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## **A New Wave of Aerostats for the Tactical Edge**

### **US Army Rapid Equipping Force Assesses State-of-the-Art Aerostat Capabilities to Meet Future Requirements**

FORT Dix, N.J. – Nov. 12, 2013 – The U.S. Army Rapid Equipping Force completed an aerostat demonstration Nov. 6-7, at Fort Dix, N.J. to characterize the performance of three emerging tethered balloon systems. Aerostats often serve as aerial platforms to provide Communications, Intelligence, Surveillance and Reconnaissance as well as other capabilities to forward-deployed units.

The capability to rapidly employ and recover aerostat systems, particularly from remote locations with a limited number of Soldiers, will become increasingly important as U.S. Forces draw down in Afghanistan.

“The REF is always on the lookout for emerging capability gaps and requirement trends,” said Mr. Bill Childers, REF Deputy Director. “We garner information from the entire force, private first class to general officer, and have recently received multiple requirements for aerostat platforms. REF funds demonstrations like the one in Ft. Dix last week to ensure we understand the capabilities of emerging technologies to meet those requirements.”

In support of REF, Georgia Tech Research Institute demonstrated the capabilities of three aerostats, the Mako, the Aeros Sky Cobra and the Fan Man. The demonstration will inform REF decisions while meeting the increased demand for portable, user-friendly aerostat platforms.

While large aerostat platforms currently exist in theater, the smaller-sized aerostats are more portable and can be easily launched and recovered. These tactical aerostats can be deployed and recovered in minutes using a mechanical wench or a deep-sea fishing pole.

#### **Enhancing Communications**

The Mako is a man-packable aerostat that can be equipped with a light payload. During the REF demonstration, the Mako was equipped with a Boeing Tactical Combat Communications Relay, a device that is compatible with Army standard issue radios and frequencies.

Standard issue communications systems are often limited because they require line-of-sight to send and receive signals.

By mounting the TCCR onto the tactical aerostats, GTRI engineers were able to demonstrate the communications relay capability provided by aerostat platforms, significantly increasing the distance Soldiers can communicate while dismounted.

Since the system can be carried and deployed by as few as two Soldiers, Mako can meet requirements for the smallest units currently in Afghanistan by extending communications range in austere locations, also known as “the tactical edge.”

### **Increasing Situational Awareness**

The Aeros Sky Cobra, also a tactical aerostat, offers Soldiers the ability to launch a heavier payload with additional stability.

For this demonstration, the Sky Cobra was equipped with an iTech 200-ML camera gimbal, which sent live-stream video, standard and infrared, to a computer on the ground. The miniature blimp can be controlled with a joystick similar to those used on PlayStation gaming system.

The Sky Cobra successfully demonstrated the surveillance and zoom-capability required for force protection around a Forward Operating Base or a Combat Outpost.

“As the U.S. Army continues the Afghanistan retrograde, ISR to remaining units will become increasingly critical,” said REF project officer Cliff Harris. “It is important to find a platform that is reliable but also one that is flexible enough to support smaller units that redeploy frequently.”

### **“And” Is Better Than “Or”**

The third system, the Fan Man, is the largest of the three systems demonstrated last week and requires a base system to tether it to the ground. This capability meets the demand for increased ISR platforms and provides flexibility in movement to units as they redeploy because the entire system is packable into the base and rapidly deploys when needed.

Though the system is portable, it does require a forklift and flatbed to move and will likely meet requirements at larger FOBs or COPs. However, the added stability provided by the base system enables the Fan Man to support a larger payload, meaning it can support both communications and ISR packages for the unit.

### **Increasing Efficiency**

GTRI also demonstrated the use of hydrogen, which can be generated in the field using a hydrogen generation unit, to fill the balloons and to mitigate the reliance on helium canisters in theater.

Currently, all existing aerostats in theater require helium for inflation. Reliance on the helium canisters generates a heavy logistics burden, often calling for as many as 24 canisters on-hand for inflation and mission sustainment.

“While hydrogen generation does take longer to inflate the balloons and is only appropriate for smaller, tactical aerostats, it can significantly reduce cost and logistical requirements for a unit,” said Harris.

The REF harnesses current and emerging technologies to provide immediate solutions to the urgent challenges of U.S. Army forces deployed globally. To complete its mission, REF works diligently with its partners to understand existing Army efforts, to share information on emerging requirements and to identify multiple paths to solve problems.

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### **About the U.S. Army Rapid Equipping Force (REF)**

The REF harnesses current and emerging technologies to provide immediate solutions to the urgent challenges of U.S. Army forces deployed globally. The Department of the Army formed the REF in 2002 to support warfighter requirements in Afghanistan, and during the past ten years, the REF has met challenges as diverse as defeating improvised explosive devices, increasing Army contingency operational energy efficiency, gathering blast effect data to better understand traumatic brain injury and improving intelligence, surveillance, reconnaissance capabilities in austere locations. The REF enables Army units of all types, Combat, Combat Support and Combat Service Support, to rapidly adapt to changing battlefield conditions and enemy tactics.