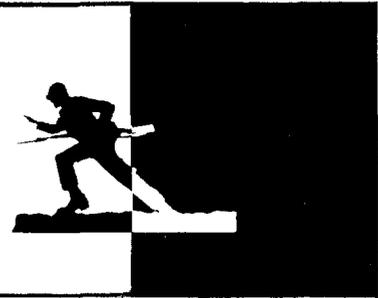


INFANTRY NEWS



THE MODULAR LIGHTWEIGHT load-carrying equipment (MOLLE) system will be issued to Army units beginning in October 2001. One of the main components of the system is its nylon mesh vest with removable pockets to accommodate different carrying needs. Examples of the MOLLE's versatility are the fighting load carrier configurations for rifleman, grenadier, pistol, SAW gunner, and medic.

Developed at the U.S. Army Soldier Systems Center (Natick), the MOLLE is an Army and Marine Corps item that replaces the aging ALICE (all-purpose, lightweight, individual carrying equipment) pack and integrated individual fighting system introduced in 1988.

New technology centers on the MOLLE's frame, which was first built as a model in a Natick facility. Instead of the tubular aluminum used with the ALICE, a new anatomically contoured frame, made with a plastic originally used in automobile bumpers, has dramatically increased durability, functioning in temperatures ranging from -40 to 120 degrees F. In tests, several ALICE frames cracked after a single drop at 33 feet per second, while the MOLLE frames took the same abuse five times without any damage.

The system also advances load-carrying ability with its new suspension system. Heavily padded shoulder straps and waist belt are adjustable for varying torso lengths, eliminating the two sizes of the ALICE pack. More weight is distributed at the shoulders and hips, and during a prolonged road march, soldiers can shift the weight to improve comfort.

The fighting load carrier (FLC) replaces the load bearing equipment (LBE) web belt and suspenders of the ALICE. Soldiers can significantly increase the amount of ammunition they

carry, and the weight is evenly distributed across the torso. The vest has no metal clips or hooks that can be awkward and dig into the skin, and has an H-harness in back to minimize heat buildup. It is adjustable to all sizes, and the vest sits high, so that soldiers can fasten the MOLLE frame waist belt underneath the FLC to distribute some of the load to the hips. Each of the three flap pockets on the FLC holds two 30-round magazines, two grenade pockets, and two canteen pouches.

The rucksack has a front pocket to hold a claymore antipersonnel mine. Inside is a bandolier with a capacity for six 30-round magazines and a removable tactical radio pocket. A detachable sustainment pouch on each side is big enough to hold MREs (meals, ready-to-eat) with room to spare, and underneath the rucksack is a compartment designed to hold the Army's new modular sleeping bag.

Every MOLLE comes with a tube-delivered water pouch for on-the-move hydration to supplement the one-quart canteen. Although the pouch is not for use in an environment contaminated by chemical or biological agents, efforts are being made to develop a mobile hydration system for all conditions.

Adapting to the mission will be easier with a detachable pack. The pack holds gear such as extra water, rations, and ammunition soldiers would need for 72 hours or less, without other items that might get in the way. They can move to the objective, dump the big pack, take off the detachable pack, and then go to the fight. The side sustainment pouches can be removed from the rucksack and placed on the patrol pack for the same carrying capacity as the medium ALICE.

Based on user feedback on the original system, the MOLLE requirements

were modified to eliminate the need for a quick-release frame that integrates into the load-bearing vest. The change allowed developers to replace the probe and socket mechanism, which caused problems in donning for some soldiers and marines, to a quick-release mechanism for a more traditional permanently mounted waist belt on the frame.

All of the larger pouches, such as the outside rucksack pouches, have D-rings for carrying with a sling and use plastic see-through identification windows so soldiers don't have to put their names with markers or tape onto the MOLLE's camouflaged, urethane-coated nylon fabric. Each system comes with two six-foot lashing straps for carrying large objects, such as a mortar base plate or five-gallon containers. If one of the plastic buckles breaks, a repair kit carries spares for simple replacement.

Soldiers from the 25th Infantry Division in Hawaii tested the MOLLE for six months, and it was well-received, even with loads exceeding 120 pounds. A two-hour block of new equipment training on the system will be given to troops during initial fielding.

THE ARMY'S IMPROVED INTERMEDIATE COLD/WET BOOT was recently fielded. The two major changes are a removable insulation liner and a softer, more flexible mid-sole.

The first version of the boot, which was fielded in the early 1990s, filled the void between the standard-issue leather combat boots—which offer minimal performance in cold and damp conditions—and the extreme cold weather vapor barrier boot—which locks out the cold and wet with its rubber-enclosed air chambers, but doesn't breathe.

