Low Cost Pallet System Manufacturing Improvements to Reduce Cost and Weight for DDG 1000

Status: Implemented

PROBLEM / OBJECTIVE

DDG 1000 will be equipped with two BAE Systems EX-100 Advanced Gun Systems (AGS). The AGS pallet is used to package, handle, store, and transport the Long Range Land Attack Projectile munitions and charges through the logistic channels and within the AGS magazine in the DDG 1000 hull. The primary objective of this Navy Metalworking Center (NMC) project was to reduce manufacturing cost and system weight of the AGS pallet assembly by 10 percent without compromising system performance.

ACCOMPLISHMENTS / PAYOFF

Process Improvement:

In Phase I of this project, the NMC Integrated Project Team (IPT) developed several manufacturing enhancements intended to reduce the cost to fabricate and procure the pallets necessary to fully outfit each DDG 1000. The recommendations included improved gas tungsten arc welding joint design and welding techniques, along with advanced machining and casting of critical projectile and propellant assembly system parts. In Phase II, the NMC IPT performed prototype manufacturing, testing, and evaluation of these enhancements to verify and validate the anticipated cost savings prior to integration into the overall AGS Pallet design package.

Implementation and Technology Transfer:

Implementation of the approved manufacturing enhancements occurred in March 2011 at BAE Systems Land & Armaments Sector AGS Production Facility in Louisville, Kentucky. NMC provided a Technical Data Package that captured all of the manufacturing enhancements on the pallet structure and aft assemblies. These manufacturing enhancements are expected to be incorporated into low rate initial production pallet systems beginning in 2014.

Material and manufacturing process enhancements reduce the weight and cost of the AGS pallet without compromising system performance. NMC photo

Expected Benefits:

- A 12 percent reduction in manufacturing cost per pallet, which equates to $6 million per hull savings
- A 190-pound reduction in per-pallet weight, which will improve safety and survivability functions of the pallet system.

TIME LINE / MILESTONE

Start Date:	May 2007
End Date:	November 2010

FUNDING

Total Navy ManTech Investment:	$2.0M

PARTICIPANTS

Advanced Gun System Program
Naval Gunnery Project Office (PEO IWS 3C)
Naval Surface Warfare Center, Dahlgren Division
Naval Surface Warfare Center, Port Hueneme Division
BAE Systems Land & Armaments Sector
Navy Metalworking Center

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