



Saving Lives on the Battlefield



MEDEVAC HELICOPTER UNITS GO ABOVE AND BEYOND TO ENSURE THE WELL-BEING OF THE WARFIGHTER.

By **BRIAN O'SHEA**, MMT EDITOR

Medical evacuation (medevac) helicopter units are growing in size and industry is working diligently to meet the needs of the military. Across the U.S. Army all medevac units are increasing the number of helicopters that make up a unit from 12 to 15, said Lieutenant Colonel Dudley Capps, chief operations in training branch for the Army Aviation Group, Army National Guard (ARNG).

Medevac helicopters perform primarily patient/casualty evacuations in both combat theaters and in the United States when

called upon in emergencies, or domestic operations such as lost hikers or hurricane support. Medevac helicopters also perform medical resupply and transport medical personnel, said Capps.

Another aspect of medevac missions is that they are time sensitive and are flown in a mix of environmental conditions, said Dan O'Boyle, Redstone Arsenal spokesman, Army Program Executive Office (PEO) Aviation.

One type of ARNG aeromedical evacuation unit that operates medevac helicopters

is the general support aviation battalions (GSAB), which use UH-60 Blackhawks. To date, the ARNG has 30 UH-60M helicopters. A UH-60M helicopter is the upgraded version of the UH-60 A or L models.

"The National Guard companies will continue to have a combination of A and L UH-60," said Capps. "The significant difference is when you go from A or L to M. The main difference is in the cockpit; it's a completely digital cockpit."

The Army is expecting to increase the number of UH-60M helicopters in its GSAB

medevac companies by fiscal year (FY) 2019, but exact numbers will be determined by funding, added Capps.

ARNG aeromedical evacuation companies are currently being organized to use the UH-72 Lakota in its security support (S&S) battalions. S&S battalions are expected to have 48 new UH-72 helicopters by FY 2013.

The U.S. Army manages the acquisition and the life cycle of all helicopters within its companies. The ARNG is currently operating UH-60A aircraft as old as 25-30 years, as well as brand-new UH-60M and UH-72 medevac helicopters.

Operational tempo for both the UH-60 and CH-47 Chinook medevac helicopters is the biggest challenge to aeromedical evacuation units, said Capps. In the ARNG, helicopters spend one year in theater and then are rotated home for 2.6 years.

“There’s no indication that this is slowing down right now,” he added.

MEDEVAC HELICOPTER PRODUCTION

The U.S. Army PEO Aviation works closely with the warfighters flying the missions and industry leaders involved in making medevac airframes and equipment to meet commander’s needs.

Sikorsky currently produces two to three HH-60M helicopters each month, alternating 2-3-2-3 each month. The “HH” in the name classifies it as specifically for medevac missions, with all the medical equipment being installed at the factory before it’s shipped, said Dori Freer, HH-60M medevac program manager, Sikorsky.

The HH-60M medevac has been seeing action in Iraq since late last year as part of a combined Vermont Massachusetts company (6 aircraft each). C Company, 3rd Battalion, 126th Aviation Regiment was deployed to Iraq in November of last year with a dozen HH-60M medevac helicopters.

Features on the latest aircraft include an integrated EKG machine, oxygen generator, electronically controlled litters, an infrared system that can locate patients by their body heat and a built-in external hoist, said a U.S. Army source. The



Dori Freer



A Skedco stretcher being used in Afghanistan. [Photo courtesy of Skedco]

urgency of medevac missions is critical and C Company recently launched the HH-60M in less than seven minutes.

Sikorsky is currently working on developing a new medevac mission sensor, which includes a smaller forward looking infrared radar ball that’s being tested to replace the current ball facing obsolescence. A forward looking infrared radar ball is a high-powered infrared camera mounted on the nose of the aircraft. Sikorsky is also testing a new improved medical interior to address obsolescence issues and crashworthiness requirements. Improvements to the environmental control system (ECS) include switching from a three pallet (component) ECS to a two pallet ECS, providing a more compact and low weight ECS, said Freer.

