



# MERS adapts for Afghanistan

Mark Richter, Program Manager, Marine Expeditionary Rifle Squad outlines some of the most recent developments for the Corps' dismounted warfighters

*"We have got a strategic focus on the infantryman," explained Mark Richter, Program Manager, Marine Expeditionary Rifle Squad (MERS). "The objective is to give him the best equipment and the best training to make him as effective as we can. You don't always hear about the Marine Corps having a Land Warrior type programme. What we have [instead] been doing is modernising the components and capabilities we provide to the squad."*

Marine squads are bigger. The Corps went to a 13 man rifle squad in World War II, replacing a nine man system. This was originally a response to the demands of the Pacific Island Hopping campaign, for reasons still at the forefront of soldier modernisation today. Richter said, "Command and control and firepower became critical aspects and the nine man squad didn't cut it. It allows us – no matter if we take casualties – to still have combat effectiveness and it also gives us an immense amount of firepower on the ground. In the 1980s, we tried to go back to a nine man rifle squad. That lasted 7-8 months, it just didn't work as well."

This structure is designed to expand further, adding in a corpsman, machine gun team and other attachments, which regularly produces squads that are 17 strong. Richter said, "When you are talking about 17 Marines in the back of an Amphibious Fighting Vehicle (AFV), that is a large footprint on the ground."

In addition to size, Marines also have unusual demands for mobility. Richter said, "Marine squads are not mobility centric – there is no standard mobility platform that a Marine goes to. He doesn't always go to an AFV or helicopter or a boat – he has to deal with them all and then be prepared to dismount for long periods of time."

## AFGHANISTAN

Afghanistan is described by Richter as, "pretty much the new frontier for the Marine Corps."

Geographical dispersion between Marine companies in Afghanistan can range from 15-70km and the distance from battalion headquarters is up to 80km. Missions are spread equally between night and day with about 70 percent of their missions being dismounted, something that has prompted the Corps to address weight reduction as a key focus.

Richter said, "Marines were doing everything from dismounted company assaults that lasted anything from twelve hours, up on the mountain tops doing observation post for three to four days, ambush patrols where silence and stealth were essential, route clearing and recon patrols. In OIF we are doing offensive patrols, vehicle checkpoints, entry control points and doing a lot of work with the Iraqi Army. Afghanistan requires a different bit of training."

There are also some different ergonomics and environmental factors. Richter said, "People talk about doorways in Iraq being tough. 'Yoda doors' in Afghanistan are 3ft by 2ft. Now I have a Marine with all this kit on that has now got a much smaller entry point."

## DISTRIBUTED OPERATIONS

One of the changes to the Marine's operational concept has been the pursuit of Distributed Operations (DO) with greater geographical dispersal and to be able to achieve three tactical functions – persistent intelligence gathering, co-ordination and execution of close fires and the ability to undertake over the horizon communications.

Another aim of DO, has been to rapidly aggregate and dis-aggregate to small and large units – squads forming back into platoons and companies. Richter said,

"A great concept but a little bit too much right now. So, we went for Enhanced Company Ops in the near term with new company level operation centres and intelligence centres. It didn't really change the equipment we were getting for the Marines but, it did change our overall doctrinal concept of what we wanted to do. The long term objective is still Distributed Operations."

In total the Marines have added 43 new sets of equipment or increased the density of existing equipment.

## COMMS

As part of the drive to Distributed Operations in the future and Enhanced Company Ops today, the Marine Corps have increased their low level communications capability. For Enhanced Company Operations the USMC are fielding an increased density of the AN/PRC-150 HF and AN/PRC-117 V/UHF radios. In addition each battalion has a received 182 squad digital cameras and 74 tactical computers through which images can be sent as data.

Richter explained the training regime in place, to enable this intelligence collection tool. "Every Marine is a radioman. We are taking the squad leader and fire team leaders and we teach them a one week class. I now have Grunts talking HF. Is it a huge data pipe? No. A picture [from the Squad Digital Camera] over HF takes 3-7 minutes but a picture can tell a thousand words."

Richter moved to the communications capability added to individual Marines. "When we started off in OIF, we used PRRs and it was good piece of gear for us. However, the thing that hit us was that communications distances in Iraq were pretty long – we couldn't talk from the one end of the convoy from the other. In an urban environment, the frequency range wasn't penetrating through the walls. Our current radio is now the PRC-

- ▶ 153/Motorola XTS2500 with HAPE encryption. We have 704 of those radios in a 955 man battalion. There is a radio for every man in the rifle squad, plus more. We couple that with the QuietPro Tactical headset, because one of the other things we learned early in OIF was that unless you have some sort of hearing protection, after the first rounds starts going down range you can't hear anything and if you are transmitting on a microphone the other people won't hear anything except gun fire."

### THERMAL FACTORS

Key issues being addressed by MERS today are weight and heat, which both significantly affect performance. Richter said, "I don't think we are going to get any lighter in the near future but I think we can do a lot with ergonomics to balance the Marines out to shape them to where they can go through that 'Yoda Door' in Afghanistan to where they can execute their mission without getting extremely fatigued from moving."

In July-August last year, the MERS team undertook temperature testing over a three and a half week period in Iraq, looking at exactly how hot Marines become on patrol. Testing took place with squads from two battalions

in rural and urban terrain. Major David Wallis, part of the MERS team accompanied each squad in its mission.

The rural test, near Ramadi occurred on the hottest day that year, with temperatures reaching over 120F with zero wind and was extremely dry. Each Marine carried 70-90+ lbs of equipment, not including sustainment equipment other than water, ammunition and protective equipment.

The mission took just over three hours, with troops averaging 2.5-4Km, mostly on foot going door to door, while maintaining communications with two vehicles in overwatch. Each Marine drank an average of 6l of water over the mission.

Prior to the test, each Marine ingested a core temperature pill which communicated with a heart rate, skin temperature and perspiration monitor carried on their body for download later.

Maj. Wallis said, "The Marines outside were very close to becoming heat casualties which was prevented, only by maintaining a low level of physical activity. If they got into a firefight and had to cover a certain amount of distance, according to the charts that we sent over to the Army Research Lab there would have been

casualties. Their physical condition was such, that if you asked them to run 50m they would be pretty much spent for the day."

In the urban testing, the only major difference was that it was 4-5 degrees cooler, although the unit carried a two manportable jammers, adding extra weight. A similar amount of water was drunk.

Heat exhaustion occurs when skin temperature and core temperature converge or cross. If you don't have a temperature differential, your body moves blood to your skin in an effort to let you cool. Maj. Wallis said, "That draws blood away from your brain which is important in decision making and also from your muscle groups which leads to reduced performance and cramp."

Maj. Wallis said that investment in physiological monitoring as a standard equipment solution would allow commanders to understand if their troops would be able to undertake an engagement as well as understand what level of cooling is absolutely necessary as cooling systems require additional weight and power. ■

*Mark Richer and Major David Wallis were speaking at WBR's Soldier Technology US 2009*



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