



Air Warrior to Air Soldier

Lt Colonel Ian Klinkhammer, Product Manager Air Warrior, Program Executive Office Soldier, details the final deliveries of Air Warrior and outlines future plans for Air Soldier

Beginning in 2004, the US Army's Air Warrior programme is now at the end of its third and final increment. Lt. Col. Klinkhammer, Product Manager, Air Warrior, said, "The two top priorities yet to field in Increment 3 are the encrypted Aircraft Wireless Intercom System (AWIS), [a cooperative development with the US Navy] and the dual Electronic Data Manager (EDM). We are awarding a Low Rate Initial Production contract to Telephonics for the AWIS that will take us to operational test. The next priority piece besides AWIS in Increment 3 is the dual EDM. We have one EDM tablet computer in every non-digitized cockpit right now and we want two, one for each pilot. In early 2011, we will begin fielding dual EDMs to the UH-60A/L and CH-47D fleets."

AWIS provides each crew member with the ability to communicate wirelessly in flight and in roles such as fire guard or the collection of litters in casualty evacuation. It will be equipped on every UH-60 Blackhawk A, L and M in the fleet and the CH-47 D and F Chinook.

The AWIS is a secure wireless intercom system but it is not a tactical radio. There are no plans to swap out AWIS for the AN/PRC-154 Rifleman Radio. Lt. Col. Klinkhammer said, "We were ahead of the JTRS [in terms of timelines]. The Ground Soldier guys are different. They need extended range and other capabilities, whereas we don't need that capability, ours is close proximity to the aircraft."

The Type 1 AWIS began its Development Test/Operational Test in November, which is being undertaken locally by the Florida National Guard, with National Security Agency certification expected in December of 2010. Lt. Col. Klinkhammer said, "We don't expect any problems, General Dynamics and Telephonics have given us all the materials we need to get the certification."

The Navy are also using the AWIS systems and Lt. Col. Klinkhammer notes that they have already had success using the unencrypted version and, "have saved lives."

Navy helicopter crews are also using Air Warrior's EDM, buying additional units from the same contract, leveraging reduced costs across the two Services.

Another Increment 3 product that is a communication device is the Communication Enhancement and Protection System, or CEPS, which features helmet hear-through technology and which has been put on the General Services Administration schedule. Lt. Col. Klinkhammer said, "Using CEPS, crewmembers can dismount the aircraft, and converse with other Soldiers, including litter patients without having to take their helmet off thus losing that protection."

Although PM AW is buying and issuing CEPS, by putting CEPS on the GSA as a catalogued and certified piece of equipment, units will be able to buy the item directly with unit technicians adding the systems to the flight helmet as a Modification Work Order.

Foreign Military Sales orders for Air Warrior equipment have already been made for several nations including Australia, Canada and three Middle Eastern customers.

Air Soldier

Beyond Air Warrior, which is approaching transition from acquisition to sustainment, is the follow-on Air Soldier programme, which will be delivered in three increments.

The first increment of Air Soldier will field to the first Army aviation unit in the 2013 timeframe. The next increment will follow in the 2015 timeframe and the final increment is scheduled for 2018.

Lt. Col. Klinkhammer said, "Air Warrior is still the overall programme and our organization will retain the name PM Air Warrior. Air Soldier is the next generation that is three increments based on Technology Readiness Levels. We want to have 25 percent less bulk on the aircrew members and about a 20 lb weight saving." The current weight, with the inclusion of body armour is 75-78 lbs.

Addressing the order of acquisition, Lt. Col. Klinkhammer said, "The first thing we are looking at is the helmet and enhanced lightweight battery power to

drive the wearable cooling unit." The wearable cooling is an untethered solution for the crew members in the rear of UH-60 and CH-47 helicopters who currently must be tethered to a 13 lb aircraft-mounted cooling box.

Lt. Col. Klinkhammer said, "That way they can walk around the Blackhawk or Chinook without being tethered to that box. That is the only wearable power element to this first increment but eventually wearable power will drive everything worn by the aft crewmember: communications, cooling, oxygen, a wearable display, the whole works." Fuel cells are one of the candidate power technologies being considered.

While cooling systems are in demand in current and recent theatres of operation, heating is also important. The current systems offer a single solution while under Air Soldier; the Army is looking for a dual solution. Lt. Col. Klinkhammer said, "We are also looking at incorporating thermal heating and cooling into the duty uniform to reduce layers of clothing."

For Air Soldier head-borne equipment, the PM has embarked on a programme that will seek to improve upon the protection provided by the current Army helmet in the first increment, also seeking improvements in weight if possible and providing improved field of view and laser eye protection for particular wavelengths. The final Air Soldier increment provides a true Modular Integrated Helmet and Display System (MIHDS) including fully integrated eye and respiratory protection (face plate concept); introduction of a digital day/night Head Up Display common to all aircraft platforms; improved night vision systems field of view (from the current 40 to 90+ degrees) and increased laser eye protection (increasing to 5 to 7 fixed wavelengths of protection).

Computing enhancements are also planned, with a number of companies already demonstrating flexible display technologies for consideration. Lt. Col. Klinkhammer said, "We see the EDM being replaced by an aircraft-mounted Mission Display Module. Currently the EDM is worn on the pilot's thigh and thus a heads down

► display, causing the pilot to look down at his moving map and avoidance systems. We need to get it up on the instrument panel so it keeps their heads up.”

All crew members will gain computing enhancements through their Soldier Computer Module – a centralized data processing and storage module small enough to fit in a pocket and a Personal Display Module (PDM) a wrist worn display with integrated data input device or interface for all Air Soldier components.

In terms of external communications capability, although quite capable, the combat search and rescue radio worn by the crewmember is bulky and heavy. Under Air Soldier this capability (and that of the AWIS) will integrate into circuit cards and repackaged to a smaller and lighter form factor called the Radio Interface Control Module,

envisaged as being the size of a cigarette packet with a goal of fielding as part of the final Air Soldier increment in 2018.

The final increment of Air Soldier and focuses on the full integration of Air Soldier capabilities necessary to exceed the threshold requirement for weight and bulk reduction and provides improved safety and soldier survivability, increased situational awareness, and reduced pilot/crew member workload.

In terms of clothing, the third and final increment will field an Integrated Protective Ensemble (IPE) that replaces the Air Warrior survival vest and overwater survival equipment. The IPE fully integrates a wiring harness assembly into the duty uniform, and integrates body armor, gear carriage and extraction, chem/bio protection,

and optimizes distribution of body worn mission and survival, evasion, and escape components.

The end state for Air Soldier is to add capability and decrease weight and bulk. Air Soldier will provide a fully integrated threat, environmental, chem/bio, and survival equipment protection solution that improves crewmember mission effectiveness and mobility. Lt. Col. Klinkhammer summarised by saying, “We want to make that fully integrated in one system that will make our Air Soldiers more lethal and survivable in any operating environment.” ■



Air Warrior equipment equips all 27,000 Army aircrew and from 2013 will be supplemented and ultimately replaced by the Air Soldier programme © DoD