

Second Chance Socks It To 'Em

Body-Armor Wonk's New Development For Those Who Tread in Harm's Way

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A year of research by Richard Davis, CEO of Second Chance Body Armor, of Central Lake, Michigan, has produced what appears to be an effective counter to some of the anti-personnel (AP) mines that U.S., British and other coalition forces are encountering in Afghanistan. Following almost a month of *in situ* research with mine-clearing teams in Croatia, Davis has successfully tested his multi-layered Kevlar anti-mine pads in a succession of blasts.

While the average former-Soviet PMN anti-personnel mine contains roughly 1.3 ounces (0.216 kg) of explosives — as does the Italian Mileba Type A — Davis subjected his pads to blasts of 2 ounces of Emulex in a series of simulated land-mine tests. The results were surprising. More importantly, they present the Department of Defense with an entirely new option for personal mine-protection in the field.

Normally, 2 ounces of any high explosive would blow off a man's foot. Tests conducted using Davis' pads, however, showed that their protection from the average anti-personnel mine — while not total — not only saves the foot but also prevents many of the bones being broken in the blast.

Davis has patented his new invention in 70 countries. Also, scores of the new anti-mine pads have been passed on to the DoD for testing both in the United States and under combat conditions abroad. A Special Forces group at Fort Bragg has received several sets for on-site evaluation.

Worn like a conventional insole, the boot pads are a radical departure for Davis' Second Chance Body Armor company, pioneer developer of bulletproof vests.

Typical vests used by law enforcement agencies in the United States are composed of between 20 and 24 layers of Kevlar, sufficient to stop all handgun bullets including .44 Magnum. Kevlar manufactured by America's DuPont Company is used by most manufacturers of body armor in the United States, though the Japanese have made a radical break-



Doing field research on land mines in the heavily mined area around Gospic, southern Croatia are, from left, Richard Davis (ebullient genius behind Second Chance, whose body armor has saved nearly a thousand American cops), Johan (Sakkie) van Zyl (boss of South African mine-clearing team in Balkans), and SOF's intrepid Al Venter.



(below) Effects on boot and simulated foot by two ounces of HE are graphic: Almost half the boot is destroyed. In contrast, the sock (filled with wet sand and half a dozen wooden stakes to simulate human bones and protected by Davis' Kevlar pad), though slightly damaged, remained intact. In a real AP mine blast with this measure of Kevlar protection, a man's foot would almost certainly be broken, but victim wouldn't lose the foot, as is usually the case with small AP mines like the Russian PMN.

through recently with their Zylon which is a little more than half the weight and twice as resilient. It is also twice as expensive as Kevlar and is consequently in limited production.

Richard Davis' anti-mine pads, in contrast, consist of 40 layers of Kevlar. To prove that the thickness was not uncomfortably excessive, Richard Davis took to wearing a pair in his working boots for four months and experienced no discomfort.

Davis told *Soldier Of Fortune* that he was motivated to find an answer to a problem that has been encountered in many Third World wars, where scores of casualties have been caused by anti-personnel mines, with the international peace-keeping forces paying the price in places like the Balkans,



Though blown ragged, a detailed inspection of the inner Kevlar sheets of the pad show no evidence of damage.



Close-up of the half-destroyed boot shows that sock filled with sand and the layered Kevlar pad came out of the blast almost intact.



The 40-layered Kevlar pad is light, thin and pliable. After four months in one of Davis' boots, it was little the worse for wear because Kevlar quickly conformed to individual foot contours.

Angola, Sri Lanka and, more recently, Afghanistan.

"Originally, there just seemed to be no answer to anti-personnel mines. When I moved around with a South African mine-clearing team in Croatia not long ago, I was struck by the vulnerability of some of these operators. It is simply not possible to take every possible precaution every single day," he stated.

"Consequently, there were times when those people were exposed to danger, as would [be] a combatant on operations in places like Central Asia and, possibly in the future, Iraq," he declared.

"So I decided to do something about it. Now that I have the pads in place, I'm going to go one step further and develop what I call my 'Ballistic Sock,' which will serve the same purpose but perhaps extend blast protection a little way up the foot."

Davis made the point that when a boot makes contact with an AP mine, the blast is not concentrated upwards in its entirety. Instead, it might be deflected laterally. "A lot depends on point of contact," he explained. "So if this happens, then the effects of blast would cause even less damage, so it's a win-win situation all round," he stated.

During the explosive tests to which SOF was exclusively invited and which took place at Davis' residence at Central Lake, Michigan, several series of tests were conducted with typical U.S. Army boots. These tests included:

- 4 ounces of Emulex explosive *inside* a boot together with one of Davis' anti-landmine pads
- 2 ounces of explosives with a pad
- 2 ounces of explosives without a pad

For the purpose of testing, each boot was stuffed with a sock filled with sand. This would roughly approximate — but not equal — the kind of pressure exerted by a man wearing the boot and stepping on an AP mine.

The results were:

The boot (and by implication a man's foot) was totally destroyed in the blast using 4 ounces of Emulex.

With the smaller, 2-ounce charge, the sock filled with sand and protected by the pad came out of the blast almost intact, though some smaller wooden stakes put into the boot to replicate human bone structure were cracked or broken. The bottom line is that anyone with one of the anti-mine pads in his footwear and who steps on most conventional anti-personnel mines, is going to save his foot.

This was underscored by the third test where, without the pads, the boot was totally destroyed by a 2-ounce blast.

Interestingly, in subsequent tests where an ammunition box filled with stones to simulate leg or body weight was used in explosive tests, the results were identical.

What was sobering about these procedures was the incredible amount of damage that resulted to the average leather boot when there was no protective anti-AP pad inserted: Almost the entire front part of the boot was raggedly blown away.

With the pads present, in contrast, the devastating consequences of the blast were averted. The consequences to a foot in that boot would have been much less severe than might otherwise have been the case. In other words, the result would probably be a Purple Heart rather than a prosthesis.

Watch this space for Phase 2 of Richard Davis' efforts to protect the American GI's life and limb. For current pricing, availability and shipping information, contact Second Chance Body Armor, Dept. SOF, P.O. Box 578, Central Lake, MI 49622-0578; phone: 800-253-7090; fax: 616-544-9824. ✖