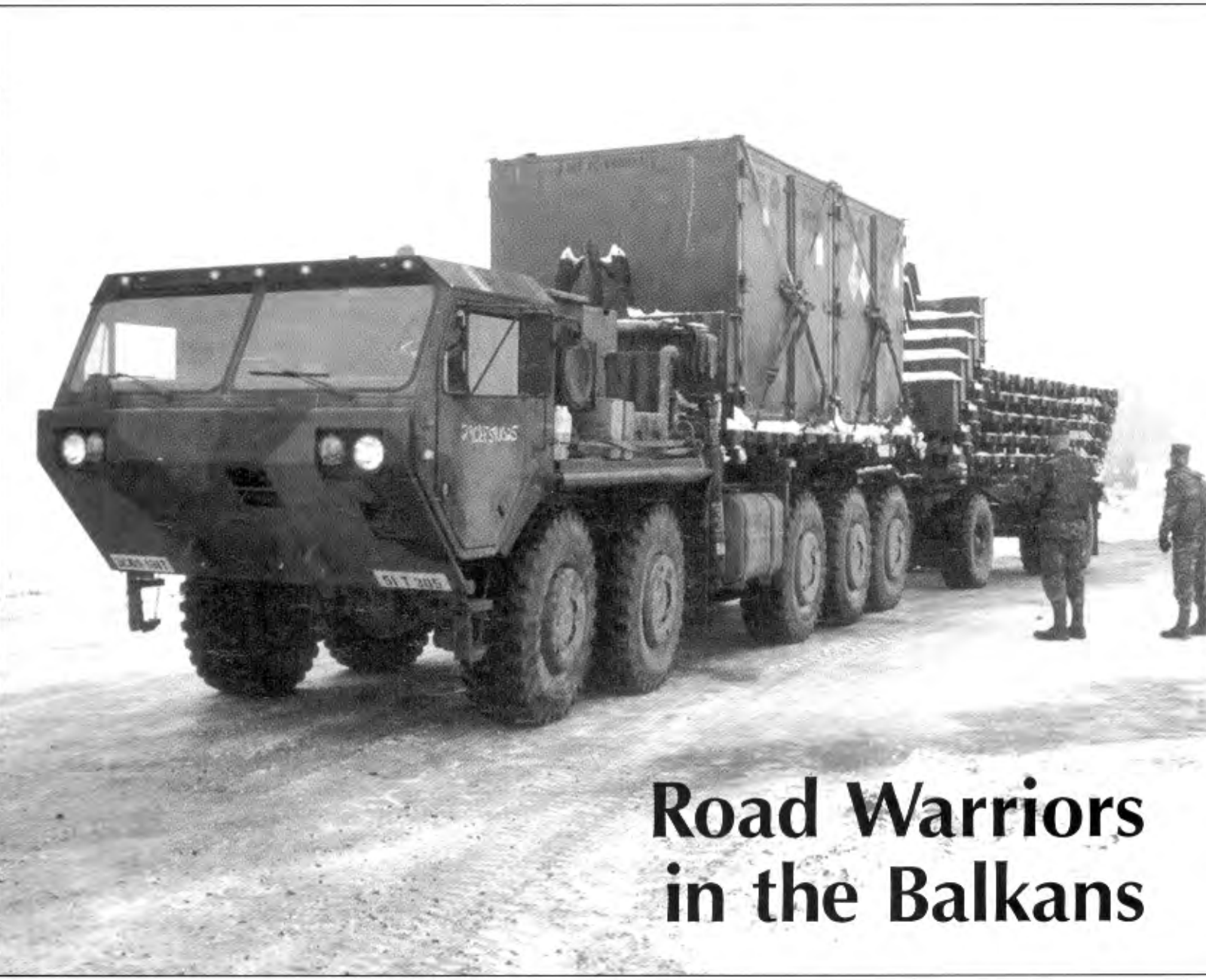
ARMY LOGISTICIAN

MARCH-APRIL 1997



Road Warriors in the Balkans

Also in this issue—

- Ten Problems an LAO Can Solve
- Logisticians Chart Course for Future Support
- Velocity Management at the NTC

PB 700-97-2 Headquarters, Department of the Army

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ARTICLES

DEPARTMENTS

Mission: *Army Logistician* (ISSN 0004-2528) is the Department of the Army's official bimonthly professional bulletin on logistics, prepared at the Army Logistics Management College and published by the Army Combined Arms Support Command, Fort Lee, Virginia. 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 both genders.

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 SUITE C300/2401 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-dns1.army.mil.

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COVER

Among the many stories of Operation Joint Endeavor was the deployment of the 181st Transportation Battalion—"the Road Warriors"—by motor convoy from Mannheim, Germany, to the intermediate staging base at Kaposvar, Hungary. Once there, the battalion began supporting the move of Task Force Eagle into Bosnia. The saga of the Road Warriors begins on page 23. In the cover photo, an M1075 palletized loading system truck is ready to roll at Kaposvar.

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:

DENNIS J. REIMER
General, United States Army
Chief of Staff

Official:

JOEL B. HUDSON
Administrative Assistant
to the Secretary of the Army
02975

Coming in Future Issues—

- Drawing CEG-E Equipment for Joint Endeavor
- Shelf-Life Management
- QWG LOG: Allied for Logistics
- Redesigning PMCS
- Force Provider Deploys to Bosnia
- A Transportation Platoon at the NTC
- AWE Tests New Log Concepts
- Apache Automated Phase Maintenance
- Bridging Peace in Croatia and Bosnia
- CSS: An Integrated Force-Planning Component
- Intermediate Staging Base Operations in Italy
- Retrograding From Guantanamo
- Supply and Property Accounting Procedures
- Deploying for Joint Endeavor
- MANPRINT Safety Domain
- Warrant Officer Corps Report
- Janus Simulation Training
- Class IV for Forward Operating Bases
- Wargaming Strategic Logistics
- Find It and Fix It: The Art of Risk Management

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ALOG DIGEST

ARMY VISION 2010 RELEASED

In a press conference last November, General Dennis J. Reimer, Army Chief of Staff, presented the blueprint for the Army's contributions to Joint Vision 2010. Army Vision 2010 spells out how the Army can achieve "dominant maneuver," one of the five main principles identified in Joint Vision 2010. Dominant maneuver is the multidimensional application of information, engagement, and mobility capabilities to position and employ widely dispersed joint air, land, sea, and space forces to accomplish assigned operational tasks. The vision also demonstrates how the Army will support the other four key tenets of Joint Vision 2010: precision engagement, full dimensional protection, focused logistics, and information superiority.

"Focused logistics" may be of particular interest to logisticians. It encompasses the fusion of information, logistics, and transportation technologies to provide rapid crisis response, to track and shift assets even while en route, and to deliver tailored logistics packages and sustainment directly at the strategic, operational, and tactical levels of operations.

Army Vision 2010 identifies the patterns of operation, concepts, enablers, and technologies the Army needs in the 21st century to convert its vision into reality. It introduces concepts for channeling the vitality and innovation of the Army's soldiers and for leveraging technology to achieve new levels of effectiveness as the land component member of the joint warfighting team. In addition, it calls for use of the aggregate capabilities of U.S. military and their allies in a coalition that will, in effect, "lighten up the heavy forces and heavy up the capabilities of the light forces."

Army Vision 2010 will be the linchpin between Army XXI, the Army's near-term force that is being formed and trained at Fort Hood, Texas, and the "Army After Next," an emerging long-term project for the Army that conceptualizes the world's strategic environment 30 years into the future. It is a definitive and conceptual description of where the Army is going and how it will conduct prompt and sustained operations on land in support of the Nation's joint warfighting team.

DIGITAL WARFIGHTING ABILITY TESTED

Following 2 years of preparation and training, the Army's Force XXI advanced warfighting experiment tested the ability of the commands and staffs of the 1st Brigade, 4th Infantry Division (Mechanized), to fight on a digitized battlefield. The entire exercise took place on computers at Fort Hood, Texas.

The Army Training and Doctrine Command (TRADOC), Fort Monroe, Virginia, developed the brigade training support package. The package contained unit orders, map overlays and graphics, instructions for exercise participants and evaluators, and other materials. Approximately 100 players represented the 1st Brigade command and staff command post, and subordinate battalion staffs filled their individual command posts. The Army's Appliqué computer software provided maps of the terrain, pinpointed and followed troop and vehicle movements, and provided electronic mail capabilities between command posts and front-line troops. Janus war game software emulated M1 tanks, Bradley fighting vehicles, and infantry. Close air support by Air Force A-10's also was simulated.

Because real troops, weapons, and vehicles were not deployed, the digital war gaming was a low-cost alternative to the standard training exercise. It gave soldiers the opportunity to test all command and control systems for offensive and defensive forces.

Computer screens portrayed only those portions of the exercise that the participants would see in a real-world environment using their weapons systems and equipment. After the exercise, participants were able to replay the entire package to see the action on the total battlefield. The exercise increased technical competence and provided opportunities to test command and control decisionmaking skills.

NEW PROCESS IMPROVES FORCE PLANNING

The objective force planning (OFP) process defines the numbers and types of forces the Army requires to accomplish the full spectrum of potential missions. OFP analyzes universal joint task lists, regional tasks, mission requirements, terrain, and opposing forces. Scenarios include major regional conflicts as well as operations normally not considered in force planning, such as antiterrorism, counternarcotics, peacekeeping, and humanitarian assistance.

The Army Concepts Analysis Agency, Bethesda, Maryland, under direction of the Army Deputy Chief of Staff for Operations and Plans, developed the OFP data base using 40 scenarios from past deployments, Defense planning guidance, and Defense Intelligence Agency projections.

RELIGIOUS RATIONS AVAILABLE TO TROOPS

Jewish and Muslim troops who are in combat situations or performing readiness exercises now can dine on complete meals that are kosher- or halal-certified. Previously, only religious entrees, not entire meals, were available.

The Defense Logistics Agency's Defense Personnel Support Center (DPSC) awarded a 3-year, $5 million contract to produce kosher and halal rations to My Own Meals, Inc., Deerfield, Illinois. The company has agreed to ship from 15,000 to 200,000 meals each year, depending on demand.

Each religious meal consists of an entree packed in a flexible pouch, a full assortment of accessories in a plastic packet, and a flameless ration heater. The meals are packed in boxes of 12, including 4 chicken entrees, 2 beef entrees, 4 vegetarian entrees, and 12 accessory packs. The accessory packets contain bagel chips, raisins, honey roasted peanuts or almonds, double granola bars, cereal, sugar-free cocoa, creamer, coffee, sugar, salt, pepper, a spoon, a moist towlette, and toilet tissue.

Kosher and halal meals are priced the same but are more expensive than regular meals, ready-to-eat (MRE's). This is because fewer religious pouches than MRE's are purchased at one time and religious certifications are required. A rabbi certifies that rations are kosher, and an imam makes sure that the meat in the halal entrees has been slaughtered to meet Muslim specifications. All other components of the halal rations are acceptable to the Islamic religious authority. Vegetarian rations, which are certified as multifaith, also continue to be available. Vegetable entrees include cheese tortellini and pasta with vegetables. All of the religious food items are commer-

BARGES USED TO FACILITATE EQUIPMENT REDEPLOYMENT

☐ Barges were used for the first time last summer to deploy and redeploy equipment for Operation Joint Endeavor. Members of the Military Traffic Management Command Europe's 1318th Medium Port Command in Rotterdam, the Netherlands, and Rhine River Terminal in Mannheim, Germany, supported the deployment of the 158th Combat Support Company from Tallassee, Alabama, to Hungary. To assist in the redeployment phase of Operation Joint Endeavor, the 158th Combat Support Company coordinated the transport of 150 pieces of equipment to Hungary on five barges. In the photo at left, the equipment is offloaded in the Port of Baja for use by redeploying units in the Bosnia area. In Hungary, the barges are backloaded (below) with large trucks, trailers, and wheeled vehicles that are ready for redeployment to destinations in central Europe and the United States.

cially available and, like the MRE's, include major brand names.

My Own Meals, Inc., began shipping the religious rations in July. The company is making direct vendor deliveries to units. Contracting officers can place orders with DPSC by calling (215) 737-7348 or DSN 444-7348.

MANAGING HAZARDOUS MATERIALS IS A PRIORITY AT RED RIVER

Proper collection and disposal of hazardous wastes has been a prime issue of which the Army is gradually gaining control. Increasing emphasis is being placed on reducing the amounts and types of hazardous materials used, especially in industrial operations. Red River Army Depot, Texarkana, Texas, is making major inroads toward better management of hazardous materials, reduction of costs, and ensuring the health and safety of its workers.

Red River's Hazardous Material Management System Division has taken action to reduce the numbers of ozone-depleting chemicals used in maintenance operations. Electronic and solvent degreasers in aerosol containers have been replaced by alcohol-based cleaners with carbon dioxide as the propellant. Containerized isopropyl and denatured alcohol are now available in pump spray bottles. The depot no longer allows use of materials with ozone-depleting chemicals without special approval.

The Hazardous Material Management System Division also formed 12 hazardous distribution service centers in the depot's maintenance facilities. The service centers function as central issue points for hazardous materials and central points for hazardous waste disposal. The service centers track the purchase, use, and disposal of all hazardous chemicals, allow issue of smaller amounts of chemicals, and provide control over inventories and shelf life of materials. The division has access to a computer program that will identify substitute materials that do not contain hazardous chemicals. The program is used by several installations to share information, problems, and solutions. The computer program maintains data about stockage levels, usage levels, and the types of chemicals the workers use. More than 850 safety data sheets are available through the computer to outline safety precautions and inform workers about safety hazards.

Because of the efforts by the hazardous materials managers at Red River, the depot saved more than $530,000 in fiscal year 1994 and $740,000 in fiscal year 1995.

☐ Red River workers apply special labels to hazardous substances in the warehouse so they can be tracked from distribution through disposal.

GUARD UNITS ASSUME WARTIME MISSION

As they replace their obsolete Chaparral and Hawk air defense artillery (ADA) weapon systems with the Avenger system, Florida Army National Guard units are undertaking an unprecedented wartime mission. Florida's ADA units had been anticipating inactivation. Instead, they were selected to convert to the Avenger system. Avenger is a transportable, shoot-on-the-move missile and machinegun system that integrates eight Stinger missiles, a .50-caliber machinegun, a forward-looking, infrared sensor, laser range finder, and an onboard fire control computer. The system is mounted on a high-mobility, multipurpose, wheeled vehicle and can be operated by a two-person crew in all weather, day or night. Eventually, only Army National Guard units will have corps-level, short-range air defense (SHORAD) weapon systems.

"If the United States has to fight in a contingency operation, the corps commander won't have a choice," said Brigadier General John Bridges, commander of Florida's 164th ADA Brigade. If he wants SHORAD at the corps level, he has to call a National Guard battalion, and I am sure he will not want to go to war without SHORAD."

The Florida and New Mexico National Guards each will have three Avenger battalions, one battalion will be in Mississippi, and one will be in Ohio.

ALOG EMPHASIS

ACQUISITION CORPS RESHAPED

The Army Acquisition Corps began the transfer of lieutenant colonels and majors back to their basic branches in the first phase of a reorganization. Plans call for 153 lieutenant colonels and 33 majors to return to basic branch control during fiscal 1997. Declining authorizations for acquisition corps officers and personnel shortages in other areas demand a realignment of officers. Acquisition Corps officers who are in overstrength year groups may be reassigned by transfer boards when voluntary transfers and retirements will not reduce the personnel numbers to the target level A transfer board met in November and selected officers in year groups 1976, 1978, 1982, and 1983 who could better serve the Army in their basic branches. Another transfer board will meet in June 1997 to consider transfer of additional officers. Officers who want to volunteer to return to their basic branch should contact their basic branch career manager to discuss possible assignments.

NEW OER DESIGNED

Commissioned and warrant officers of the active and reserve components soon will have a new officer evaluation reporting (OER) system. The draft Army Regulation 600-8-18 describing the new system is currently under review by Army Staff agencies and major field commands. The new OER and associated forms and regulations are scheduled for final review by the Chief of Staff and Secretary of the Army in March. If approval is forthcoming, the new system could be in place as early as 1 October. Army leaders say that although the system will be changed, the current system's good features will be retained.

MORE CIVILIANS TO GET BDU's

Approximately 2,000 of 813,000 Department of Defense civilians are currently subject to deployment, but that number could grow. With downsizing of the military, there is an increasing need for civilian and contractor support in the theater of operations. During Desert Storm, more than 5,000 Army civilians and 9,000 contract personnel deployed to Saudi Arabia. Since December 1995, more than 1,600 civilians and contractors have deployed to Bosnia. The numbers and types of tasks required during contingency operations are growing. Civilians perform jobs such as inventory management, transportation, contruction, safety, linguistics, communications, maintenance, and soil analysis. Most civilians who deploy are in emergency essential positions. These employees signed agreements to deploy when they accepted their positions. Other employees can be asked to volunteer for deployment if they have skills the theater commander requires. Civilians are encouraged to consult DA Pamphlet 690-47, DA Civilian Employee Deployment Guide, for information on pay, leave, training, and medical benefits during deployment.

(Continued on page 48)

ALOG EMPHASIS

(Continued from page 1)

CD HELPS WITH UNIT TRAINING

A compact disk (CD) developed by the Army Training and Doctrine Command (TRADOC), Fort Monroe, Virginia, will help commanders plan for unit training. A CD that will take the user through the steps of preparing a training plan will be issued to each officer attending the Army's precommand course in 1997. The self-paced, stand-alone program provides audio, video, and other visual aids that enhance learning. The CD was developed in 18 months by TRADOC activities under the direction of the TRADOC commander, General William W. Hartzog.

CASH FOR ENLISTMENT

The Army has updated its list of military occupational specialties (MOS's) that offer cash bonuses. Bonuses range from $1,000 to $8,000. Currently, the career field with the most enlistment bonuses is mechnical maintenance. The largest bonuses are available in signal intelligence. Other incentives also are offered to help fill MOS's that experience shortages of personnel. For more information, visit the Army Recruiting website (www.goarmy.com), call 1-800-USA-ARMY, or call the local Army recruiting station.

THREE SCHOOLS TO COLLOCATE

Three combat support branch schools will be located at one site when two move to Fort Leonard Wood, Missouri. It is anticipated that portions of some of the courses for the three schools will be consolidated. The Base Realignment and Closure (BRAC) Commission in 1995 recommended that Fort McClellan, Alabama, be closed and that the Military Police and Chemical Schools be moved to the Engineer Center at Fort Leonard Wood by 1999. The Missouri post will assume an expanded mission as the Army's Maneuver Support Center and will construct new facilities amounting to $200 million to house transferred and expanded activities.

HELP PREVENT POLLUTION

Two user guides can help Army activities prevent pollution. The Hydraulic Fluid Recycling User's Guide and the Antifreeze Recycling User's Guide were developed by the Army Tank-Automotive Research, Development, and Engineering Center (TARDEC), Mobility Technology Center-Belvoir, Fort Belvoir, Virginia. TARDEC also publishes a Fuels and Lubricants Quarterly Bulletin that includes updates on pollution prevention programs. For more information about these publications, call (703) 704-1819 or DSN 654-1819.

NEW RE-REFINED OIL PRODUCT

The Defense Supply Center-Richmond, Virginia, now offers re-refined oil in 15W40 weight in addition to 10W30. For more information on these products, request a copy of the FY 97 DSCR Motor Oil Brochure by calling (804) 279-4908, (800) 345-6333, or DSN 695-4908.

★U.S. GOVERNMENT PRINTING OFFICE: 1997—629-40003

OPLOGPLN UPDATED

The Army Combined Arms Support Command (CASCOM), Fort Lee, Virginia, has released version 1.40 of the Operations Logistics Planner (OPLOGPLN). OPLOGPLN-97 is a computer-based program designed to assist logistics planners in calculating supply usage estimates to support operations. The data base includes all published tables of organization and equipment (TOE's) for company, battalion, and selected higher echelon units. The program now has the capability to provide theater-specific ammunition estimates for all echelons. For more information, call CASCOM at (804) 765-0640 or DSN 539-0640, send fax to (804) 765-0627, or send e-mail to oplogpln@lee-dns1.army.mil.

