link to communications was the key to the uninhibited distribution of information. FM 55-10 calls for new state-of-the-art automated information systems embedded in all transportation platforms. The automated systems that

contributed to the overall success of the 49th TC were the TACLAN, the Combat Service Support Control System (CSSCS), an internal movement tracking data base, and a replicated movement tracking system in the CBS and CSSTSS simulations.

The TACLAN is a secure automated network that operates in the same manner as the World Wide Web. It provided III Corps units with e-mail and Intranet capabilities. This means of communication proved very effective, not only in delivering messages faster, but also in allowing messages to be produced as hard copy. Gone are the days of having a handset attached to your ear. During the warfighter, the TACLAN net was vital in publishing the 49th TC movement plan for all III Corps units. In addition, spot reports were received from the movement control teams, which allowed for rapid processing of information. The question, "who else needs to know?" always is extremely important, and the TACLAN allowed the 49th TC to send reports forward to all who needed them. During the exercise, everyone got the information they needed with a simple click of a button.

### **Situational Awareness**

CSSCS provides logistics and battlefield situational awareness for corps units. It presents a concise picture of unit requirements and support capabilities by collecting, processing, and displaying graphic information on key items of supply, services, and personnel. It also supports the decision-making process with a course-of-action analysis application. The 49th TC obtained current map information and unit locations from CSSCS.

The 49th TC also used an internal data base on Microsoft Access that provided a system for tracking the status of convoy movements. At the CSG, the movement control teams obtained initial input on sustainment convoys and then sent the information to the movement control center, where it was downloaded into movement reports. This system required less use of phones and radios to disseminate convoy information.

The simulations used during the warfighter were CBS and CSSTSS. Combined, these systems replicated the Movement Tracking System. CBS was used to simulate movements and fighting the war, while CSSTSS was used to track personnel and issue supplies. CBS and CSSTSS simulated actual convoys moving on the ground, as well as real-life obstacles such as chemical strikes and blown bridges. By virtually interacting with these simulations, the 49th TC was able to route, re-route, divert, and stop convoys that were headed into



troubled areas or change the destination or method of transport of supplies.

### Map Operations

The 49th TC's use of automated systems to provide movement control made them a major component in the corps' success during the exercise. With movement control at a premium, situational awareness became a necessity in allowing the movement control center to track and control movements through the battle. Map operations were one key to this awareness. The maps were updated every time there was a change to the situation. Route status, bridge status, enemy location, and friendly unit locations were just a few of the major factors in operations. Map personnel gathered information from the engineers, the military police, CSSCS, and the TACLAN to produce reports on the current enemy and friendly situations.

### Intransit Visibility

Intransit visibility was also a contributing factor in updating the current situation. The individual movement control teams were the backbone of the information flow in the 49th TC. The movement control center attached a movement control team to each CSG and placed a representative with each division transportation officer. These teams provided a link between the movement control center and the units. Through the movement control center, the teams coordinated movements of the sustainment convoys. Movement control teams also were placed at each checkpoint to provide additional movement control along the logistics routes. Situation reports were gathered from the movement control teams and passed to the movement control center using the response cell, which simulates the actions of a movement control team. In the III Corps Warfighter 1998, a movement control center response cell replicated the real-world capability of the Movement Tracking System. The response cell gathered information from the movement control teams and kept a watchful eye on their operations. Using CBS and CSSTSS, the response cell tracked the movements of each scheduled and planned supply and unit move for a block of 12 hours. The movement control center then could determine the status of any moving convoy or unit at any point in time.

Many sections of the 49th TC relied on updated map information and situational awareness. This information was most critical to the HTD. The future and current operations sections both required situation status at all times. The future operations section worked on planning and coordinating supply convoys that were to take place in the future. Knowing the current situation allowed the team to plan routes and departure times accordingly. On the other hand, the current operations section required situational awareness because it worked

with the movement control teams on convoy clearances and current convoy status. Positive in-bound clearances (PIC's) were used by the current operations section to confirm routes, times, and supply center locations. Each convoy received its final clearance before departing for its destination. The Theater Army Area Command also called in PIC's to the 49th TC to throughput general support stocks to the CSG's. In addition, the division transportation officers called in PIC's to the movement control teams, which in turn called the movement control center for final approval for departure. Unit moves were handled in the same manner as the sustainment convoys.

In addition to providing the movement control teams with convoy clearances, the current operations section took on the never-ending, grueling task of fitting in unprogrammed moves, tracking class VII (major end items) resupply convoys, and tracking and tasking air resupply missions. Each one of these tasks had very high visibility throughout the corps. Everyone wanted answers on these distribution issues, and the 49th TC spent many hours using its resources to provide the answers. When the fighters wanted their new tanks and Bradleys, or when they needed ammunition resupplied in a hurry, the 49th TC ensured that these commodities were shipped and tracked from start to finish.

The testing of new movement control techniques by the 49th TC during the III Corps Warfighter 1998 proved that the new FM 55-10 has valid concepts that will help the transportation community excel in the next century. These concepts improved the means of balancing requirements against capabilities and synchronizing and integrating logistics, which are fundamentals of movement control. The exercise allowed the 49th TC to combine transportation doctrine with Force XXI concepts, proving that Force XXI transportation concepts are the linchpin to an integrated logistics system that will sustain U.S. forces on the battlefield far into the 21st century.

**ALOG**

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# Force XXI Help Desk

by Helen R. Roche

As the 4th Infantry Division leads the way to the digitized Army of the future, a team of logisticians helps its soldiers overcome any problems with their new equipment.

**T**he 4th Infantry Division (Mechanized) at Fort Hood, Texas, is the Army's first digitized division—the "cutting edge" of Force XXI. This means that the division's soldiers are operating with prototype equipment that can require a lot of logistics support. To assist the soldiers in solving any problems with their new equipment, the concept of a Force XXI Help Desk was adopted in November 1995. The help desk became operational the following April.

The initial mission of the help desk was to provide the division with logistics support on its journey to becoming the first digitized division. This mission has continued, with the help desk providing the soldiers with logistics support and coordination during all of their training exercises and events as they use their new digitized "toys." The help desk takes trouble calls from the soldiers, establishes a "trouble report" in a data base, and dispatches the appropriate service provider to resolve the problem on the prototype equipment.

The help desk "team" consists of employees from the Army Communications and Electronics Command (CECOM) Logistics and Readiness Center, soldiers (automatic data processing technicians), and contractors (field and systems engineers). Together, they have established workable procedures that have enhanced the flow of trouble calls and reports from the division's units to the service provider who will be dispatched to help. The team serves as the direct link between the soldiers and the contractors for identifying equipment problems and ensuring that the correct repair personnel, parts, and tools are sent to the field.

During the March 1997 Task Force Army Warfighting Experiment (AWE) and the November 1997 Division AWE, several team members were fortunate enough to be deployed with the soldiers to tactical operations centers, where they worked directly with unit maintainers and program manager personnel to diagnose equipment problems. Whenever there was a problem, a trouble report was faxed or called in immediately to the help desk, and a contractor was dispatched to help resolve the problem.

In addition to providing assistance to soldiers, the team has gained hands-on experience in the field by seeing the equipment in action and using fielded equipment at

the help desk (including mobile subscriber equipment [MSE] and single-channel ground and airborne radio system [SINCGARS] and PRC-127 radios). The team also has received training in map reading (using grid coordinates) and on precision lightweight global positioning system receivers (PLGR's), which helps team members identify and locate units in the field.

The help desk has deployed and supported the 4th Infantry Division during four training exercises at the National Training Center (NTC) at Fort Irwin, California. During these NTC rotations, the help desk maintained command and control of all service providers by dispatching them "into the box" as part of convoys and by using high-mobility, multipurpose, wheeled vehicles (HMMWV's) with military drivers. Communication was maintained at all times using SINCGARS, near-term data radios, and MSE phones. The help desk also has provided facilities, phone lines, local area network (LAN) drops, and workspace to the service providers during their time in garrison.

The trouble report data base documents all trouble reports submitted since the help desk became operational. The help desk uses this data base to generate trouble report status and trend analysis reports, which enable the program executive officer, program manager, and service providers to determine shortfalls and incorporate improvements in hardware, software, and training on the digital equipment.

The help desk team members all agree that their participation in this "cutting edge of technology" project has been and will continue to be a challenging and rewarding experience as the Army continues its digital journey into the next millenium.

**ALOG**

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# Funding and Fielding New Warfighting Systems

by Robert C. Lafoon

If the Army plans to use the "cradle-to-grave" concept for supporting a system during its life cycle, it must program sufficient OMA funds and make those funds available when needed.

**T**he cost of modern warfighting technology is increasing at an alarming rate. Program managers (PM's) are procuring and fielding high-tech, high-cost systems that have astronomical associated support costs. To make matters worse, many PM's field these high-cost systems without providing proper, timely, and coordinated documentation. This coordinated documentation is needed at various levels of the Army to identify and program system support requirements accurately. Improperly documented systems do not generate enough operations and maintenance, Army (OMA), funds to support them. As a result, these high-cost systems receive little or no support funding for a year or more.

For the sake of readiness, major Army commands (MACOM's) are forced to sustain these unfunded systems with OMA dollars that were programmed for other systems and purposes. This causes shortfalls in OMA funding for the gaining units. For example, in 1996 and 1997, the Army Forces Command spent over \$3 million to support four major unfunded intelligence electronic warfare systems. These systems had been in the field for years. Other MACOM's were affected similarly.

## Major System OMA Fund Equation

OMA funding for major warfighting systems is derived primarily from a mathematical equation using three Department of the Army (DA)-level program management tools—

- **Battalion-level training model (BLTM).** The BLTM is the key variable required for generating the right amount of sustainment funds for a particular unit. A BLTM is built based on unit standard requirement codes and specific authorized equipment densities. The BLTM lists the major systems belonging to a particular unit according to the unit's modification table of organization and equipment (MTOE). The Army Training and Doctrine Command (TRADOC) provides Combined Arms Training Strategy (CATS) data to build and update BLTM's. There is a direct connection between the PM and the detailed data required to create accurate BLTM and training resource model variables. The accuracy and

timeliness of the BLTM data are impacted directly by basis-of-issue plan feeder data, incremental change packages, qualitative and quantitative personnel/equipment requirements information, and cost and fielding data provided by the PM.

- **Operational tempo (OPTEMPO).** The pace of operations and training that units need to achieve a prescribed level of readiness is called OPTEMPO. It can be measured by number of miles driven or number of hours flown and expressed in cost to operate and maintain these systems for a given period of time.

- **Training resource model (TRM).** The TRM contains cost factors for petroleum, oils, and lubricants; consumables; and reparables or depot-level repair transactions. The Army Cost and Economic Analysis Center (CEAC) updates the cost factors. PM's provide cost data to CEAC and to the Deputy Chief of Staff for Operations and Plans (DCSOPS), Headquarters, Department of the Army (HQDA), to develop or update new equipment cost factors. Once approved, this information is fed into the TRM. Some PM's use contractor logistics support (CLS) to sustain their systems. In many cases, gaining units become responsible for CLS costs when they receive fielded systems. However, in many cases, CLS costs are not factored into the costs. Consequently, incomplete data are input into the TRM. Thus, when the systems transition to gaining units, they come with limited or no warranty or support funds. The proponent (PM or MACOM) must validate CLS and provide the cost to CEAC in a timely manner so that the TRM output can be used to build the program objective memorandum (POM).

