

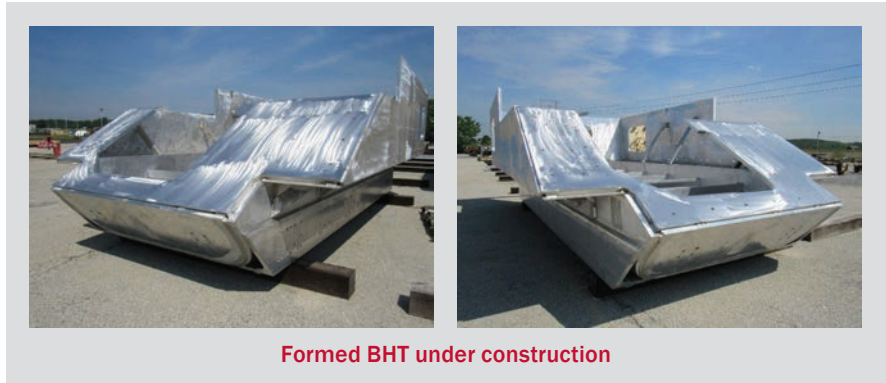
Affordable Protection from Objective Threats

OBJECTIVE/SOLUTION:

Hull structures and armor solutions for ground combat vehicles may require alternate manufacturing approaches to address escalating threats at affordable cost. Objective underbody protection requirements are especially challenging as threat levels grow more powerful. New approaches to mitigate these threats utilize series of novel underbody manufacturing processes, forging, forming and advanced high energy welding technologies.



Single piece formed aluminum lower hull



Formed BHT under construction

Achievements:

- Manufactured several single piece forged aluminum lower hulls, the largest aluminum forgings ever achieved
- Manufactured two single piece formed aluminum lower hulls
- Manufactured two thick belly plate, high energy buried arc (HEBA) welded aluminum lower hulls
- Successfully blast tested forged, formed and HEBA welded lower hulls at objective levels
- Integrated the forged aluminum lower hull with a notional upper to form a ballistic hull and turret (BHT) test structure and blast tested with Anti-Blast Defense System (ABDS) at objective level with negligible injuries recorded on the anthropomorphic dummies
- Integrated a formed aluminum lower hull with a notional upper to produce a BHT and blast tested the BHT as objective levels
- Performed multiple blast tests on some of the same hull structures with good results

Benefits:

- Validates underbody manufacturing options to improve underbody blast protection for combat vehicles.
- Single piece underbody hulls and UB protection kits for Objective protection <\$30/lb
- Provides non-traditional approaches for underbody design and manufacturing

Transition and Weapon Systems/Secondary Items Impacted:

- Future Fighting Vehicle
- Armored Multi-purpose Vehicle (AMPV)

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