The current 10-inch-high intermediate cold/wet boot provides a compro-

mise for dismounted soldiers operating in cold, wet environments where the average temperature is 10 below zero to 40 degrees F. But when the inside gets soggy the comfort level drops and the insulation is useless.

Soldiers wearing these boots must depend on extra boots to change into while the wet ones dry. They also use boot dryers to speed the process. Both solutions are expensive and inefficient.

The boot's upper is still made of military-specification leather that is highly water-resistant and breathable, bonded with Gore-Tex lining. But the 200-gram insulation liner can now be pulled out and replaced with a dry one, allowing soldiers to continue wearing the same boots. Instead of being issued two or three pairs of boots, they will have extra washable liners. (Two liners come with the boots, and more will be available if necessary.)

Both versions of the boots will be available until the stock of the current intermediate cold/wet boots is depleted. More changes are planned for a future model.

THE ADVANCED BOMB SUIT, developed at the U.S. Army Soldier Systems Center (Natick), will replace the legacy PS-820 bomb suit beginning next summer.

The PS-820 suit was first fielded in 1988 to Army explosive ordnance disposal (EOD) units. Until then, their main protection had come from a flak vest and helmet. Although the current suit still performs as designed, many improvements are needed.

The present suit's 61 pounds of aramid armor, fiberglass, and polycarbonate is unevenly distributed, which could throw a technician off balance during delicate operations, and the area behind the legs is uncovered. In addition, the face shield fogs up on a cool day, its shape distorts depth perception, and its bulk is clumsy and intrusive.

The new suit uses a compact face shield attached to a ballistic and impact-protective helmet instead of a chest plate with a contoured face shield attached on top. A ventilation system helps clear the visor and provides fresh air. The new suit integrates the Soldier

Intercom System into the helmet for hands-free communication with the command post and other team members.

The current suit was designed to withstand fire, heat, and impact from high-speed fragmentation. The new suit enhances these capabilities by adding tougher upper leg and abdominal protection along with impact protection to the head and spine. Although the new suit is expected to weigh slightly more than the legacy PS-820, its new generation of ballistic material protects better, and the weight is better distributed.

The new suit can be removed within seconds when an injured soldier must be transported for medical treatment.

THE LASER EYE PROTECTION PROGRAM at the U.S. Army Soldier Systems Center (Natick) is dedicated to finding better ways to guard against the danger of eye damage from lasers.

Lasers were first demonstrated in 1960. Natick then established a laser laboratory to research the field, and Army scientists publicized the danger of flash blindness caused by lasers.

The first laser eye protection was available in 1999 during Operation *Desert Storm*. Sun, wind, and dust goggles for combat vehicle troops; ballistic/laser protective spectacles for dismounted wearers of prescription eyeglasses; and special protective eyewear, cylindrical system for dismounted troops with normal vision all protect against two or three wavelengths within the electromagnetic spectrum and are currently fielded items.

A project to incorporate laser eye protection into combat vehicle periscopes may remove the need for operators to wear goggles inside. Natick is finishing a three-year joint Science and Technology Objective with the Tank Automotive Research, Development and Engineering Center in Michigan demonstrating a periscope retrofitted with laser protection.

Researchers are seeking ways to block all types of laser wavelengths, but only when they are present. The idea can be compared to sunglasses that darken when they are worn outside on

sunny days, except that the transition will tune out the frequency in picoseconds (a millionth of a millionth of a second). The best materials the military services have presently are not sensitive enough to either darken or block the wavelengths.

The Army's Laser Lab at Natick has close ties with laser protection research in the Navy and Air Force, because the underlying protection required is common to all.

THE COMMANDER'S SMART BOOK will provide Army leaders with a centralized source of information on combat service support equipment and systems.

A compilation of facts and figures on various products, the book helps show commanders what is available and how to get it. It is especially helpful during deployments into isolated locations. Initially, the book focused on shelters and heaters, but it grew to include combat soldier support items, things that improve the lives of soldiers.

The three-ring binder started with 20 pages and has now expanded to about 80 pages. As a type of "consumer guide" for brigade commanders, it contains current items and products that will become available within two years.

The focus is on items developed by the U.S. Army Soldier and Biological Chemical Command's Natick Soldier Center, but also includes items developed by the U.S. Army Communications-Electronics Command at Fort Monmouth, New Jersey.

Several sections have buyer's guides that list overviews of key characteristics, safety considerations, or both. For instance, the non-powered heaters section notes that they are multi-fuel operated and cautions against using commercial unvented kerosene heaters.

Updates are planned for every six months. The book contents will also be offered on a CD-ROM, both with an initial run of 200 copies. Although much of the information about these products is already in publication, the Smart Book brings all the pieces together.