

# WATCH YOUR STEP

## Operating in an improvised world

By David Crozier

While there are inherent dangers involved in fighting any war, the Global War on Terrorism has brought today's Soldiers face-to-face with an ever-changing and evolving enemy. The lessons learned from past wars and conflicts still have relevance when navigating today's battlefields, but the doctrine has not been able to keep up with the fast-paced activities of Operation Iraqi Freedom (OIF) and Operation Enduring Freedom (OEF). Like the enemy the Soldiers face, the tactics, techniques and procedures used in the field are constantly changing and evolving, and doctrine is being written on the fly.

And while the battlefields may differ between Iraq and Afghanistan, the dangers of encountering a land mine, unexploded ordinance (UXO) or an improvised explosive device (IED) are very much the same. The creativity and lethality in the use of these devices is unprecedented. No one knows that better than the combat engineers who are dealing with this danger and writing new doctrine every day.

"You can't rely on [current] doctrine to determine where mines may be laid," said 1<sup>st</sup> Sgt. Frank Barrow, Company B, 41<sup>st</sup> Engineer Battalion, 10<sup>th</sup> Mountain Division deployed to Afghanistan. "Afghanistan is a dirty battlefield stemming from



Photo by Staff Sgt. Jeffrey A. Wolfe  
**Members of the 82nd Airborne Division contingent at Cabanas 2002 Chile mark "mines" with a red triangle during an exercise scenario.**



Photo by Sgt. 1st Class Milton H. Robinson

**Soldiers assigned to Company C, 27th Engineer Battalion, 82nd Airborne Division participate in a lane training class using the Handheld Standoff Mine Detection Sensor (HSTAMIDS). Members of the Countermine/Counter Booby Trap Center, Fort Leonard Wood, Mo., travel to various locations teaching the newly introduced HSTAMIDS to Soldiers. The HSTAMIDS is a metal detector coupled with a ground-penetrating radar system used to locate land mines.**

years of fighting and terrain being held by many different militants. Mines are being found in places that doctrinally makes no sense at all. [So] we are updating and refining our Standard Operating Procedures (SOPs) in theater."

Part of that updating and refining comes in the form of employing new equipment.

"We are constantly getting new equipment and assets," he said. "Our SOP is a living document that is updated [routinely] on synchronizing the right assets for clearing minefields and [reducing the amount of mines in the area] for military purposes."

Barrow said the 41<sup>st</sup> Eng. Bn. is the first unit to use the British-made Joint Service Flail Unit MKIV, commonly called the Aardvark. The Aardvark incorporates a New Holland tractor with a specialized flail assembly that pounds the ground to clear a 3-meter-wide path (9.9 feet) of possible mines. Other equipment being used by the unit includes the Norwegian 910 MCV Hydrema medium flailing vehicle; the South African RG-31 troop transport; and the Buffalo – an American version of another South

African troop transport vehicle that is also used as a mine-clearing platform, control vehicle and weapons platform. When heavy equipment isn't the ticket, Barrow's unit employs the Military Mine Dog Detection Team for area mine reduction and proofing, and the HSTAMIDS (Handheld Standoff Mine Detection System) mine detector. Another helpful piece of equipment the engineers are using is the Matilda Robot. They use the robot to visually inspect bunkers, buildings and enclosed areas where it is too dangerous for Soldiers to go.

In dealing with the new equipment and ever-changing threat, Barrow said the engineers are capturing all the tactics, techniques, procedures and lessons learned into their SOPs in theater and are also sending all the information to the Countermine Center at Fort Leonard Wood, Mo., to be incorporated into the Engineer School curriculum and future doctrine for engineers.

Part of those lessons learned surrounds the effectiveness of the HSTAMIDS versus the more common AN/PSS-12 mine detector.

"The HSTAMIDS is far superior to the AN/PSS-12 for this mission. Because of that we have learned that area clearing can be done safely and relatively quickly with the HSTAMIDS and simple SOPs," said Sgt. 1<sup>st</sup> Class Steve Bantin, a platoon sergeant in Co. B, 41<sup>st</sup> Eng. Bn. "The technology in the HSTAMIDS allows Soldiers to recognize many metallic signatures as clutter. This allows the team to avoid probing every metallic hit."

Bantin explained that through systematic training which includes using the HSTAMIDS to search over sterile ground (areas under coalition control), sterile ground with mines, cluttered ground and finally searching over targeted areas, the Soldiers have been able to fine tune the use of the detector.

## Minefield Indicators

- Areas avoided by local nationals
- Untended farm fields
- Unused walking trails
- Signs of digging
- Burnt soil
- Evidence of mine-peculiar supplies (wrenches, shipping plugs, etc.)
- Boxes or parcels along the road
- Wires on road surfaces
- Pieces of wood or debris on road
- Signs of road repair (new fill, paving, road patches, ditching or culvert work)
- Mine signs
- Earth craters or berms
- Damaged vehicles
- Dead animals
- Signs of concrete/asphalt removal
- Disturbances in tire tracks
- Disturbances in potholes or puddles
- Odd patterns in the soil
- Ditches

*With more than 2,700 different types of mines in the world today, it is impossible to know them all, but deploying units must undertsnad which mines are prevalent in an AO to which they deploy.*

*Source: CALL Newsletter No. 98-6*

"The Soldiers have developed [techniques] over time and can determine the size, shape and density of metallic objects," Bantin said. "Objects can normally be described as 'it sounds like an [anti-personnel mine]' or 'it sounds like a bunch of brass.' This allows the prober to have a better find rate."