3D INFANTRY GETS NEW BRADLEY

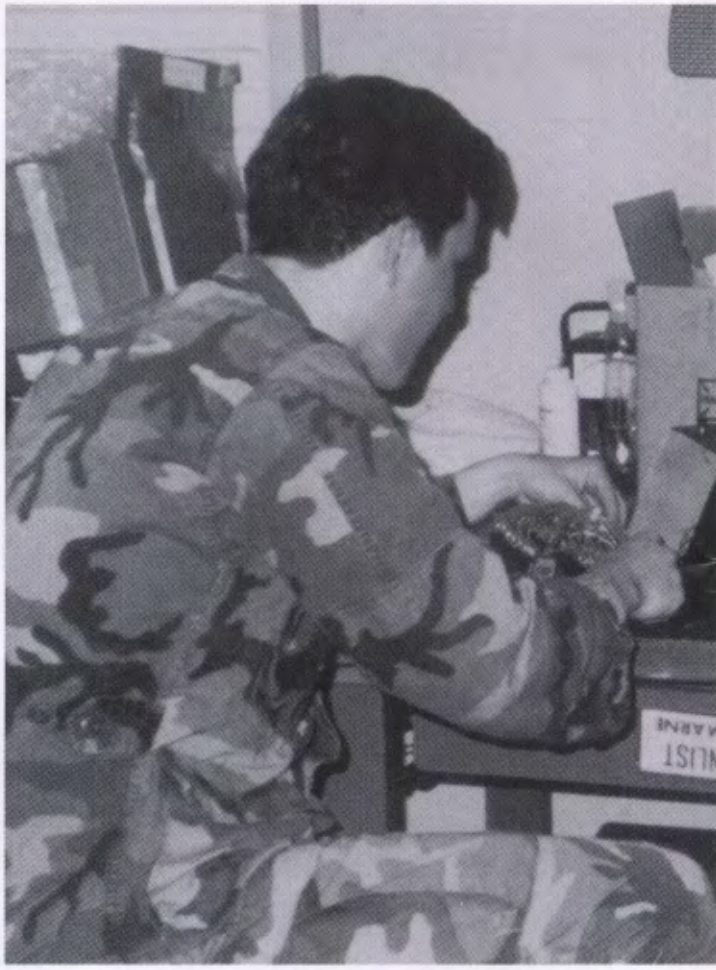
The 3d Infantry Division (Mechanized), Fort Stewart, Georgia, was the first Army unit to receive the new BFV M2ODS. "BFV" stands for Bradley fighting vehicle, "M2" is its original numeric designation, and "ODS" stands for Operation Desert Storm. The new Bradley is equipped with innovations developed after assessing the vehicle's performance in the Gulf War. The vehicle has an eye-safe laser range finder, a precision global positioning system, and a missile countermeasure device. It is configured to accept the plug-in battlefield combat identification system when that system is fielded. Fort Stewart units will receive a total of 375 Bradleys over the next year, including infantry, cavalry scout, and Stinger under-armor versions.

VM INFO AVAILABLE

A bibliography of studies on velocity management is available to authorized persons. Write to—USALMC, ATTN DIRECTOR DLSIE ATSZ DL, BLDG 12500, 2401 QUARTERS ROAD, FORT LEE, VA 23801-1705, send e-mail to—stringft@lee-dns1.army.mil, or call (804) 765-4007 or DSN 539-4007.

Ten Problems an

The scope of assistance provided by a logistics assistance office is limited only by the imagination of the commander seeking support. The author lists some examples of what the LAO can do for him.



☐ **Logistics assistance representatives in Germany look for "bugs" in an AN/TTC [Army and Navy/transmitting telephone central]-41 switching network.**

As dollars shrink and the Army gets smaller, all commanders no doubt are looking for ways to save money while maintaining unit readiness and training levels. If you are a unit commander or a staff officer supporting your unit's commander, one way to make your job or your boss' job easier is to seek help from the Army Materiel Command (AMC) logistics assistance office (LAO) in your area.

Simply stated, LAO's help field commanders improve and sustain the readiness of Army materiel systems and logistics support while in garrison and during mobilization and other contingencies, including natural disaster relief missions. The mission of LAO's is spelled out in greater detail in Army Regulation 700-4, Army Logistics Assistance Program (LAP), and AMC Regulations 500-4, LAP Mobilization/Exercise Planning and Management, and 700-19, Mobility Program for Logistics Assistance Program (LAP) Civilian Personnel.

The LAO's are most effective at locations where the chiefs of the local LAO's, the AMC commodity command logistics assistance representatives (LAR's), and the unit commanders actively work together to identify ways in which the LAO can help. Let's look at some common problems the LAO can help you solve.

Problem 1: Your unit requisitions an item several times, and the requisition is canceled each time by the commodity command.

LAO Can Solve

by Lieutenant Colonel Jasper W. Johnson, Jr.

The LAO can find out why the commodity command is canceling your requisition and determine what needs to be done to get the item shipped to your unit. Sometimes the requisition is canceled because the item is cataloged incorrectly. Maybe the item manager does not have adequate visibility of the situation at unit level. Often the LAO can get these problems solved by coordinating with the item manager and the commodity command to make sure the correct data are loaded into the appropriate automated systems. With a little help from the LAO, your unit will receive the required part without having to spend additional training dollars needlessly. Ultimately, unit readiness will be improved.

Problem 2: Your unit's prescribed load list (PLL) zero balance is consistently higher than the Department of the Army (DA) average.

Generally, this problem results from authorized stockage list (ASL) support of the unit's PLL, and the items with a zero balance on the PLL's are the same as those with a zero balance on the ASL. The LAO can coordinate directly with the commodity command to determine why the items are on backorder. At the same time, the LAO can explain the readiness implications to the item manager so he has a clear understanding of how the shortage impacts the units in the field. The LAO can follow up with a written supply assistance request. The follow-up usually leads to the establishment of a monthly routine in which the LAO receives a copy of the ASL and PLL zero balance listings. Then the LAO can work throughout the month to improve the status of shipments to your unit. The LAO's investigation often leads to quicker fill of requisitions and/or direct shipment from the vendor.

Problem 3: Your unit has an unresolved maintenance problem with a particular system.

Each LAO is staffed with commodity command LAR's who are trained technically to provide systems support. The LAR's can visit your unit motorpool, field site, or training center to help troubleshoot the faulty system. If the LAR's cannot diagnose the problem, the LAO can request that the commodity command dispatch an engineering team to the location to help repair the equipment. The LAR and the commodity command engineering personnel will monitor the problem until it is resolved. If your unit gets help from the LAR early in the troubleshooting process, you will reduce downtime for your equipment and your unit's overall readiness posture will be improved. Taking your problem to the LAO also will stimulate changes to the publications supporting the equipment so the problem will not occur in the future in other Army units.

Problem 4: Some of the personnel in your unit do not possess the expertise necessary to repair a system.

Because of the constant turnover of personnel in military units and the diversity of equipment among units, soldiers tend to lose the skills they learn in advanced individual training if they do not work on the same equipment daily. The LAO can help you prepare an onsite training program to enhance soldiers'

skills. The training will be taught professionally, in a hands-on mode, by either a LAR or a team from the commodity command. If the training program requires more instruction than the local LAR can provide, the LAO, in coordination with the commodity command, can request an onsite training team funded by your unit. This training will strengthen the soldiers' experience base and better equip them to maintain the unit's systems.

Problem 5: Your unit is deploying to support a contingency mission.

Because it is an integral part of your unit's support structure, the LAO understands the mission support requirements of deploying units and can articulate quickly the support the LAR's and commodity command can provide. If your unit has an equipment or supply shortage, the LAO can expedite delivery. Depending on the mission and the size of the deploying organization, the LAO sometimes deploys with the unit.

There are also several tools in the LAO's kit bag that can help your unit accomplish its mission. One is an international maritime satellite terminal (INMARSAT). With this terminal, the LAO can establish satellite communications anywhere in the world and communicate mission requirements to its home station or the wholesale community. The INMARSAT, which is both a voice- and data-capable system, can be employed within 30 minutes of arrival at the duty station.

There are also fly-away communications packages that can deploy with the LAO to support additional communications requirements of the deploying units. If additional technical expertise is required, the LAO can coordinate the deployment of more LAR's from the commodity commands to ensure mission success.

Problem 6: The wholesale community appears unresponsive to a request by your unit to help solve a technical problem.

Because the LAO chief understands both the wholesale system and your unit's operation, he can better articulate the readiness implications of the problem to the engineers, item managers, project managers, and technical writers at the commodity commands. In addition, the LAO routinely provides to the wholesale community a report that outlines the readiness of the units it supports. This report identifies readiness issues in a way that makes it easy for the wholesale community to pinpoint the issues and provide assistance in resolving them.

Problem 7: You need to know how many widgets you have used so you can decide how many more to order.

With the support of AMC's Logistics Support Activity (LOGSA) at Redstone Arsenal, Alabama, the LAO can conduct a technical review and develop a report from the historical data bases at LOGSA that will help solve the problem. LOGSA Pamphlet 700-1, Logistics Information: A Guide for Soldiers, spells out what LOGSA can do for you. Every commander

☐ A Missile Command logistics assistance representative instructs members of a ballistic aerial target crew during an Avenger missile live-fire exercise at Fort Stewart, Georgia.

at company level and above should read this little pamphlet. It is written very much like *PS Magazine* and is easy to understand. With help from the LAO and LOGSA, you will have a better understanding of repair parts usage and a better grasp of possible future requirements. This type of information will help you make a more informed decision.

Problem 8: The new widgets keep breaking.

All Army equipment goes through an extensive testing program before it goes into full production. However, after it is fully fielded, the resupply sources may change. The specifications are provided to the new contractor for production, but no further testing is done. Occasionally this leads to production of defective components. The LAO can work with the commodity command to correct the defect. The LAR can help your unit prepare a quality deficiency report (QDR) to inform the commodity command of the defective item in the system. The LAO then will track the QDR and advise your unit on how to get the equipment repaired. The LAO also may be able to identify additional sources of supply for the item and help your unit get the part from an alternative source.

Problem 9: Your unit wants to schedule a modification work order (MWO) but has no idea if a similar work order has already been filed.

The LAO can help schedule DA-approved MWO's and determine if there are any others outstanding. The LAO has access to historical files on all Army equipment. These files provide both equipment usage and MWO data. The LAO will ensure that the right MWO's are filled when your unit needs them and that the equipment modifications are scheduled at a time when your unit's training agenda will accommodate them.

Problem 10: You need to know when a new equipment system is scheduled for fielding to your unit.

New equipment fielding is a continuous process in the Army, which allows for some flexibility in scheduling. The LAO can coordinate directly with project managers to ensure that the fielding does not conflict with other significant unit training events. If it is a low-density fielding, the LAO itself may field the item to the gaining command.

LAO's are located on or near most Army installations. They can assist you in many ways if you are willing to seek their support. Your imagination is the only limitation to the ways the LAO can help. Give them a call! **ALOG**

Lieutenant Colonel Jasper W. Johnson, Jr., is the Logistics Assistance Officer for the 82d Airborne Division, Fort Bragg, North Carolina. He served previously as commander of the 48th Support Battalion (Forward), 2d Armored Division, Fort Hood, Texas. He is a graduate of the Army Command and General Staff Officers Course, the Quartermaster Officer Basic and Advanced Courses, and the Engineer Officer Candidate School.

Is There a Logistics Corps i

To support the new national strategy of force projection, the logistics organization of the future must be more efficient and operational logistics must be more mobile and agile. The Army cannot continue to operate under the traditional stovepipe structure, which lacks flexibility and versatility. To provide the logistics support required to execute the force-projection strategy, I believe the Army should consider establishing a logistics corps.

The vision of Force XXI operations makes the concept of a logistics corps worth serious consideration. Why? Because the force of the future will require seamless logistics support. This means that the traditional distinctions between logistics functions at all levels of support should be eliminated. A stovepipe structure burdens the support system with unnecessary organizational layers, which are counterproductive in this era of military downsizing. Parochial, branch-oriented support operations can obstruct both the timely flow of information and the efficient execution of overlapping logistics functions.

An Army logistics corps would improve command and control of operational logistics by integrating the functions of the Ordnance, Quartermaster, and Transportation branches under a single organization. This bold concept would meld three distinct combat service support (CSS) branches into a seamless, streamlined operation. Its aim would be to improve logistics performance at the operational level, measured in terms of responsiveness and readiness.

We have already seen examples of the benefits of standardization and simplification in the logistics support provided to recent joint operations and in the reorganization of certain logistics commands at the national level. An analysis of recent changes in the Army's logistics structure and training present logical reasons for embracing an Army logistics corps.

Logistics Today

Army logistics is being shaped by changes in technology and the international environment. Technology has changed warfare in three major ways. It has increased battlefield lethality, changed the dimensions of the battlefield from linear to nonlinear, and reduced personnel requirements. The increased role of technology, coupled with the end of the cold war, have led to the current period of force reductions and organizational restructuring.

The change in the international situation since the end of the cold war has shifted our strategic focus from global wars to highly diverse, regional conflicts. The result has been the change in our national strategy from forward deterrence to force projection. This strategy requires a logistics system that is agile enough to provide timely and cost-effective logistics support. It must be leaner and more seamless in the conduct of operations while at the same time having a minimal impact on those operations. The Army's logistics structure must be able to provide support under various conditions, without compromising readiness. Training technically and tactically competent multifunctional logisticians at every level supports this objective.

Before Operations Desert Shield and Desert Storm, the logistics community embraced the concept of multifunctionality and its application to the new Airland Battle doctrine. The Army restructured functional logistics organizations into multifunctional ones, grouping logistics capabilities such as transportation, supply and services, and maintenance into multifunctional direct support battalions (main support, forward support, and corps support battalions). [Although the Medical Service Corps is a part of multifunctional organizations, its unique capabilities do not overlap the functional areas of the Transportation, Quartermaster, or Ordnance branches, so it should not be included in a logistics corps.] These new support organizations tailored support to a specific combat unit. The habitual relationship that resulted eliminated the long tail of the old logistics structure. Maneuver units integrated support units into their mission designs.

The development of multifunctional organizations created the need to train multifunctional logisticians. As a result, the Army began the Combined Logistics Officers Advanced Course (CLOAC) at the Army Logistics Management College at Fort Lee, Virginia, in 1993. CLOAC brings together company-grade officers from the Ordnance, Quartermaster, and Transportation branches (as well as aviation logistics and the Medical Service Corps). The training prepares officers to serve in positions that require them to apply multifunctional skills. Because many functions of the Ordnance, Quartermaster, and Transportation branches are interrelated, CLOAC is training a more versatile CSS officer corps.

In addition to instituting CLOAC, the Army created a new career management field, Functional Area

n Our Future?

by Captain Michael T. Dandridge

(FA) 90. FA 90 provides career management of officers so they will become proficient in managing logistics operations across the spectrum of logistics functions. FA 90 officers fill multifunctional logistics positions previously reserved for officers in one of the three CSS branches. This broadens opportunities for logisticians to serve in the most challenging and rewarding positions, including command of functional and multifunctional battalions.

It is imperative that the logistics vision of the future continues to call for investment in training multifunctional logisticians. The current logistics training vastly improves upon the traditional, parochial, branch-school system. The Army's wise investment in the development of multifunctional logisticians is creating a new generation of logisticians who can adapt to any situation on a fluid battlefield with confidence.

Toward a Logistics Corps

The attributes of the new breed of logistician, versatility and competence, complement the new era of logistics operations. The new generation of logisticians contains fewer logistics generalists, specializing in one aspect of logistics. A seamless logistics structure that reduces the distinction between branches is no longer a concept but a reality. Force-projection logistics demands that Army logistics be tailored and versatile in order to adapt quickly to requirement changes. Changes in training and career management have moved the logistics community closer to embracing a logistics corps. The next logical step is to officially organize an Army logistics corps.

In many respects, we are very close to having a logistics corps in all but name; I believe that it is only a matter of time before such a corps is formally organized. Let me offer three versions of how a logistics corps may be created and how it could look. One version, which would be the easiest to achieve, would represent the culmination of the direction in which the logistics community is currently heading, as exemplified by the creation of multifunctional battalions. This would be the establishment of a formally organized logistics corps. It would eliminate the command positions of the three branches and create one command position for the logistics corps. It would keep specialized areas integral to the corps and allow logisticians exposure to unique subfunctions. And it would expand multifunctional training to include officer basic courses. This version of a logistics corps would eliminate parochialism altogether and create a seamless structure. It would enhance command and control and provide for efficient execution across the entire scope of logistics.

Another version of a logistics corps would include all of the above elements except expanding multifunctional training to the officer basic courses. This version resembles the current state of affairs in logistics. While it provides multifunctional training for midlevel officers, it does little to eliminate parochialism at the basic level of officer training and thus does not fully erase the seams in the system.

The final version of a logistics corps would create the corps by excluding the branch specialists, but that would not eliminate the three branches. Instead, this scheme would create another layer of organization above the three branches, which would obstruct the efficient execution of logistics functions.

Future Logistics

The next logical step in the evolution of an Army logistics corps calls for the Army to formally embrace a seamless organization and abandon the current multilayered structure. Force XXI logistics must be more agile, versatile, reliable, and efficient in supporting a leaner, more mobile Army in times of unpredictable global changes.

The logistics community has responded to a smaller Army by creating multifunctional organizations and training multifunctional logisticians. The future will challenge logisticians to continue to adjust to new strategies and objectives. However, current improvements must not settle into habitual idleness. Technology will continue to revolutionize the way the Army conducts war in the future. Because of that, logisticians cannot prepare to support the last war over again. The logistics evolution is only partially complete—there must be an Army logistics corps in the future. **ALOG**

Captain Michael T. Dandridge is a Quartermaster Corps officer. He is a graduate of the Air Defense Artillery Officer Basic Course, the Quartermaster Officer Advanced Course, and the Army Logistics Management College's Logistics Executive Development Course.

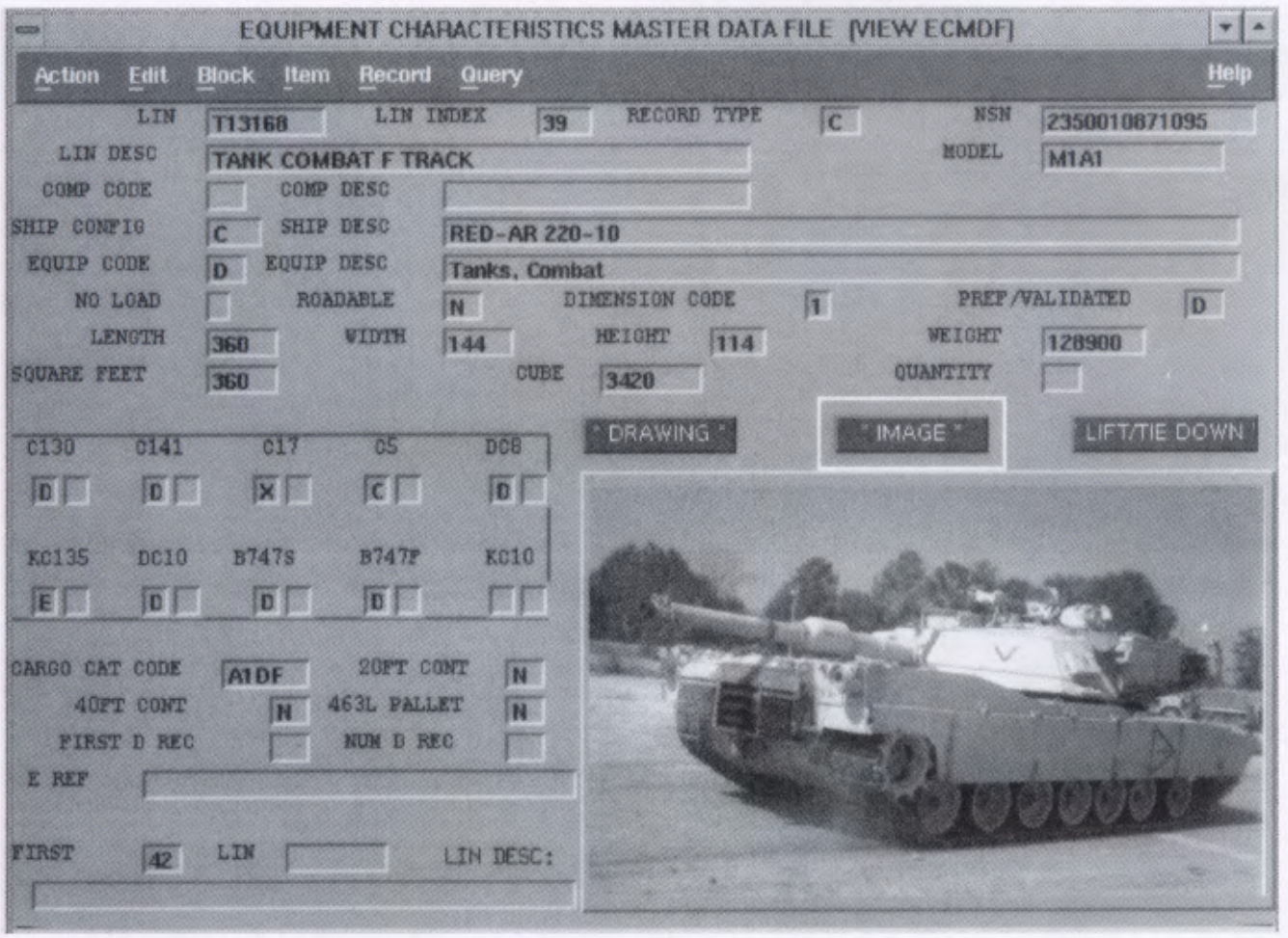
Automated equipment tran
is becoming p

Digitizing Transportation Data

by Karen L. Timmons

The worst nightmare of a military unit movement officer or commander is being in a crisis situation with unmovable equipment. With accurate dimensional data, air certifications, and lifting and tiedown information for each piece of equipment, this would not happen. In real-world contingencies, however, equipment is often unmovable because it was improperly secured or crammed into an overloaded cargo compartment during shipment or because it was pressed beyond its design limitations.

