

Weapons Magazine System Manufacturing Improvements Benefit Several Navy Ships at Two Shipyards

Status: Partially Implemented

PROBLEM / OBJECTIVE

This Navy Metalworking Center (NMC) project improved a labor-intensive process involved in the manufacture and installation of the Universal Weapons Magazine Tie-down System (WMTDS) on Navy platforms. Installing the deck channel (C-channel) involves considerable grinding, leveling, welding, and surface preparation. In addition, access is difficult when applying surface coating to the C-channels. This project reduced the overall installation hours and the associated costs to install the WMTDS through improved manufacturing and installation processes.

ACCOMPLISHMENTS / PAYOFF

Process Improvement:

The Integrated Project Team (IPT) developed and evaluated several WMTDS concepts that targeted changes to channel spacing and tolerancing, channel alignment fixtures, and improvements to grinding and painting. An automated welding system and revised primer system were also investigated for future implementation. The IPT analyzed the selected improvements to ensure compliance with the structural system requirements, and constructed and evaluated prototypes to validate the process improvements.

Implementation and Technology Transfer:

Early implementation of the spacing, tolerancing, and other process improvements began in July 2015 on LHA 7 at Ingalls. A request for contract modification is pending at NNS for spacing and tolerancing changes; spacing changes are not likely on CVN 79, but are expected on CVN 80 as initially planned. The implementation target date for C-channel improvements is the fourth quarter of FY17 on LHA 8 at Ingalls and the third quarter of FY19 on CVN 80 at NNS.

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Improving the manufacturability and installation of weapons magazine C-channels will reduce labor and costs. (Ingalls photo)

Expected Benefits and Warfighter Impact:

- Cost savings of \$5.5M over five years
 - Based on reduced estimated installation costs (layout changes, welding, grinding, leveling, painting, rework)
 - Includes CVN 80, LHA 7 and LHA 8, and DDG 122, 124, 127, 129 and 130 hulls
 - Additional savings are possible on other platforms not yet under contract
- Improved first-time quality and final preservation (surface coating)
- Improved ergonomics during installation

TIME LINE / MILESTONE

Start Date:	January 2014
End Date:	August 2016

FUNDING

Navy ManTech Investment:	\$1.5M
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PARTICIPANTS

PMS 379	NMC
PMS 377	ONR Navy ManTech
NNS	
Ingalls	
Naval Surface Warfare Center, Carderock Division	
NAVSEA	