

WHO

SYSCOM: NAVAIR

Sponsoring Program: NAVAIR Aircrew Systems Program Office (PMA-202)

Transition Target: Navy and Marines Rotary and Tiltrotor Aircraft Aircrew

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Other Transition Opportunities: Military and Civilian Rotary and Tiltrotor Aircraft Aircrew and Ground Forces that conduct work over water environments.

Notes: The illustration shows that NACEAR enables warfighters to stay in the fight while allowing rigid ballistic armor plates to be jettisoned with one hand or both for front and back armor plates that are negatively buoyant and restrict the member from evacuating a downed aircraft. The system also allows the aircrew member to retain the vest, survival, and operational components attached to it if needed after the aircrew has evacuated the crash area.



Image courtesy of Bunker Supply 2024, image credit - Marco Vanella

WHAT

Operational Need and Improvement: During water survival situations, dense on-body equipment hinders a rotorcraft operator's ability to remain buoyant, impeding mobility and posing a significant drowning risk. The ability to quickly yet selectively shed negatively buoyant hard plates presents an opportunity to improve survivability without requiring complete separation of the entire vest and all gear attached to it.

Specifications Required: Bunker Supply Co.'s Naval Aircrew Emergency Armor Release (NACEAR) solution allows an aircrew member to jettison their hard armor plates without abandoning their survival vest and, by extension, gear critical for extended survival capacity, warfighting potential, and asset protection. The solution is thin, lightweight, and compatible with fielded survival vest platforms through a retrofit process conducted by Aircrew Survival Equipment Technicians using standard equipment.

Technology Developed: Bunker Supply has developed an innovative and scalable Emergency Armor Release that prioritizes ease of operation for the aircrew member. Additionally, it simplifies the modification of the survival vest retrofit by the Survival Equipment Technician, making it a user-friendly solution. Bunker Emergency Release Insert (BERI): The BERI is our solution to create a system capable of retrofitting into existing carrier platforms with minimal change to the performance of the vest itself. Minimizing weight and bulk were strong design drivers, ensuring the solution does not burden aircrew members. The BERI allows for 1. RAPID, SINGLE HAND OPERATION 2. NON-SLIP HANDLE DESIGN 3. UNIVERSAL VEST COMPATIBILITY.

Warfighter Value: Over the last year, the US military has lost more than thirteen members in over-the-water rotary wing aircraft crashes. The Naval Aircrew Emergency Armor Release (NACEAR) concept is invaluable for those military units that lose valuable personnel to over-the-water crashes. The technology allows the individual to rapidly but smoothly remove negative buoyancy ballistic plates so the aircrew member can go on to other aircraft egress tasks to ensure their safety. Additionally, it allows the aircrew member to retain their survival vest and the components attached to it in case of use after the event of a crash.

WHEN

Contract Number: N68335-23-C-0230

Ending on: Mar 17, 2025

Table with 5 columns: Milestone, Risk Level, Measure of Success, Ending TRL, Date. Rows include Knowledge Transfer, Prototype & Testing (Subsystem and Full System), Technical Data Package Development, and Demonstration/Final Report.

HOW

Projected Business Model: Bunker Supply is a design-forward US military contractor, developing and manufacturing optimized equipment for agents in the field. We exist to optimize operator capabilities and safety through innovation and human-centered design. The team behind Bunker Supply has extensive experience commercializing products in both public and private sectors.

Company Objectives: Bunker Supply is targets DoD, Coast Guard, Homeland Security, Law Enforcement, and Civilian Rotary and Tiltrotor Aircraft units for sales in NACEAR. It already sells to those customer groups for other products it produces.

Potential Commercial Applications: Commercial variants would be suitable for recreational pilots or aircrews that fly over water.