To solve this problem, the Military Traffic Man-

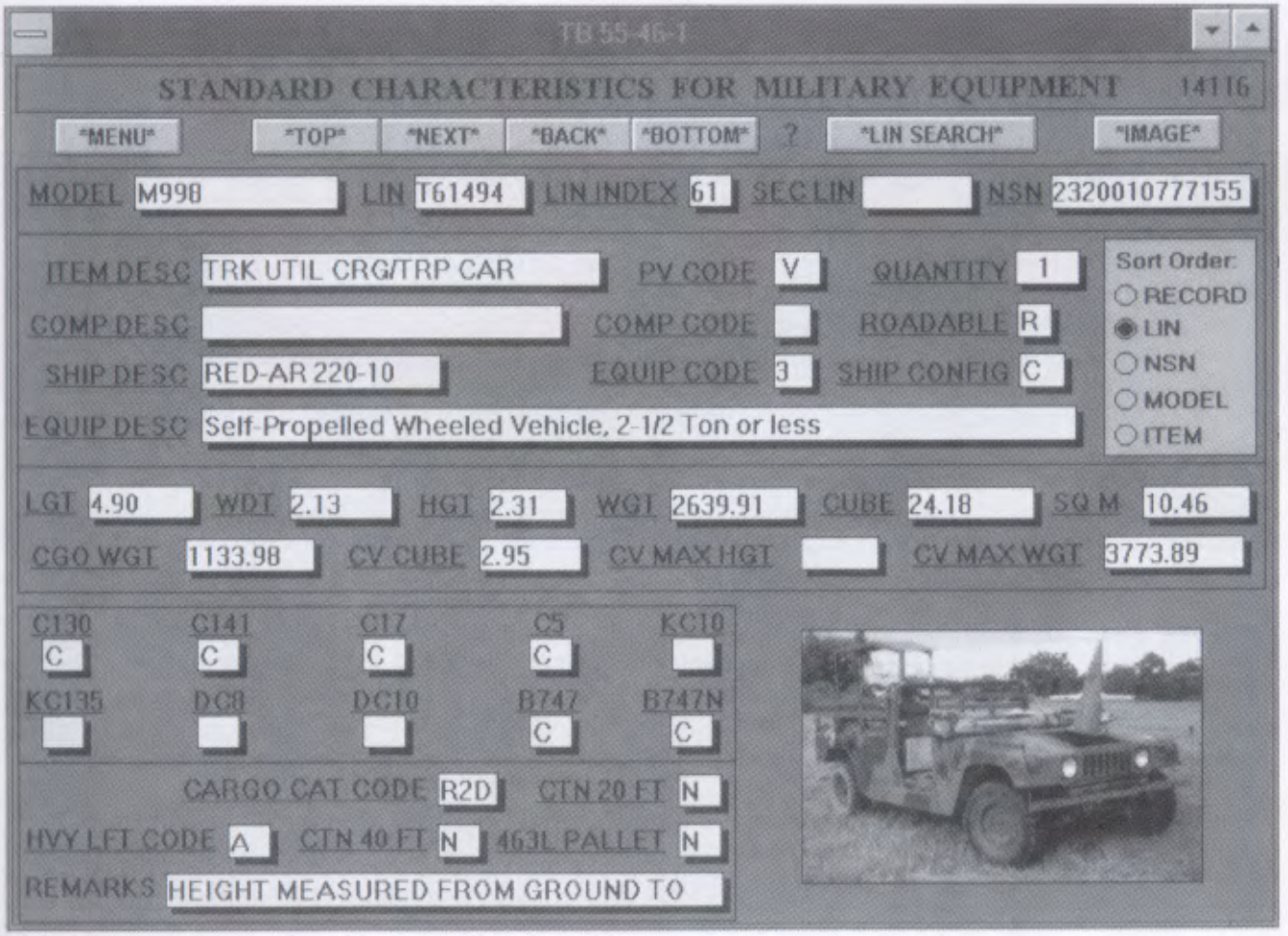


☐ **This sample ECMDF entry shows characteristics of the M1A1 tank. The user can also call up engineering drawings, photos, and lifting and tiedown diagrams from this screen.**

sportation data that supports deployments worldwide art of the Department of Defense digitized battlefield.

agement Command Transportation Engineering Agency (MTMCTEA) in Newport News, Virginia, has automated the equipment characteristics file that it has been maintaining for over 30 years. This file contains dimensional characteristics and air certification requirements data for reportable items of equipment for all Army tables of organization and equipment (TOE's). It also contains data on Navy construction battalion and limited Air Force equipment. In fact, this file is the data base of the U.S. Forces Command (FORSCOM) computerized movement planning and status system (COMPASS). Army units report their equipment data and movements to COMPASS through the transportation coordinator–automated command and control information system (TC-ACCIS).

The equipment characteristics file also is used to create the Army portion of the type unit characteristics and type unit equipment detail files. Additionally, this file is the foundation of the automated air load planning system, which allows planners to produce certifiable air load manifests electronically,



☐ Standard characteristics information for military equipment is listed in TB 55-46-1, which is available on CD-ROM. This sample entry contains data on the 2 1/2-ton utility truck.

leaving behind the pencils, paper, and templates they used for so many years.

In the past, MTMCTEA updated the equipment characteristics file with pen and paper and passed this information to a data transcriber and on to FORSCOM through the worldwide military command and control system. All background material on each piece of equipment, such as pictures, weight tickets, and lifting and tiedown diagrams, was documented on 5- by 7-inch index cards maintained in a Rolodex file.

Automating Data

Now, MTMCTEA has automated the equipment characteristics file using a SUN 2000 computer. In the first step, transportation specialists reviewed characteristics data for each piece of equipment and processed their transactions using the equipment characteristics master data file (ECMDF). The ECMDF includes not only the Army equipment characteristics file, but the Marine Corps equipment characteristics file; air certification file; Supply Bulletin 700-20, Army Adopted/Other Items Selected for Authorization/List of Reportable Items; and the Army TOE file. The Marine Corps equipment characteristics file is maintained by a Marine Corps transportation clerk at MTMCTEA and provided to the Corps for their movements. To update the COMPASS system, the transportation specialists transferred the data transactions to FORSCOM using the worldwide military command and control system.

Automating Images

Although MTMCTEA had automated successfully the data transactions for the equipment characteristics file, the background material for each piece of equipment still remained on 5- by 7-inch cards. The second step in automating the file was to scan the background material so it could be transferred to the computer. Photographs, computer-aided designs, level-one engineering drawings, and lifting and tiedown diagrams were manipulated to obtain the clearest possible images during scanning. These images were cross-referenced to each piece of equipment by line item number and index. Now, through a query function of the primary ECMDF screen, the user can view dimensional data and images instantly.

The primary ECMDF screen (bottom of page 8) includes basic dimensional data, the description and configuration of the equipment, air certification status, cargo category group code, and transportability criteria for pallets and containers. The user can select any image from the image screen and, if desired, pull up a second screen and view two entirely different pieces of equipment at once. This capability is a tremendous help to movement officers and load planners who are preparing for deployment. Although initially limited to users at MTMCTEA, the ECMDF will be accessible on the World Wide Web in the summer of 1997.

Automating References

The third step in modernizing the equipment characteristics file was to convert the transportation "bible," Technical Bulletin (TB) 55-46-1, Standard Characteristics (Dimensions, Weight, and Cube) for the Transportability of Military Vehicles and Other Outsize/Overweight Equipment (In TOE Line Item Number Sequence), to compact disk-read only memory (CD-ROM) version. Mike Buescher, a computer specialist in the systems integration division at MTMCTEA, converted the TB, which is published by MTMCTEA, to CD-ROM, along with approximately 1,000 images. The resulting CD can be used on any DOS personal computer running Windows 3.1 with a CD-ROM reader (bottom of page 9). Instructions for loading and operating this new and exciting version of the transportation "bible" are on the CD. Although initially developed with data only in standard U.S. measurements, a metric equivalent also is available in limited quantities.

TB 55-46-1 will continue to be published in hard copy and is available through pinpoint distribution from the U.S. Army Printing and Distribution Center (USAPDC), Baltimore, ATTN: ASQZ-BDC, 2800 Eastern Boulevard, Baltimore, Maryland 21220-2896. The CD-ROM is available from MTMCTEA while supplies last. Official distribution of the CD-ROM will be made through USAPDC in 1997, so customers should make sure they are on USAPDC's pinpoint distribution list.

MTMCTEA is making transportation data that support deployments worldwide a part of the Department of Defense's digitized battlefield. For information about the ECMDF or TB 55-46-1 on CD-ROM, call (804) 599-1661 or DSN 927-1661, or write to MTMCTEA, ATTN: MTTE-SI, 720 Thimble Shoals Boulevard, Suite 130, Newport News, Virginia 23606-2574. E-mail addresses are timmonsk@baileys-emh5.army.mil or buescherm @baileys-emh5.army.mil. Questions about distribution of TB 55-46-1 may be sent to the above address or e-mailed to smithsd@baileys-emh5.army.mil. **ALOG**

Karen L. Timmons is a transportation specialist in the systems integration division at MTMCTEA. She has an associate degree in business management from Thomas Nelson Community College in Hampton, Virginia. She completed a 2-year internship for transportation specialists with MTMCTEA.

Logistics Training for Medical Support

by Captain Douglas J. Kelly

Like the combat and combat service support units they support, medical units also receive logistics training at Fort Polk's Joint Readiness Training Center.

Your unit has been alerted for deployment to the Republic of Cortina on the island of Aragon as part of a medical task force. The unit's mission is to provide medical support to a brigade-sized element of U.S. forces deployed to Cortina as a show of force. Your unit decides to deploy a 60-bed contingency hospital to sustain the brigade. Meanwhile, the situation on the island has worsened. The northeast border of Cortina has been violated by insurgents and terrorists from the People's Democratic Force. Cells from the Free Atlantican Nationalist Movement, Free Atlantican Society, and Atlantican Freedom Fighters have taken aggressive action against U.S. forces operating there. Is your unit ready to go?

Typically, a scenario like the one above is used to train combat and combat service support units at the Joint Readiness Training Center (JRTC), Fort Polk, Louisiana, for military operations other than war. This kind of operation has become more the norm than the exception, so Army leaders have come to rely on the JRTC to hone the skills of the soldiers who participate in them.

In early 1990, the Army recognized that medical units needed similar training. Reserve medical units began participating in JRTC rotations to fulfill their annual training requirement. In 1992, Brigadier General James B. Peake, then commander of the 44th Medical Brigade, XVIII Airborne Corps, Fort Bragg, North Carolina, requested approval for active component medical units to participate in JRTC rotations as well. Approval of his request opened the door for routine participation by active component medical units in subsequent rotations.

Support of JRTC Rotations

The Army Forces Command (FORSCOM) provides funds to transport participating units from their home stations to the JRTC and return. However, this funding is limited to approximately $300,000 a unit. To stay within its funding limitation, a unit tailors its rotation support package to meet the mission requirements of the brigade it will support rather than deploy the entire unit.

Planning for a rotation at the JRTC starts 6 months before deployment with a D+180 conference. Commanders and staffs of the infantry brigade, corps support element, medical task force, and JRTC logistics cell meet to determine the logistics and operational support requirements for the rotation. The medical support package must be comprehensive enough to sustain the live-fire and field training exercises and provide routine health services for deployed units while they are at Fort Polk. During the D+180 conference, the JRTC logistics cell provides participating units with the logistics and operational information they need to plan a successful rotation to the training center. Final coordination will take place between the logistics cell and the deploying unit at a D+90 conference.

Detailed Unit Logistics Planning

The deploying medical unit's first task is to determine how it can provide comprehensive health service support to the rotational brigade without exceeding its funding constraints. In most cases, the medical task force support package consists of an emergency room, one or two operating rooms, pre- and postoperative intensive care wards, intermediate care ward, pharmacy, general laboratory, radiology equipment, central materiel supply, medical maintenance, medical supply, laundry and bath, unit maintenance, and power and water distribution systems. Since deployable medical systems are not available in pre-positioned sets at the training center, the unit

must deploy equipment from its home station. In addition, the JRTC has only limited pre-positioned vehicles and construction material. Before selecting a transportation mode, the medical unit must determine what pre-positioned vehicles and construction material are available at Fort Polk.

Transportation

The transportation mode selected depends on the quantity of equipment to be shipped, the availability of the shipping mode, the accessibility of loading and unloading facilities, and, most importantly, the funds available.

Transporting equipment starts with a visit to the installation transportation office (ITO). The unit movement officer coordinates with the ITO to produce a tailored automated unit equipment list (AUEL) for the deployment based on guidance from the unit commander. After the AUEL is completed, the unit and the ITO determine whether they will ship the equipment by truck, rail, or air. Usually, rail and air movement are preferred. The ITO uses military aircraft, chartered commercial aircraft, or chartered buses to transport personnel and accompanying gear.

Tailoring the Support Package to the Mission

Because of the austere environment at the JRTC, the rotating unit must come fully prepared to operate for 10 days without resupply of classes II (clothing and individual equipment), IV (construction and barrier materials), VIII (medical materiel), and IX (repair parts). Since funding for these supplies is not provided by FORSCOM, each unit is responsible for projecting sufficient funds in its command operating budget to pay for them.

The medical unit also must coordinate its support package closely with the S3, S4, and the corps support element of the supported brigade so that all phases of training at the JRTC will be sustained adequately. The unit must provide the corps support element with accurate projected requirements for critical supplies and repair parts in order to ensure that the unit has the supplies it needs to carry out its medical mission successfully. The planning factors provided in the operations logistics planner (OPLOGPLN) computer program will help determine realistic and accurate consumption rates for water and fuel for the hospital. OPLOGPLN-97 contains the latest approved information on tables of organization and equipment and supply consumption rates. If the OPLOGPLN is not available at unit level, it can be obtained by contacting the Directorate of Combat Developments for Combat Service Support, Army Combined Arms Support Command, Fort Lee, Virginia, at (804) 765-0640 or DSN 539-0640.

Lessons Learned

There have been many important lessons learned by medical units during rotations to the JRTC. Let's look at several that recurred in three recent rotations.

Medical units did not plan adequately for mortuary affairs and graves registration support at their medical treatment facilities. During most rotations, units did not have the required supplies, forms, support equipment, or trained personnel.

Medical units must ensure that mortuary affairs and graves registration support are incorporated in the medical support plan for the medical treatment facility and the supported brigade. Also, supplies, forms, and facilities to support this mission must be ordered and stocked by the unit. The soldiers within the brigade must be assured that, should they die in combat, their remains will be handled with dignity and respect. Temporary storage and shipment of remains to the United States must be coordinated through the corps transportation center.

Dining facilities experienced sanitation problems because of limited space and inadequate drainage in the area allotted to medical units at the JRTC.

The location of the dining facility must be carefully considered during site selection and layout of medical facilities. The dining facility should be located near the hospital so the two facilities can be jointly defended. The sanitation center for the dining facility must be placed away from sleep areas. Drainage ditches must be dug and checked daily to ensure that they are working properly and that sanitation procedures are being followed. Poor sanitation procedures can foster the spread of disease and significantly degrade the unit's ability to perform its medical mission.

Laundry personnel often did not wear barrier protection when handling soiled hospital linens, nor did unit leaders enforce the use of protective measures.

The unit's laundry personnel must always wear aprons, nonsterile gloves, eye protection, and disposable surgical masks when processing hospital linens. Unit leaders must make sure that these precautions are taken and that adequate supplies of these protective materials are on hand.

Units did not protect their power generation and distribution equipment adequately from vehicle traffic and weather.

In high traffic areas, power cables must be buried or marked to protect them from passing vehicles and pedestrians. Power distribution boxes should be placed on wooden pallets to protect them from the weather. Finally, only trained personnel should operate the power generation equipment.

Units did not deploy with a complete biomedical

mandatory parts list and a prescribed load list of repair parts to support operations adequately.

Biomedical maintenance personnel must ensure that the mandatory parts and the prescribed load lists for medical equipment are on hand or ordered with enough lead time to be available at deployment. Additionally, biomedical maintenance personnel may seek help from the Army Medical Materiel Agency national maintenance point at Fort Detrick, Maryland, when obtaining a biomedical support kit.

Units often deployed with medical equipment that required repairs or calibration that were outside the capabilities of the unit's biomedical maintenance personnel.

Units should ensure that all medical equipment is operational before packing and loading it for transportation. If possible, the deploying unit should cross-level operational equipment from sets, kits, and outfits that are not being deployed. Also, the unit should make sure that equipment calibration is scheduled so that all equipment to be deployed is calibrated before departure.

Preventive maintenance checks and services (PMCS), although scheduled and briefed, were not performed on all unit equipment.

Unit leaders must be present during scheduled PMCS times to ensure that all unit equipment is inspected according to prescribed standards.

Deploying units did not coordinate maintenance support with the direct support unit; thus, the corps support element did not stock the appropriate authorized stockage list to support the unit.

Units must coordinate with the direct support unit before deployment and provide them with a copy of their equipment density list. Unit maintenance personnel should check with the direct support unit to see if it can provide operational readiness floats for mission-essential vehicles and power generation equipment. It is important to remember also that the direct support unit operates within imposed funding constraints and therefore may not be able to provide operational readiness floats of the size and weight required for the deployment.

Task force physicians ordered medications that were not listed in the task force formulary [list of prescription medicines that will be needed while deployed] nor available through the medical treatment facility's medical supply section. This led to repeated requests for medical supplies that were not on hand and could not be obtained during the rotation. In addition, units deployed to the JRTC without enough class VIII to support the health care mission for the entire rotation.

The unit pharmacy officer, pharmacy technician, noncommissioned or medical supply section officer in charge, and task force physicians must review the list of medicines required by the task force well in advance of the rotation so that appropriate medications can be ordered and received in time to be transported with the unit to the JRTC.

Medical units must stock enough class VIII to support the rotational brigade for 15 days. This includes medical supplies to support the troop medical clinic, live-fire ranges, and intermediate staging base from the time the brigade arrives at Fort Polk until it departs following a 10-day exercise. Close coordination with the supported brigade and the corps support element at the home station is essential at the D+180 and D+90 conferences to plan and fund adequate class VIII support for the rotation to the JRTC. Medical planners should look at the number and types of ranges at JRTC and the rotation's mission. Medical materiel for JRTC rotations should be included in the medical unit's command operating budget to ensure that unit requirements are adequately funded.

If medical task forces are to support combat units effectively during actual or training deployments, units must plan continuously so they will be logistically ready. They must train hard in peacetime so they will be ready during war or military operations other than war.

Additional information on lessons learned at the JRTC is available by contacting the Center for Army Lessons Learned (CALL) at Fort Leavenworth, Kansas. The mailing address is: Assistant Chief of Staff for Training, Army Training and Doctrine Command, ATTN: ATZL-CTL, Building 50W, Fort Leavenworth, Kansas 66027-1350. The JRTC CALL liaison can be reached at (318) 531-8442 or DSN 863-8442. The e-mail address is: call@leav-emh1.army.mil. The World Wide Web home page is: http://call.army.mil:1100/call.html.

For information on logistics planning or assistance in coordinating support for a training rotation at the JRTC, contact the logistics officer at (318) 531-8493/8488 or DSN 863-8493/8488. **ALOG**

Captain Douglas J. Kelly, a Medical Service Corps officer, is the chief of supplies and services at the 14th Field Hospital, Fort Benning, Georgia. He is a graduate of Midwestern State University at Wichita Falls, Texas; the Army Medical Department Officer Basic and Advanced Courses; the Medical Logistics Management Course; the Combined Arms and Services Staff School; and the Army Medical Materiel Agency's medical logistics management intern program.

Challenge of

Deregulation has opened new opportunities for logisticians providing transportation services.

In his book, *The Valor of Ignorance*, military strategist and author Homer Lea wrote—

> Success in military operations depends primarily upon the excess of rapidity that one army has over another in reaching a theater of war and moving therein. As the theater of war increases in distance from the main bases of the combatants and extends in area, armies become more dependent upon the rapidity and capacity of means of transportation. As an army is limited or retarded in gaining strategic positions in a theater of war, its worth is decreased accordingly.

Lea was writing in 1910. Eighty-seven years later, his theory is more relevant than ever.

As logisticians try to meet the military's ever-changing needs for transportation, planning of deployments becomes more critical. Logistics planning is an integrated process that anticipates demands and synthesizes commercial, organic, organizational, and financial resources and opportunities to meet customer expectations of service. Whether they are working in a combat theater or in operations other than war, the way logisticians respond to demands for movement directly contributes to a mission's success or failure. Planning is undoubtedly the most difficult part of synergizing logistics needs for transporters—and the deregulated environment in which today's transportation industry operates is creating both challenges and opportunities for transportation planning and execution.

The Impact—and Opportunity—of Deregulation

In future contingencies, materiel must move rapidly through the distribution system from the source to the soldier. Movements must not be hindered by bottlenecks or by processes that add no value to the mission at hand. This has not always been the case when moving materiel in peacetime or transporting it to projection platforms during the predeployment phase of an operation. For more than 100 years, both interstate and foreign commerce were heavily regulated. It was not until the advent of deregulation that shippers could use the most cost-effective means of transportation, negotiate contracts with carriers, and customize their service and performance standards.

