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Mil Tech — Improving Aircrew Restraint System

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A contractor and three subcontractors have been awarded a U.S. Navy contract to design and develop a new restraint system for aircrews.

Designated CMARS (common mobile aircrew restraint system), the new design will include integrated safety features to reduce the likelihood of injuries caused by combat damage, aircraft crashes, or evasive maneuvers. The design will sense such situations and lock the aircrew in place, thus preventing injurious forces from affecting the crew.

Wolf Technical Services, an engineering company in Indianapolis, was awarded the \$12 million contract. Subcontractors include Butler America, Garrity Tool Company, and Software Engineering Professionals.

Jon Carr, chief operating officer for Wolf Technical Services, says that up until development of CMARS, the gunners and mobile aircrew in the back of helicopters have had to rely on a 10-foot long “gunner’s belt that could be adjusted with some difficulty.” He notes the aircrew would secure one end of the gunner’s belt to a D ring on their harness and the other end to a D ring in the floor, ceiling, or sidewall of the aircraft.

“There have been many mishaps over the years where a guy didn’t shorten up the belt enough and found himself outside of the vehicle,” Carr says, “and the instances occurred both in flight and during crashes.”

Carr notes CMARS is an adaptation of a restraint system the Navy tried in the H-60 model helicopters that used a mechanical spring device to lock the wearer in place if the belt were accelerated.

“The MARS (mobile aircrew restraint system) didn’t work out because it wouldn’t allow the aircrew to move around and do his job without locking up,” Carr says. “So the Navy removed it from its choppers.”

Carr says CMARS uses a battery-powered electronic accelerometer and microprocessor to keep the belt snug with no slack, allowing the aircrew freedom of movement, and yet holds the aircrew in position by locking up in an event creating a certain amount of acceleration, like a crash or hard landing.

CMARS is still in development, but Carr expects Wolf Technical to produce about 100 units to go through the Navy’s qualification testing, and after any fine tuning, then go into full production.

He says the Navy intends to eventually buy about 20,000 units. The new system is expected to be used on rotary-wing and in some fixed-wing cargo aircraft.

About the author: *Alan M. Petrillo is a Tucson, Ariz., freelance writer who works in a wide variety of fields, writing for national and regional magazines and newspapers. He's also the author of the mystery novel, Full Moon, and several books on historical military small arms.*