The equation for determining OMA funding is: BLTM equipment density x OPTEMPO (miles/hours per system) x cost factor (\$ per mile/hour) = system OMA funding requirements.

To understand this equation better, think of BLTM equipment density as quantity and type of vehicles owned, OPTEMPO as miles driven per year, and cost factors as operational and support costs per mile. If you own 3 cars, drive each car an average of 12,000 miles per year,



and your cost for fuel, insurance, and maintenance is \$0.30 per mile, the equation is: 3 cars x 12,000 miles x \$0.30 cost factor per mile = \$10,800.00 (This assumes that the 3 cars are of the same make, model, and year and are operated in the same or similar environments.) Therefore, you need \$10,800 to operate and maintain your three cars for 1 year. The result of the calculation, along with other costs, is the output of TRM.

### BLTM's, TRM's, and the Army's Budget Process

The POM is the Army's programming process. TRM outputs are an important element of the POM since they define OMA requirements for ground and air OPTEMPO. All BLTM outputs, and ultimately, TRM outputs, depend on accurate system documentation (TOE or MTOE) and cost factors. The PM is a major contributor of data needed to determine future fielding schedules and estimated costs for a new system.

The proponent for BLTM's and TRM's is the Training Directorate in the Office of the DCSOPS at HQDA. The POM process runs officially every 2 years and covers a 6-year period. For example, POM 02-07 (fiscal year [FY] 2002 through FY 2007) will be the next official POM. However, over time, the Army has modified the Planning, Programming, Budgeting, and Execution System process to include a "mini-POM" in the intervening years that covers 5 years (the mini-POM after POM 02-07 will be POM 03-07). Therefore, to determine operating and support requirements accurately for equipment to be fielded in FY 2002, key documents and cost factors must be input accurately and the BLTM- and TRM-building process begun in March 2000. This will ensure that when the equipment is fielded, the MACOM's receiving the equipment are resourced adequately to operate and maintain the equipment according to Army policy and approved training strategies.

### Doctrinal Changes

The process of moving responsibility for sustainment and support funding from the PM to the gaining unit needs repair. Unfortunately, PM's currently are not rated on how timely, accurately, and completely their systems are documented and resourced. However, they must be held accountable for accurate and timely system documentation, data collection, and information dissemination. PM's also should be held accountable for operability, maintainability, and sustainability of systems after fielding. Unless these issues are resolved, warfighter systems will continue to be fielded with incomplete, untimely, and inaccurate documentation.

To prevent sustainment funding shortfalls from occurring somewhere during the life cycle of systems, the current vague wording in Army regulations (AR's) must be changed to document the PM's responsibility for providing timely and accurate documentation and cost data

to the Army agencies responsible for programming OMA funds. AR 700-142, Materiel Release, Fielding, and Transfer, chapter 2, paragraph 2-8, should be changed to add the following subparagraph—

[The PM should]

c. Coordinate with and provide documentation, data, and cost factors as listed:

(1) Provide cost factors and drivers necessary for validation to the CEAC.

(2) Provide basis of issue plan (BOIP) and qualitative and quantitative personnel requirements information (QQPRI) feeder data to TRADOC. TRADOC must receive the data in time to prepare incremental change packages (ICP's) or create a base table of organization and equipment (TOE) before full materiel release. A modified TOE (MTOE) must be published no less than 6 months before system fielding.

(3) Provide validated documentation, data, and cost factors to HQDA, Deputy Chief of Staff for Operations and Plans (DCSOPS), ATTN: DAMO-TRC, for creation of battalion-level training models (BLTM's) and for input into the training resource model (TRM).

AR 700-142, chapter 3, paragraph 3-5, should be changed to add the following subparagraph—

h. Accountability, control, and sustainment of materiel proposed for release will be the responsibility of the program executive officer (PEO), program manager (PM), and materiel developer (MATDEV) until:

(1) A TOE is published and an MTOE exists with an effective date.

(2) The BLTM and TRM are in place.

(3) Documentation and actual sustainment funding can be transferred from PEO/PM/MATDEV to the post-fielding sustainment provider with no fiscal year gaps.

If the Army plans to use the "cradle to grave" concept for supporting a system during its life cycle, it must program sufficient OMA funds and make those funds available when needed so the system does not die along the way because of funding shortfalls. This process starts with timely, accurate documentation and cost factor data provided by PM's.

**ALOG**

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# Who Provides Tiedowns?

by Captain Steve Stowell

As the only line-haul transportation unit on a corps-sized post, the 513th Transportation Company is called on to move everything for everybody, and often we do it wrong. We have moved things ranging from 463L pallets to 35-foot-long, 3,000-pound cement barriers, but we usually move wheeled and tracked vehicles. In the interest of good customer service, we load equipment to be transported and secure it with tiedowns that we provide. That is where we go wrong.

Field Manual 55-30, Army Motor Transport Units and Operations, is the bible of transportation doctrine. It states that the mission of an Army truck line-haul unit is to provide the appropriate truck, trailer, and driver at the requested location and time. The driver also will provide technical advice on proper loading and tiedown techniques. The supported unit is responsible for loading its equipment and for providing blocking, bracing, packaging, crating, and tiedowns (BBPCT) for its line-haul loads. The line-haul driver then inspects and signs for the load and hauls it to its destination. The owning unit unloads the equipment upon arrival at the destination.

Supported units should be informed of doctrine and should follow it. However, many of the units we support are unaware of prescribed procedures, and they expect our line-haul units to provide tiedowns and load and secure their equipment. While we were able to do this in the past, we recently have been unable to support units in the manner to which they were accustomed, and that has become an issue between our customers and us.

I call this situation the Mayflower syndrome—supported units expect the transportation units to show up and move everything for them just like the moving company does. Because we have accommodated this expectation, we rarely move equipment as doctrine dictates. This may lead you to believe that there is something wrong with the doctrine. The question is—who *should* provide tiedowns for line-haul operations?

First, I must consider how the precedent was set that the transportation unit should provide tiedowns. Even though transportation units are not supposed to supply tiedowns, someone must have done a customer a favor and secured their loads. This probably happened a couple of times. A different unit probably saw this and requested

the same. If it was done for one customer, it had to be done for the next. Soon, it became commonplace for transportation units to provide tiedowns and secure loads. I believe that the supported units have forgotten that it was a favor for transportation units to secure their loads, and it is now done this way because "that's the way it always has been done."

The biggest problem with transportation units providing tiedowns is that doctrine, and therefore the modification table of organization and equipment (MTOE), does not support it. Our medium truck company has 60 M915 trucks and 120 M872 40-foot trailers. We are authorized two chains and binders per trailer to enable us to double stack the trailers for deployment. An average line-haul load requires eight chains per trailer. Even pooling chains to provide them for supported units would not generate a sufficient number to secure everything we may be required to haul.

There also are too many different tiedown requirements. For example, some equipment requires 3/8-inch chain, some 1/2-inch chain; some items need 14-foot lengths, while others need 10-foot lengths. Some equipment requires 5,000-pound straps, some requires 10,000-pound straps, while some can be secured with cable. It is impossible for a transportation unit to maintain all of these different tiedown materials. This is especially true with the corps support battalion concept, under which our transportation units may be required to support anyone or anything in a corps.

Doctrine calls for units to provide their own BBPCT because every piece of Army equipment is different and requires different tiedowns and securing techniques. The owning unit has the -10 series technical manual that describes the specifics of securing items. A vehicle operator cannot possibly remember all of these requirements. Also, making the supported unit's driver responsible for securing his own equipment using proper tiedowns and techniques promotes a sense of ownership. Most importantly, having the supported unit provide the tiedowns follows the doctrine that our transportation company's training, configuration, and MTOE are designed to support. By providing these tiedowns for a customer, the transportation unit continues to promote the Mayflower syndrome and will continue to be





□ A vehicle operator provides technical advice to soldiers securing equipment for transport.

expected to provide BBPCT.

On the other hand, does it make sense for similar units to buy duplicate tiedowns? Supported units would argue that it makes sense for the common transportation unit to maintain tiedowns that they all could use. Our medium truck company was recently called upon to move two brigades 300 miles within a month and a half. This required many more chains than we had on hand. Rather than each brigade buying chains to complete the mission, we were able to sign for chains from the unit movement office (UMO). When the missions were completed, we returned the chains, and no one had to spend any extra money. Having the installation provide chains is a viable, commonsense solution that should be available at any post with a UMO.

We continue to do things the way they have always been done in order to move our supported units. We

have been fighting this issue, and losing, because of misconceptions about doctrine. It is not an isolated problem. I have contacted other corps support battalions and found that Fort Drum, New York, and Fort Bragg, North Carolina, have the same problem.

I offer three solutions. First, to maintain the Mayflower perception and support our units the way they expect, transportation units could provide tiedowns. To do this without changing doctrine, transportation units' MTOE's would have to be adjusted to allow for appropriate BBPCT. The second solution is a compromise under which the installation UMO or directorate of logistics (DOL) would provide standby tiedowns for all units at that post. The disadvantage of this is that a DOL does not deploy with the unit. Thus, the best solution is the one that the Army would prefer—to follow doctrine. Supported units should be informed of transportation doctrine and supply their own BBPCT. We are designed to do this, and not doing so throws a wrench in the combat service support gears, which drive the combat arms, who ultimately win the battles.

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I certify that the statements made above by me are correct and complete: Janice W. Heretick, 6 October 1999.



# Landing the Kosovo Force

by John R. Randt



When the air war over Yugoslavia ended, the Army had to deploy a peacekeeping force to Kosovo quickly. The best route into the landlocked province was through a Greek port.

**P**ace in Kosovo was signaled from far away. It was announced by the roar of diesel engines and the clanking of metal as the combat vehicles of the U.S. Army's peacekeeping task force arrived at the port of Thessaloniki, Greece. Uncle Sam was on the ground and headed for Kosovo.

There was no time to lose. With the air war over but disorder swirling in Kosovo, General Wesley Clark, the Supreme Allied Commander Europe, requested the urgent movement of promised peacekeepers from NATO nations. Each day and each hour counted—the U.S. Army was needed in Kosovo immediately to begin peacekeeping duties.

The vehicles began streaming like a long ribbon from the *USNS Bob Hope* on 30 June 1999. Three days later, the scene was repeated with the *USNS Soderman*. Later, the contract vessel *Osprey* arrived from Beaumont, Texas, with equipment from several continental United States (CONUS) Army installations to augment the task force.

The unloading at Thessaloniki was directed by soldiers and civilians assigned to several Military Traffic Management Command (MTMC) ports under the 598th Transportation Group, which is headquartered at Rotterdam, The Netherlands. The transporters teamed up with soldiers of the 1st Infantry Division (Mecha-

nized), which is based in Germany, and together they quickly grouped the tracked and wheeled vehicles of all kinds into serials organized by unit.