In 1978, the Airline Deregulation Act became law, and the great experiment of transportation deregulation was underway. Under the old environment of regulatory control, the airlines were subject to extensive economic regulation affecting their entry into the market, route structures, and fare levels. In effect, the airline industry was an inefficient cartel. Deregulation made air travel more accessible to the general public by increasing the availability of service and price options. Competitive market forces were allowed to take the place of the Federal Government in deciding the quality, variety, and price of domestic air service.

The Motor Carrier Act of 1935 placed the trucking industry under the jurisdiction of the Interstate Commerce Commission. Forty-five years later, the Motor Carrier Act of 1980 significantly deregulated the industry and opened the door for greater competition, which spurred the formation of customized contracts between carriers and shippers. Deregulation also led the industry to invest in technology and develop innovative ideas in order to succeed in a new competitive environment. This in turn added more movement options and created better values for customers. Deregulation has been taken even further with the passage of the Trucking Industry Regulatory Reform Act of 1994 and the Interstate Commerce Commission Termination Act of 1995.

Concurrent with deregulation of the motor transportation industry was the deregulation of the rail industry. The Staggers Rail Act of 1980 removed the railroad industry from most Federal regulations. Deregulation allowed rail companies to abandon unprofitable trackage, implement new work rules, and expand their services. Shipper agents could now compete with over-the-road trucking companies and offer shippers a broader range of services.

A by-product of these deregulation efforts was a rebirth of intermodalism. Intermodal transportation took off and has been growing steadily ever since. Recently the rail industry and the future of intermo-

Transportation Planning

by Jeffrey R. Schott

dalism have been reshaped by rail corporate mergers. The merger of the Union Pacific and Southern Pacific railroads has created the nation's largest railroad, owning 31,000 miles of track in 25 states. This merger, coupled with the merger of the Burlington Northern and the Santa Fe, has resulted in two railroads that control 90 percent of all rail freight in the western two-thirds of the country. Bids by Norfolk Southern and CSX to take over Conrail could create a similar situation in the eastern United States.

The maritime industry may be next in line as various proposals are considered for deregulating the ocean carrier industry and eliminating or severely reducing the regulatory authority of the Federal Maritime Commission. If these proposals become reality, ocean tariff and contract filings would be eliminated; carriers would be able to enter into confidential service contracts and allow independent rate actions on service contracts; and individual ocean carriers would be able to work more closely with their customers and provide more tailored services.

Lobbyists in Washington also are trying to have the Jones Act terminated. This would allow non-U.S.-flagged, -crewed, and -built vessels to move cargo on U.S. inland waterways, including the routes to Alaska, Hawaii, and Puerto Rico. Debates are focusing on the U.S. merchant fleet's economic importance and its effectiveness in times of war.

Finally, the Clinton administration's National Performance Review of 1993 and congressional passage of the Federal Acquisition Streamlining Act of 1994 have generated a push for replacing paper-based business procedures with electronic commerce. Purchasing, contract bidding, and other interactions between Federal agencies and private industry will take place through electronic data interchange or other forms of electronic commerce as technology expands. To meet the demands of customers, Federal agencies have become more dependent on the most critical of commodities—information. Electronic information will allow Federal agencies to provide a seamless environment for their private sector customers that will make true "one-stop shopping" a reality.

All of these regulatory changes are allowing transporters the freedom to develop movement plans, service requirements, pricing alternatives, and a host of other innovative concepts to meet customer demands. Deregulation has removed most of the shackles that previously limited creative traffic management strategies for solving complex logistics problems. New opportunities exist to meet the new movement challenges transporters face as a result of a smaller force, fewer units stationed overseas, and greater requirements to deploy to areas that may not have a mature logistics infrastructure. The Military Traffic Management Command (MTMC) is in the forefront of these efforts.

MTMC Programs

MTMC developed the guaranteed traffic (GT) concept to allow all modes of commercial transportation to compete for Department of Defense (DOD) freight traffic among military contractors, depots, and installations throughout the continental United States (CONUS). Under GT, shippers can expect improved carrier performance for ontime pickup and delivery, reduced transportation and administration costs, and rate stability. Carriers can benefit from better revenue projections and equipment planning and use. GT allows each solicitation to be structured to meet the needs of the shipper; the requirements will vary depending on the shipper's operational procedures and special service requirements.

With a full endorsement by General Ronald H. Griffith, the Army's Vice Chief of Staff, the Department of the Army is using velocity management to streamline its logistics processes. In support of this integrated system, MTMC awarded a contract for the movement of less-than-truckload traffic (traffic with a total weight of less than 15,000 pounds) originating at 22 Defense Logistics Agency (DLA) depots to as many as 14 different locations within Fort Hood, Texas.

Fort Hood is one of the Army's largest recipients of materiel. In the past, freight would be offloaded and disbursed from one centralized facility. This process was often inefficient, but it offered an opportunity to skip the middleman and provide service directly to the customer. The contract contains customized features such as a central point of contact for shipment tracking, scheduled delivery times, and a maximum transit time of 5 days from any point in CONUS to Fort Hood. Upon final execution of the plan, savings could reach as high as $215,000. MTMC will continue to support the Army's velocity management goals by streamlining its traffic management processes to ensure that the logistics system has the decisive edge for rapid delivery in peace and war.

In support of DLA's unique movement requirements, MTMC contracted with Roadway Package Systems, Inc., for the movement of packages weighing between 1 and 150 pounds originating at 21 of 23 DLA depots to all points in CONUS. In the past, the depots used rates voluntarily submitted by the carriers that were subject to random increases without any guarantees of providing additional services.

Historically, once packages are picked up, they can become hard to identify and track in the logistics pipeline. MTMC, in coordination with DLA, set out to leverage the carrier base and provide intransit visibility of shipments throughout their logistics life cycle. The drafting of this agreement required an understanding of the way the small-package industry operates and the unique types of services it provides. In our planning, we considered small businesses, unique customer requirements, and the limitations of the industry. Following a preproposal conference with industry representatives, we reworked our plan and considered alternatives in order to offer customers the greatest value. Nurturing this plan proved beneficial: cost savings from the small-package procurement agreement are estimated at $5 million.

MTMC's point-to-point privately owned vehicle pilot program, or P5, is another customer-oriented initiative. We started the program to improve customer service, reduce damages, and increase contractor accountability for moving service member's vehicles overseas. In the past, multiple contractors managed different parts of the pipeline under separate agreements with MTMC and the Navy's Military Sealift Command. Under an average contract, there may have been as many as seven different contractors handling a service member's vehicle from origin to destination.

P5 provides "door-to-door" service, because a single contractor handles the vehicle from the point at which the customer delivers it until it reaches its destination. This arrangement will establish clear responsibility and liability in cases of damage or loss. The success of this plan could produce cost savings of nearly $10 million.

Challenges to Transportation Planning

New ideas, even when proven to be effective, should be incorporated into a logistics plan cautiously. They should suit an organization's overall mission, and the consequences of failure should be considered. Concepts such as third-party logistics have been receiving a great deal of attention lately. Under third-party logistics, commanders decide which functions can be contracted to a third-party provider without losing control over their mission and jeopardizing mobility and readiness.

Transportation requirements in peacetime are fairly easy to predict. But in times of war, when units and goods are moving rapidly, those requirements become relatively inelastic. Many private firms have found that outsourcing is not always the right move, nor is a just-in-time supply strategy appropriate for every industry. As DOD agencies continue to support other agencies that serve the soldier, it is important to evaluate how concepts such as third-party logistics will provide services, not only during peacetime but also in times of war.

Customer Partnerships

The customer has become the catalyst driving transportation requirements and the supply chain. In the past, manufacturers produced goods, pushed them through the supply chain with little control, and released them to the end user. Today, however, customer transactions are initiating movements electronically within a value-driven supply chain. Logisticians are entering a transportation arena where they are no longer just purchasing modes, they also are purchasing transit time. Transportation has moved from intermodal to multimodal to no-modal, which means that logisticians must do whatever it takes to accomplish their missions.

Technology will continue to force changes in logistics planning, but can the present carrier base meet our technological needs? Smaller transportation companies may not be able to meet our planned needs, and political challenges also could arise. Employee resistance to changing the way they do business also might stall progress. To combat obstacles and resistance to change, employees may have to be retrained on the benefits of new business processes. Employee input is vital to the success of an agency's logistics plan, which must change with the needs of the customer to ensure success (as well as the agency's preservation).

Transportation planning for operations outside the front lines of military contingencies requires the same level of effort as planning for war. Logisticians must use their available resources effectively and be attuned to the complexities of transportation. A logistics plan must fit and adapt to the current operational conditions that it faces. As these conditions change, so must the plan—if it is to succeed. **ALOG**

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Firefighting in Haiti

by Philip Williams

"Sir, wake up! Get up! There's a fire in town, and you are the OIC [officer in charge] of the firefighting team!"

The first sergeant was waking me at 0230 on 12 November 1994. Only 8 days earlier, I had taken over as leader of the supply platoon of Headquarters and A Company, 210th Forward Support Battalion (FSB). Our battalion mission was to provide ammunition, food, fuel, water, transportation, and laundry and bath facilities for the 2d Brigade Combat Team (BCT) in Cap-Haitien, Haiti. We also had to provide a firefighting detail for the 2d BCT and the civilians in the Cap-Haitien vicinity. For that mission, we were equipped with a number of fire extinguishers.

From the battalion tactical operating center, I could see the glow of the fire in the distance. I knew our fire extinguishers would not be enough for this fire. One of the soldiers on the firefighting team, Private First Class (PFC) Davis, a mechanic from B Company, mentioned that he had returned from Port-au-Prince the day before with a repaired 125-gallon-per-minute (GPM) water pump.

His remark made me think of the water-handling equipment in the water section of nearby Headquarters and A Company, 710th Main Support Battalion (MSB). The MSB had two forward area water point supply systems (FAWPSS's) and two semimounted fabric tanks (SMFT's). A FAWPSS consists of two or three 500-gallon water blivets and a 125-GPM pump on the back of a 5-ton truck. The SMFT is a 3,000-gallon water bag positioned on a flatbed trailer. The FAWPSS's and SMPT's are used to transport potable water. Why couldn't they transport water to fight a fire?

A firefighting detail of about 20 soldiers, along with 2 FAWPSS's and 1 SMFT, headed for the fire at a Cap-Haitien hardware store. The store's walls and roof were engulfed in flames when we arrived. We positioned the FAWPSS's on two sides of the burning building and had the truck carrying the SMFT stand by about a block away. Soldiers from the MSB quickly went to work dousing the flames with a 7- to 8-foot spray of water from the 125-GPM pump.

While the firefighting detail was extinguishing the flames, an engineer detachment from the 2d BCT began tearing down loose portions of the walls and roof. A crowd of Haitians soon gathered to watch the action. Guatemalan forces collocated with the 2d BCT provided security around the burning building.

Just as we began to run low on water, the second SMFT arrived at the fire scene. We brought the two SMFT's forward and sent the two FAWPSS's back to Cap-Haitien for resupply. The 125-GPM pumps were easily transferred to the SMFT's, and the connection delayed the mission only minutes.

Even though we poured 9,500 gallons of water on the burning store over a 3-hour period, it was destroyed by the fire. However, we considered our efforts successful because we contained the fire to only one building. Also, our efforts fostered a spirit of camaraderie and cooperation with the Haitians who witnessed us spending our time and resources to help their city. Most importantly, our battalion learned another valuable use for the water section's FAWPSS's and SMFT's.

Since our water equipment and personnel had achieved some degree of success, I wondered if we should cross-train the personnel of the water section to fight fires during future deployments. Staff Sergeant Young, the noncommissioned officer in charge of the 597th Firefighting Team, discouraged this idea, because only trained firefighters are properly equipped to safeguard themselves from smoke inhalation and toxic fumes while fighting fires. Luckily, the soldiers in our firefighting detail had not been injured during the fire in Cap-Haitien.

Cross-training alone would not protect soldiers from serious injury during a fire. However, collocating a trained firefighting contingent with the FSB and training FSB soldiers to support them during a fire would reduce the risk of injury to soldiers and provide the firefighting team with a greater water supply. Also, if the water-handling equipment of the firefighting team and the battalion's water section had standard couplings and valves, the two elements could conduct joint drills that would better prepare them for future deployments.

Training the personnel in the water section to fight fires is impractical and dangerous. But training them to support a firefighting team is good common sense.

When he wrote this article, Philip Williams, then a first lieutenant, was the supply platoon leader for Headquarters and A Company, 210th Forward Support Battalion, 10th Mountain Division (Light Infantry), Fort Drum, New York. He has a bachelor's degree in management from the United States Military Academy at West Point, New York.

Logisticians Chart Course for Future Support

Logisticians from Army activities around the world came together recently to discuss current issues, identify problems, and chart a plan for supporting the Army in the future. Those who attended the Worldwide Director of Logistics (DOL) Conference, on 19 to 21 November at Fort Lee, Virginia, analyzed a variety of logistics systems and processes and identified issues that required additional attention by Army Staff and major commands. Many of the issues identified by conferees will be examined closely during the next several months to determine the actions needed to prepare the logistics community for the 21st century and beyond.

The DOL conference was an initiative proposed by Major General Robert K. Guest, Commander, Combined Arms Support Command (CASCOM), Fort Lee, Virginia. In May 1996, General Guest asked the Army Logistics Management College (ALMC) to host a conference that would provide a forum for logisticians to examine emerging systems and changes in the DOL arena and to develop appropriate implementation actions. His intent was for those with an intimate knowledge of logistics systems to focus on problem areas and recommend solutions. Colonel Nathaniel L. Young, Jr., Commandant of ALMC, agreed to host the conference and provide staffing, facilities, and other support.

Invitations to attend the conference were extended to logistics activities worldwide. The following topics, which were suggested by those invited to attend, were presented by subject matter experts at the conference—

- Logistics automation, particularly the objective supply capability (OSC) and standard Army retail supply system-objective (SARSS-O).
- Subsistence prime vendor program.
- Defense Logistics Agency management of international merchant purchase authorization card (IMPAC) credit cards.
- Velocity management.
- Privatization and outsource contracting of DOL functions.
- Consolidation of DOL and director of public works (DPW) functions.
- Single stock fund and integrated sustainment maintenance (ISM).
- Hazardous substance management system (HSMS).

In his opening remarks, General Guest challenged the participants to identify both short- and long-term actions the Army needs to take to keep the logistics system humming. In addition to the topics briefed by systems experts, other issues assigned to work groups for analysis and discussion during the conference included—

- Base operations (BASOPS) functional area analysis.
- Reimbursable maintenance and the installation maintenance management activity (IMMA).
- AR 5-9, Interservice Support Installation Area Coordination, and interservice support agreements (ISSA's).
- Regional transportation offices.

- Future cuts of full-time equivalency (FTE) slots.
- Supply turn-in and classification.
- Waste prevention and reduction opportunities.
- IMPAC credit card.
- Soldier feeding issues.
- Requisition validation automated redistribution system.

Conference attendees were divided into work groups to discuss these topics for several hours each day. Lively discussions ensued in several areas, and the work groups uncovered a number of problems. On the third day, participants in the work groups presented, to all of the conference attendees, status reports and proposed recommendations for future actions. A summary of reports from the brainstorming sessions follows.

Participants proposed establishment of a responsible agency for DOL's that could serve as a "proponent" for logistics doctrine and a clearinghouse for exchange of ideas and experiences. The establishment of a central activity would contribute to process improvements in many areas. For example, most participants agreed that classification, withdrawal, and turn-in procedures need to be simplified, standardized, and made less costly. They felt there was a need for more emphasis and written guidance on best-value shopping. The DOL's expressed concern over the lack of confidence in the requisition validation automated redistribution system process and recommended actions to increase user confidence. The Army also needs to look at upgrading installation communications capabilities. A central activity could provide the coordination required to address all of these issues.

The work groups thought that more synchronization of ADP systems fielding in the future would facilitate planning for system funding and support.

Most wanted to see more support for environmentally safe products, even if the products cost more. They stated that more environmental information needs to be disseminated throughout the Army. Many saw the need to improve waste prevention and reduction efforts. It was also noted that the hazardous substance management system needs to be compatible with other systems such as SARSS in order to assist users with managing and controlling the use of hazardous substances.

Concerning contracting for services, DOL's need to know about existing basic ordering agreements that contain logistics services so that individual contracting can be reduced. There was discussion of contracting out dining facility operations where possible. Participants proposed consideration of competitive contracting for full food service to control the rising costs of providing these services. With prime vendor contracting becoming popular, steps should be taken to ensure the best use of the empty warehouses. Several conferees suggested that the Military Traffic Management Command (MTMC) play a larger role in booking all types of freight, particularly personal property.

Regarding personnel issues, participants said they would like for DOL's to have an opportunity to suggest ways to identify functions that could be eliminated when FTE slots must be cut. Many DOL's would like to have a simpler process for hiring temporary civilian employees.

New rules permit a director of contracting to authorize micro purchases up to $25,000, but stock fund bypass is limited to $2,500. Participants said the rules need to be changed to correct this.

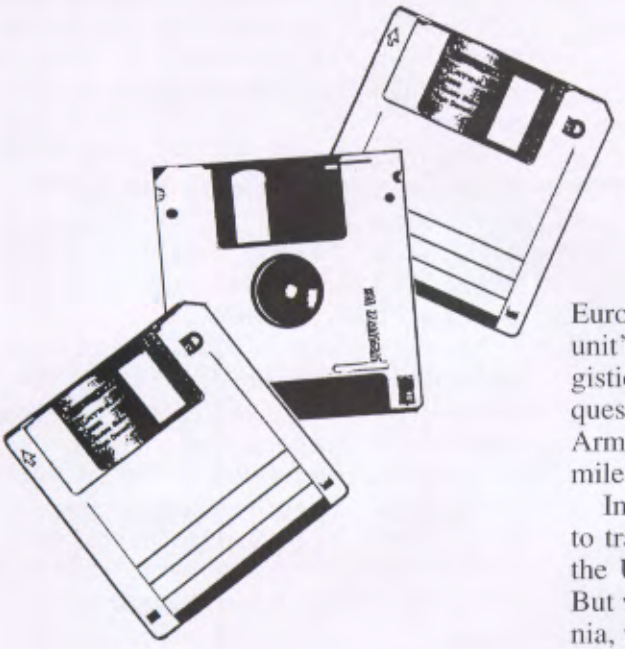
There was a good deal of discussion about credit cards. A suggestion was made to develop a standard form for IMPAC cardholders to pass to the property book officer for handling credit card purchases. There is a need to capture demand data for items purchased with a credit card to eliminate duplication of supply information. Many would like to see broader use of credit cards, including use by contractors, for purchase of standard supply items.

It was recommended that installation-level DOL's be given a chance to comment on the draft AR 5-9.

Summaries of the subject matter expert briefings and the work group reports have become the basis for subsequent study and action that will provide the logistics community with direction for the future. Recommendations proposed at the conference have been distributed to appropriate activities for closer scrutiny. Conference participants will be advised of future developments in these areas.

Several high-ranking officials contributed to the success of the conference. Major General Charles S. Mahan, Acting Assistant Deputy Chief of Staff for Logistics (DCSLOG), Headquarters, Department of the Army, expressed a commitment to take appropriate actions in response to issues that fall under the DCSLOG's jurisdiction. Major General David A. Whaley, G4, Forces Command, Fort McPherson, Georgia, also agreed to take several issues under advisement and provide solutions. He offered to reiterate policies and provide more information to FORSCOM installations that expressed the need for additional guidance. Mr. Tom Edwards, Deputy to the Commander, CASCOM, agreed to direct several issues to the appropriate CASCOM offices for action.

Participants in the Worldwide DOL Conference of 1996 charted a course for the future that will help to ensure continuing, seamless logistics support to the Army of the Future. **ALOG**



Don't

Picture this. You're deployed to Central Europe, and you need spare parts to support your unit's mission. You have access to the unit level logistics system (ULLS), but, to be processed, your request must go from ULLS to the nearest standard Army retail supply system (SARSS) site, hundreds of miles away. What do you do?

In the past, the solution to this dilemma would be to transport a diskette containing your request from the ULLS site to the nearest SARSS site by truck. But what if your unit is deployed to a place like Bosnia, where the miles between the two systems can be littered with uncleared minefields, icy roads, ambushes, or a variety of other hazards?

One critical measure of success in transmitting combat service support data is the number of *miles not driven* to transport a diskette from one system to another.

Technology to the Rescue

Thanks to advancing technology, now there's a better way to request spare parts than transporting a diskette from one system to another. Let's look at how the 1st Infantry Division (Mechanized) provided class IX (repair parts and components) support to elements of the 1st Armored Division in Task Force Victory. [This task force was formed to provide a cohesive structure for forces remaining in Germany when the 1st Armored Division and other Task Force Eagle elements deployed to Bosnia.]

The 1st Infantry Division main support battalion's SARSS site received ULLS-generated repair parts requests from its customers all over Germany. In the past, the battalion received those requests on 5 1/4-inch floppy diskettes, which they then transported by truck from the ULLS computers to the SARSS computer for processing. The objective supply capability helped speed the process for about 30 percent of the transactions, but SARSS remained the main entry point for unit class IX requests.

Enter ELS

Now add the exportable logistics system (ELS) to this picture. After experimenting with several methods of electronic data transmission, the 1st Infantry Division selected ELS to expedite supply requests, in part because of its user-friendly menu interface.

Truck That Floppy!

by Major Charles A. Radke

Here's how ELS works.