Aside from landmines, terrorists are using IEDs in both theaters of operation, but as daily news reports show, the deadly encounters with the devices are more prevalent in Iraq.

"The primary weapon used against coalition forces is the IED. This effort targets the warfighter in movement and has proven to be an effective means of attack," explains Sgt. April Modugno and Sgt. D'Angelo Loyd, 555<sup>th</sup> Combat Engineer Group deployed in support of OIF. They put together an information paper on IED usage. "The key to IED success lies in the variability and ease of placement. An IED can appear as nearly anything and is difficult to recognize during movement," they wrote.

Because of the poor sanitation system in Iraq and the amount of litter along the roadways, their paper explains, it lends itself to an ideal environment for the use of IEDs disguised as everyday

objects like soda cans, concrete bricks, trash, etc. IEDs can be remotely, command, time-fused or pressure detonated.

"The form of detonation will depend on the type of target. Due to the great variance in emplacement techniques and IED composition, Soldiers cannot predict the location or type of every IED emplacement. Rather Soldiers must focus on early detection and neutralization," the sergeants wrote.

It is lessons like these the Soldiers are learning that have given way to several observations for future-deployed Soldiers to heed.

"Situational awareness is the key and knowing what to do when you encounter a situation," said Command Sgt. Major Gregory Glen of the 555<sup>th</sup> Combat Eng. Group.



U.S. Army Photo

***The British-made Aardvark uses a heavy-duty gear assembly to drive the 72 heavy chains with striker tips in a flailing motion to clear a three-meter-wide path of most every mine it comes in contact with. Soldiers from the 10th Mountain Division deployed to Afghanistan were the first to be trained on the equipment and its use in theater.***

“Know that the enemy is always watching and adapts to our patterns and tactics. Never be predictable.”

Glen said the most common mistake made by Soldiers in theater is having a lack of understanding of the explosive devices.

“Most of the IEDs/mines are unfamiliar and the device could be booby-trapped or have another anti-defusing device [attached],” said Glen. “Another problem is Soldiers get complacent.”

Bantin relayed the same holds true in Afghanistan.

“Most mistakes occur through a lack of situational awareness or through complacency,” he said. “Several situations occurred during our deployment where Soldiers found themselves going into a minefield because they ignored minefield indicators or they were disoriented. Other mistakes have been made due to Soldiers not knowing what an object was and then deciding to move it. Often times these objects are UXOs.”

The most common telltale signs of mine fields in both theaters of operation include uneven or freshly turned ground; abandoned fighting positions; fencing; blown-up vehicles; improvised markings used by local civilians like rocks, sticks or plastic bottles; and unused travel ways (see associated graphic). As for IEDs, they can be placed in a variety of common objects and have even been found behind posters of Saddam Hussein hanging on walls.



U.S. Army Photo

***Using mine detectors and heavy equipment are not the only ways to clear a minefield. Soldiers still probe by hand to help clear safe lanes.***

As stated in Modugno’s and Loyd’s information paper on IEDs, the best force protection is education. Part of the education comes in the form of Theater Specific Individual Readiness Training that each Soldier attends prior to being deployed.

According to Barrow, mine awareness training is conducted in several different ways: through performance-oriented training, annual Common Task Training; mine-

awareness training courses and by the Countermine Center Mobile Training Teams. Soldiers also receive numerous briefings about specific mines whenever new information is obtained and available.

Glen echoed Barrow's comments and added that Soldiers in Iraq are trained before each mission.

"We go through troop-leading procedures, operation orders and rehearsals," Glen said. "You always rehearse at a minimum action on the objective and on enemy contact. As we get new equipment, we will go through a train-the-trainer program."

Glen added that as combat engineers, they don't usually defuse mines or IEDs. Instead they either blow them in place or mark the area and call in the Explosive Ordnance Disposal to handle the suspect device.

Even though current doctrine does not cover all aspects of today's operations when it comes to dealing with land mines, UXOs and IEDs, the Army continues to teach Soldiers in the field to watch their step while at the same time collecting valuable lessons learned for future operations.

Army Field Manual 5-34 establishes procedures for dealing with minefields, UXOs and IEDs. Another good source of information is the Center for Army Lessons Learned Web site <http://call.army.mil>.



U.S. Army Photo

*Identifying the different types UXOs, IEDs and mines encountered in theater is done through routine field training to ensure the Soldiers can safely watch their step. Lack of knowledge and understanding of the explosive devices has led to Soldiers being killed. According to those deployed in support of OIF and OEF, a lack of situational awareness and complacency are other mistakes Soldiers make when dealing with these devices. No area is considered safe until it has been cleared and marked by the combat engineers.*



Photo by Spc. Derek Gaines

*Soldiers with the 3rd Infantry Division remove enemy land mines found near Fallujah, Iraq, June 25, 2003, in support of Operation Iraqi Freedom. Soldiers are taught to avoid roadway medians, soft shoulders and to look for wires protruding or leading from those areas. When Soldiers discover mines, UXOs or IEDs they should immediately notify their headquarters and secure the area. If they cannot secure the area, Soldiers must properly mark it to warn future convoys.*