Hundreds of 1st Infantry Division drivers fell in on their vehicles. Hours later, in the muted early morning hours, the vehicles were proceeding in long columns up the highway to Skopje, Macedonia. There, the main force of 1st Infantry Division soldiers, who had been airlifted from Germany, would join up with their vehicles. The move to Kosovo was on.

## Reaching Kosovo

MTMC began planning for deployment of a peacekeeping force in October 1998, as crisis loomed in Kosovo. Many ports were reviewed for a possible contingency operation, but planners kept coming back to Thessaloniki. The northern Greek city had excellent port facilities and road and railroad connections that led directly north, through Macedonia, to Kosovo.

With the start of the air war over Yugoslavia in March 1999, MTMC planners shifted their efforts. U.S. troops moved in force into the rugged terrain of Albania, which is southwest of Kosovo. While bombing went on across the border, MTMC developed a lifeline of shipments, carried by small vessels from Brindisi, Italy, to Durres, Albania. The shallow waters of Albanian ports and re-



□ The *USNS Bob Hope*, a newly commissioned roll-on-roll-off cargo vessel, is docked at the port of Thessaloniki, Greece (at left).

stricted maneuver room precluded using larger shipments. When the *Osprey* was routed to Durres on 2 May, the daily newspaper *ZerLiPopulli*, in the Albanian capital of Tirana, called it an "American Titanic" because of its size in the tiny port. The *Osprey* was the largest vessel ever to have visited Durres. "This [Kosovo] has got to be one of the hardest places to get to in the world," testified Dave Terry, the acting operations officer.

After some 90 days of sustained aerial bombing, the Serbs agreed to evacuate Kosovo and the air war came to an end. The need to move a peacekeeping force into Kosovo propelled MTMC and its maritime partner, the Navy's Military Sealift Command, into action.

### Moving the Peacekeepers

Plans and processes were considered thoroughly. Responsibility for executing the movement rested with

the 598th Transportation Group. It was decided that the 1st Infantry Division and other task force elements would move by rail and road to Bremerhaven, Germany. Once at that port, the heavy equipment would be loaded by



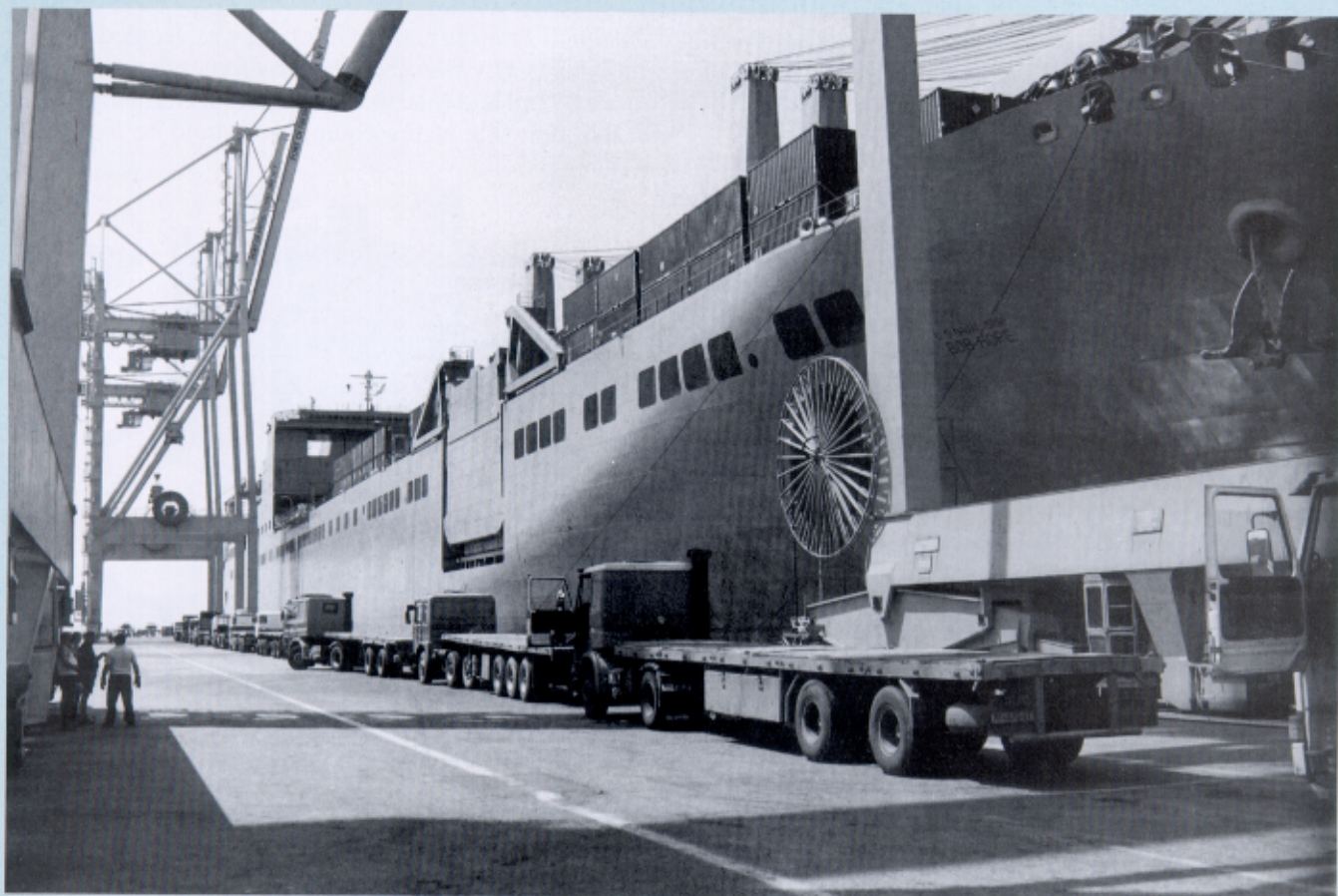
□ The 953d Transportation Company, from Piraeus, Greece, conducted the unloading operations at Thessaloniki. At left, the company commander briefs MTMC's unloading plan. Above, soldiers from the 119th Transportation Company, Fort Story, Virginia, direct vehicles off the *Bob Hope*'s stern roll-on-roll-off ramp.



the 838th Transportation Battalion, headquartered in Rotterdam. Two ships would be needed for the move from Bremerhaven to Thessaloniki. A third ship probably would be needed later to carry equipment from a CONUS port to Thessaloniki; this would turn out to be the *Osprey*. Unloading operations at Thessaloniki would be conducted by the 953d Transportation Company, which is located at Piraeus, Greece. Piraeus is the port of Athens, the Greek capital.

The plan became an execution document. Accurate





□ Flatbed trucks are lined up to receive some of the 119 shipping containers brought to Thessaloniki by the *Bob Hope*.

documentation was stressed, according to Captain Dan Joss of the 838th Transportation Battalion's Rhine River Detachment. "Many of the problems we encountered were corrected on the spot by the units," said Joss. "Most of our problems were [caused by] improper labeling, incorrect documentation, poor tie-down of the equipment, or hazardous material." Documentation teams observed the loading of 90 percent of all the trains departing from at least 10 railheads. The documentation made the job of the transporters loading the *Bob Hope* at the port of Bremerhaven much easier.

The *Bob Hope* arrived in Thessaloniki on 29 June, 6 days after departing Bremerhaven. The 949-foot ship—almost the size of one of the Navy's Nimitz-class aircraft carriers—brought 1,345 individual pieces of equipment, including 119 shipping containers. It was the first major deployment for the newly commissioned roll-on-roll-off ship, which was named after the comedian who entertained U.S. servicemembers around the world for 50 years.

The *Bob Hope* completed discharge of its cargo on 1 July. The *Soderman* arrived 3 July, and its unloading began at once. With all personnel hustling, the ship car-

goes were received, staged, and prepared for onward movement. MTMC transporters received enormous unloading assistance from soldiers and civilians of the 29th Support Group from Kaiserslautern, Germany; local contractors; and the port authority. The support group numbered approximately 170 personnel at its peak.

Most of the equipment was driven off the ship by 1st Infantry Division drivers. Troops from other NATO nations were present as well. Many of the heavy equipment transporters at the port were from the British and French armies. The French soldiers looked at the U.S. howitzers with interest since the guns were named for French battlefields where Americans had fought in World War I. Their poignant names included Cantigny, St. Mihiel, Luneville, and Argonne.

In all, hundreds of pieces of Army equipment were unloaded from the two ships. The equipment included M1 Abrams tanks, M2 Bradley fighting vehicles, howitzers, engineer equipment, and assorted other vehicles. According to Major Spero Pekatos, the commander of the 953rd Transportation Company, MTMC personnel worked around the clock to unload the vessels.

MTMC made the transportation requirements of the





□ Using a palletized loading system, soldiers at the Thessaloniki docks place a container on a truck. The container holds a standard deployment package.



□ M1 Abrams tanks discharged from the *Bob Hope* are readied for movement to Skopje, Macedonia, and then on to Kosovo.

peacekeeping force a reality. It was "a perfect example of how well a complex Department of Defense mission can be synchronized," said Colonel Tom E. Thompson, the commander of the 598th Transportation Group. Operation Joint Guardian was in full swing. In all, 7,000 Army troops, supported by tanks, howitzers, and construction equipment, were rolling down the highway to Kosovo.

*John R. Randt is the public affairs officer of the Military Traffic Management Command. A retired National Guard officer, he has a bachelor's degree in journalism from the University of Tennessee and a master's degree in public administration from Ball State University and is a graduate of the Army Management Staff College. He took the photos accompanying this article.*



# Devising Operational Logistics Doctrine

by Major Kent S. Marquardt

The Army plans to publish the next edition of FM 100-5 this year. The author believes it must include doctrine on operational-level logistics.

**T**itle 10 of the U.S. Code defines the Army's responsibilities to the Nation and establishes the requirement that the Army "be organized, trained, and equipped primarily for prompt and sustained combat incident to operations on land." In support of this mandate, the Army must be able to operate in joint, combined, and interagency environments. There are certain capabilities that only the Army can provide, which means that the other services, our allies, Government agencies, and nongovernmental organizations will require Army support in certain situations. In order for the Army to meet its potential responsibilities, its logistics doctrine must

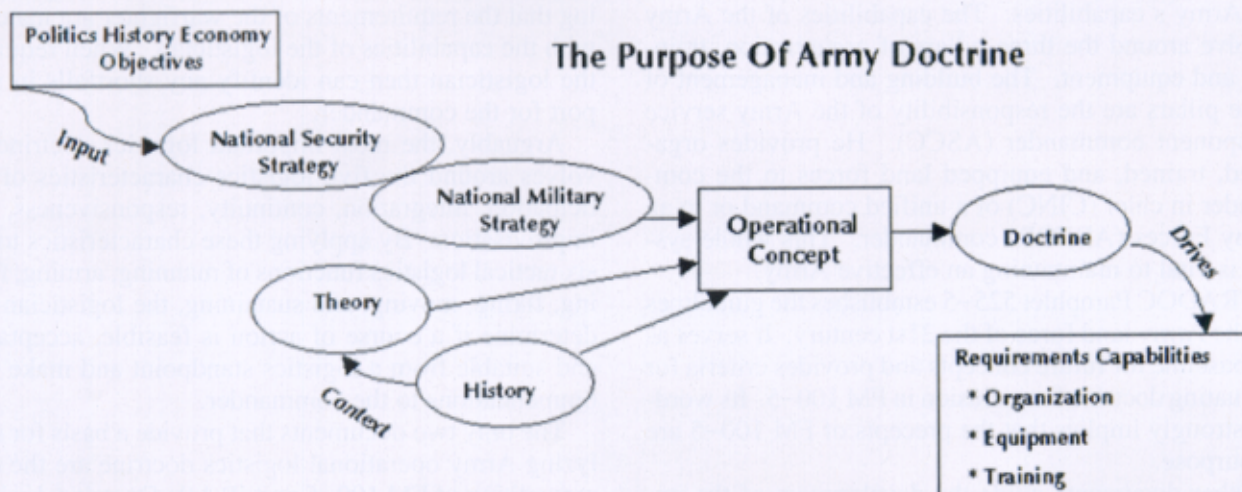
be flexible and comprehensive. Army logistics doctrine should apply to all areas that fall under the Army's responsibility and should link the foxhole to the industrial base.