To send a request to the source of supply in ULLS, the user first selects the AWACE255.DAT file from the list provided by the ULLS computer. Then he enters the number of diskettes and the Department of Defense activity address codes of the SARSS sites and, in less than 3 minutes, the data from the transaction diskettes travel from the ULLS computer, through the data networks, to a holding directory on an ELS concentrator.

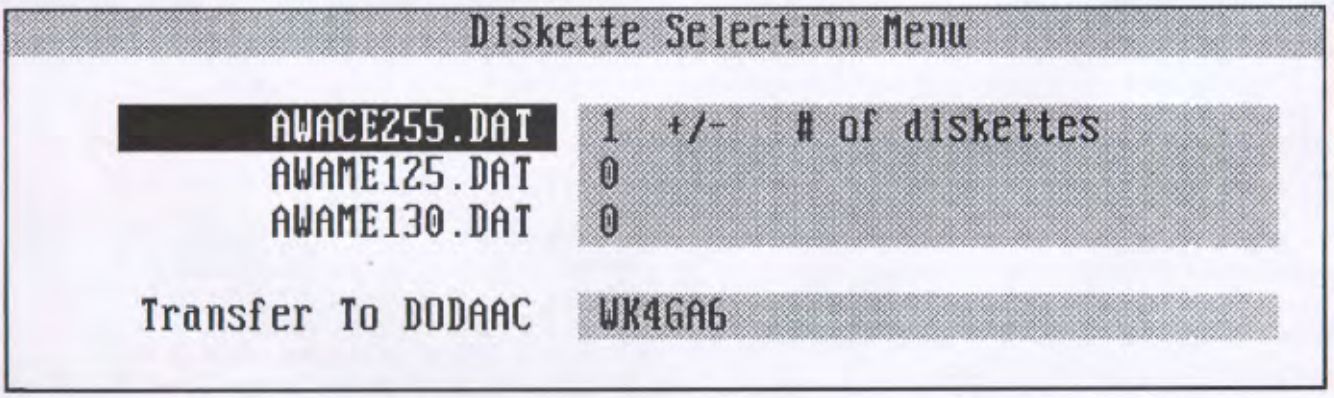
The files are held in the ELS concentrator until the SARSS managers are ready to retrieve them, which is the key to simplifying the request process. When the warehouse operator is ready to process all of the ULLS customers' diskettes, he clicks on the appropriate menu option (AJH83.DAT) on his computer screen to retrieve the files. Copies of the ULLS customers' diskettes are created at the warehouse, eliminating the need to have them hand-carried.

This ELS process uses the BLAST communications program that is standard on all logistics automation systems. [BLAST stands for "blocked asynchronous transmission." It is a heavy-duty software that enables Army and other users to transfer data from one system to another over some of the worst telephone lines in the world.]

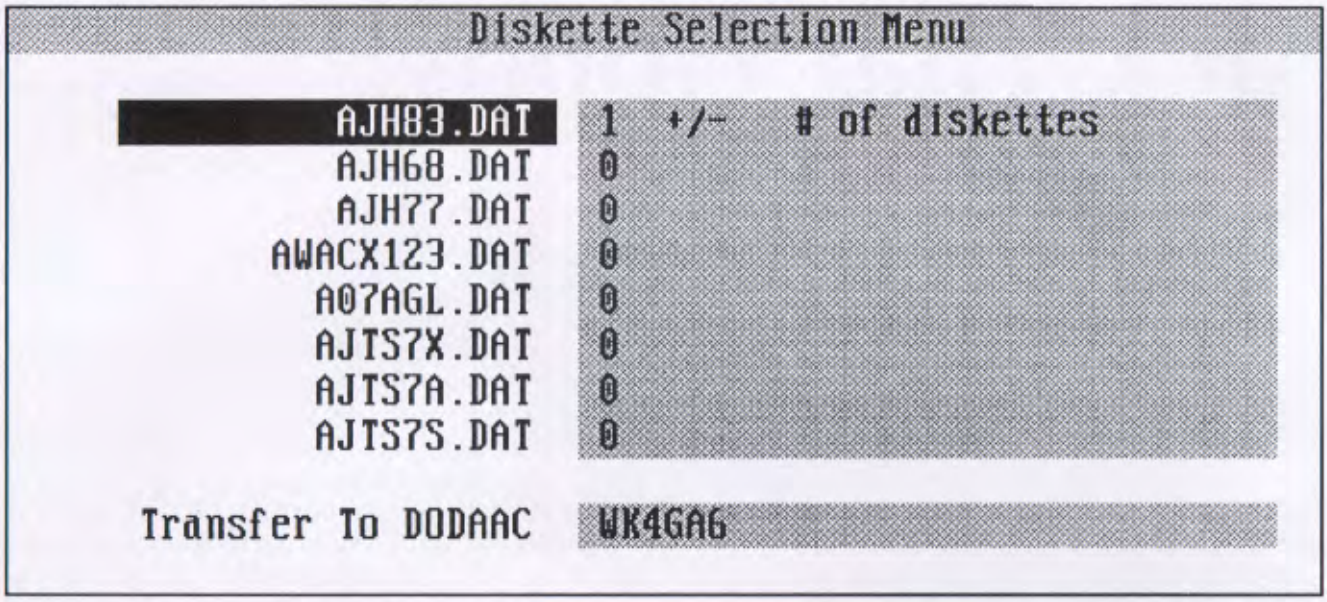
To make ELS user friendly, the Deputy Chief of Staff for Engineering and Implementation, 5th Signal Command, Worms, Germany, wrote special instruction lists called scripts. The user selects a menu option and lets the program execute. During the process, the script causes the user's modem to dial a number, log onto a terminal server, and connect to a remote ELS concentrator. ELS then delivers the file, picks up files held, logs off, and sends the operator a message indicating that the transfer was successful. ELS can perform other file transfer functions also. For example, when an ULLS computer connects to an ELS concentrator to deliver supply requests, ELS also can pick up status updates that have been delivered by the SARSS site to the concentrator.

Deployability of ELS

Note that I used the word "dial" in the ELS process description above, which usually would indicate a requirement for some type of telephone service. However, telephone service is not always available, such as when a unit is deployed to a combat training center or to a place like Bosnia. But the unit still will need repair parts. ELS engineers anticipated this need and designed the system so that it can be configured to use a tactical terminal adapter or a modem that works without a telephone circuit.



☐ **By selecting the appropriate ELS menu, the user can send a supply request from an ULLS computer to a SARSS site in less than 3 minutes.**



☐ The warehouse operator at the SARSS site retrieves and copies the ULLS customers' files onto diskettes using the ELS menu above. This process makes it unnecessary to hand-carry the diskettes from one system to another.

ELS can be used in other deployment situations by connecting it to commercial data communications equipment. The commercial equipment can be enhanced further if the unit includes the combat service support automated information system interface (CAISI) on its hardware list. The CAISI makes connections to data transport networks easier. However, to increase the chances of its success, this method requires additional automation and communications hardware. In addition, personnel must be trained to connect and configure the new equipment.

Wider Application of ELS

The 1st Infantry Division's experience is just one example of the successful use of ELS to transfer data. It is possible to eliminate all floppy diskette data transfers between ULLS and SARSS using ELS. For example, ELS is now used to deliver periodic equipment usage data to the standard Army maintenance system. Delivery of data to materiel management centers using ELS would eliminate much of the potential for error by cutting out nonproductive intermediate steps.

Not Going That Extra Mile

ULLS users and their managers unanimously endorse the use of ELS and continue to find new ways to use its extensive capabilities. There are already systems in place and used successfully on a daily basis in garrisons in Germany. Consideration also has been given to using the deployed version in a training environment. Although more equipment is still needed, soon all maintenance and supply systems will have the ability to communicate rather than transport data.

One critical measure of success in transmitting combat service support data is the number of miles not driven to deliver data. Thanks to ULLS and ELS, you can stop trucking those floppies! **ALOG**

Major Charles A. Radke is the executive officer for the 9th Combat Engineer Battalion, 1st Infantry Division (Mechanized), which is currently deployed to Bosnia-Herzegovina in support of Operation Joint Endeavor. Major Radke is a graduate of the Systems Automation Course at the Army Signal School at Fort Gordon, Georgia, and has served twice as a company commander, twice as a battalion maintenance officer, and as a small group instructor for the Engineer Officer Advanced Course.

Road Warriors in the Balkans

by Major James P. Herson, Jr.

The only motor transportation battalion in V Corps had to motor march almost 1,000 miles to Operation Joint Endeavor's intermediate staging base in Hungary to move Task Force Eagle into Croatia.

Operation Joint Endeavor presented a significant motor transport challenge to the transporters of the 3d Corps Support Command (COSCOM) and the 21st Theater Army Area Command (TAACOM) (Forward). As the only motor transportation battalion in V Corps, the 181st Transportation Battalion ("The Road Warriors") played an important role in deploying Task Force Eagle in the former Yugoslavia. The battalion's challenge came from the circumstances surrounding the abrupt deployment.

Once the Dayton peace agreement was signed, Operation Joint Endeavor developed very quickly. Because of the pace of events, the battalion had to deploy under a scenario for which its role had received little or no planning. At the time, the battalion was in the midst of fielding two new systems, the M1074 and M1075 palletized loading system (PLS) trucks and the M1070/1000 heavy equipment transporters (HET's). When it was notified that it was to take part in Operation Joint Endeavor, the battalion had to rush to complete the fielding and finish driver training on the new equipment. And while it was trying to accomplish those tasks and beginning to self-deploy, the battalion also had to integrate additional equipment—not on its table of organization and equipment [TOE]—that was issued from Combat Equipment Group-Europe (CEG-E) and ship that equipment by rail to the intermediate staging base (ISB) in Hungary.

Background

As the role of the United Nations (UN) forces in the former Yugoslavia grew more tenuous, the United States was prepared to use elements of the 1st Armored Division to extract those forces by land, sea, and air. In support of that mission, the 181st Transportation Battalion would support the extraction of the UN forces by attaching its subordinate companies to various corps support groups. However, the dramatic turn of events that led to deployment of a U.S. peacekeeping force in Bosnia changed the battalion's role. Now, the entire battalion would conduct a full-fledged, conventional land motor deployment along a line of communication (LOC) of almost 1,000 miles to Kaposvar in southwestern Hungary, where the ISB for the operation would be set up. Motor transport would play a key, indeed central, role in meeting a very ambitious timetable for deploying the Implementation Force (IFOR) into Croatia and then Bosnia and performing a simultaneous sustainment mission.

Task Organization and Unit Manning

The impact of post-cold war downsizing has not been lost on anyone in the Army. The 181st Transportation Battalion went from six truck line companies in 1990, all at authorized level of organization (ALO) 1, to three truck companies in 1995, with one of them at ALO 2 for personnel, another at ALO 3, and the third capped at ALO 4. (ALO is the ratio of a unit's authorized manpower spaces and equipment to its full TOE spaces. A unit is authorized to requisition personnel and equipment against its ALO. A unit has 100 percent of its TOE spaces and equipment at ALO 1, 90 percent at ALO 2, 80 percent at ALO 3, and less than 80 percent at ALO 4.) This considerable reduction in personnel, euphemistically termed "rightsizing," had a direct impact on the battalion's ability to execute an ambitious force projection and sustainment mission like Operation Joint Endeavor.

Each truck line company had all its ALO 1 authorization for equipment but lacked enough soldiers to adequately man and maintain its trucks; this occurred because none of the companies was at ALO 1 for manpower. The shortage of personnel was especially pronounced in military occupational specialty (MOS) 88M drivers and 63B and 63S mechanics.

The personnel posture of the 515th Transportation

Company (POL [petroleum, oils, and lubricants]) illustrates the battalion-wide problem. This company doubles as a medium truck company; that is because V Corps mandated in 1992 that the company keep 50 M871 30-foot trailers—turned in by another company of the 181st Transportation Battalion that was inactivating—so it could perform general cargo hauling for the corps. But while the company has to perform two heavy-volume missions, it isn't fully manned for either. The company's modification TOE (MTOE) also does not include the personnel needed to maintain the M871 trailers.

When the battalion was alerted to deploy as part of Operation Joint Endeavor, it received an accelerated fielding of 30 M1070 HET's. That brought the battalion's total number of organic HET's to 48. The battalion also received an additional 25 M1074 PLS trucks 3 weeks before its Balkan deployment, which increased its organic PLS systems to 48.

So, as of early December 1995, the battalion had received new equipment and a new mission: self-deploy to Hungary and prepare to move the IFOR into Bosnia immediately. This was a dramatic departure from the battalion's long-approved, long-trained-for mission of rail deployment from NATO's Central Region to a semimature staging area. Despite the changes, the Road Warriors were up for the challenge.

Deployment to Kaposvar

The battalion's self-deployment from Mannheim, Germany, to the ISB in Hungary began when a 10-man advance party of senior noncommissioned officers (NCO's) led by a company executive officer flew into Kaposvar on 9 December. The remainder of the battalion convoyed to the ISB in four separate serials, each serial taking 3 days to reach the ISB. The last serial departed Mannheim on 19 December. The move required 40 additional M967 5,000-gallon POL tankers, 700 PLS flatracks, MILVAN's, reefer vans, and other equipment (both organic items and directed draws from CEG-E); trailers were shipped by rail. The battalion's convoys remained overnight at an Austrian Army kaserne near the Hungarian border; each serial was well received and graciously hosted.

The timeframe for deploying U.S. forces included in the Dayton peace agreement caught NATO planners by surprise. Their initial plans for deploying sustaining units by rail and setting up a robust logistics staging area for the IFOR's reception were set aside. Instead, an accelerated timetable was developed that had sustaining units and IFOR units moving almost concurrently.

With little time to set up convoy support centers along new routes running through Austria to Hungary, the 37th Transportation Command decided to

☐ The operations NCO of the 515th Transportation Company (POL) briefs a soldier on routes and convoy battle drills (above). M1070 HET's are parked at the Taszar airfield (right).

issue American Express credit cards to truck drivers to cover the cost of fuel, road side emergencies, and unscheduled billeting. Such a bold move, born of the haste of the operation, was an innovative solution to the problem of establishing support along an immature LOC. Innovation would prove to be the watchword of the deployment.

Mission Creep and Manpower Management

By 24 December, the battalion had safely closed to the ISB at Kaposvar. The next several days were spent trying to contract for living space, maintenance facilities, and motor parks and getting oriented to the logistics battlefield.

Until fairly recently, the former Eastern Bloc nation of Hungary had a low level of oversized commercial traffic. The oversized nature of much of the IFOR traffic, in particular the 80-foot-long HET's, made traffic routing a considerable challenge. Many of the more direct routes to Tactical Assembly Area (TAA) Harmon in Croatia lacked the required bridge and road classifications to sustain the heavy flow.

Unlike much of Western Europe, the number of paved areas within Hungary is surprisingly small. Fortunately, U.S. Army, Europe (USAREUR) (Forward) contracting personnel were able to assist the battalion headquarters move into a municipal bus terminal that was almost ideally situated for truck operations. However, the dearth of suitable hardstands compounded the parking of the truck line companies.

Ultimately, the POL company and part of the PLS company were shoehorned into a sugar refining factory near the center of Kaposvar, while the HET company was staged and billeted at the nearby Taszar airfield. A trailer transfer point was established at a farm implement warehouse with a large graveled lot that was midway between Kaposvar and Taszar airfield.

Upon its arrival, the 181st Transportation Battalion reunited with the 70th Transportation Company, which was equipped with M915A1 tractors, and the 260th Trailer Transfer Detachment; both were units of the 28th Transportation Battalion (part of the 37th Transportation Command) that had been attached indefinitely to the 181st Transportation Battalion in late November. This attachment gave the battalion a medium truck company for line-haul capability.

Ironically, in September 1995, the battalion had been forced to furl the colors of the 41st Medium Truck Company and deactivate the last remaining medium truck company in V Corps. Operation Joint Endeavor revalidated the need for a medium truck company in direct support of the corps. The 70th Transportation Company's "lash up" played a key role in sustaining and deploying V Corps and adding flexibility to the 181st Transportation Battalion's line-haul capabilities. The company also deployed with two drivers per vehicle and a robust maintenance section, so long-distance operations over extended periods were well within its capabilities.

An Immature ISB

As the 181st Transportation Battalion was attempting to unload its own trucks and consolidate its operations in the ISB, it found that requests for transportation support grew hourly. The increased requests were generated by the numerous changes in deployment plans and the accelerated timetable for reception, staging, onward movement, and integration (RSOI) of the IFOR. Within 6 hours of the first battalion convoy closing at the ISB, movement control teams were already attempting to task vehicles for local haul missions and cargo movements from the railhead at Taszar airfield.

The immediate needs of the ISB put a considerable demand on all battalion transportation assets, with the initial exception of the HET's. The PLS trucks were used to move containers from the railhead and to move the 21st TAACOM's individual storage units (ISU's) to the fledgling headquarters on the South Kaposvar post; these rapidly became 24-hour operations that would taper off only gradually by D+22.

Standard transportation movement requests for moving containerized class I (subsistence) supplies to logistics civil augmentation program (LOGCAP) dining facilities continued indefinitely. The 515th Transportation Company (POL), which had swollen to 81 tankers—almost twice its MTOE authorization of 41 (40 tankers were drawn from CEG-E in Belgium)—began to conduct both retail and bulk POL issue for sustainers and deployers alike.

The battalion faced a formidable maintenance challenge created by a shortage of organizational mechanics and the addition of CEG-E rolling stock. The theater's lack of trained direct support (DS) and general support (GS) maintenance teams for the HET's and PLS trucks and of spare class IX repair parts for those vital systems added to the maintenance problem.

The PLS and the HET were newly issued equipment for the 181st Transportation Battalion, but their class IX push packages were inadequate. The demand-supported prescribed load lists for both items were in the early stages of development, so our normal supply support activity did not have stockage on hand. The maintenance support team of the 596th Maintenance Company deployed directly to Slavonski Brod, Croatia, to provide direct support to Task Force Eagle; they were the only school-trained DS mechanics in the theater who were not organic to either division in the task force. The 51st Maintenance Battalion (based in Mannheim) had never supported units with the PLS or HET, nor did it have repair parts for those systems. The backup GS maintenance for both units was based in Mannheim, but, because they were contracted German civilian workers, the Hungarian Government would not allow them to enter Hungary. So using GS-trained PLS and HET mechanics to fill in for absent DS mechanics was not an option. The 181st Transportation Battalion's maintenance officer and S4 worked miracles in sustaining the fleets and providing necessary life support for troops and materiel for force protection.

The greatest challenge, however, lay in the operations arena. The S3 shop, which was very competently led by a senior major, was thinly manned because every available 88M driver or NCO was reassigned to the truck line companies to perform the growing number of missions. The S3 was in the first convoy from Mannheim; after he arrived in Kaposvar, he immediately began to organize the available transportation assets to offload arriving trains around the clock and move the growing mountains of containers in the ISB.

A lack of communications—specifically, telephones—hamstrung operational coordination and reduced the S3's ability to shift the battalion's main effort in a timely and efficient manner. The distance between Taszar and Kaposvar made reliable FM radio communications difficult; this problem was compounded by the fact that the battalion had the old -12 series radios, while most other units had the single-channel ground and airborne radio system (SINCGARS). Many of the staff agencies with which the battalion had to coordinate used only telephones. Once convoys departed Kaposvar, FM radio contact was lost after about 25 minutes. With cellular phones, reliable communications could be maintained with convoys almost all the way to the Croatian border. The vital updates on weather and traffic conditions that these phones provided helped to manage the convoy flow and increased safety. However, the battalion had to turn in its only cellular phone to its parent headquarters just before the deployment and thus had to beg for phones in the ISB.

The S2 conducted a detailed threat and terrorist intelligence preparation of the battlefield and developed a comprehensive guards training program that was eventually adopted by the 21st TAACOM (Forward) as the standard for units in the ISB. Although no Department of State travelers advisory had been issued for Hungary, a robust force protection posture was adopted by units in the ISB as a mandatory precautionary measure.

Drivers had to be diverted to act as guards at the four dispersed battalion sites from Kaposvar to Taszar, which further reduced their availability for manning transportation systems. The S2 also made route reconnaissance trips through Hungary to Croatia and later Serbia to provide commanders with detailed route analyses.

The battalion's staff was severely stressed in its efforts to take care of the battalion—in such areas as billeting, staging, and making local purchases—by the uncertain and still developing infrastructure availability in Hungary. The command sergeant major's Herculean efforts in establishing troop billets in substandard facilities and then ruthlessly enforcing field sanitation and preventive medicine measures enabled the battalion to focus on its mission and not on the congested and spartan billeting and life support situation.

Early Convoy Operations

In early January, a fragmentary order was cut detaching the 51st Transportation Company (PLS), less one platoon, to the 16th Corps Support Group. The group was temporarily based at Zupanja, Croatia, just north of the Sava River, which forms the natural border between Croatia and Bosnia. Because of the difficulty of bridging the Sava, a tactical assembly area

☐ **A driver uses the hydraulic load-handling system of the PLS to unload a flatrack (left). An M1075 PLS truck is ready to roll at the ISB (right).**

(TAA Harmon) was temporarily authorized in the vicinity of Zupanja, for support of both the hard-working engineers and the growing IFOR presence. Once the bridge was in place, TAA Harmon was gradually phased out and returned to Croatian control.

