



Army Fields New Shotgun System

A new lightweight shotgun system (LSS) developed by the Soldier Battle Lab is currently being fielded by U.S. Soldiers serving in Afghanistan. About 200 of the XM-26 shotgun systems were delivered to 10th Mountain Division units in Kandahar and Bagram in November 2003.

The 10th Mountain will field the lightest variation of the 12-gauge shotgun systems, which attaches under the M4 modular weapons system (MWS), and weighs 2 pounds, 11 ounces, which is less than the M203 grenade launcher.

The system is a five-round, box-magazine fed, manually operated shotgun. It uses a straight push-pull type bolt action that can be switched for either left or right-handed users. The attachment variation is 16.5 inches in length and uses the host weapon's sights. It is capable of firing lethal, nonlethal and breaching rounds.

The shotgun stand-alone version is converted from the attachable version by adding a pistol grip and a butt stock. The stand-



alone weighs 4 pounds, 3 ounces and is 24 inches long, collapsed. This version also has a reversible charging handle and is capable of firing lethal, nonlethal and breaching rounds.

The original system was a prototype for proof of concept, said Mike Barnes, chief of the Battle Lab's Robotics Division. The one being fielded applied lessons

learned from the first iterations of testing to make them more reliable in the field.

During the operational inspections and test firing, the Battle Lab, with assistance from two 10th Mountain NCOs fired nearly 20,000 00 Buckshot, M-1030 breaching, M-1012 and M-1013 nonlethal rounds through the 199 weapons that were going to be sent to Afghanistan to ensure no Soldier would be issued a defective or otherwise ineffective LSS, according to Soldier Battle Lab Project Officer Michael Kennedy.

Battle Lab personnel also deployed to Afghanistan to sign over the weapons and gave comprehensive instruction on aspects of the XM-26 to include capabilities, limitations, features, zeroing, disassembly and maintenance to units receiving the LSS. Classroom instruction as well as ranges were held in both Kandahar and Bagram to familiarize the Soldiers with their new weapons.

Even after the Battle Lab staff returned to Fort Benning, the deployed Soldiers can still contact the lab with questions and problems and are encouraged to send feedback on the weapons system.

"Out of the 200 weapons, I've fired about 50 of them, and I'm confident in the system," said Staff Sergeant William Partin, an instructor at the 10th Mountain's Light Fighter School and one of the two NCOs who helped test the weapon system.

"I think it's a great weapon system, being able to attach to the M-4 and as a stand-alone," he said. "I like that it's light. This is the lightest weapon I've carried in the Army besides a pistol. It weighs just about nothing."

Soldiers can use the shotgun as an all-round tool in urban environment, Barnes said. They can use the nonlethal and breaching capabilities, and the big advantage is that they don't have to sling their primary weapon to do it.

"Think about what's going on in the world right now," said Staff Sergeant Tito Zelada, a Light Fighter School instructor who also tested the LSS. "You have combatants and noncombatants together in a crowd, and (the nonlethal capability) is a good way to neutralize them, whether or not they are armed."



Soldier Battle Lab photos

A 10th Mountain Division Soldier practices door breaching techniques on wooden pallets during a training session in Afghanistan.



A 10th Mountain Soldier practices firing the XM-26 LSS during a range in Afghanistan.

XM-26:

Continued from page 3

“Numerous units in the field expressed the need for a tool like this,” Barnes said. “I think it will get a lot of use.”

“I thought the Remington 870 — what we teach with — was sufficient, but this gives us the upper hand on the way we breach,” Partin said. “It’s more accessible and easier than having to switch weapons.”

The creation of the LSS and its fielding is due to the efforts of Battle Lab staff. In 1997, the concept for the LSS was almost abandoned after the development community was convinced the concept would not work. The Battle Lab wasn’t as easily swayed and continued to investigate the potential of an accessory shotgun and its military utility. The lab staff’s persistence and hard work finally paid off in 2003 when the XM-26 underwent operational inspections and acceptance testing in September and October at Fort Benning’s Buckner Range.

The XM-26 LSS will provide Soldiers with an extremely versatile weapon that allows them to use lethal, nonlethal and breaching rounds and give them the agility to defeat a wide range of threats.

Editor’s Note: *Information for this article was compiled from articles by Specialist Brian Trapp of Fort Benning’s The Bayonet newspaper, and Major Roy C. Manauis and Michael Kennedy of the Soldier Battle Lab.*

Use of Two New Fibers Could Lighten Body Armor

Two new fibers are vying to one day replace the respected but heavier Kevlar, the staple of body armor for decades, as the Army strives to enhance mobility by reducing the Soldier load. Body armor is one of the more riveting individual equipment successes, especially from the ongoing conflicts in Afghanistan and Iraq, with reports of dozens of saved lives directly attributed to the bullet and shrapnel-halting ability of the helmet, flexible vest and rigid chest plate combination worn by troops. Even though it protects well, body armor ranks with water, ammunition and weapon as the heaviest items worn or carried by troops, according to engineers on the Ballistics Technology Team at the U.S. Army Soldier Systems Center in Natick, Massachusetts. “The Army is putting the best available armor materials into Soldiers’ armor,” said Philip Cunniff, a research mechanical engineer. “Part of our work in the Ballistics Technology Team is to develop new materials and techniques to lighten the load of those armor systems.”

