

Modified SHT Debond Detector to Save Costs on In-Service VCS hulls

Status: Implemented

PROBLEM / OBJECTIVE

The Strategic and Attack Submarines Program Office (PMS 392) requested that the Navy Metalworking Center (NMC) modify its recently developed special hull treatment (SHT) debond detector (from ManTech project S2363) to meet the needs of Navy shipyards. The system uses impulse hammer technology to replace manual inspection of SHT on Virginia class submarine (VCS) hulls. The improved debond detector will eliminate operator subjectivity during in-service VCS debond inspection, reduce the level of training required for inspectors, save an estimated 100 labor-days per hull, and reduce false positive inspection results.

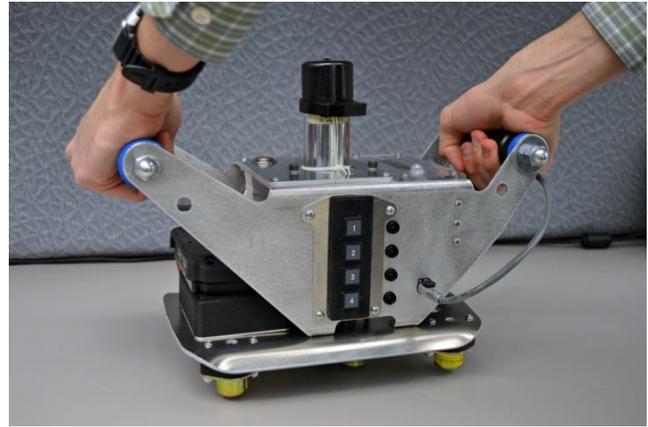
ACCOMPLISHMENTS / PAYOFF

Process Improvement:

Based on feedback from the Navy shipyards after demonstrations of the original debond detector, PMS 392 funded this effort to modify the system for in-service use. The changes included enabling the inspection unit to move in multiple directions on the surface (circular instead of linear), allowing simpler operation, and adding the ability to connect directly to a 110V power source in addition to being battery operated. NMC successfully demonstrated the improved SHT debond detector at the Naval Surface Warfare Center, Carderock Division (NSWCCD) in March 2015. Representatives from PMS 392T and NSWCCD were satisfied with the demonstration and provided approval to build additional units.

Implementation and Technology Transfer:

NAVSEA approved the use of the debond detector as the primary tool for detecting debonds of SHT material on USS HAWAII (SSN 776) during its extended dry-docking selected restricted availability. Additionally, the SHT Maintenance and Repair Manuals will be revised to incorporate the debond detector as the preferred tool to inspect for debonds. Seven debond detectors were delivered to the Navy in June 2015 for use on future VCS availabilities. Additional units can be purchased from the commercialization partner, Enterprise Ventures Corporation.



An SHT Debond Detector developed for new VCS construction has been modified for use on in-service VCS hulls. (NMC photo)

Expected Benefits and Warfighter Impact:

- Improve accuracy and consistency of debond inspection, which will reduce false positives and the overall cost of SHT repair
- Reduce training time and operator skill level required to perform debond inspections

TIME LINE / MILESTONE

Start Date: September 2014
End Date: July 2015

FUNDING

Navy ManTech Investment: \$0
Cost Share: (PMS 392) \$202K

PARTICIPANTS

PMS 392
NSWCCD
Portsmouth Naval Shipyard
Rentz Technology Systems
Enterprise Ventures Corporation
NMC
ONR Navy ManTech

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