Two PLS platoons of the 51st Transportation Company, along with the company headquarters, maintenance section, and a small support slice, drove to Zupanja and set up operations in an abandoned sugar beet factory approximately 3 kilometers from where the pontoon bridge over the Sava was under construction. Fortunately, the Zupanja area had not been heavily mined. Without mines to hinder its operations, the company was able to rapidly download its internal ISU's and almost immediately begin moving containerized cargo to the growing IFOR engineer presence along the Sava. Pallets of class IV (construction and barrier materials), class I, water, and a host of other supplies were ferried to the engineers along the flood-swollen river. Of the 51st Transportation Company's 32 PLS trucks in TAA Harmon, the unit could crew only 27 of them because of a chronic shortage of 88M drivers.

As the Sava River bridge was being constructed, the 29th Area Support Group built a large life support area next to the runways of Taszar airfield. Meanwhile, IFOR units were undergoing the RSOI process, and their tracked vehicles and equipment were loaded and staged for movement to TAA Harmon.

Equipment for the engineers who were building the Sava River bridge was delivered by M915 tractors and M872 trailers of the 70th Transportation Company and HET's of the 377th Heavy Truck Company (augmented by an attached HET platoon of B Company, 123th Main Support Battalion, 1st Armored Division). Serials of up to 25 trucks left hourly from the staging area at Taszar to make the tortuous 12-hour convoy ride to Zupanja, where they were unloaded and refueled, weapons were cleaned, and post preventive maintenance checks and services were executed. The crews then rested for the return convoy to the ISB to pick up the next IFOR load. Engineer personnel were shuttled in buses behind the convoys carrying their equipment so they could download rapidly and move to their own TAA's.

This cycle was repeated indefinitely, so that it became known as "Ground Hog Day" because the situation reminded everyone of the movie of that name. The same T rations, missions, routes, and gray winter weather contributed to the repetitive routine. The convoy routes to Zupanja were eventually shortened to a more manageable convoy drive of 7 to 9 hours, thanks to the hard work of the Hungarian liaison officers and staffers of USAREUR (Forward) and the 21st TAACOM's Assistant Chief of Staff for Transportation.

Task Force HET: Stood Up and Stillborn

To meet the ambitious timetable for IFOR deployment into Bosnia, a relatively heavy density of tanks and other tracked vehicles had to be delivered rapidly by HET's. The 3d COSCOM chief of staff and support operations officer proposed a very bold method for doing this: establish a provisional HET battalion to move the IFOR exclusively. The battalion would be composed of three existing units. The

377th HET Company, with 48 organic M1070 HET's, would stay as it was. A provisional M1070 HET company would be formed using the 24 systems of B Company, 123th Main Support Battalion (MSB) (from the 1st Armored Division), and the 21 systems and the company chain of command of B Company, 703d MSB (from the 3d Infantry Division [Mechanized]); combined, the total M1070 fleet available for moving the IFOR would be 93 modern systems.

The third company of the dedicated IFOR transport battalion (or Task Force [TF] HET, as it became known) was to be comprised of Brown and Root civilian contract drivers. They would drive up to 56 M911 HET's with M747 trailers. Civilian drivers were needed to compensate for the dire shortage of military HET drivers in the 21st TAACOM (Forward); without the civilians, the timeline for deploying IFOR could not be met. A company commander from the 181st Transportation Battalion would command and control the civilian company and act as the contracting liaison officer with Brown and Root.

The provisional battalion commander would be the 181st Transportation Battalion's executive officer, and he would be augmented with an ad hoc support staff slice from the battalion and other COSCOM units. The provisional battalion would operate out of nearby Dombovar, the site of a former Soviet air defense artillery brigade, which lay only 22 kilometers from the staging site for all IFOR convoys at the Taszar airfield.

Ultimately, this novel approach proved untenable for several reasons. The M911 HET's and M747 trailers were in poor condition; it would take weeks of maintenance to get them fully mission capable. Considerable contracting and host-nation support negotiations would have been needed to ready the Dombovar base. Brown and Root would need several weeks to get drivers to Hungary and would not be able to meet the IFOR timeline. Difficulties in finding sufficient hardstand parking for HET systems and adequate maintenance facilities in Dombovar finally doomed the idea. TF HET proved too difficult a concept to implement, but it did demonstrate active logistics wargaming by the COSCOM staff and a willingness to seek new solutions to the timeless challenge facing maneuver support logisticians.

Observations

Transportation assets dictate the speed of force insertion. V Corps' only transportation battalion was limited to ALO 2, 3, and 4 in personnel, and the resulting shortfall in drivers often determined the number of IFOR assets that could be introduced into Croatia. For rapid force insertion, transportation units must be at ALO 1 in personnel before deployment in order to maximize system availability and hasten entry.

A corps transportation battalion must have an organic medium truck company to support the corps. Without theater augmentation of a medium truck company to V Corps, the IFOR deployment timetable could not have been met.

HET "surging," using the HET's of B Company, 123th MSB, and B Company, 703d MSB, to supplement the 377th HET Company, worked well to move the IFOR's tracked vehicles. TF HET, while an innovative idea, proved unworkable.

Although contractors were to provide technical support and class IX repair parts for their warranty obligations on the PLS trucks and HET's, their attempts did not meet the unforecasted needs created by unanticipated Operation Joint Endeavor requirements. Oshkosh trucks were more than up to the challenge of moving and sustaining the IFOR, but taking 41 days to deliver the first shipment of class IX warranty parts to the supply support activity courted near-disaster.

The first 30 days of Operation Joint Endeavor posed a hearty challenge for the "Road Warriors," but one that was well met. Tasked with a sudden self-deployment; swollen by equipment on top of its current authorization almost equal to another MTOE, without a commensurate increase in drivers or mechanics; seeking operational real estate and contracting for support requirements in a former Eastern Bloc country; successfully confronting a host of other issues and unanticipated challenges—all made for an interesting and exciting, albeit nontraditional, holiday season for the 181st Transportation Battalion. The bottom line in the unit's success, however, was not the new PLS nor the modern M1070 HET. Rather, it was what has always been the source of strength and victory for the United States Army: talented junior leaders and our magnificent soldiers. **ALOG**

Major James P. Herson, Jr., is currently assigned as the executive officer of the 181st Transportation Battalion, based in the former Yugoslavia. He served as an Infantry officer for 14 years before becoming a Transportation officer. He is a graduate of the Army Command and General Staff College and the Army War College's Defense Strategy Course. He was commissioned from New Mexico Military Institute, has earned a master's degree in history from Florida State University, and will soon complete his doctorate. He also has taught as an assistant professor of history at the United States Military Academy.

Critical Logistics Thinking Skills

by Lieutenant Colonel Gary Dehrer, USAR (Ret.)

The different levels of logistics thinking are the bridges between theory and practice.

As the Army Logistics System moves closer to the 21st century, it is increasingly important to apply critical logistics thinking skills to solving supply problems. Thinking clearly is not always easy. If it were a simple task, logisticians always would make the right decisions and the entire supply system would operate flawlessly. The reality is that people are fallible, and advanced technology does not compensate for the poor choices people make. Critical thinking skills are vital to making the best possible choices and using resources and technology to their greatest advantage.

There are seven levels of logistics thinking that help apply individual skills and knowledge to solving supply problems. The different levels are bridges between theory and practice that enable a logistician to progress from basic information to comprehensive application, thereby achieving successful logistics.

Logistics Intelligence (Knowing)

The first step to solving any problem is to define the problem accurately. You must gather sufficient information to answer: Who? What? When? Where? Why? Separating the important from the unimportant is crucial to organizing and focusing logistics data to develop proposed supply solutions. This skill results from professional experience, training, intelligence, talent, attitude, and commitment. Suggested guidelines—

- Write down the problem, and state exactly what needs to be done.
- Determine when a response is needed, and develop a working timeline that will meet the deadline.
- Perform a mission, enemy, terrain, troops, and time available (METT-T) assessment of the situation.
- Compile pertinent information, names of points of contact, and other resources.
- Develop a list of relevant questions, and seek definitive answers.
- Coordinate and collaborate with others.
- Don't give up! Persistence is essential to problem solving.

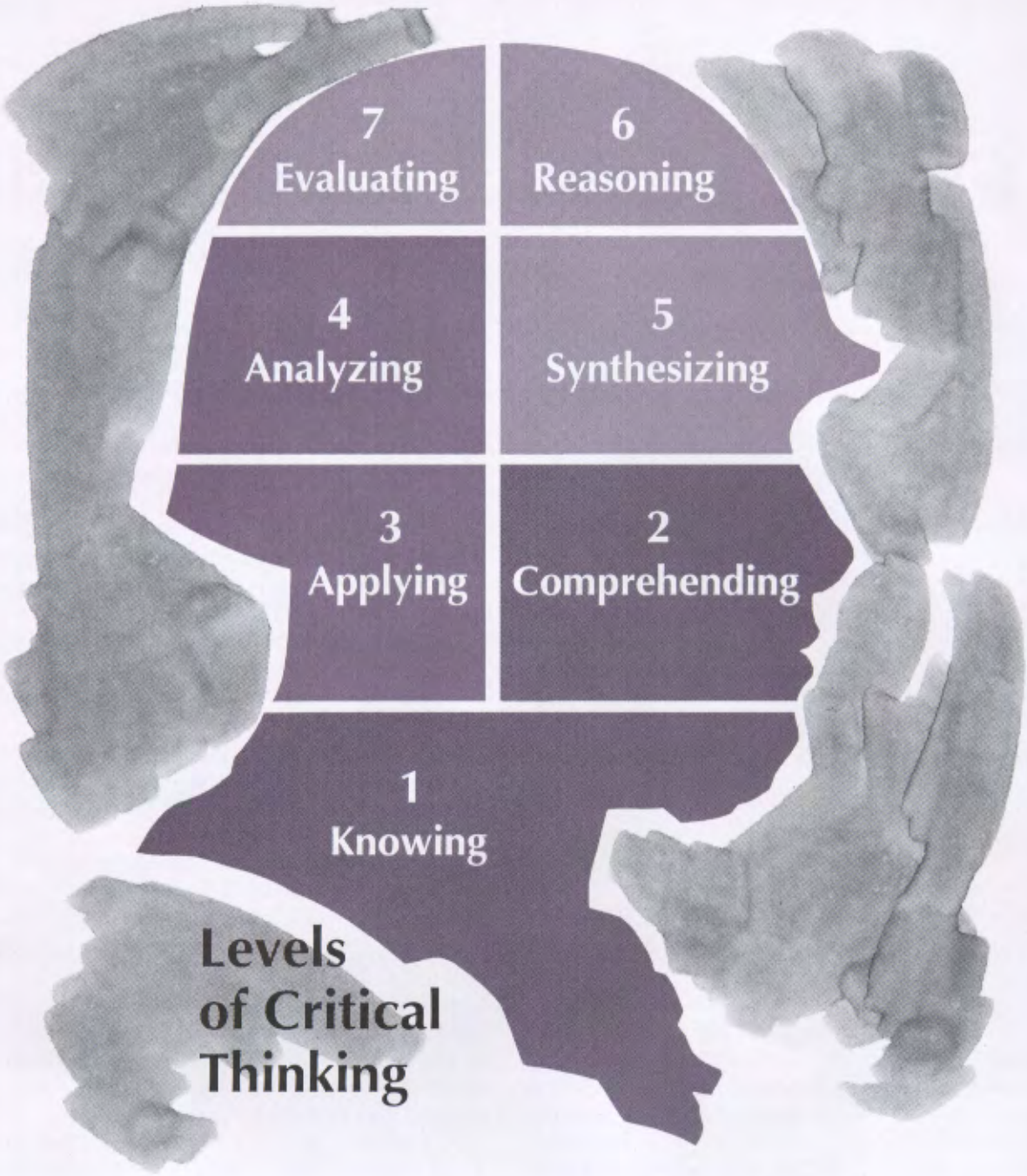
Supply Connections (Comprehending)

"What does it mean?" is an ongoing question that guides the formulation of a logistics solution or plan. A careful review of your question-and-answer list will give direction to your problem-solving efforts. Creating an overall logistics picture is important and involves putting together myriad "mosaics," or bits of logistics data, to produce an overall image. This situational profile is vital to later, more detailed analysis and evaluation. For example—

- Develop answers to key questions such as: What do others think? How do they see the situation?
- Complete a favorable supply profile (list everything that is in your favor).
- Complete an unfavorable supply profile (list those factors that are against you).
- Revise your assessment as you receive additional information.

Supply Judgments (Applying)

Asking the question, "What would happen if?" tests assumptions and considers various ramifications. Consider the interrelationships between supply variables and attempt to project their consequences. A balance between effectiveness and efficiency is essential to successful logistics operations. For this you should—



- Match up supply resources with needs.
- Anticipate supply requirements for the duration of the operation. Will needs change?
- Consider how logistics and tactical operations will be integrated.
- Consider logistics capabilities. What is the best use of available resources?
- Consider ratio of combat, combat support (CS), and combat service support (CSS) troops.
- Determine logistics priorities.

Supply Consequences (Analyzing)

"What exactly will follow?" This question addresses the operational levels as well as the different scenarios that could be used to accomplish the mission. Consider and evaluate every possible supply solution before making a decision. Strategic and operational logistics (supply support to foreign policy and military campaigns) and tactical logistics (direct logistics support to operations and battles) are intertwined and impact directly on supply scenarios. Some questions you should answer—

- What is the stated mission?
- What is the theater logistics situation?
- How will the logistics reception, onward movement, and sustainment be organized?
- How will troops and their equipment be manned, armed, fueled, fixed, moved, and sustained?

• Could various scenarios be used? If so, what are the advantages and disadvantages of each?

• Which scenario should be selected, and why?

Supply Strategies (Synthesizing)

"How will it be done?" is a key question that reflects the final concept. All previous thinking comes together in a well-written logistics operation plan. However, communication and coordination of any plan are critical to its success. Great plans can easily falter and even fail without direction, determination, and follow-through. Some considerations—

• What logistics preparations have been made in the theater?

• What is the available force composition (combat, CS, and CSS)?

• Are logistics priorities established and logical?

• Will there be any joint logistics operations among services?

• Will there be any combined logistics operations with other countries?

• What kind of host nation support will be possible?

• Does the logistics operation plan (OPLAN) describe the situation (enemy forces, friendly forces, logistics requirements, and assumptions); mission (combat support and combat service support tasks); logistics overlay (direct support and general support supply data); materiel and services (classes of supply, main supply routes, and services data); medical requirements (evacuation and hospitalization); and personnel (unit strength, prisoners, and morale).

Logistics Resiliency (Reasoning)

"How will the unexpected be handled?" is a question that must not be overlooked. No matter how comprehensive and detailed your planning has been, unexpected events always play a role. Successful logistics operations must be adaptable to changing situations. American logisticians always have shown a genius for improvisation when unforeseen enemy actions or complications upset the best of plans. Some guidelines to remember—

• Practice mental agility and creativity.

• Anticipate as much as you can, but be ready with some contingency plans. Contemplate worst-case scenarios and how they could be handled.

• Always be ready for Murphy's Law. Whatever can go wrong will go wrong and at the worst possible moment.

• Master logistics practices and techniques so you can apply them with confidence.

• Constantly monitor situations so you will know what is actually happening. Never assume anything.

Power Projection Logistics (Evaluating)

Asking "What lessons were learned?" puts a supply operation into perspective. Logisticians never stop learning how to move and sustain armies. In each military campaign and operation, lessons in logistics abound. The seven levels of logistics thinking underscore the complexity of logistics and the difficulty of determining lessons learned. Power-projection logistics cannot be practiced successfully until everyone involved has an understanding of how a system solves problems and how they can learn from the flaws in that system. Consider these questions—

• Were the combat units adequately armed and fueled?

• Was the total force effectively manned, moved, fixed, and sustained?

• Were the military objectives achieved?

• Did the logistics plan work? What were the plan's accomplishments? Shortcomings? Greatest surprises? Most important lessons learned?

• If the operation could be redone, what would be changed and why?

Twenty-first century logistics responses to urgent military requirements around the world will demand critical logistics thinking skills. The Army Logistics System must be driven by logisticians who can think clearly and critically. A winning logistics team must be able to move from just knowing and comprehending to applying and analyzing and then to the higher levels of synthesizing, reasoning, and evaluating. Such critical thinking will enable 21st-century Army logisticians to achieve "a seamless logistics system capable of providing world-class logistics support for America's Army in any scenario." **ALOG**

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Velocity Management at th

Applying velocity management initiatives at the National Training Center reduced order and shipping time dramatically, lowered the dollar value of its authorized stockage list by millions, and ensured a better maintained fleet of vehicles available to soldiers arriving for training.

Until recently, velocity management was a term that did not apply to logistics at the National Training Center (NTC), Fort Irwin, California. In fact, very few people there could define velocity management (VM); fewer still had even heard of the concept, although it had been discussed in several *Army Logistician* articles and was referenced in a study of logistics at the NTC. However, that lack of familiarity with VM began to change in August 1995.

The NTC became interested in VM because of problems maintaining supply support, particularly order and shipping time (OST) for parts requisitions.

Because training is conducted at Fort Irwin in 28-day rotations 12 times a year, the installation has an operating tempo (OPTEMPO) three to four times higher than the rest of the Army. Each tracked vehicle averages more than 300 miles per rotation. The high OPTEMPO, coupled with a work load of approximately 200,000 requisitions per year and an average OST of 58 days for 95 percent of all requisitions, made the NTC an excellent case study for improvement of supply support.

The need to look at VM as a way of improving supply support was stimulated by two logistics changes implemented during the summer of 1995. The first change was adoption of the "blue-gold" concept, which is a method of managing the pre-positioned equipment at Fort Irwin by dividing it into two distinct fleets and a readiness-based float. The blue-gold concept has two goals: provide a more realistic force-projection training environment for rotational units by emulating the Army war reserves pre-positioned fleets, and reduce the OPTEMPO miles on the training fleet.

At the same time that the blue-gold concept was adopted, the logistics elements at the NTC underwent a major reorganization. The garrison commander became the Deputy Commander for Logistics, and the materiel management center (MMC) and the NTC Support Battalion were placed under his control. The MMC was formed from the directorate of logistics as a command-designated position list lieutenant colonel-level command. The MMC manages and distributes all classes of supply, except medical materiel, in support of the NTC and the units that train there every year. The direct support units (DSU's) of the 11th Armored Cavalry Regiment, the NTC Support Battalion, and the training units act as forward stock locations of the MMC class IX (repair parts and components) main stock location.

Enter Velocity Management

In August 1995, a team from the Army Combined Arms Support Command (CASCOM), Fort Lee, Virginia; the Logistics Integration Agency (LIA), Alexandria, Virginia; and the RAND Corporation, Santa Monica, California, visited Fort Irwin to look at logistics initiatives and problems associated with implementing the blue-gold concept. Several interesting stories emerged as the CASCOM-LIA-RAND team toured the NTC and tracked supply transactions through the system. The most alarming story concerned a premium service shipment to Fort Irwin from the closest supporting depot—Defense Depot San Joaquin (DDJC) (the old Sharpe Army and Tracy Defense Depots). This shipment went from DDJC to Oakland to Ontario to Victorville to Barstow, and then sat on the dock in Barstow for 2 days awaiting shipment to Fort Irwin—a total of 10 days for a premium service shipper to get a not-mission-capable supply shipment moved 400 miles!

While at Fort Irwin, the CASCOM-LIA-RAND

e NTC

by Lieutenant Colonel Joseph L. Walden and Colonel Charles W. Ennis, Jr.

team presented a briefing on the CASCOM and U.S. Forces Command (FORSCOM) velocity management OST-reduction initiative. These briefings piqued the interest of some of the members of the MMC and the logistics base operations contractor who, at the time, was DynCorp of Reston, Virginia.

The NTC Commander was excited by the possibility that velocity management could improve support of the installation and the rotations there. He quickly created a VM site improvement team composed of representatives of the directorates and commands on post that were key players in the logistics support structure—the 11th Armored Cavalry Regiment, the NTC Support Battalion, the directorate of information management, and the supply and materiel divisions of the MMC. The team analyzed the OST process using the VM model as a guide and used VM methodology to define, measure, and improve the process (see chart on next page).

