

The following technical paper abstract information was recently submitted in connection with session DOD103,Electrics, Electrical

Offer Number: 14DOD-0007

Paper Title: Protonex Solar Vehicle Charging Kit - Saving Money and Man Hours

Author:

John Wescott

Protonex Technology Corp

Maryland

(910)797 4814

john.wescott@protonex.com

Abstract: John Wescott

Chief Warrant Officer (ret)

Field Support Engineer, Protonex Technology Corp.

153 Northboro Rd. Southborough, MA 01772 John.wescott@protonex.com

In a typical month Maintenance units spend tens of thousands of dollars in Class IX battery expenditures and spend hundreds of man hours removing and replacing discharged batteries. While a number of solar and impulse battery maintenance products are on the market, these have consistently proven unreliable or too difficult to use to be effective at reducing this labor and expense. Staff from the 10th Special Forces Group at Fort Carson engaged with Protonex to develop a solar vehicle charging kit based upon the rugged, submersible Protonex Squad Power Manager. This kit has proven itself simple to install, versatile for use with many vehicle types, and effective at not only keeping charged batteries full, but in recharging dead vehicle batteries.

The plug-and-play kit includes the power manager (a small 1 lb universal charger/converter), a 30 watt flexible Solar blanket, a fifteen foot NATO Slave cable which connects the SPM to the vehicle, a twenty foot Solar cable which connects the 30W solar panel to the SPM and a Universal mounting kit which will allow units to mount the SPM to virtually any military tactical vehicle.

In addition to charging, the SPM also provides an onboard vehicle diagnostic capability. Since the SPM is plugged into the vehicle NATO plug, it can continuously show the vehicle batteries' state of charge. If an Operator leaves the RUN switch or radios on, Maintainers can look at the SPM's LCD screen and quickly determine that there is a draw on the batteries by simply looking at the charging arrows. With an additional USB cable, a Maintenance Manager or Unit Logician can pull a complete datalog from the SPM, showing exactly how much solar energy was harvested, and how much vehicle power was consumed.

This presentation will detail the problems experienced with prior battery maintenance solutions, the field experience with the Squad Power Manager Kit, and the expected Return on Investment (ROI) of the system. By the end of the presentation attendees will be in a good position to judge whether this solar charging solution would fit their needs and reduce their battery maintenance expense.