Department of the Navy SBIR/STTR Transition Program

Distribution Statement A: Approved for public release, distribution is unlimited NAVAIR 2015-1042

Topic # N103-216
Lightweight Aircraft Tiedowns
Spencer Industries, Inc

WHO

SYSCOM: NAVAIR

Sponsoring Program: PEO Aircraft Carriers

Transition Target: NAVAIR 1.0

TPOC:
(732)323-7909

Other transition opportunities:
Lightweight tiedown for internal cargo lashing in aircraft

WHAT

Operational Need and Improvement:
Develop a lightweight aircraft tiedown to effectively secure aircraft to the flight deck, as a form/fit/function replacement for the TD-1 A/B tiedown now in use. Required improvements include: reduced weight, enhanced ease of use, increased safety for users, and reduced attrition/increased service life
The current design weighs 6.4 lbs from the streamlined tensioner design and use of high-performance synthetic webbing in place of chain as the lashing medium, compared to the 12-lb weight of the legacy devices
The new device enhances ease of use through reduced weight, simplified operation, and increased reliability
The lightweight tiedown reduces long-term health issues resulting from users lugging heavy chain tiedowns, with increased safety during use from the webbing restrain media
The new design minimizes the overall number of component parts, and provides an open configuration that allows easy washdown
Longer operating life and reduced attrition is provided through corrosion-resistant coating of parts

Specifications Required:
Tie Down, Aircraft Mooring 1540AS100 Rev G Cage 30003

Technology Developed:
New lightweight tensioner device, Kevlar webbing with Firetex exterior to replace chain for reduced weight and increased resistance to heat and flame

Warfighter Value:
Improved ease of use, reduced weight, reduced attrition and longer service life
Reduced risk of injury from currnet chain tiedowns being carried on and off the ship in heavy metal cruise boxes

WHEN

Contract Number: N68335-14-C-0301 **Ending on:** July 31, 2016

Milestone	Risk Level	Measure of Success	Ending TRL	Date
Prototype Set 1 (40 units) Fabrication and Test	Low	Successful testing per Test Plan	6	October 2015
Prototype Set 2 (100 units) Fabrication	Med	Successful fabrication per Drawings	6	March 2016
Prototype Set 2 Functional & Environmental Testing	Med	Successful Testing per Test Plan	7	April 2016
Prototype Set 2 Delivery (40 units)	Med	On-schedule delivery	7	June 2016

HOW

Projected Business Model:
In-house development and test during development phase. During production, predominantly in-house manufacture and final assembly, with procurement of raw materials, castings/forgings, and synthetic webbing

Company Objectives:
Develop and verify device function through extensive operational and environmental testing. Successful initial production, followed by rate production and support. Evaluate related military and commercial opportunities

Potential Commercial Applications:
Evaluate other military and/or commercial opportunities based on reduced weight, ease of use and longer service life, including:
Vehicle and cargo restraint within helicopters or cargo aircraft
Cargo restraint for rail and trucking industries
Lashing of water or fuel blivets
Lashing of ammunition pallets

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