Phase I—Synchronizing Automation

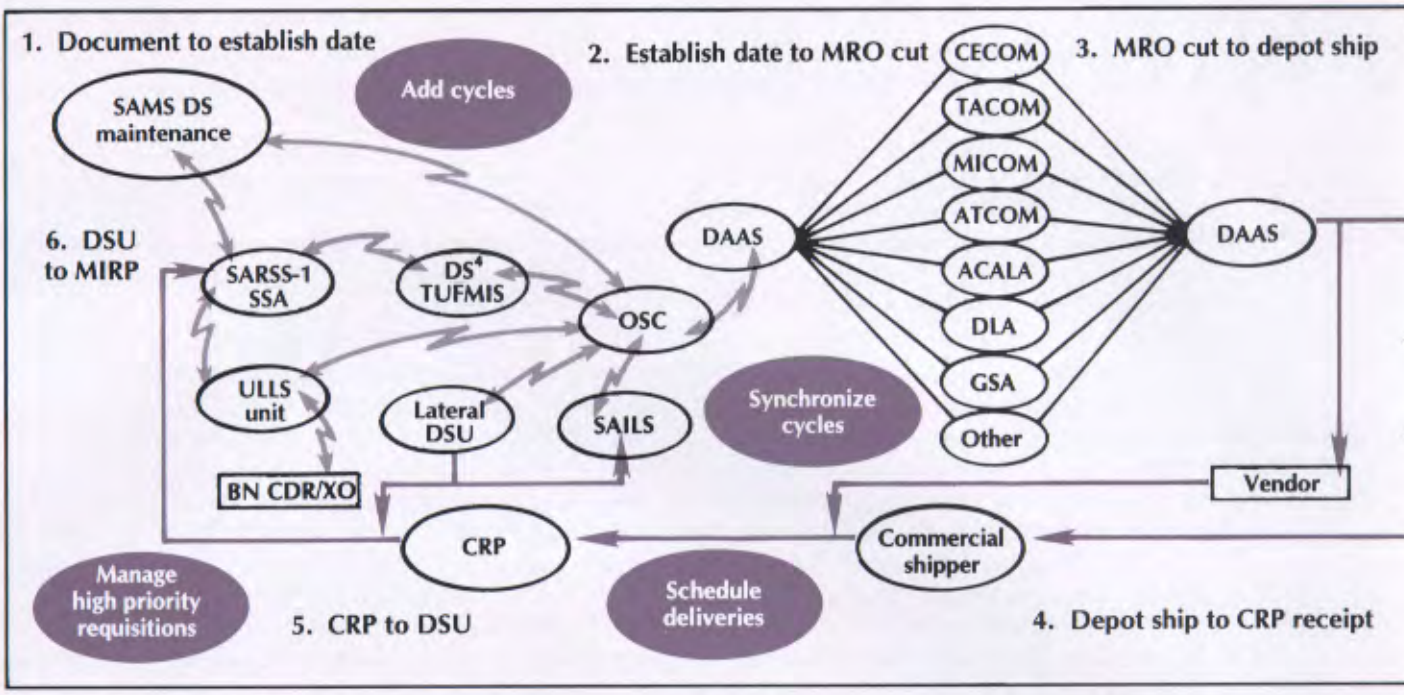
The new NTC MMC officially "stood up" the week following formation of the VM site improvement team and immediately began making changes to improve the off-post requisition and receipt processes. One problem was that tactical unit financial management information system (TUFMIS) and direct support unit standard supply system (DS^4) cycles were not synchronized to make the best use of the installation's automation capabilities. The result was that the DS^4 cycle was run in the afternoon, the standard Army intermediate level supply system (SAILS) cycle was run in the evening, and the TUFMIS cycle was run the next morning. Consequently, requisitions that hit the objective supply capability (OSC) gateway after the DS^4 cycle was run errored out during the TUFMIS cycle. Sometimes it was as long as 6 days before the requisition was established on the Defense automatic addressing system.

A combat service support automation office was created "out of hide," and the DS^4 and TUFMIS cycles were rescheduled to run together to optimize automation and coincide with the SAILS cycle. In addition, a second DS^4 cycle was added to the processing day to capture those requisitions passed between the morning cycle and the close of business at 2230 hours. Resistance to these changes was great because Fort Irwin had recently experienced a major reorganization and a reduction in force of civilian employees. Many people were understandably concerned about losing their jobs. Once everyone was reassured that their jobs were secure and that collocating personnel, rescheduling cycles, and relocating hardware were beneficial to the overall operation, the resistance subsided.

Among the most useful velocity management tools used at the NTC were the weekly and monthly reports from the Army Materiel Command's Logistics Support Activity (LOGSA) at Redstone Arsenal, Alabama. While the individual direct supply support activity performance report gave a snapshot in time of requisition status and the average OST, the weekly and monthly LOGSA data tracked all requisitions that were processed for each segment of the supply pipeline during a given week or month. These data enabled the MMC to identify problems quickly and look for solutions before they became critical. For example, the MMC was unaware that the latest system change package to the OSC changed their media and status codes. The weekly data from LOGSA identified a problem. Research into the problem revealed the system changes, and a major problem was avoided.

The materiel release order (MRO) control system and the automated manifest system (AMS) were fielded to the Fort Irwin central receiving point and the class IX main stock location in November 1995. These systems rapidly processed class IX receipts and got the parts into the hands of the customers quickly. As a result of these automation improvements, the OST for 95 percent of all requisitions had dropped to 15 days by February 1996. Although still short of the Vice Chief of Staff of the Army and CASCOM goals of 7 days for issue priority groups 1 and 2 and 10 days for issue priority group 3, the NTC was making great progress. The central receiving point processing time was cut so much that the installation was ready to start measuring processing time in hours rather than days!

The NTC presented results of the reduced OST to the semiannual authorized stockage list (ASL) review board, along with recommendations to add 1,815 items to the NTC ASL, reduce the quantity of 1,696 items, increase the quantity of 1,903 items, and delete 343 items, which reduced the dollar value of the ASL by over $9 million. The velocity management initiatives that resulted in the lower OST, including fielding of the AMS and MRO control system, were strong contributors to this success. However, it was the great men and women of the NTC Support



☐ **The NTC uses VM methodology to define, measure, and improve their order and shipping process.**

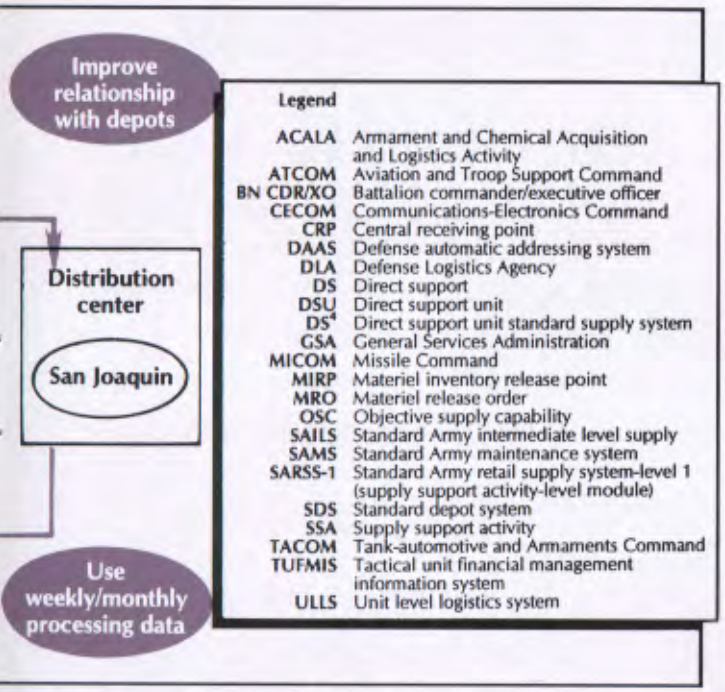
Battalion's 31st Maintenance Company (General Support) who made the dramatic dollar reduction possible. For example, they became so proficient at rebuilding the M1A1 tank engine that they reduced repair time enough to warrant 20 fewer M1A1 tank engines on the ASL than before.

Phase II—Improving Operational Readiness

The next 3-month phase of velocity management integration at Fort Irwin started in April 1996 with a pilot program in which the DDJC made daily repair parts deliveries during the regeneration phase of each 28-day NTC rotation. (The regeneration phase is week 4 of a rotation. It is during this period that the brigade combat team focuses on regenerating combat power and returning the pre-positioned fleet to a fully mission-capable status for use by another brigade during subsequent rotations. This replicates the procedures the unit would use if they drew the equipment from the Army war stocks in Kuwait or from the Army war reserve stocks afloat.) This was a change from three scheduled deliveries per week to five. The goal was to improve the turn-in operational readiness rate and reduce the maintenance backlog passed on to the NTC Support Battalion and DynCorp by getting repair parts into the hands of the rotational mechanic faster. At the NTC, if a part comes in after the rotation has gone, the responsibility for fixing the equipment falls on the NTC Support Battalion for direct support work or on the operating contractor for organizational-level repairs.

The key to the success of the pilot program was the partnership developed among the NTC MMC, DDJC, and Defense Logistics Agency (DLA) headquarters. Without this partnership, any efforts to improve OST and readiness would have been futile. During the 3-month test, DDJC agreed to pick up the additional costs for the extra two delivery vehicles per week ($814 per truck). High-priority requisitions that were not stocked or were at zero balance at the class IX main stock location were phoned to the inventory control point by the MMC item managers. The turn-in operational readiness rate for tracked vehicles was 88 percent, an increase of 7 percent. For wheeled vehicles, the rate increased from 81 percent to 84 percent. The average OST for high-priority requisitions was reduced from 17.9 days to 6.9 days. Most of the items were received within 3 or 4 days. In fact, some items were received and processed by the class IX main stock location and sent to the customer before the logistics intelligence file (LIF) cycle was posted showing a shipped status.

After the pilot program, the MMC Commander and the NTC Deputy Commander for Logistics traveled to DDJC to discuss the results of the test. They found that the number of unserviceable vehicles turned in at the end of each rotation was reduced by 50 percent, which significantly decreased the number of vehicles the contractor had to repair. Each vehicle taken in as not-mission-capable requires an average of 45 man-hours to return it to fully mission-capable status. At a labor cost of approximately $25 per hour,



it is easy to see that the pilot program was a success.

Armed with a "scientific sample of one," the second test period was viewed with a more critical eye. In fact, representatives from DLA headquarters, DDJC, FORSCOM, and CASCOM were all on hand to view the results of the second test. The turn-in operational readiness rates for tracked and wheeled vehicles increased again—up to 95 and 92 percent, respectively. The average total OST was again less than 7 days for the high-priority requisitions, with many filled in less than 4 days. These statistics proved that the first test was not a fluke and warranted a third test period for proof of principle.

Phase III—Proof of Principle

The third test was a little different because it was in support of the 48th Infantry Brigade, Georgia Army National Guard. Because of annual training time constraints, turn-in was started on a Wednesday. The same call-in procedures were followed as in the previous two tests. This time, dedicated trucks arrived daily through the weekends. Again, the total OST remained less than 7 days and averaged 4.7 days. Some parts were received in as little as 2 days. The turn-in operational readiness rate was 94 percent for both tracked and wheeled vehicles.

Lessons Learned

Velocity management at the NTC is still in the infant stages, but there are some key lessons to be learned from the first year's experiences. The road to success is not always paved with gold; in fact, sometimes it is not paved at all. Numerous systems change packages (SCP's) and interim change packages (ICP's) to the automated systems (DS^4, TUFMIS, OSC, unit level logistics system-ground [(ULLS-G], and SAILS) wreaked havoc on supply performance statistics. As a result of the change packages and new personnel rotations, over 10,000 documents were "lost" in a single month. Some of these documents did not show up until the next monthly bottom-up reconciliation. Each requisition had to be researched for duplication and validity. Those that were valid but had "no record" entered on the LIF had to be reestablished. In some cases, it took more than 45 days to identify the problem, pass the requisition through several manager reviews at the inventory control points, and reestablish it on the LIF.

Reducing OST makes it possible to add a wider variety of class IX stocks to the ASL while reducing the quantity of each. The ASL must be broad if it is to be responsive.

The VM site improvement team is a must; no one person has all the answers. When you have several people studying a problem, you are more likely to find a solution.

Partnering with the supporting depot is critical. The DDJC staff was willing to do whatever it took to make the NTC mission a success.

Sometimes you can move too fast down an unpaved road—you must adjust your speed for the "road conditions." When the systems and enablers work as planned, velocity management is great and results in one-time savings and cost avoidances by reducing stocks. At the NTC, VM also helps ensure that soldiers coming there to train do not spend their time in the brigade support area repairing vehicles. Instead, they find a fleet that is ready to cross the line of departure prepared for combat. **ALOG**

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Colonel Charles W. Ennis, Jr., is the Deputy Commander, U.S. Army Japan and 9th Theater Army Area Command, Camp Zama, Japan. When this article was written, he was the Deputy Commander for Logistics, National Training Center and Fort Irwin, California. He is a graduate of the U.S. Military Academy at West Point, New York, and has a doctorate in automotive engineering from Texas A&M University, College Station, Texas.

Equipment Usage Reporting—Doing It the Right Way

by Donald R. Wheeler and Karen B. Weston

How accurately a unit reports equipment usage affects how much money it will receive. Here is some advice for making sure that your unit's reporting is accurate and complete.

In these days of "rightsizing" and tight budgets, accurate and timely reporting of the operating tempo (OPTEMPO) of equipment is becoming increasingly important. In fact, it is a unit's past OPTEMPO that determines the funding that unit will receive in the future. Although the Army has been in the business of reporting equipment usage for at least 20 years, some unit level logistics system-ground (ULLS-G) activities are still forgetting to report. Why this happens is anyone's guess. But if you want to make sure your unit is reporting its equipment usage correctly, read on.

How Data Are Collected

Usage data on ground equipment are collected through one of three different methods: ULLS-G; Department of the Army (DA) Form 2408-9, Equipment Control Record; or Department of Defense (DD) Form 2026, Oil Analysis Request. The DA Form 2408-9 also is used to record acceptance, transfer, loss, gain, and depot overhaul of equipment and redesignation of equipment's national stock numbers (NSN's).

Chapter 5-6 of DA Pamphlet 738-750, The Army Maintenance Management System (TAMMS), contained in Maintenance Management Update 14, provides specific instructions for each type of report. When filling out the DA Form 2408-9 for any purpose, you must be sure to complete all applicable blocks.

The Army Materiel Command (AMC) Logistics Support Activity (LOGSA) at Redstone Arsenal, Alabama, plays a major role in usage reporting. LOGSA receives unit ground equipment usage reports and enters data from them into the Army maintenance management system (TAMMS) equipment data base (TEDB). The TEDB is the Army's only centralized repository for ground usage data that is cataloged and stored by the serial and registration numbers of the reportable items. The TEDB also supports the Army vehicle registration program.

Reporting Procedures

ULLS-G is the most up-to-date method for reporting equipment usage information. If your unit has ULLS-G and also receives support from a standard Army maintenance system (SAMS) site, you simply download your usage information, along with your Army materiel status system (AMSS) data, to a diskette on the 16th day of each month. You then send the diskette to the ULLS-G system designated as the "parent unit" in your battalion. The parent unit sends all usage and AMSS reports for the battalion to the SAMS site. The SAMS site then forwards the information to LOGSA. If your unit has ULLS-G but does not receive support from a SAMS site, you should submit ground usage information and AMSS data directly to LOGSA on diskettes.

Usage reporting through ULLS-G must include information listed in appendix E of DA Pamphlet 738-750. Use of an end item marked "usage reportable" on the maintenance master data file (MMDF) must be reported through ULLS-G. Before you download your usage data to a diskette, refer to the rollup by system or subsystem administrative number to make sure you include all usage-reportable equipment.

Units without ULLS-G must submit a DA Form 2408-9 to LOGSA for all usage-reportable items not enrolled in the Army Oil Analysis Program (AOAP). It is not necessary to fill out a DA Form 2408-9 for equipment enrolled in the AOAP. Occasionally, a commander may elect to enroll vehicles in the AOAP only at one specific location. In that case, usage must still be reported annually on DA Form 2408-9. If you are unsure whether to report usage through the AOAP or on DA Form 2408-9, check appendix E of DA Pamphlet 738-750.

DA Form 2408-9 serves as a record of the life cycle of each reported item of equipment, from its acceptance into the Army inventory to its turn-in to the

property disposal office. The logbook copy of DA Form 2408-9 is a permanent part of the equipment records.

Appendix E of DA Pamphlet 738-750 provides a list of all equipment that requires usage reporting as well as those vehicles that must be registered to comply with AR 710-3, Registration and Reporting of U.S. Army Vehicles. DA Form 2408-9 can be used for both purposes.

Currently, units also must report equipment acceptances, losses, gains, and transfers to LOGSA on DA Form 2408-9. In the future, those reports will be sent through ULLS-G. You can keep current on the latest system changes by reading the ULLS-G User's Manual.

Acceptance Reports

An acceptance and registration report must be completed for new vehicles that may be operated on a public highway. This process is similar to titling and registration of a privately owned vehicle. An Army representative prepares an acceptance report at the contractor's plant for each vehicle taken into the Army inventory. This report establishes the initial record on the vehicle in LOGSA's data base. Once entered in the data base, a vehicle does not have to be registered in each state or country in which it may be used. Only one DA Form 2408-9 is required for a vehicle that must be reported under the provisions of both DA Pamphlet 738-750 and AR 710-3.

If your organization or unit accepts nontactical wheeled vehicles procured by the Army Tank-automotive and Armaments Command, or if it purchases commercial vehicles locally, you must prepare acceptance and registration reports. Contact LOGSA in advance to obtain Army registration numbers for the vehicles you plan to purchase.

Gain Reports

The gain report is similar to the acceptance report. However, instead of documenting newly purchased equipment, a gain report is used to record equipment that is coming into the Army inventory from other services or property disposal or that has been designated reportable for the first time. Some new assemblies also require a gain report. For example, if you combine a generator set and a trailer to make a vehicle-mounted power unit with its own NSN, you must report this integration as a gain to the Army inventory.

Loss Reports

File a loss report whenever you drop a reportable item from the Army inventory for any reason. For example, if you take an item to property disposal, sell it through foreign military sales, or integrate it into a larger assembly, you must file a loss report. If a depot changes the configuration of a vehicle, the NSN of the original vehicle is reported as a loss, and the NSN of the reconfigured vehicle is picked up on a gain report.

Transfer Reports

You must make a transfer report to LOGSA each time you assign a reportable piece of equipment to another parent unit, property book, or stock record account. (Parent units are at the battalion or activity level.) The unit that ships out a reportable item must fill out a transfer report, and the unit that receives the reportable item also must complete a transfer report. Do not file a report when transferring equipment between companies in the same battalion. If your unit is redesignated or your unit identification code (UIC) changes, send a memorandum to LOGSA and include both the old and new UIC's. The memorandum will serve as a transfer report for all your equipment; you do not have to send a DA Form 2408-9 to LOGSA for individual items. Line through the old UIC on your logbook copy of DA Form 2408-9 and write the new UIC above it.

Cumulative Usage Reports

If your unit does not have ULLS, one of the most important uses of DA Form 2408-9 is reporting annual cumulative usage of reportable vehicles. Vehicles that require an annual usage report are listed in appendix E of DA Pamphlet 738-750.

Annual usage of all nontactical vehicles should be reported to LOGSA as of 1 October. Usage reports required in accordance with DA Pamphlet 738-750 on tactical vehicles should be sent to LOGSA as of 1 November.

Not all usage reports are sent to LOGSA. Cumulative usage reports on floating craft should be sent directly to the Army Aviation and Troop Command, St. Louis, Missouri, as of 1 February and 1 August. Make sure reports arrive on time and that they are accurate. If the reports are sent through a data reduction center, make sure the center forwards the data to LOGSA by the date required. Annual reports are due within 30 workdays of the "as of" date shown for each commodity.

Other Uses of Collected Data

The Army uses the information produced by the TEDB to prepare reports for all levels of command. The products generated from this data base are used by agencies such as the Army Cost and Economic Analysis Center, Army Safety Center, major Army commands, AMC major subordinate commands, Army law enforcement agencies, logistics study of-

Contact LOGSA if you have questions concerning ground equipment usage reporting:

(205) 955-9695/9148/9712 FAX: (205) 955-9666/9700
DSN 645-9695/9148/9712 DSN 645-9666/9700

E-mail: kweston@logsa.army.mil areaves@logsa.army.mil
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Address: Executive Director
AMC Logistics Support Activity
ATTN: AMXLS-RRS
Redstone Arsenal, Alabama 35898-7466

LOGSA hotline: (205) 955-0499

fices, and field units. LOGSA generates special reports from the TEDB to help item managers make decisions. For instance, planners use information from reports that show equipment distribution by age, mileage, and density to prepare budgets, determine OPTEMPO's, plan overhauls, and justify purchases of new equipment. Although mileage is not the only criteria used when selecting vehicles for overhaul, it is the primary yardstick used by LOGSA when compiling a list of overhaul candidates for item managers.

Logistics data are used to prepare logistics studies and operation and support cost plans, determine OPTEMPO, and compile accident statistics. This information helps ensure that the Army has the best and safest equipment possible. Fleet managers review usage and age data to determine the condition of the fleet. This information helps them to plan for, and justify to higher levels of command, the replacement of old equipment.

LOGSA also uses the usage data to verify the current ownership of vehicles, so make sure you fill out reports correctly. It is critical that you use the correct UIC; wrong UIC's really mess up LOGSA's data base. Remember to notify LOGSA if the UIC changes so they can make the appropriate changes to their data base.

The Army is attempting to reduce operating costs for wheeled vehicles by removing from its fleet those that are surplus, obsolete, or have excessive mileage. Usage data helps identify vehicles that should be dropped from the inventory.

