

Warfighters Using Overbraided Anti-Personal Obstacle Breaching System (APOBS)

C0888 – Improved Technology for Line Charge Manufacturing (Ln Chg)



OBJECTIVE

APOBS is a man-portable, rocket-delivered explosive line charge designed to clear a pathway through anti-personnel mine and obstacle fields for the rapid advancement of ground assault forces. The grenades were connected with detonation cord and two nylon rope strength members, which run parallel to the detonation cord and were connected to each grenade with two band clamps. The process of attaching the ropes to the grenades with the band clamps was a labor-intensive operation and a reliability concern. Baseline design testing during development indicated the potential of band clamps and/or ropes breaking during deployment. The objective of the project was to develop and demonstrate an alternate grenade attachment concept that improved the manufacturing process for the APOBS. A process was sought that lent itself to automation, was operator independent, and hence, produced a more reliable product. This project evaluated various concepts provided by private industry and the Indian Head Division. The project resulted in the successful development, demonstration, and transition of an overbraid process for the APOBS.

PAY OFF

The overbraided APOBS is being used by warfighters in Iraq. The benefits are a reduction in the number of components, weight savings, improved producibility, increased reliability and cost avoidance. Functional testing of overbraided line charge segments indicated similar fragmentation pattern and similar performance as the baseline design in defeating the triple strand concertina wire obstacle. The braiding process developed within this project is directly applicable to any line charge or net array system that incorporate discrete point masses of explosives.

IMPLEMENTATION

The Ensign-Bickford Company (EBCo) was awarded the Marine Corps contract to develop, first article test, and eventually go into production with the APOBS. EBCo conducted tests to evaluate both their ManTech developed grenade attachment concept and the overbraid design. Based on the test results and producibility concerns, the braided design was selected for the manufacture of their First Article Test (FAT) samples. Indian Head Division representatives assisted EBCo in setting-up a braiding facility and ensuring that it produced an acceptable product. EBCo has now fully implemented the overbraid technology for APOBS production.

Period of Performance
May 1997 to Dec 2000

Stakeholder
MARCOR, PM AMMO

Performing Activity
EMTC

Point of Contact
Mr. Charles R. Painter
(301) 744-6772
charles.r.painter@navy.mil



Overbraided APOBS

Total ManTech Investment
\$3,086,000

Please visit the EMTC Web site:

<http://www.navsea.navy.mil/nswc/indianhead/codeCA/EMTC/main.aspx>

Approved for Public Release; unlimited distribution; November 2012; Indian Head Log # 12-159