



SOLDIER WEARABLE POWER GENERATOR— REFORMED METHANOL



SWPG-RM20 (left) and SWPG-RM50 (right)

The U.S. Army Command, Control, Computers, Communications, Cyber, Intelligence, Surveillance and Reconnaissance (C5ISR) Center, Research Technology and Integration Directorate (RTI) Power Division is developing safe, technically innovative and cost effective solutions to meet the Soldiers portable and mobile power and energy needs today and into the future.

The Soldier Wearable Power Generator-Reformed Methanol (SWPG-RM) is a man-wearable reformed methanol fuel cell (RMFC) that is available in two designs. The SWPG-RM20 is capable of producing approximately 20 Watts nominal power output whereas the SWPG-RM50 is capable of producing approximately 50 Watts. Both these systems can be utilized as direct power sources for Soldier equipment or as on-the-move battery chargers for the Conformal Wearable Battery (CWB).

The SWPG-RM systems use diluted methanol — 1:2 water to methanol (by volume) as the fuel source. A key aspect of the SWPG-RM systems is to qualify the use of a windshield cleaning compound (NSN 6850-00-926-2275) or low-temperature windshield washer fluid as the fuel source. This will eliminate the need to set up a separate logistics trail for fuel supply to the forward areas, since windshield washer fluid is already available in the supply chain. C5ISR is working with vendors to develop in-line filtration schemes for the windshield cleaning compounds so as to enable its use as fuel instead of requiring the use of pure methanol.

Figure 1 below figure shows the placement of the SWPG-RM50 on the soldier when being used on-the-move by carrying it in a pouch on the soldier's vest. The fuel cartridge and the CWB battery are adjacent to the system. Figure 2 shows the placement of the system inside a soldier's ruck.

CAPABILITIES

- The SWPG-RM systems can be used as "on-the-move" charging devices by dismounted Soldiers on extended missions in austere environment
- The systems are designed to be used as wearable power generators on soldiers and are capable of operation when placed inside the rucksack
- The systems eliminate the need for Soldiers to carry additional batteries or bulky and heavy charging equipment or rely on battery resupply while on extend missions
- Soldiers carry prefilled cartridges on their missions
- Soldiers equipped with power-hungry devices can experience a significant overall weight burden reduction on 72 hour missions

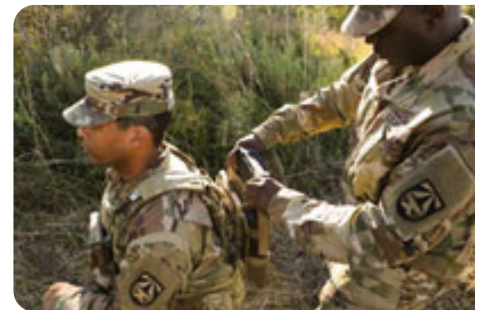


Figure 1: Placement of SWPG system on the Soldier



Figure 2: SWPG operating in the Soldier's rucksack as an on-the-move charger

FOR FURTHER INFORMATION:

U.S. ARMY COMBAT CAPABILITIES DEVELOPMENT
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