Reporting Tips

For improved reporting on DA Form 2408-9 (Equipment Control Record)—

- Compare the permanent logbook copy of DA Form 2408-9 against the data plate on each item of unit equipment at least annually. If you cannot find a valid serial or registration number, contact LOGSA for assistance.
- Contact experts at the nearest AMC logistics assistance office (LAO) if you need help in identifying the configuration of your equipment.
- Make sure all entries on DA Forms 2408-9 are neat and legible. Good reports are useless if they cannot be read.
- Check DA Pamphlet 738-750 periodically for new maintenance updates.
- If your reports are sent through a data reduction facility, do not send the hard copy of DA Form 2408-9 to LOGSA. Sometimes LOGSA receives two identical reports because units send their reports through the data reduction center and also mail the hard copy.
- Do not use the alpha characters "I" or "O" (see Table 5-1, AR 710-3) as a part of any Army registration number assigned after 1972. If you do see a registration number that contains either an "I" or an "O," it is in error; check the data plate or other records for the correct number.
- Do not report trailer chassis separately on DA Form 2408-9. Some chassis may have an old registration number painted on them or etched into their data plates. If they do, do not use those numbers or report them on DA Form 2408-9. LOGSA now registers the new end item whenever the chassis is integrated into a different assembly. Be sure to contact LOGSA for a registration number whenever you integrate a chassis into a new reportable item.

When reporting through the AOAP using DD Form 2026—

- Be sure that the correct end item serial number

(not the registration number) is entered in the block labeled "End Item Ser. No./EIC" on the form. If you are not sure that the number you have is correct, request verification from LOGSA.

- Be sure to record the correct UIC, not the Department of Defense activity address code, in the "Operating Activity" block of DD Form 2026.
- Before installing a new odometer in a vehicle, report the cumulative miles or kilometers of the vehicle on DD Form 2026 in the lower right-hand corner of the block labeled "Remarks."
- Check the equipment to be sure its serial number is the same as the one used on DD Form 2026. If a unit has an M1A1 tank with a serial number above D10000 or L10000, the serial number should have a "U" at the end. For example, if a vehicle has the serial number "D10345," it should be amended to read "D10345U."

When reporting equipment usage through ULLS-G—

- Be sure that each vehicle's correct serial *and* registration numbers are entered. Contact LOGSA if you are unsure of either of these numbers or you need to have a registration number assigned.
- Report usage data on all items listed in the columns labeled "2408-9 Usage" and "DD Form 2026 Usage" in appendix E of DA Pamphlet 738-750. Even if a vehicle was not used during the report period, you must still submit a cumulative miles report. Units with ULLS-G must ensure that every usage-reportable vehicle has the correct cumulative mileage or kilometers recorded in the "Usage" field.

Data Reduction 'Musts'

The "bible" for data reduction centers is DA Pamphlet 738-750, figures 5-17 through 5-21. If you send a DA Form 2408-9 to a data reduction center to report annual equipment usage, you should have a "K" or "M" before block 18b to identify whether the odometer reading is in kilometers or miles.

One of the most important data fields that will be reduced is the 10-character serial number field. If the serial number is longer than 10 characters, only the 10 right-most characters are used, so be sure to double-check those numbers. Entering the wrong serial number would make finding a match in the TEDB impossible or could result in update of the wrong serial number. Contact LOGSA if your data reduction center needs help in identifying items that are reportable. LOGSA can provide a list (called the selected item master file) of reportable items for both TEDB and the vehicle registration program.

It is important that DA Form 2408-9 gets to LOGSA quickly after data reduction. The instructions for transmitting data in an automated format are found in paragraph 5-6f of DA Pamphlet 738-750. LOGSA prefers to receive data by the automated digital network (AUTODIN). If your data are sent by AUTODIN, please be sure that the control card (prepared by the data reduction center) is punched as shown in paragraph 5-6f(4) of DA Pamphlet 738-750. The data reduction center also will prepare an AUTODIN header card, which is the first card of the batch. Be sure that the AUTODIN header card uses the correct routing identifier code, "RUDQLST," for reporting using DA Form 2408-9.

Changes Ahead

In the future, after LOGSA has had sufficient time to compare the usage data received on DD Forms 2026 and DA Forms 2408-9 with the data received through ULLS-G, units with ULLS-G will be notified to discontinue submitting usage data on DD Form 2026 or DA Form 2408-9. However, until then, LOGSA requires that units report on one of these two forms in addition to reporting monthly through ULLS-G.

The Army recently completed fielding ULLS-G systems change package (SCP) 5, which changes ULLS-G usage reporting slightly. With ULLS-G SCP 5, the usage report, along with the readiness report, will be passed to LOGSA through the AMSS process in ULLS-G. Because the readiness reporting period runs from the 16th of the month through the 15th of the following month (as prescribed in AR 700-138), usage reporting through ULLS-G SCP 5 will follow those dates as well. In other words, units with ULLS-G SCP 5 will run the AMSS report on the 16th of each month (or as soon thereafter as possible) and forward the AMSS data to the SAMS site. AMSS reports must arrive at LOGSA by the first day of the following month.

Your unit's funding, and therefore its survival, depends on accurate equipment usage reporting. Let LOGSA help you do it the right way. **ALOG**

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Function Testing of Am

Savanna Army Depot Activit for ensuring that specified ammunition it

We all have heard Benjamin Franklin's famous observation, ". . . for want of a nail a shoe was lost, for want of a shoe a horse was lost . . . ." The modern logistics implications of what he said are clear: Any commodity supplied to the force must not only arrive on time but must also be in the best condition possible. This is especially true for class V ammunition items that have critical value on the battlefield. Ammunition that is reliable and in optimal condition can be the commodity that determines success or failure at the front.

At every level of ammunition and explosives storage, from acceptance of items at the time of manufacture to their final use or demilitarization, quality and serviceability are paramount concerns. Those concerns are routinely addressed by periodic visual evaluations of the exterior appearance and configuration of class V stocks. At long-term wholesale storage sites, arms rooms, using unit storage sites, and uploaded warfighter vehicles around the world, visual evaluations allow inspectors to predict with some confidence whether those stocks will function as intended. But for maximum reliability in the field, there often is a need for a more rigorous approach known as function testing.

Capital of Function Testing

In the hilly countryside of northwest Illinois, along the banks of the Mississippi River, sits the oldest ammunition storage depot in the Army Industrial Operations Command (IOC)—Savanna Army Depot Activity (SVDA). In addition to the missions it performs in common with other ammunition depots across our Nation and at oversea storage sites, SVDA has the distinction of being one of the few installations within the IOC that executes functional evaluations of the extensive U.S. military munitions inventory.

These function tests, which are conducted in addition to the cyclic visual evaluations, greatly enhance the predicted reliability of stored munitions awaiting issue to field forces. This unique mission is carried out in support of a large portion of the ammunition and explosive items used throughout the Department of Defense and by many foreign military forces.

The function testing program at SVDA is centrally managed by the Ammunition Surveillance Branch of the Engineering and Assessment Division, which reports to the Executive Director for Industrial Operations at IOC Headquarters in Rock Island, Illinois. The branch stratifies stocks in the inventory by various categories and selects candidate items for testing. These items then are pulled out of their static storage from sites around the world, and selected samples are shipped to SVDA for test and evaluation. The selection criteria are varied and may be chosen to respond to suspected reliability problems, to revalidate production quality assurance, or simply to ensure that our ready-for-issue ammunition is the best we can give our troops.

Test Facilities

SVDA conducts testing in a state-of-the-art complex consisting of an operational control building, two strategically placed observation sites, and an earth-covered magazine used for secure, on-site storage of samples and demolition materials. This $1.6 million facility was designed specifically to provide the most comprehensive function-testing capability in the world.

Covering approximately 1,700 square feet, the operational control building is the nerve center of the test complex. It provides space to store and service ammunition-peculiar equipment (APE), which are specialized, one-of-a-kind machines that perform ammunition tasks that are often too dangerous, too difficult, or too time-consuming for humans to do alone. The control building includes a barricaded room for inside testing and a second barricaded room that houses specialized equipment for the environmental conditioning of test samples. A control and data analysis room provides a remote site (required for worker safety) for function testing of samples and a recording center for compiling the functional characteristics observed.

Remote observation sites, which facilitate triangulation computations, are used when inspectors need to record aerial characteristics to properly evaluate a

munition

by Paul R. Torkelson

y is the Army's leading facility ems are always ready for use.

sample. For example, in evaluating pyrotechnics, the sample is functioned and measurements are made and statistically analyzed to assess its attained height, burn time, dispersion, and other physical characteristics. The earth-covered storage magazine (with three distinct, barricaded cubicles) provides segregated storage of test samples and supporting demolition material used in the destruction of certain test duds.

Test Procedures

SVDA tests over 80 different types of ammunition that could be issued to soldiers. These include hand grenades (colored smokes, fragmentation, and riot control), hand grenade fuzes, pyrotechnic signals (colored smokes and illuminants), antipersonnel mines, 40-millimeter cartridges (ground and air colored smokes), simulators, demolition blocks, and blasting caps and demolition firing devices.

Samples from the 150 to 200 selected test lots of ammunition and explosives are sent to SVDA for reliability function testing each year. Within a single test lot, small groups are selected for environmental conditioning to simulate various conditions to which the items might be subjected in the field. For maximum benefits, it is essential that tests of samples replicate the actual conditions under which troops operate in combat and training.

Environmental conditioning is accomplished using various items of APE. A preconditioning oven, capable of a maximum temperature of 200 degrees Celsius, allows samples to be conditioned to heat. Alternatively, a refrigeration unit can attain temperatures as low as -70 degrees Fahrenheit, which allows samples to be conditioned to cold (such as what line soldiers encounter in Bosnia). An immersion tank allows samples to be conditioned at various simulated underwater depths; this is done by pressure adjustments made when the unit is sealed. Environmentally conditioned samples are all tested against set standards that correspond to design requirements and manufacturers' original acceptance criteria.

The functional characteristics that are evaluated vary depending on the item being tested, but they usually include range, delay time of detonation, duration of effect time, proper color, altitude, velocity, accuracy, physical resistance to pinpulls and firing activation, assembly torque, and frequency of duds and misfires.

In addition to using specialized APE and environmental controls, SVDA also uses standard military weapons to launch, project, or otherwise activate test samples just as would be done in the field. Sometimes, APE is used in the remote functioning of both the weapons and the ammunition items being tested.

Most function-testing APE is designed and prototyped by the Army Defense Ammunition Center and School (USADACS), which is a tenant of SVDA. The collocation of USADACS and SVDA creates a partnership that ensures the best function-testing program around. Engineers, quality assurance specialists (ammunition surveillance), and other explosives technicians combine resources to find continually ways to improve ammunition evaluation equipment, and procedures. Test-range APE is designed to withstand the effects of the ammunition item being functionally tested and allow the operators and observers to execute, record, and evaluate test data in a "safe from effects" remote location. APE design and operation is an integral part of the safe, accurate, and successful test mission conducted by SVDA's Quality Assurance Division.

Final analysis of observed characteristics determines if the tested item deviates in any way from established criteria. A rigorous match of performance data against the standard is conducted. A team of specialists and stockpile managers works together to assess results and predict the reliability of the wholesale and retail stocks represented. This extrapolated evaluation, along with Armywide stockpile condition reports and user reports of nonperformance, provides ammunition managers with the means to better predict the reliability of ammunition stocks.

SVDA's success in testing ammunition for reliability is felt in all corners of the world. U.S. and international military forces want munitions that will work right the first time, every time. In support from the industrial base to frontline operations, the SVDA quality assurance team continues to make sure the user's ultimate concern—reliable, functional, serviceable ammunition—is met, no matter where or when needed. ALOG

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Logistics Training

by Philip A. Girmus

From the moment that the National Command Authorities initiate a mobilization and deployment decision until maneuver elements are ready to cross the line of departure, logistics is the Army's operative function. Moreover, logistics remains the lifeblood of any operation long after the maneuver forces stand down and redeploy. It would seem, therefore, that the need for command emphasis on logistics training would be self-evident. But I don't believe that is the case.

Why? I think the answer lies in the attitudes of many operational planners toward logistics. The facets of logistics have increased manifold as soldier requirements and weapons technologies have advanced. But the increased complexity of modern logistics has been accompanied by a decrease in the comfort level, and respect, that operational planners have for logisticians and their science.

In *The Sinews of Army Logistics 1775-1953,* Professor James A. Huston lists 14 "characteristic patterns of logistical conduct." These principles address the relationship between logistics and the fundamental decisions of conflict; all emphasize the interrelationship of logistics with planning. It is the principle of equivalence that I believe all Army personnel need to understand. Professor Huston states—

> Strategy and tactics and logistics are different aspects of the same thing. If completely separated, they become meaningless. Subject to the primary purpose, no distinction in importance can be made between combat functions and service or logistics functions. Strategy, tactics, and logistics stand at the points of a triangle, or perhaps it would be more accurate to say that they comprise three arcs of a circle, without beginning or ending, each arc influencing, and influenced by, each of the others.

Considering the negative attitudes of many operational planners toward logistics, equivalence certainly seems to be the tenet of logistics requiring the greatest emphasis throughout the Army.

Logistics is simply the provision of the tangible assets required to fulfill the objectives of battle. It is not hard to understand what the term "logistics" comprises. Apparently, what is difficult for some in the Army to understand is the magnitude of the knowledge and effort associated with posturing personnel and materiel to meet operational requirements. This is particularly true when we acknowledge that combat forces must be projected from the U.S.

U.S. forces have had repeated opportunities to learn the importance of logistics. Yet with each emergency or contingency, leaders "experience" the importance of knowing how to manage limited resources. I can only conclude that that there is a passive mentality inclined to dismiss lessons learned and after-action reviews as inappropriate to future operations. The adage, "If we fail to learn from our mistakes, we are doomed to repeat them," therefore becomes but a footnote to contingency operations.

How then to direct our training effort if we conclude that leaders do not have the understanding or disposition to accept logistics as the opposite side of the tactics/strategy coin? Integrating the combat service support training simulation system (CSSTSS) into joint and combined "warfighter" exercises provides an important training opportunity for participating service members and allies. This transition from conducting separate functional exercises to full-spectrum training is a viable step toward teaching logistics principles with minimum expenditures.

However, more must be done. Leaders who refer to themselves as warfighters or operators need to be taught that logistics is not an afterthought but an integral part of the decision process. During the preparation as well as the execution phase of any exercise, planners should be held to their decisions about the placement of units and materiel. To allow exercise developers or participants to freely relocate units and materiel or unrealistically tap host-nation assets before or during an exercise is a travesty. If we hold to the idea that we train as we will fight, it is a disaster to allow unit markers or icons to be moved around like so many chess pieces on a game board without respect to time and distance factors. The lesson from the Persian Gulf War is that it takes a very long time to establish a functioning support system in an area where we have no international agreements and the infrastructure is unsophisticated.

Winning the battle often means asking the question, "Where is the critical point?" Invariably, logistics considerations impact or govern the answer to this question; they may be the critical point. This should be the salient part of all training. **ALOG**

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ALOG SYSTEMS

The information presented in Army Logistician's ALOG 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 Shay Nyunt by e-mail at nyuntt@lee-dns1.army.mil or phone (804) 734-1207 or DSN 687-1207.*

–Editor

DEVELOPING AN INTEGRATED JOINT TRANSPORTATION INFORMATION SYSTEM

Confederate Cavalry General Nathan Bedford Forrest once remarked that military victory most often goes to "...whoever gets there firstest with the mostest..." If this maxim has merit, and we know it does, then victory is very much dependent upon the systems that comprise military transportation. The truth in this statement has been acknowledged throughout history. The requirement to move armies and resources brought about ancient Roman highways and our own interstate systems. The highway that must be built today to get there "firstest with the mostest" is the "information highway."

Today, managing the movement of personnel and resources to meet global challenges is increasingly complex. This complexity is a combination of more choices in transportation, cost, time sensitivity, and the requirement for intransit visibility. In order to deploy more specialized cargoes and multiservice and multicomponent force packages, accurate and detailed information is required at all levels. To accomplish this information task, the process now requires the use of seven systems with varying degrees of connectivity. The solution is to bring together these disparate systems to allow users seamless input and access to transportation data bases. This is the goal of the transportation coordinator's automated information for movements system II (TC AIMS II).

TC AIMS II, a joint program, is an Office of the Secretary of Defense-directed migration of transportation-related systems designed to support all U.S. forces during deployment, sustainment, retrograde, employment, and redeployment operations. Additionally, TC AIMS II is designed to support day-to-day operations and interface with joint systems, to include providing intransit visibility and total asset visibility to supported commanders in chief.

TC AIMS II is a component of the reengineering of a larger system: the Defense transportation system. As a joint program, TC AIMS will aggregate these systems:

System	Acronym	Proponent
Cargo movements operation system	CMOS	U.S. Air Force
Transportation coordinator command and control information system	TC ACCIS	U.S. Army
Department of the Army movements management system-redesign	DAMMS-R	U.S. Army
MAGTF deployment support system	MDSS	U.S. Marine Corps
Transportation coordinator's automated information for movements system	TC AIMS	U.S. Marine Corps
Air load module	ALM	Joint
Integrated computerized deployment system	ICODES	Joint

These systems will blend together using a combination of hardware and software solutions known as "middleware." This middleware will allow systems to pass files, communicate, and query while providing users with seamless access to existing and future functionalities from each of the systems.

TC AIMS II will provide battalion, company, and detachment users the ability to build automated unit equipment lists from organizational equipment systems, such as the unit-level logistics system (ULLS), and personnel systems, such as the standard installation/division personnel system (SIDPERS); plan convoys; request convoy clearances; request transportation support from all modes; and formulate load planning for air, sea, or rail transport. At other organizational levels, transportation modeling and simulation can be conducted to test impact on operational plans. Once data are loaded by users, TC AIMS II

will enter unit and equipment requirements data into strategic transportation systems and provide enhanced unit and sustainment intransit visibility data.

System capabilities, data access, and transportation visibility will vary with the transportation requirements of each level or type of organization. The system will provide data and information resources to unit movement officers, staff officers from company to theater level, movement controllers, unit movement coordinators, and installation transportation officers.

TC AIMS II will be the Department of Defense standard for garrison, redeployment, sustainment, and retrograde operations in any environment and in any location. TC AIMS II, as it integrates and aggregates transport systems, will support the U.S. Armed Forces to get there "firstest with the mostest" in the 21st century.

The Army will beta test TC AIMS II version 1.0 at two locations in the second quarter of fiscal year 1997. Since this is a joint project, the Army is the lead service agency and the Marine Corps is the lead for the Joints Requirements Office (JRO). There is an interim Army project officer in charge of the Joint Program Management Office. The TC AIMS lead for CASCOM is Captain Michele Ritchie-Roberts. More information on the Army's information systems is available on CASCOM's World Wide Web site (http://www.cascom.army.mil).

SARSS-O FIELDING TO RESERVE COMPONENTS

The standard Army retail supply system-objective (SARSS-O) is being fielded this year under initiatives of the National Guard Bureau, the U.S. Army Reserve Command (USARC), and the Project Manager for Integrated Logistics Systems (PM ILOGS). SARSS-O replaces systems now used to execute supply transactions under the standard Army intermediate level supply system (SAILS). The active component units have been transitioning to SARSS-O over the past 5 years, but it will require several more years to complete fielding. SARSS equipment consistent with support mission requirements has been fielded to reserve component units. PM ILOGS and reserve component commands anticipate numerous units receiving equipment and training this fiscal year.

SARSS-O consists of several hardware and software configurations. The SARSS-1 computer processes requisitions at direct support supply and maintenance activities. SARSS-1 allows customer units to send electronically requisitions using standard property book system-redesign (SPBS-R) and ULLS series computers. SARSS-2A is a divisional materiel management center (MMC) computer capable of providing cross-leveling management. The SARSS-2 AC/B is a minicomputer normally assigned at the corps level and provides a higher level of cross-leveling and management by exception. This system is also known as the corps theater automated data processing service center phase II (CTASC II).

The National Guard intends to field CTASC II to U.S. property and fiscal offices located in all 50 states and a number of U.S. territories and possesions. National Guard systems will process transactions from Army National Guard direct support activities and units in their states using SARSS-1.

The Army Reserve will employ CTASC II at three MMC's located in California, Louisiana, and Virginia. The Army Reserve's regional support commands (RSC's) will manage the financial resources of their subordinate units using end-user-workstations (EUWS's). EUWS's are wired directly to CTASC II and give RSC's visibility and edit capabilities for units under their support umbrella. U.S. Army Reserve direct support activities will process requisitions from customer units with SARSS-1.

ULLS-G TESTS CONTINUE FOR CD-ROM MULTIMEDIA TRAINING

Last fall 8,000 units received test versions of multimedia-based training for the unit-level logisticis system-ground (ULLS-G). The units provided comments to developers for correction of deficiencies and improvements. The next phase in development will encompass the fielding of a newer prototype to units at Fort Hood, Texas, in the winter of 1996 to 1997. If trials are successful, the original 8,000 ULLS-G sites will receive updated training disks. The final version of this CD-ROM-based training package is scheduled for fielding in the May-June timeframe.

Minimum system requirements for CD-ROM ULLS-G training are—

- 486DX 33 Mhz (66 Mhz recommended), 8 megabytes RAM.
- Hard disk 10 megabytes free, 3.5-inch floppy disk drive.
- SVGA monitor.
- Graphics adapter card.
- Sound card, speakers.
- 2X CD-ROM drive (4X recommended).
- Mouse.
- Windows #.x, Windows for Workgroups 3.x, Windows 95.