

STAR4D®, Painting with Laser Precision

By Ray Davidson, Marine Corps Logistics Command Albany, GA

With boots on the ground in Iraq and Afghanistan, the reality of war and the harsh terrain of the Middle East exacts its toll on the Marine and Joint War fighter and upon the equipment which their lives depend. For the Marine, the pinnacle of sustainment and readiness of his equipment is the Marine Corps Logistics Command with its supply chain and depot infrastructure.

It is the culture of innovation, pride in a job well done, and the knowledge that a Marine's life may well depend upon the rifle held in his hands, the vehicle upon which he rides, or the fire support needed to suppress the enemy that motivates the Marines, Sailors and Civilian Marines at the Logistics Command.

This culture of innovation is driven not only by a need to improve the Marines war fighting lethality and survivability but also as a conservator of the public's financial trust – taxpayer's dollars. The Civilian Marine wears well this mantle of efficiency and effectiveness – producing the best product for the least cost.

An example of innovation and cost efficiency is the Spray Technique Analysis and Research for Defense (STAR4D®) Program that is being utilized to apply CARC, Chemical Agent Resistant Coating.

CARC is required on all combat, combat support, and combat service support equipment. It is a polyurethane paint that provides superior durability, extends service life for military vehicles and equipment, provides surfaces with superior resistance to chemical warfare agent penetration, and greatly

simplifies decontamination. In addition, it has an infrared signature that makes coated equipment harder to detect.

CARC was designed to counter the Soviet threat of chemical agents on the battlefield. The Soviets' goal was to inflict maximum casualties while temporarily contaminating an area. To counter this, the U. S. needed the ability to rapidly decontaminate personnel and their equipment. Thus,

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CARC paint was engineered to prevent chemical impregnation and to aid in the rapid decontamination of equipment.

CARC, at the same time, is environmentally hazardous and expensive. Exposure to high concentrations of aerosolized CARC during spray painting leads to immediate respiratory irritation and watery eyes. Long-term exposure can cause or aggravate respiratory problems, in particular, asthma.

The environmental hazards of CARC and its high cost challenged the Marine Corps to seek an environmentally friendly and efficient application system that would ensure highest quality; that could be efficiently managed and maintained while keeping the equip-

ment at the peak of mission readiness.

Responding to this challenge, the Marine Corps Depot with Maintenance Centers in Albany, Georgia and Barstow, California has partnered with the University of Northern Iowa in training their Civilian Marines in a new and innovative military refinishing technique. The chosen solution is the Spray Technique Analysis and Research for Defense (STAR4D®) Program.

Taught on the campus of the University of Northern Iowa (UNI) in Cedar Falls, Iowa, STAR4D exposed the Civilian Marines to advanced spray techniques and alternative technologies that improve coating applicators quality and, at the same time, reduce paint consumption, reduce waste and greatly decrease hazardous air emissions.

STAR4D focuses on overall knowledge of the entire painting process and improving spray techniques. With STAR4D employees are able to reduce the amount of harmful volatile organic compounds being released into the environment, the amount of paint wasted during application, and the time spent in the paint booth.

Currently the maintenance centers are experiencing a 40% transfer improvement efficiency with a 20% projected cost saving. We're talking about a savings of about 60 gallons of paint per year for every 300 gallons used. This can easily represent \$200,000 in savings to the tax payer and most importantly, provide increased material

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readiness for the Marine and Joint War fighter. The savings in time and money can then be reapplied to other weapon systems thus ensuring overall material readiness and survivability.

Commanding General, Marine

Corps Logistics Command, acknowledges that flexible and sustainable maintenance is the key to future Marine Corps expeditionary and joint maneuver operations. Innovative maintenance solutions, such as STAR4D, demonstrate the fundamental tenets of the core value system that guides Marine Corps depot op-

erations. The Marines, Sailors and Civilian Marines live every day that ethic of core values. They are unfaltering in that charge. Their resolute ensures that depot maintenance supports their “Soldiers of the Sea” efficiently and effectively, wherever their missions take them.

III MEF’s Zinc-Rich Primer Program MRAP Corrosion Makeovers

By Wayne McGaulley, Defense Contractor

In its April 10, 2009 issue, the *Okinawa Marine* reported the Corrosion Rehabilitation Facility (CRF) on Camp Kinser had used zinc-rich primer (ZRP) to re-preserve a Mine Resistant Ambush Protected (MRAP) vehicle. At the same time, the CRF painted the first MRAP with a green, brown, and black camouflage pattern, using the pattern from the P-19 Truck for the Cougar variant. The reason for using ZRP was that MRAPs were originally painted at the manufacturers’ facilities for use in desert warfare. However, when moved to III Marine Expeditionary Force (MEF) locations for training purposes, those vehicles began to show significant signs of corrosion. In order to ensure a long life for those assets, Mr. William Antell, Director, Corrosion Prevention and Control for III MEF, along with Chris Ham, Lead Quality Assurance Specialist, and Rick Thomas decided to implement a pro-

gram to use the zinc-rich primers on MRAPs, aptly called the ZRP Program.

Since the original article, the CRFs for III MEF have implemented a program to use ZRP on all steel equipment. To date, four MRAPs have received ZRP in the III MEF. In the near future, two vehicles from Camp Fuji will be rotated back to Okinawa for re-preservation and replaced with ZRP preserved assets. Eventually, III MEF plans to have all MRAPs re-preserved using ZRP to ensure adequate corrosion protection and long life. Vehicles preserved with ZRP have a “Z” stenciled on the equipment immediately after the Chemical Agent Resistant Coating (CARC) type.

It has been less than a year since the first vehicles were re-preserved with ZRP, however no corrosion has been observed during regular inspections. The first two MRAP vehicles to receive ZRP did not ad-



First camouflage MRAP in the USMC painted by III MEF CRF.

dress a known issue with V-hull corrosion under the floorboards. This issue has been addressed by the III MEF CRF; removal of the floorboards to clean and treat the interior of the V-hulls has been added to the process.

When asked about a learning curve or difficulties using the ZRP, Mr. Antell stated “Painting is painting and trucks are trucks. The Okinawa CRF is pretty used to painting anything that comes their way.” Mr. Ham stated that the only learning curve was the initial development of a checklist of items to remove from the MRAPs to ensure all areas are adequately preserved since no MRAP had been processed at the III MEF CRF before.