Joint and combined logistics doctrine, as found in Joint Publication (JP) 4.0, Doctrine for Logistic Support of Joint Operations, is useful, but it does not specifically address the Army's mission of "prompt and sustained" land combat. There is a void between joint and Army logistics doctrine. I believe that we need to examine the different levels of war—tactical, operational, and strategic—as they apply to logistics and make changes to

LEVELS OF WAR	LEVELS OF LOGISTICS														
<p><u>Strategic</u></p> <p>A nation determines national or multinational strategic security objectives and guidance and develops and uses national resources to accomplish these objectives.</p>	<p><u>Strategic</u></p> <table> <tr> <td>Industrial base</td><td>Mobilization</td></tr> <tr> <td>Strategic lift (air &amp; sea)</td><td>Procurement</td></tr> <tr> <td>Material readiness</td><td>Deployment</td></tr> <tr> <td>Permanent ports &amp; bases</td><td>Support</td></tr> <tr> <td>Strategic stockpiles</td><td>Regeneration</td></tr> </table>	Industrial base	Mobilization	Strategic lift (air & sea)	Procurement	Material readiness	Deployment	Permanent ports & bases	Support	Strategic stockpiles	Regeneration				
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<p><u>Operational</u></p> <p>Links the tactical employment of forces to the strategic objectives.</p>	<p><u>Operational</u></p> <table> <tr> <td>Reception</td><td>Sustainment</td></tr> <tr> <td>Staging</td><td>Redeployment</td></tr> <tr> <td>Onward movement</td><td>Host nation support</td></tr> <tr> <td>Integration of forces</td><td>Intermediate staging base</td></tr> <tr> <td>Theater distribution</td><td></td></tr> <tr> <td>Intratheater airlift</td><td></td></tr> <tr> <td>Reconstitution</td><td></td></tr> </table>	Reception	Sustainment	Staging	Redeployment	Onward movement	Host nation support	Integration of forces	Intermediate staging base	Theater distribution		Intratheater airlift		Reconstitution	
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<p><u>Tactical</u></p> <p>The employment of units in combat. The ordered arrangement and maneuver of units in relation to each other and/or to the enemy in order to use their full potential.</p>	<p><u>Tactical</u></p> <table> <tr> <td>Arming</td><td>Manning</td></tr> <tr> <td>Fixing</td><td>Transporting</td></tr> <tr> <td>Sustaining soldiers and their systems</td><td>Fueling</td></tr> </table>	Arming	Manning	Fixing	Transporting	Sustaining soldiers and their systems	Fueling								
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□ The three levels of war and some of the logistics functions performed at each level are defined above.





□ The development of Army doctrine is determined by the Army's operational concept, which is formed by historical experience, military theory, and the political, economic, and other factors that influence the National Security and Military Strategies. Doctrine in turn governs the Army's requirements (what tasks it must do) and capabilities (how it will do those tasks).

existing Army doctrine to improve operational-level logistics. Specifically, we need to examine current logistics doctrine found in Field Manual (FM) 100-5, Operations, and in JP 4.0 and evaluate it against the criteria established in Army Training and Doctrine Command (TRADOC) Pamphlet 525-5, Force XXI Operations: A Concept for the Evolution of Full Dimensional Operations for the Strategic Army of the Early Twenty-First Century.

### Levels of War and Logistics

The levels of war are separate yet intertwined. The Joint Doctrine Encyclopedia defines them as "doctrinal perspectives that clarify the links between strategic objectives and tactical actions. Although there are no finite limits or boundaries between them, the three levels . . . apply to . . . war and operations other than war." A definition of each level and a discussion of its relevance is important to Army doctrine development because of the void linking tactical and strategic logistics. The levels of war are shown in the chart at left.

Joint doctrine directs that the "Services and the subordinate commander, down to their battlefield logisticians at the unit and ship level, deal with operational and tactical logistic responsibilities, including developing procedures, doctrine, and training for supplying personnel with all necessary materiel to do their jobs." The levels of logistics are identical to the levels of war; joint doctrine does not differentiate. The effective support of Army operations requires the successful conduct and integration of logistics activities at all three levels. The chart at left shows some of the tasks performed at each

level. Logistics doctrine at the operational level must provide Army forces with principles that can be applied to the tasks in this chart and that can be adapted to any situation the Army might face.

### Developing Logistics Doctrine

The Army's FM's explain how the Army intends to conduct war. While the manuals are prescriptive, they remain flexible enough to apply to every situation. If the conduct of war is the Army's primary *raison d'être*, then war should be the focus of doctrine. However, the Army must contend with a plethora of secondary missions, many of which do not even approach the common definition of war. The international situation is ever changing, and the Army must be able to adapt to many different events.

The chart above explains the development of Army doctrine. The three inputs to the left guide the creation of operational concepts. The National Security Strategy and National Military Strategy are influenced by such factors as politics, history, economics, and stated national objectives. Military theorists contribute to how the Army understands land conflict. From this understanding, the operational concept for land warfare is derived. This operational concept is translated into doctrine, and doctrine provides the fundamental principles that guide the missions and actions of the Army.

Doctrine also dictates the Army's requirements and capabilities. The requirements become operational tasks that the Army can expect to encounter in preparing for, executing, and concluding an operation. In turn, these requirements, driven by doctrine, guide the building of



the Army's capabilities. The capabilities of the Army revolve around the three pillars of organization, training, and equipment. The building and management of these pillars are the responsibility of the Army service component commander (ASCC). He provides organized, trained, and equipped land forces to the commander in chief (CINC) of a unified command or to an Army Forces (ARFOR) commander. This whole system is vital to maintaining an effective Army.

TRADOC Pamphlet 525-5 establishes the guidelines for the Army land force of the 21st century. It serves as the baseline for future concepts and provides criteria for evaluating doctrine for inclusion in FM 100-5. Its wording strongly implies that the precepts of FM 100-5 are its purpose.

Other documents guide the development of the operational logistics portion of FM 100-5. JP 4.0 provides the basic logistics doctrine for joint operations. Army logistics doctrine must mesh with joint doctrine because the Army will almost never conduct operations exclusively. FM 100-1, The Army, "... expresses the Army's fundamental purpose, roles, responsibilities, and functions, as established by the Constitution, Congress, and the Department of Defense." As the Army's cornerstone document, it defines the broad and enduring purposes for which the Army was established and the qualities, values, and traditions that guide the Army in protecting and serving the Nation. Finally, Title 10 of the U. S. Code provides broad guidance on the responsibilities and functions of the Army and requires the Army to furnish sustained land force support to the other Services in specific areas.

Doctrine is based on the operational concept gained from the National Security Strategy and National Military Strategy, from theories, and from experiences and history. Doctrine drives the requirements (tasks) and building (capabilities) of the Army. The ASCC uses the concepts of training, organizing, and equipping to provide the ARFOR commander with a viable fighting force. Doctrine should provide broad principles for evaluating operational-level logistics. Therefore, FM 100-5 should be written to provide operational logistics doctrine for the ARFOR commander and his staff.

### **Current Logistics Doctrine**

Doctrine for Army logistics is found in chapter 12 of FM 100-5. It provides a firm foundation on which a logistician can make logistics estimates and evaluate different courses of action during the military decision-making process. Having that foundation of logistics doctrine is a combat multiplier for the ARFOR commander and his staff, offering them a systematic way of ensur-

ing that the requirements of the warfighter are matched with the capabilities of the logistician. When required, the logistician then can identify any shortfalls in support for the commander.

Arguably, the most important logistics doctrine revolves around the five logistics characteristics of anticipation, integration, continuity, responsiveness, and improvisation. By applying these characteristics to the six tactical logistics functions of manning, arming, fueling, fixing, moving, and sustaining, the logistician can determine if a course of action is feasible, acceptable, and suitable from a logistics standpoint and make recommendations to the commander.

The only two documents that provide a basis for analyzing Army operational logistics doctrine are the current edition of FM 100-5 and JP 4.0. Doctrine, by joint definition, must include "fundamental principles." While "authoritative," doctrine "requires judgment in application." Therefore, the analysis of what should be Army operational logistics doctrine should focus on principles or characteristics of logistics and the logistics functions.

### **Characteristics of the 21st Century Army**

As noted above, TRADOC Pamphlet 525-5 lays out the characteristics of the force of the next century. At this point, it is useful to keep in mind the effects that the Army's mix of legacy and digitized forces has on logistics doctrine. Doctrine will be influenced by information-age technologies that will be available to the digitized force. However, doctrine must apply to the transitional legacy force as well as to the emerging digitized force. Legacy forces are the Army's forces as they are currently organized, trained, and equipped and include current systems that are vastly inefficient consumers of ammunition, fuel, and maintenance. Legacy forces train and organize around the division and brigade. This will remain the case until resources become available to allow the force to transition, in total, to a new organizational structure. Logistics doctrine needs to take this into account.

TRADOC Pamphlet 525-5 states that the characteristics of the 21st century force are doctrinal flexibility; strategic mobility; tailorability and mobility; joint, multinational, and interagency connectivity; and versatility in war and military operations other than war (MOOTW). The evaluation criteria for designing doctrine that meets these five characteristics are as follows—

- For doctrinal flexibility, operational logistics doctrine must apply to broad situations. It must be flexible and responsive enough to respond to changing circumstances and different scenarios.
- For strategic mobility, doctrine must provide the



minimum essential supplies and services needed to begin combat operations. The ARFOR commander continually must set priorities and adjust limited resources in order to provide support.

- For tailorability and modularity, doctrine must require efficiency in planning and execution. Because logistics units may be restricted by such factors as lift assets and time limits, doctrine must allow a logistics capability to be pulled from one unit and plugged into another.

- For joint, multinational, and interagency connectivity, FM 100-5 must contain doctrine that conforms to JP 4.0.

- For versatility in war and MOOTW, Army logistics doctrine must support operations across the spectrum. It must provide for sustainment of full-scale operations over indefinite periods, and it must identify requirements for force protection.

These characteristics can be used to evaluate the current logistics doctrine in FM 100-5 and JP 4.0.