Body armor technology has advanced in the past century to protect the head and torso against high-velocity handgun bullets and fragmenting munitions, such as those from artillery shells, mortar shells, mines and grenades. Lightweight small arms protection is also now available for the torso.

The nylon “flak” vest for ground troops and steel helmet from the 1960s were replaced by Kevlar vests and helmets during the 1980s in a product called Personnel Armor System, Ground Troops (PASGT). At the users’ request, performance increased with the PASGT system but weight remained about the same, according to Cunniff. The next major change was in the 1990s with an improved version of Kevlar that helped lighten the vest by 25 percent and increased ballistic protection.

The team’s objective is to reduce the weight again, this time by 25-30 percent, without losing performance. Zylon and M5 fibers show potential in meeting or

exceeding that goal. Zylon, a commercially-available fiber first developed by the Air Force in the 1980s and now produced in Japan, turned in a solid performance in testing, said Cunniff. A prototype helmet made last year with Zylon was developed as part of the Human Systems Defense Technology Objective for Ballistic Protection for Improved Survivability. The Zylon helmet weighs 1.79 pounds vs. 3 pounds for the PASGT at the same protection levels. Cunniff said two possible roadblocks with Zylon are environmental degradation and the law requiring certain military products to be manufactured in the United States with domestic materials. Zylon has shown to break down with exposure to light, high heat and humidity, although Cunniff said there may be solutions to these problems.

An alternative material to Zylon is M5, an ultra-high performance fiber developed by Magellan Systems International in Bethesda, Md.

According to a mathematical model of Cunniff’s for the estimation of impact performance based on the mechanical properties of armor materials, M5 appeared to provide exceptional impact performance.

His model indicated that M5 could cut weight by at least 35 percent compared to currently available fragmentation armor at the same protection level. So far, the ballistic impact test results with a limited, relatively low-strength sample of M5 are glowing. “We shot it, and it came out better than we expected,” Cunniff said. “We found there was something wrong with the model; we underpredicted the performance of the material. Of everything we looked at, it looks like (M5) will be a really big improvement in reducing the weight of armor.” Another feature of M5 fiber is excellent thermal and flame protection. Besides helmets, fragmentation vests and composites for use in conjunction with ceramic materials for small arms protective plates, M5 fiber could also be used for structural composites for vehicles and aircraft.

For more information on the Soldier Systems Center, visit the SSC on the Web at www.natick.army.mil.



Private First Class Eliamar Castanon

Competitors aim down range during the U.S. Army International Sniper Competition at Fort Benning, Ga.

One Shot, One Kill

Snipers Converge on Benning for Competition

PRIVATE FIRST CLASS ELIAMAR CASTANON

Sniper teams from around the world converged on Fort Benning Nov. 8-15 for the third annual U.S. Army International Sniper Competition.

Twenty-one two-man sniper teams from military units around the world including Germany, Canada and Great Britain competed this year.

The teams came to find out who is “the best of the best,” said Captain Joseph K. Dickerson, Sniper School commander.

“Win or lose, we want everybody to walk out of here feeling like they’ve learned something,” Dickerson said. “Of course, the winner will get the bragging rights.”

The sniper teams competed in 14 events for the titles of Top Gun and Top Spotter.

The events included:

Known Distance - Competitors were required to fire a rifle at a target 800 meters away.

Stalking event - Competitors had to successfully conceal themselves while engaging targets.

Unknown distance - Snipers were

given 10 targets and 30 minutes to estimate the distance of the targets and engage them.

Range estimation - Competitors had to estimate the distance their targets were placed at downrange.

Snaps and movers - Snipers had to fire at pop-up and moving targets. There was also a night iteration of this event.

Alternate shooting positions - Snipers had to fire at targets from different firing positions to include standing, kneeling, sitting and lying on their backs.

10-ring shoot - The sniper fired at targets while the spotter checked his accuracy with binoculars and told him how to adjust his sights.

Keep in Memory (KIMs) game - Each competitor was put under physical stress by doing push-ups, sit-ups and running. They were shown different pictures of targets during each physical event and then required to engage each target by memory.

Cold bore and final shot - This event represented the snipers’ motto of “one shot, one kill.” Each sniper was given one bullet and one target.

Top Gun and Top Spotter teams

1st place: Sergeant David Kroupa and Specialist Kris Hector

2nd place: Tech Sergeants Edlem Applegate and Michael Walker

3rd place: Staff Sergeant Ryan Yates and Specialist Adam Plumondore

4th place: Senior Airman Brian Deacherage and Tech Sergeant Chad West

5th place: Canadian Corporals Martin Bedard and Sebastian Dube