

Topside Cover-ups

Equipment covers have potential to net Navy corrosion-control savings

By RICHARD R. BURGESS, Managing Editor

The Navy estimates an investment of \$10 million annually in a product line of protective covers for topside equipment has the potential to save more than \$40 million annually — a conservative estimate — in corrosion control on its ships, according to Rear Adm. James P. McManamon, deputy for surface warfare at Naval Sea Systems Command.

McManamon was speaking of Envelop Protective Covers, a series of covers designed and produced by Shield Technologies in Eagan, Minn. Over the last six years, the Navy has been outfitting its surface ships with the covers and expects to complete the outfitting by 2011.

The topside equipment — weapons, sensors, antennas, boats, firefighting systems, electrical systems, capstans and other equipment — are subject to persistent corrosion from sand, salt water and spray. Because of their complexity, this equipment is difficult to protect and maintain in working condition. Traditional waterproof tarps and plastic wrap with petroleum jelly provide some protection, but often trap moisture and salt and only slow deterioration.

The effects of the corrosion are significant. According to McManamon, a 2005 study of the annual cost of corrosion identified corrosion as a \$2.4 billion annual cost for Navy surface ships, “roughly 25 percent of the entire Navy maintenance budget.”

A newer study by LMI Government Consulting said the Navy spent \$3.2 billion combating corrosion in 2007.

“The end result of the analysis concludes that defining Envelop Protective Covers as required equipment for outfitting of surface ships and funding that procurement is a financially sound decision,” McManamon said.

Envelop covers not only offer waterproof shielding, but are made of a breathable material that also wicks away moisture from the equipment, reducing the potential for corrosion, said David Hutton, director for operations at Shield.

The trademarked and patented Envelop fabric originally was developed for the Navy beginning in 2001

under the leadership of Nabil Elkouh — a mechanical engineer then with Create Inc. in Hanover, N.H. — under a Small Business Innovative Research program. Shield Technologies is licensed to manufacture and market Envelop covers.

The first significant outfitting of a ship was for the Arleigh Burke-class destroyer USS *Cole*, as it completed repairs from the October 2000 attack in Aden, Yemen.

Since 2004, Shield has sold more than \$18 million in covers to the Navy out of total sales to the Department of Defense, including the Marine Corps, of more than \$25 million. Envelop covers also are used to protect artillery pieces, unmanned aerial vehicles, and aircraft engine inlets and exhausts.

“These cost reductions are a result of significant, direct reductions in daily and/or operational corrosion maintenance and in reduced depot-level maintenance due to corrosion,” McManamon said.

“Additionally, the effectiveness of Envelop covers in preventing the intrusion of sand and other contaminants significantly improves operational readiness of topside equipment,” he said.

McManamon said the Navy is addressing the challenge of ship crews properly accounting for and stowing the covers so that they are available for use and properly installed.

Bob Ward, Shield’s chief operating officer, said getting the word out to the fleet is important in ensuring the covers are properly used and that it could cost the Navy a lot of money in corrosion if they are not used with regularity.

Proper use of the covers requires training, so Shield employs two retired Sailors as fleet support representatives to provide proactive training, along with instructional DVDs.

“We are in the process of outfitting every surface ship in the Navy with Envelop covers,” McManamon said. “This should be completed by the end of [fiscal 2011].” ■