### FM 100-5 Logistics Characteristics and Functions

The current edition of FM 100-5 contains the traditional logistics characteristics of anticipation, integration, continuity, responsiveness, and improvisation. As FM 100-5 concludes, these characteristics of logistics “enable operational success. They apply to war and operations other than war.”

According to FM 100-5, the tactical logistics functions are manning, arming, fueling, fixing, moving, and sustaining soldiers and their systems—

- Manning includes the systems of “personnel readiness, replacement, and casualty management [that] meet the Army personnel requirements from mobilization and deployment through redeployment and demobilization.”

- Arming “begins with peacetime planning and covers all phases of force-projection. The key to arming soldiers in the field is planning for a flexible logistics distribution system capable of surging for the main effort.”

- Fueling covers the furnishing of fuel to the Army’s high-performance ground and air vehicles. “Whether combat, CS [combat support], or CSS [combat service support], all units require uninterrupted fueling to function effectively.”

- Fixing maximizes equipment availability and “is a necessity in supporting a force-projection Army . . . Repairing equipment far forward is the key. A tailored maintenance capability will deploy, move with, and re-deploy with supported units. Modular support teams will provide additional capabilities. Battle damage as-

essment and repair (BDAR) provides the capability to quickly repair and return equipment to combat.”

- Moving involves transporting soldiers, supplies, and equipment “rapidly and in sufficient quantities to support combat operations. Automated systems provide in-transit visibility. The complicating effects of terrain, weather, and enemy interdiction demand well-planned engineer support and great flexibility of transportation planners and operators.”

- Sustaining soldiers and their systems includes personnel service support, health service support, field service support, quality of life services, and general supply support.

### JP 4.0 Logistics Principles and Functional Areas

JP 4.0 provides several principles of logistics that are a “guide for analytical thinking and prudent planning” by the combatant commander—

- Responsiveness is the “keystone” principle. Its basic premise is to provide the “right support in the right place at the right time.”

- Simplicity is the “avoidance of complexity. Mission-type orders and standardized procedures . . . establishment of priorities and preallocation of supplies and services by the supported unit can simplify logistic support operations.”

- Flexibility is the “ability to adapt logistic structures and procedures to changing situation, missions, and concepts of operation . . . [and] includes the concepts of alternative planning, anticipation, reserve assets, redundancy, forward support of phased logistics, and centralized control with decentralized operations.”

- Economy is the “provision of support at the least cost. When prioritizing and allocating resources, the commander must continuously consider economy.”

- Attainability “is the ability to provide the minimum essential supplies and services required to begin combat operations . . . An operation should not begin until minimum essential levels of support are on hand.”

- Sustainability is “a measure of the ability to maintain logistic support to all users throughout the theater for the duration of the operation . . . Long-term support is the greatest challenge for the logistician . . .”

- Survivability is the capacity of the organization to prevail in the face of potential destruction. High-value targets that have a distinct effect on logistics must be protected.

JP 4.0 also provides a doctrinal framework based on six broad logistics support requirement functional areas that the combatant commander must consider (similar to the tactical functions of FM 100-5)—

- Supply systems “acquire, manage, receive, store,



Operational Logistics Functions	Operational Principles of Logistics
Manning Arming Fueling Fixing Moving General engineering Sustaining soldiers and their systems	Responsiveness Simplicity Flexibility Economy Attainability Sustainability Survivability

□ This chart shows the operational logistics functions and principles that must be included in FM 100-5.

and issue materiel required by the operating forces to equip and sustain the force from deployment through combat operations and their redeployment.”

- Maintenance “includes actions taken to keep materiel in a serviceable condition, to return it to service, or to update and upgrade its capability.”

- Transportation “is the movement of units, personnel, equipment, and supplies from the point of origin to the final destination.”

- General engineering includes “the construction, damage repair, and operation and maintenance of facilities or logistics enhancements required by the combatant commander to provide shelter, warehousing, hospitals, water and sewage treatment, and water and fuel storage and distribution to enhance provision of sustainment and services.”

- Health services “include evacuation, hospitalization, medical logistics, medical laboratory services, blood management, vector control, preventive medicine services, and the required command, control, and communications.”

- Miscellaneous services “are associated with non-materiel support activities and consist of various functions and tasks provided by service troops and the logistic community that are essential to the technical management and support of a force (i.e., aerial delivery, laundry, clothing exchange and bath, and graves registration).”

The TRADOC Pamphlet 525-5 characteristic of doctrinal flexibility is critical to performing all of the above functions. Operational logistics functions must be adaptable to any logistics situation the ARFOR commander might face. The ARFOR commander in the theater will have various responsibilities that can be organized many different ways. Appendix A of FM 100-7, *Decisive Force: The Army in Theater Operations*, describes the different relationships that he might have with the ASCC, the CINC, and others.

### Evaluating Logistics Doctrine

The traditional tactical logistics functions are in-

adequate doctrinal guidance for the ARFOR commander. They do not provide the doctrinal flexibility necessary to address the breadth of situations that he might face. JP 4.0 functional areas mirror those of FM 100-5 in the functions of supply systems (sustaining soldiers and their systems), maintenance (fixing), transportation (moving), health services (manning), and miscellaneous services (sustaining soldiers and their systems). An important key function that the ARFOR commander might have to conduct is general engineering. Of particular importance to the land component’s fighting ability are the tactical logistics functions of manning (meaning personnel replacement operations) and arming. The functional logistics areas of JP 4.0 do not address the land fighters’ concerns about personnel service support, quality of life, and general supply support.

For the principles of logistics, FM 100-5 mirrors JP 4.0 in several areas. The definitions of responsiveness, continuity, and improvisation in the current version of FM 100-5 closely parallel the JP 4.0 principles of responsiveness, sustainability, and flexibility. If the Army is going to meet the TRADOC Pamphlet 525-5 criteria of strategic mobility and tailorability and modularity, it must provide minimum amounts of supplies, services, and personnel to execute an operation. In other words, the ARFOR commander must receive enough logistics support at the right time and place to be effective and in a manner that costs the least resources.

Integration is still key to the ARFOR commander’s operational logistics. Integration will ensure that the logistics plan is synchronized with the operational plan. Additionally, the FM 100-5 definition of anticipation closely resembles the JP 4.0 definition of simplicity. Simplicity, economy, and attainability, while not defined in FM 100-5, are needed if the ARFOR commander is to be effective in evaluating the operational logistics concept. Finally, survivability is vital to operational logistics: the ARFOR commander must consider what is needed to make operational logistics survivable when deciding on active and passive measures in war and MOOTW.



The TRADOC Pamphlet 525-5 characteristics of tailorability and modularity, strategic mobility, and versatility in war and MOOTW are appropriate for evaluating the principles of logistics. Flexibility is the key. If the ARFOR commander's plan is not flexible enough to respond to every conceivable situation, he needs to know the risks inherent in that course of action. That is the crux of the operational logistician's responsibilities, to advise the commander on the consequences and costs of the planned course of action. Planning for and subsequent execution of operational logistics involves foresight and anticipation. This means thinking through the logistics functional areas and advising the ARFOR commander on where there may be difficulties that ultimately will force him to make choices or set support priorities. It is imperative that the principles of logistics be useful to the staff in the military decision-making process. They must be well defined in doctrine while at the same time pertinent to the ARFOR commander and planners.

A successful operational-level logistics plan must adhere to the fundamental principles of the logistics characteristics of Army and joint doctrine. There must be changes in the definitions of the logistics characteristics, and logisticians must use those changes to leverage the technology of the information age. The principles embodied in doctrine are sound. However, they need to be redefined for the mixed force of the 21st century.

Operational logistics in the next century will offer challenging opportunities. Problems that have plagued modern armies from World War II to the Persian Gulf War might be solved. The logistician finally might have the tools that he has needed to operate like an efficient late 20th century business: the availability of near-real-time information and the ability to influence operations. However, as long as a single tank or artillery piece requires enormous quantities of fuel and ammunition, and as long as soldiers execute the National Security and Military Strategies, the "fog and friction" of war will require logistics doctrine that is comprehensive and flexible.

Future operational methods will require that operational logistics doctrine blend old principles with new challenges and new capabilities. The new FM 100-5 needs to focus on principles that are never changing. Broad guidelines must lend themselves to campaigns of highly integrated air, land, sea, space, special operations forces (SOF), and information operations. Future campaigns will require operational maneuver from strategic distances by highly integrated joint and combined expeditionary forces. The operational campaigns of the future will see a new level of precision offensives and highly deterrent defenses, plus stability and support

operations.

The next edition of FM 100-5 must contain operational-level logistics doctrine that supports the many logistics missions required of the Army. This logistics doctrine should include principles and functions of logistics that enable an operational commander and his staff to construct and evaluate courses of action during the military decision-making process. The logistics principles will enable the commander and staff to test a given course of action for feasibility, acceptability, and suitability. The logistics functions will ensure that all areas of operational logistics receive proper consideration and planning.

The tactical logistics functions and characteristics of FM 100-7 do not serve the operational commander and his staff fully. The logistics characteristics and principles of logistics in JP 4.0 do not cover all of the areas that concern the Army. Based upon the evaluation criteria offered by TRADOC Pamphlet 525-5, the logistics chapter of the next FM 100-5 must contain the operational logistics functions and operational principles of logistics shown in the chart at left. This chapter should address doctrine that supports the Army and should be entitled "Logistics." The operational logistics doctrine in this chapter should be called "Logistics Functional Areas and Logistics Principles" to ensure that the chapter meshes with joint doctrine.

These fundamental functions and principles are dynamic and can apply to any situation that the Army might face. When applied at the theater level, they ensure that the Army commander and his staff have weighed all operational-level logistics requirements against their capabilities and can measure and plan for the shortfalls. Because these functions and principles mesh with joint doctrine, they will ensure that the requirements of sister services, allies, and other agencies are met. **ALOG**

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# Operation Big Red '99

by Tony Johnson

A huge cargo ship slowly sinking in the middle of a busy harbor is usually cause for alarm, but not if it's the 400-foot-long *Motor Vessel (MV) American Cormorant*. Partially submerging is how the *American Cormorant* offloads the cargo of ocean-going tugboats, landing craft, and equipment and supplies it carries for the Army. Once it is partly submerged, the cargo simply is floated off.

Downloading landing craft, three 100-foot tugboats, a gasoline barge, and a 100-ton floating crane from the *American Cormorant* was just one part of Operation Big Red '99. The 2-week exercise joined U.S. and British active and reserve component forces in one of the largest combined maritime and logistics over-the-shore (LOTS) exercises in nearly a decade. It was led by the U.S. Army Reserve's 143d Transportation Command, which is based in Orlando, Florida. Most of the exercise took place in southern England, at the Combat Equipment Base-North Atlantic (CEB-NA) which is located at the port town of Hythe.

The *American Cormorant* is one of several forward-deployed, pre-positioned, heavy-lift ships in the Army's inventory, and it is the only semisubmersible cargo transport vessel in the Army Pre-positioned Stocks system. When called upon, one or more of the Army's pre-positioned ships can get underway quickly and rendezvous at an appointed site with everything needed to turn a beach into an expedient operating port.

