# Department of the Navy SBIR/STTR Transition Program

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NAVAIR 2020-854

Topic # N121-009
Surface Flotation Device for Cold-Water Aviation Survivors
Kennon Products, Inc.

## WHO

**SYSCOM:** NAVAIR

**Sponsoring Program:** PMA-202

**Transition Target:** Life Preserver Unit-21 (LPU-21FCL)

**TPOC:**
(610)746-3599

**Other transition opportunities:** Many different versions of the life preserver unit (LPU) exist throughout the various branches of the military. This technology can be readily adopted into other LPU configurations. Additionally, this technology can be integrated into life raft units (LRUs) which would result in hundreds of pounds of weight savings which can be directly translated to fuel savings, more space for cargo/equipment, and additional crew members.



## WHAT

**Operational Need and Improvement:** The lightweight and slim design of the next generation life preserver will allow for increased mobility of the war fighter while maintaining all performance requirements. Specifically, the wearer will have enhanced rotation of the head while wearing today's technologically advanced helmets. Since this system is designed around the current AE vest the warfighter has the advantage of better access to the modular lightweight load-carrying equipment (MOLLE) system with clear line of sight to their gear.

**Specifications Required:** The LPU developed by Kennon is 25% lighter and 50% less bulky than the current system. The unit meets all performance requirements including flame resistance, burst pressure, and auto-rotation. The dual chamber system has a total buoyancy of 70 pounds while touting increased reliability, safety, and enhanced ergonomics.

**Technology Developed:** Kennon Products has developed a proprietary seaming technique that enables the welding of ultra-lightweight, ultra-strong, and compact materials. Through substitutions of incumbent bladder materials with these advanced materials, Kennon has created a life preserver that is lighter, stronger, and more compact than previous generations. In addition to the bladder, Kennon has redesigned the casing to better fit the current vest and enhance the auto-rotation and body position when deployed. Beyond life preservers, this technology has intriguing applications for the much heavier and larger Life Raft Units (LRU), where weight savings would potentially be on the scale of hundreds of pounds.

**Warfighter Value:** The advanced LPU will provide the warfighter with significantly increased comfort and range of motion. This will help alleviate pilot workload and increase crew member efficiency. The system is expected to have enhanced reliability and safety to ensure the best possible outcome in the worst possible situations.

## WHEN

**Contract Number:** N68335-20-C-0079 **Ending on:** June 18, 2021

| Milestone | Risk Level | Measure of Success | Ending TRL | Date |
|---|---|---|---|---|
| Field Trials (Pax River) | Low | Feedback from end users | 7 | September 2020 |
| Flame Testing (Natick) | Med | Operational Unit after 3 second burn | 7 | October 2020 |
| Environmental Testing (Longmont) | Med | MIL-STD-810 | 8 | February 2021 |
| LRIP | Low | | 8 | May 2021 |

## HOW

**Projected Business Model:** Upon successful completion of qualification testing Kennon Products will be ready to begin low rate initial production of the LPU-21FCL. Once LRIP quantities are demonstrated Kennon will be poised to move into full production. Kennon will actively seek additional avenues to utilize this technology including other life preserver systems, life rafts, emergency slides, and other inflatable devices that demand lightweight, high strength, and compact materials.

**Company Objectives:** Kennon Products will utilize its unique technology to advance and replace other Life Preserver Units as well as begin testing the replacement of the much larger and heavier Life Raft Units. It is Kennon's mission to protect the lives of our warfighters through the use of advanced materials and advanced manufacturing techniques.

**Potential Commercial Applications:** This technology has multiple applications in the commercial airline and recreation markets, as well as others. Kennon will entertain and potentially support licensing the technology to these markets. In the commercial airline market, this proprietary and patented technology could be used to cut weight by replacing current life preservers, emergency rafts, and emergency slides. In the recreational market, the seaming technology could be utilized to produce fishing life preservers, tents, sleeping pads, inflatable boats and many other products. Currently, Kennon is focused on supporting the war fighter and will keep its direct efforts inside the DoD.

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