Aircrew-Mounted Self-Adjusting Tether System

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SYSCOM: Naval Air Systems Command (NAVAIR)
www.navair.navy.mil

Program Sponsor: PMA-275 (V-22)

Other Potential Programs:
PM Rotor, other rotary-wing, and fixed-wing aircraft platforms with mobile aircrew

Current TRL: 7

Projected TRL/Date: 8 / Q1 2024

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Mobile Aircrew, Restraint, Inertia Reel, Tether, Fall Protection, Gunners Belt

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THE CHALLENGE

Currently, mobile aircrew who serve in rotary wing platforms rely on a manually adjustable tether connected to the Aircrew Endurance Vest (AEV) or the Gunners Belt for their primary restraint system while not seated. This system has exhibited major deficiencies in achieving both fall and crashworthy protection. The manually adjustable tether on both the AEV and Gunners Belt does not adequately retain mobile aircrew as it relies on the user to continually monitor tether length and adjust appropriately throughout a mission.

THE INNOVATION

Wolf Technical Services has developed a self-adjusting tether system that provides a secure aircraft attachment while automatically managing webbing slack for aircrew. This system maintains a compact profile and weight while providing the required holding strength to protect the user. Safety features are incorporated to further protect the user during a fall and crash situations by automatically locking and preventing further movement away from the attachment point. The user can also set final tether length to prevent accidental exit from the aircraft while performing mission duties.

THE NAVY BENEFIT

This system provides improved protection for mobile aircrew over existing technology. Unlike previous self-adjusting tether technology, this system can serve as a direct replacement for manually adjustable tether systems and requires no aircraft modification for implementation. The system design maintains a compact package that allows freedom of movement for the aircrew without the build-up of tether slack that can pose a risk to the user. Safety features help to protect the aircrew during fall and crash situations. The design avoids inadvertent locking while performing typical maneuvers throughout a mission.

THE FUTURE

Currently, Wolf Technical Services is working under contract to finalize the system design and production processes. After design finalization, production-equivalent systems will be produced, and a final round of qualification testing and air-worthiness evaluations will be completed. Following successful completion of air-worthiness certification activities, Wolf will engage appropriate acquisition personnel for fielding of the certified self-adjusting tether system. The self-adjusting tether will be applicable for use by mobile aircrew on both rotary and fixed-wing platforms with available tether attachment points in the cabin.