The *American Cormorant* is based at the British-owned island of Diego Garcia, which is located in the middle of the Indian Ocean, and is part of the Military Sealift Command's Maritime Pre-Positioning Ship Squadron Two. "Prepo" operations crews maintain the vessels; they can move a fully loaded ship from its strategic anchorage to a port, where an operating crew takes over and sails the ship to a tactical operations area. CEB-NA is responsible for the maintenance and support of the Army watercraft, vehicles, supplies, and materials-handling equipment carried aboard the forward-deployed pre-positioning ships. Each of the ships therefore re-



□ The *American Cormorant* sits off the coast of southern England, ready to partially submerge so it can offload the vessels on board. The ship is the only semisubmersible cargo vessel in the Army Pre-positioned Stocks system.





## An exercise off the coast of England tests the deployment of equipment kept in pre-positioned maritime storage.

turns to Hythe periodically so the watercraft and equipment aboard can be inspected and refitted or replaced as needed.

For Operation Big Red '99, a prepo crew departed from Diego Garcia and sailed the 72,000-ton heavy-lift ship through the Suez Canal and the Mediterranean Sea to Rota, Spain. An exercise operational crew boarded there and continued the cruise to England. During the 4-day journey from Spain, all the boats and equipment on the *American Cormorant* were prepared for offloading

and operations. Underway preparations included unsealing, oiling, fueling, and testing the equipment, which had been sealed for some 2 years.

Once at Hythe, preparations for the offload began. On the evening of 7 June, the *American Cormorant* began the 10-hour process of partial submersion. By the next morning, the entire center cargo area of the bright red ship was under water. Army reservists were already aboard the *American Cormorant's* boats, ready to take control of them once they were afloat and clear of their



□ Above, with the *American Cormorant* partially submerged, the first landing craft is released from its moorings on the ship and pulls away. Note the bows of the tugboats to the right. At left, soldiers prepare to drive a cargo-container handler off one of the landing craft onto a landing ramp at Marchwood.





moorings. Even as the *American Cormorant* continued to submerge, the first landing craft was pulled free by a commercial tugboat. By 1100, the ship had sunk low enough for all of the remaining landing craft, barges, and tugboats to float free. Only the top portions of the *American Cormorant's* bow and stern remained above water as the last tugboat pulled away.

All the boats then headed to Hythe and the nearby British military port of Marchwood to begin unloading forklifts, rough-terrain container handlers, and similar devices that had been stored on them. Since the equipment had been dormant and sealed for 2 years, some difficulties in operating all of it were to be expected. The American soldiers teamed with their British military and civilian counterparts to decide the best way to fix the problems, such as a jammed landing craft ramp and a failing engine on one of the tugboats. The combined British-American team found solutions to their real-world equipment challenges, which provided some of the most valuable training during Big Red '99.

Once everything was off the *American Cormorant*, the exercise began in earnest. Landing craft were used to move a large variety of U.S. and British equipment and supplies and many personnel. A barge crane was used to raise vessels out of the water for repairs. Port evacuations were conducted, in which all the equipment that had been unloaded was loaded back onto the landing craft and moved to another location. Mock chemical spills had to be dealt with appropriately.

Tugboats were used in a variety of missions, from towing vessels with engine trouble back to port to re-



□ At top, three tugboats prepare to float off the partially submerged *American Cormorant*. One of the landing craft can be seen in the distance on the left as it heads for port. Above, a soldier of the 481st Transportation Company, USAR, from Mare Island, California, works to secure a line between the landing craft on which he works and a tugboat pulled up alongside. The tug responded to a mock engine failure and towed the landing craft back to port.





□ At the port of Hythe, a barge crane slowly lifts a landing craft out of the water (left). It will place the boat on the dock, where it will undergo needed repairs. Above, soldiers pass supplies from a landing craft to a tugboat.

sponding to a mock fire on a barge. In one real but unplanned event, a tugboat ran aground on a sandbar, and one of its sister tugs helped to pull it free.

Several aspects of the exercise tested interoperability. British soldiers, some of them reservists doing their annual training, participated in several missions. U.S. soldiers used the landing craft from the *American Cormorant* to move about 120 pieces of British military equipment to a landing site at the Browdown Training Area, some 18 miles away. Some U.S. soldiers received

hands-on training on the SA-80 rifle, which is the British equivalent of the U.S. M16.

As Lieutenant Colonel Cory Youmans, of the 143d Transportation Command and commander of the task force, observed, the soldiers actually used "the landing craft, tugboats, forklifts, and all the equipment for real missions . . . [They received] real-world training . . . [and learned] a lot about how to do it even better in the future."

The *American Cormorant* was reloaded and departed Hythe in early September. A similar exercise might be conducted this year, when the *MV Strong Virginian*, another pre-positioning ship, comes in for its biennial inspection and maintenance.

**ALOG**

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# Contracting for Depot-Level Maintenance

by Captain John R. Withers

As the Department of Defense seeks to save money and increase its efficiency, more depot-level maintenance is contracted to private companies. But how far should this trend go? The author offers his thoughts on the right mix of Government and commercial involvement in this key logistics function.

**T**he dissolution of the Soviet Union and the end of the Cold War changed the roles and policies of the U.S. military. During the Cold War, the United States prepared for a protracted major land war in Europe against a numerically superior foe. However, the change in the threat after the Cold War led to reductions in force structure and defense spending. The U.S. military has decreased from over 2 million people in arms to just over 1 million, and the budget needed to support them decreased from \$403.5 billion in fiscal year 1986 to \$260 billion in fiscal year 1997 (in constant 1997 dollars). Similarly, the portion of the budget devoted to depot maintenance has decreased.

Reduced funding has forced the Department of Defense (DOD) to review all of its programs to ensure that it receives a maximum return on the dollars it spends. Currently, the DOD depot maintenance system consists of 22 depots (down from 36 only a few years ago). These depots are an integral part of the maintenance support for 53,000 combat vehicles, 514,000 wheeled vehicles, 372 ships, and 17,300 aircraft. DOD spends approximately \$13 to \$14 billion annually for depot maintenance support—roughly 5 percent of the defense budget. As one can see, depot maintenance is big business.

In order to reduce its costs, DOD increasingly relies on third-party companies instead of internal assets to perform depot-level maintenance. But what is the best way for DOD to use third-party logistics companies in

depot maintenance? How far should the Government go in turning this vital logistics function over to the private sector? What options are available? And what role should DOD's organic depots play in the future? Here are some thoughts on the changing world of depot-level maintenance.

## A Public-Private Mix

Depot-level maintenance primarily entails rebuilding and overhauling equipment. This is the highest level of the DOD maintenance system. It uses industrial-type production lines; requires highly sophisticated skills, tools, and test equipment; and is performed in fixed facilities by civilian technicians.

Depot maintenance today is a mixture of public (DOD organic depots) and private sector (third-party companies) support. Title 10 of the United States Code governs the conduct of depot-level maintenance. It requires that DOD maintain the organic repair capability to meet certain essential wartime demands, sustain institutional expertise, and promote competition. In line with these requirements, the Defense Authorization Act of 1996 directed DOD to develop a comprehensive depot maintenance policy that—

- Establishes core capabilities that are properly sized to meet security requirements while maintaining cost efficiency and technical proficiency.
- Provides for organic performance of maintenance



and repair of any new weapon systems defined as core systems.

- Provides for public-private competitions for non-core work loads.

Simply stated, current legislation requires DOD to maintain a public depot system capable of providing depot-level maintenance for mission-essential equipment (commonly referred to as core systems). To improve the cost efficiency of depot maintenance, DOD may open depot-level support to competition between the public and private sectors to obtain the best value. The Defense Authorization Act of 1998 allows DOD to use up to 50 percent of its depot maintenance funds for contracting with third parties to do the work. (Previously, DOD could use only 40 percent of its depot funding for outsourcing depot-level maintenance.)

It is difficult to define "core" and "core competencies" when discussing defense operations. For a commercial business, core competencies are the areas in which the company can achieve a definable preeminence and provide unique value for customers. For Government depots, core refers to the minimum depot size and composition (personnel, skills, and plant equipment) required to support the most intense combination of contingencies specified in the Defense Planning Guidance (currently the two major regional conflict scenarios). Each service establishes core programs using the guidance and methodology provided by the Office of the Secretary of Defense. Examples of core programs for the Army are the M1A1 Abrams tank, the Bradley fighting vehicles, and the Patriot missile launcher. So the Army, by law, must maintain the capability to conduct depot-level repairs on this equipment.

### Private Sector Interest in Depot Maintenance

The drawdown of the military in recent years has affected not only DOD but also private industry. In an era of reduced defense procurement, commercial contractors have become more interested in sharing DOD's repair and maintenance work loads. Traditionally, many of these businesses were not interested in maintenance work because of its sporadic nature. However, with fewer new systems being procured, their interest in maintenance is beginning to peak. This interest is one of the factors leading to the current use of a public-private mix to perform depot-level maintenance.

DOD organic depots provide much of the depot maintenance for core equipment, while maintenance of noncore items is open to competition between public and private sources of repair. Typically, whoever can provide the best value for the most efficient cost gets the contract. This support is rather costly because, on the average, life-cycle maintenance (of which depot-level

maintenance is a subset) is estimated to be twice the price of a system's acquisition cost. The potential for realizing significant cost savings from outsourcing depot maintenance could be great.

Acquisition program managers decide on the source of repair for their weapon systems. Their decisions drive billions of dollars in support costs and affect near-term investments in support equipment, repair parts, training, and technical data (engineering drawings and technical manuals). In the recent past, acquisition program managers selected organic DOD maintenance depots for core equipment. However, it became obvious that commercial sources could execute depot maintenance work that exceeded organic capacities and capabilities; they also could do the work when DOD's capability had not yet been established. The result has been a trend toward greater private sector involvement in depot-level maintenance. Approximately 10 years ago, organic depots performed the maintenance for 75 percent of all equipment. Today, the private sector provides 40 to 50 percent of depot-level maintenance.

### Benefits of a Public-Private Mix

There are three advantages to the current public-private mix in performing depot-level maintenance: competition, cost, and readiness. Most important, according to the General Accounting Office (GAO), is competition. GAO maintains that competition between public and private sources is the main factor in reducing the cost of depot-level repair. This reduction occurs in both the public and private sectors. Competition with the private sector has caused Government depots to use better commercial practices and improve their operations. This has made them more competitive and greatly improved their ability to provide low-cost depot maintenance. Depot maintenance now is cheaper than third-party maintenance 62 percent of the time. Using depot maintenance also meets congressional mandates for readiness. Maintaining organic capability ensures that DOD will meet its requirement of supporting two major regional conflicts simultaneously; the depots will be able to surge quickly to meet increased work load requirements.

However, these advantages do not come without a price. There are disadvantages as well. First, because there are multiple choices for obtaining depot maintenance, the program manager must conduct a thorough cost comparison analysis. This process can be time consuming and possibly expensive. Second, maintaining a public depot system capable of supporting the demands of two major regional conflicts simultaneously means that depots must have excess peacetime capacity. Currently, excess capacity is estimated to be 40 to 45 per-



cent; in other words, DOD depots could conduct 40 to 45 percent more work. This excess capacity translates into the customer paying more for the maintenance performed (although, as we noted, 62 percent of the time depots are cheaper than the private sector).

### Outsourcing to Third-Party Companies

In light of all these factors, DOD is looking at alternatives to the public-private mix for obtaining depot-level maintenance. One of the changes under review is using third-party companies to provide *all* depot maintenance.

Outsourcing is rapidly becoming one of the dominant practices in commercial business today, particularly in logistics. Outsourcing is the transfer of a function previously performed in house to an outside provider. It involves the movement of work, but often not the transfer of responsibility and accountability or oversight, to the external provider. Using a third-party logistics company to provide logistics support is considered outsourcing.

Many businesses find that they can increase their profits by focusing on their core competencies and outsourcing functions not considered core. This is particularly true for maintenance support. For example, Southwest Airlines contracts out all aircraft maintenance to a third-party provider. By doing this, Southwest can avoid costly investments in facilities, personnel, and inventory. It uses the resulting savings to focus on what it does best—providing convenient, efficient air travel at low costs.

How does this compare to the Government, which already has invested billions of dollars in its depot maintenance infrastructure? The current argument for outsourcing revolves around the discussion of core competencies. According to Emmett Paige, former Assistant Secretary of Defense for Command, Control, Communications, and Intelligence, "Anything not directly involved in warfighting should be outsourced." The Commission on Roles and Missions of the Armed Forces established by Congress several years ago found that DOD needed to outsource more functions. It rejected the notion of core systems and recommended outsourcing depot maintenance for all equipment, including all depot maintenance for new weapon systems, to third-party providers. The Defense Science Board, a civilian advisory panel for DOD, has reached similar conclusions. It recommended that DOD only engage in direct warfighting policy, decision making, and oversight activities and that all other activities, especially depot maintenance, be outsourced to third-party providers.

There are several reasons why outsourcing can be the

right decision for private companies. Outsourcing can save money, which then can be spent on strengthening core competencies. By concentrating on core competencies, companies can prevent competitors from overtaking them in the marketplace. Outsourcing also leverages the third-party provider's expertise in that particular field. Finally, outsourcing increases flexibility. Government agencies weigh many of the same factors when considering outsourcing. By turning to outsourcing, they hope to—

- Avoid capital expenditures.
- Increase flexibility.
- Focus on core business.
- Improve productivity.
- Avoid labor problems.
- Reduce large staffs.

Outsourcing thus can be an attractive strategy for DOD as it works to create a smaller, more lethal, and more flexible military force during a time of decreasing funding. As then Deputy Secretary of Defense John White observed several years ago, "Outsourcing and privatization can provide a critical means of obtaining increased funding for the modernization of DOD's military equipment and systems." One of the big candidates for outsourcing, of course, is depot maintenance.

Depot maintenance is outsourced more readily than the other levels of maintenance. Maintenance at depots is similar to private-sector industry in many ways. It is performed in fixed structures, using production-line procedures, by civilian technicians. Commercial contractors produce all DOD equipment and could contract for the life-cycle maintenance of the equipment. Furthermore, some of the DOD equipment inventory has commercial counterparts. For many items, such as small engines and airframes, there are several commercial sources of repair available to choose from, which ensures that there will be competition for DOD maintenance.

Advocates of outsourcing depot maintenance cite many advantages. Outsourcing should result in lower costs. Using third parties also increases DOD's flexibility by allowing it to focus on its core warfighting competencies. Finally, in a period of reduced procurements, outsourcing will help maintain a healthy industrial base.

The Outsourcing Institute claims that outsourcing noncore competencies to third parties saves 10 to 20 percent over performing those functions in house. The Defense Science Board and the Commission on Roles and Missions of the Armed Forces expect DOD to achieve similar savings by outsourcing depot maintenance. They reached this conclusion by comparing possible depot maintenance savings to recent A-76 savings obtained by DOD. (Office of Management and Budget



Circular A-76 allows public-private competitions for commercial activities on military installations.) Apparently, DOD saves 20 percent by privatizing food service, grass cutting, civilian personnel administration, and similar functions.

These savings increase DOD's flexibility by allowing the department to focus more time and money on core competencies. DOD can use these funds to finance current force modernization programs. DOD is convinced that 50 percent of the entire logistics budget could be outsourced, which would free \$12 billion for modernization and significantly reduce the amount of DOD infrastructure.

Finally, in a time of less defense procurement spending, advocates believe outsourcing depot maintenance will help maintain a healthy industrial base. As previously mentioned, many commercial businesses that were not interested in maintenance work during the Cold War are becoming much more interested now. This is primarily because defense procurements have decreased in recent years.

### **Downside to Outsourcing**

There seem to be numerous advantages for using third parties for all depot maintenance. But there also are disadvantages, and, paradoxically, they include increased costs, reduced competition, and reduced readiness.

GAO has disputed the claims made by the Defense Science Board and the Commission on Roles and Missions of the Armed Forces that outsourcing results in lower costs. A GAO study of 254 items subject to depot-level maintenance in both the public and private sectors found that 201 of those items had higher maintenance costs after being outsourced. The annual net increase in costs was over \$6 million. The Navy recently outsourced the depot repair of one of its engines and paid \$204 million more annually than when the work was performed in its depots.

Outsourcing advocates claim that outsourcing alone results in lower costs. GAO believes that outsourcing can produce savings but attributes this to the effects of competition, not outsourcing alone. However, DOD outsourcing is not always conducted through competition. This often is caused by the unique nature of much DOD equipment, which does not have commercial counterparts. These DOD-unique items typically have a sole provider (usually the manufacturer), who is able to conduct depot-level maintenance. Since DOD has begun seeking to expand the use of outsourcing, it has been contracting many items from a sole source. Program managers often choose the original equipment manufacturer as the source of repair for depot maintenance.

There also is an alarming trend among procurement program managers of not purchasing the technical data rights for their equipment. Technical data provides the engineering drawings and information needed to repair equipment at the depot level. Not acquiring technical data from the manufacturer severely affects DOD's ability to solicit competition for future depot repairs. As of 1998, 46 of 71 ongoing acquisition programs had made source of repair decisions. Thirty-three of those 46 programs selected private companies as their source for depot-level repair, and 14 of those 33 did not buy the technical data for their equipment. For those 14 programs, future competition for depot maintenance is unlikely. In such cases, DOD is at the mercy of the manufacturer. Unfortunately, most program managers did not conduct a cost comparison before selecting the private sector as the source of repair.

Finally, outsourcing all depot maintenance may reduce readiness. The current depot structure maintains excess capacity to meet the possible surge requirements of two simultaneous major regional conflicts. It is unlikely that commercial maintenance managers will maintain such excess capacity because to do so is costly and cuts into their profit margins. As a consequence, they will not be able to expand production rapidly to meet surge requirements. More importantly, DOD will not have the skilled people it needs to assist in such a situation. GAO believes that outsourcing all depot maintenance will be more expensive and result in unacceptable readiness.

### **Privatization in Place**

Fortunately, there is another choice for the future of depot maintenance: privatization in place. At first glance, this may seem exactly like outsourcing. However, while privatization in place is a type of outsourcing, it has some significant differences.

Privatization in place involves the transfer or sale of Government assets to the private sector. When privatizing, the Government relinquishes control of, and investment in, the activity. As J. Michael Brower, a program specialist with the Immigration and Naturalization Service who previously worked in the Office of the Assistant Secretary of the Army for Financial Management, notes, "The Government farms out the function and often the wherewithal to do it, getting out of a business more logically performed by private sector."

Under privatization in place, DOD turns a depot over to a private contractor. The contractor (a third-party company) then performs depot-level maintenance in the depot using former DOD employees. DOD has outsourced the depot to a third party, but the local



community keeps the installation and the jobs. The employees work for a third-party company such as Boeing or United Defense instead of Uncle Sam. Unlike regular outsourcing, which results in the Government closing the depot outright, privatization in place keeps the depot operating and maintains jobs within the local community.

The Defense Science Board and the Commission on Roles and Missions of the Armed Forces claim that privatization in place will result in savings of 20 percent, based on comparisons with recent A-76 savings. Saving jobs in local communities makes privatization in place popular among civilian elected leaders. Emmett Paige warned, in talking about outsourcing all depot maintenance, that one should "expect Congress to defend their constituencies." Perhaps privatization in place represents a good compromise.

The depots that have been privatized in place thus far were slated for closing by the Base Realignment and Closure Commission. Two of them are the Naval Surface Warfare Center, Crane Division, in Kentucky, and the Air Force Aerospace Guidance and Metrology Center (now called the Boeing Guidance Repair Center) in Ohio. Certainly the local communities in these cases were happy that the depots did not close but only changed ownership.

The disadvantage of privatization in place is cost. Again, there is disagreement among agencies about the actual savings realized by privatization in place. According to GAO, privatization in place initiatives have resulted in increased costs rather than cost reductions. A GAO study found that maintenance at the Boeing center in Ohio costs \$13 to \$23 million more annually than when the Air Force operated the facility, and maintenance at the former Navy Crane facility costs \$59 million more annually. This is a great difference from the 10 to 20 percent savings quoted by the Defense Science Board and the Commission on Roles and Missions of the Armed Forces. The main reason for this discrepancy was that the board and the commission compared A-76 competitions, involving relatively low-skilled labor, to depot maintenance that typically requires highly skilled technicians. Furthermore, the A-76 functions require little capital investment for outsourcing, which encourages more companies to compete. Depot maintenance requires much more capital investment and infrastructure, which tends to limit competition.

Each of the alternatives—the existing mix of public and private performance of depot-level maintenance, outsourcing, and privatization in place—has merit. The current depot system offers competition, arguably lower costs, and a ready source of repair personnel in case of national emergency. Completely outsourcing depot

maintenance allows DOD to focus on its warfighting competencies by alleviating some of the logistics burden. Privatization in place also alleviates some of the logistics burden while keeping the depots in the local communities.

Three reasons are cited for outsourcing: to reduce costs, to focus on core competencies, and to increase flexibility. The principal reason for outsourcing is reduced costs. However, the outsourcing alternatives do not make a strong case for reduced costs. In fact, investigation by the GAO shows depot maintenance by third-party providers often results in increased costs.

In a period of decreasing budgets and changing missions, DOD must look for ways to increase efficiency and decrease spending. Measures that reduce the \$13 to \$14 billion spent annually on depot maintenance undoubtedly will free up funds for other requirements such as modernization. Alternatives that use all third-party providers or privatize some depots in place appear, at first glance, to be viable options. However, research shows that the best method of providing depot maintenance is the current one.

Using a mixture of public (depots) and private (third-party companies) sources for depot-level maintenance provides the lowest costs, ensures competition between the public and private sectors, and enhances readiness. To ensure future competition, DOD should continue to buy the technical data rights for all procurements. Availability of technical data allows DOD to open the depot repair of equipment to competition for the best value.

DOD should continue to seek ways to reduce spending and enhance readiness. For now, the best option for performing depot-level maintenance is the current one.

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# READER SURVEY RESULTS

**T**hanks to all of you who took the time to complete and return our reader survey. Your responses will assist us in providing you with information that may help you do your jobs better and in offering interesting reading on subjects that appeal to you.

Our last reader survey was published in the September-October 1995 issue and was distributed to 44,856 readers. The total number of copies of the September-October 1999 issue was 34,280, which is a decrease of 10,576. This decrease is surprisingly small considering the downsizing of the Army that has taken place during that time and the seemingly limitless advances in technology that have made information available electronically. *Army Logistician* has been available on the World Wide Web since 1995. However, only 5 percent of our respondents indicated that they read *Army Logistician* on line.

We are pleased that 55 percent of you receive your issues before the cover date, and 24 percent of you receive your copies during the first month of the cover date. Sixty-two percent of you receive *Army Logistician* through unit or office distribution. Forty-five percent route the issues through the office or give them to someone else, increasing their potential usefulness even further.

Sixty-nine percent of you read more than half of each issue, which is an 8-percent decrease from our last survey. We are happy to learn that 66 percent of those completing our survey agree that our magazine is easy to read and understand and is well written. Seventy-three percent of you feel that *Army Logistician* contains useful information that is helpful on the job, makes you think, or is a good source of reference material.

Only 47 percent of our readers who responded are happy with our covers. On the flip side, 59 percent agree that our use of color gets their attention. (Our publishing charter limits us to using only one color ink, plus black ink, in printing each issue.)

Forty-eight percent of those completing the survey indicated that the last six issues of *Army Logistician* have covered more subjects of interest. At the same time, only 35 percent have used suggestions, ideas, or information from *Army Logistician* to better understand their jobs, improve their performance, or solve logistics problems in their organization.

Not surprisingly, 53 percent of readers responding would like to see the *News* column expanded. A whopping 71 percent would like to see columns added on career programs, training, and courses. Twenty-one percent find the *Systems* column very helpful, and 58 percent find it sometimes helpful.

As with our 1995 survey, the majority of our readers would

like to see more articles on operations at the unit or company and battalion or brigade levels (78 and 70 percent, respectively). Again like our 1995 survey, our readers want *more* articles on supply (79 percent); maintenance (83 percent); transportation (63 percent); services (67 percent); logistics management (57 percent); environmental issues (51 percent); professional development (75 percent); joint logistics (57 percent); and Defense and Army logistics plans, programs, and policies (56 percent). Sixty-nine percent want us to publish *fewer* articles on facilities. As you know, our readers are our authors, so we encourage readers to use *Army Logistician* as a medium for sharing their experiences.

Sixty percent of our readers responding were military. Forty-two percent of those were enlisted personnel, 16 percent were warrant officers, and 42 percent were officers. The number of Department of the Army civilian readers increased 4 percent over the 1995 survey. While our Army Reserve readers increased 3 percent, our Active Army readers decreased 1 percent and Army National Guard readers decreased 4 percent. Readers in the "other" category, which includes other armed services, contractors, and retirees, increased 6 percent.

According to a statistical profile obtained from the 1995 survey data, our typical reader was a commissioned officer in the active Army, aged 40 to 45, in grades O4 to O6, serving in a staff position at battalion or brigade level, providing a logistics function, and holding a master's degree and a MEL4 (military education level 4). Today, the top three categories of our readers are almost evenly divided among commissioned officers in the reserve components in grades O1 to O4, enlisted personnel in the reserve components in grades E7 to E9, and civilians. The majority serve in the continental United States in staff positions at the major command or battalion or brigade level, are over 40 years old, and have at least a bachelor's degree plus a MEL4. (An almost equal number of our readers had bachelor's degrees [34 percent] and advanced degrees [33 percent]).

We especially appreciate those of you who shared personal complimentary notes or suggestions for improving our magazine. Those suggestions are being reviewed carefully and will be implemented if possible.

We hope you will not wait until the next reader survey to let us hear from you. We encourage you to share your thoughts, ideas, and opinions on logistics subjects in our regular *Log Notes* column. Having your thoughts and concerns published may elicit helpful responses from other readers. If you have difficulty finding the time or words to write, give us a call at (804) 765-4761 or DSN 539-4761. If you prefer, you can send an e-mail to [alog@lee.army.mil](mailto:alog@lee.army.mil). —Editor



# Auto Parts at a Discount

by Tony E. D'Elia

A DOD partnership with NAPA expedites the procurement process and cuts the cost of repair parts by as much as 50 percent.

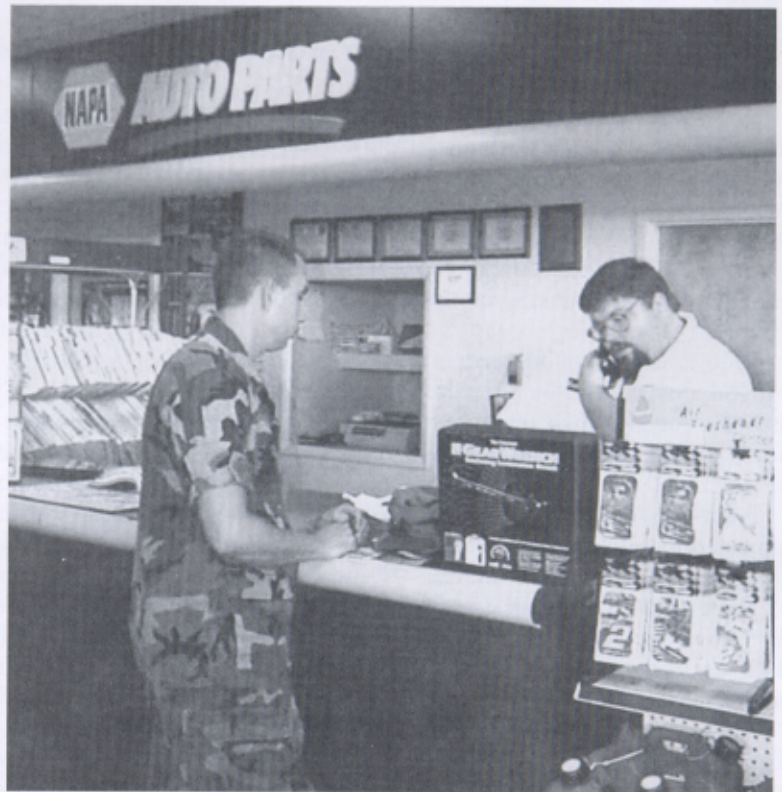
**S**ears does it. Coca-Cola does it. Firestone does it. Now the Department of Defense (DOD) is doing it. They're all reaping big dollar savings while taking advantage of the huge nationwide corporate distribution network of NAPA—the National Automotive Parts Association. The Defense Logistics Agency's (DLA's) partnership with NAPA is part of its new strategy for improving the procurement process for Government credit card users. Through DLA's corporate contract with NAPA, local purchasers have access to a catalog of over 220,000 automotive parts. Motor pools and Government fleet managers registered for the program are getting 20 to 50 percent off the list price. Meanwhile, they also are enjoying the convenience of "cash-and-carry" purchasing by using their Government credit cards at local stores that sometimes are only minutes away.

The International Merchant Purchase Authorization Card (IMPAC) that was instituted several years ago by the Government was a giant step toward streamlining the Government procurement system. It eliminated the bureaucracy and red tape involved in local purchases under \$2,500. Unfortunately, eliminating the procurement infrastructure also meant eliminating the expertise provided by procurement professionals. The NAPA corporate contract, which is managed by the Defense Supply Center, Columbus, Ohio, puts this expertise back into Government procurement without resurrecting all of the red tape and expense ended by credit card purchasing. DLA has negotiated contracts with major vendors covering large numbers of items. By grouping the items by manufacturer, single contracts can be awarded regardless of which inventory control point manages the items.

Combining the convenience and efficiency of a credit card with the buying power of DLA gives military customers better prices and better service. Purchasers buy, either by Govern-

ment credit card or a Military or Federal Standard Requisitioning and Issue Procedures requisition, from the manufacturer's inventory when possible and use the manufacturer's distribution system when feasible. Contracts can include all national stock number-specific items produced by a manufacturer, or they can incorporate a manufacturer's entire commercial inventory. Time and cost savings are generated by eliminating repetitive processing of solicitations, quotes, and awards.

In an effort to become DLA's primary source of supply for automotive and heavy-duty parts, NAPA has included DLA and its military customers in what it calls its



□ Staff Sergeant John Crane visits his local NAPA dealer to pick up repair parts for his Ohio National Guard Combined Support Maintenance Shop in Newark, Ohio.





□ An Ohio National Guard Combined Support Maintenance Shop mechanic works on one of the 5,000 work orders the unit gets each year.

"Major Account Program." DLA thus joins such corporate giants as Sears, Coca-Cola, Firestone, Goodyear, Penske Truck Leasing, Midas, United Parcel Service, Amoco, Exxon, and Marathon Oil. As a result of joining this program, DLA purchases from NAPA increased more than 40 percent in 1999.

With 6,200 stores nationwide, NAPA offers free delivery and an on-line ordering system called ACCESS. Often, in-stock items are delivered in minutes, depending on the location of the nearest NAPA store, and out-of-stock items can be delivered within 24 hours. The local stores are supported by 70 distribution centers located throughout the country.

Fort Stewart, Georgia, equipment maintenance supervisor Wayne Mobley deals with two local NAPA dealers. He and a dozen mechanics are responsible for maintaining approximately 300 vehicles and items of equipment such as road graders, forklifts, and bulldozers. "It's so much quicker than the old way of doing a lot of paperwork to see if the depot has the part," said Mobley. "You can't get a starter for a '97 Ford through the Government, because there's no [national] stock number for it," said Mobley. "But you can get it from NAPA."

The Iowa Army National Guard registered for the NAPA contract last year. "If I can get all 16 of our maintenance facilities on this NAPA contract before the end of the fiscal year, our state should be able to save \$150,000 on just one item that we need," said First Lieutenant Steve Delmege, maintenance manager.

NAPA also will assist DLA's maintenance locations by developing a stock inventory assortment based on the vehicles in their fleets and past experience. For example, in Newark, Ohio, the local NAPA store manager has agreed to keep 10 high-mobility, multipurpose, wheeled vehicle steering gear rebuild kits in stock to support the

Ohio Army National Guard's vehicles.

"That keeps them off our shelf and reduces our stockage level," said Staff Sergeant John Crane of the Guard's Combined Support Maintenance Shop. "They deliver within an hour or less. That allows me to stay here in the shop to do the things I need to do instead of running down to the store. They're very responsive to our needs, and we pay as we go."

The NAPA partnership has another important advantage: When parts become obsolete, the Government won't be left holding them, since it is NAPA's responsibility to eliminate the items from its inventory.

A future NAPA program, the Distribution Center Stocking Program, will allow customers with regular large purchases to send their orders directly to the nearest NAPA distribution center by fax or e-mail. Their orders will be pulled, packed, and shipped to the local NAPA dealer, who will deliver them to the military customer.

Partnerships such as the one with NAPA move DOD from the old inventory-based supply system to an economically efficient distribution-based supply system. The military services no longer can afford to purchase and manage large numbers of spare parts in the field, but they still need the right parts at the right place at the right time.

For more information about the NAPA contract, call (614) 692-1755 or DSN 850-1755, or send an e-mail to Calvin\_Tubbs@dsc.dla.mil.

**ALOG**

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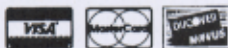
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