Boeing Military Aircraft Mobility produces the H-47 Chinook series of heavy/medium lift helicopters. Boeing also co-produces the MV-22 Osprey with Bell Helicopter. Not specifically designed for medevac or casualty evacuation (casevac), the

H-47 routinely performs medical casevac missions in combat and disaster relief scenarios, said Mark Ballew, senior manager, H-47 business development. The H-47 is used by U.S. Army air combat units and the 160th Special Operations Aviation Regiment.

“The Chinook is in a league of its own due to the tandem rotor configuration,” said Ballew. “One hundred percent of the engine power goes into lift vice 10-15 percent being diverted to anti-torque. The results are more payload capability, better high density altitude hover, better cross-wind handling, better stability, and larger center of gravity envelope/cargo loading versatility.”

The H-47 has a uniquely versatile platform and can be adapted to perform virtually any vertical lift mission, added Ballew.

The MV-22 is used by the U.S. Marines for medium lift assault support and the CV-22 is used by the Air Force Special Operations Command for long range infiltration, exfiltration and resupply missions for special operations forces.

“Both the USMC MV-22 and the USAF CV-22 have executed numerous medevacs and disaster relief missions, saving countless lives,” said Ballew.

The V-22 Osprey blends the vertical flight capabilities of helicopters with the speed, range, altitude and endurance of fixed wing transports.

“This capability becomes abundantly apparent in the medevac mission, where the V-22’s outstanding speed and range dramatically enlarges the area of coverage within the ‘Golden Hour,’ enabling rescues that are not possible with legacy helicopters,” Ballew added.

On the horizon for Boeing is the Air Force’s Personal Recovery Vehicle

program, which is the replacement of the combat search and rescue (CSAR) helicopter program that was cancelled in 2009. The H-47 was originally chosen by the U.S. Air Force to perform CSAR missions in 2006.

Other projects in the works include Bell-Boeing investigating a “critical care transport” interior for the V-22 that takes advantage of the V-22’s standup cabin and fixed wing like low vibratory cruise flight, and adds a medical suite that enables a greatly enhanced level of care to be provided onboard the aircraft.

“The V-22 critical care transport would further increase the area of coverage within the ‘Golden Hour’ by bringing the operating room to the wounded and enable emergency lifesaving surgeries onboard the Osprey,” said Ballew.

AEROMEDICAL EQUIPMENT CERTIFICATION

The U.S. Army Aeromedical Research Laboratory (USAARL), Airworthiness Certification and Evaluation (ACE) Branch tests carry-on medical devices such as oxygen concentrators, thermal blankets, fluid warmers and thermometers to be used by medics and surgeons during medevac situations on-board military air and ground vehicles.

“The tests we perform are requested by military customers,” said Dr. Khalid Barazanji, chief, ACE Branch, USAARL. “The military selects the device it may want to purchase and asks us to perform testing on the device.”

Tests include a baseline performance assessment, electrical safety, vibration, electromagnetic interference emission, electromagnetic interference susceptibility, aircraft chamber, high temperature (tactical-standby to operation), high temperature and high humidity, low temperature (tactical-standby to operation), battery performance under environmental extremes, altitude, rapid decompression, night vision goggles (NVG), explosive atmosphere, blowing dust, blowing sand, blowing rain and settling dust testing. Flight testing is also conducted.

Once a device is tested it can receive two certifications. The first certification is an airworthiness release, which allows the device to be used on-board military aircraft. The second certification is an aeromedical certification memo, which



Electromagnetic Interference Chamber test. [Photo courtesy of U.S. Army Aeromedical Research Laboratory]

certifies that the device will not cause harm to the crew or patients.

“The Airworthiness Certification and Evaluation Branch maintains the unique capability of testing and evaluating the efficacy of medical systems in the U.S. Army aeromedical evacuation environment, ensuring the safe interaction among medical equipment, patients, aircrew, and aircraft,” said Barazanji. “As such, we contribute to the protection of the injured or ill warfighter as he/she makes his/her way through the critical medical evacuation system.”

MEDICAL EQUIPMENT SET

Included in every medevac helicopter is a patient litter system, lighting, suction, oxygen, a rescue hoist, monitor/defibrillator, patient warming system, storage for medical supplies, ventilator, internal and external communications and an IV pump, said O’Boyle.

No stranger to providing products to the military, Skedco has been supplying the U.S. military with rescue equipment for over 30 years, said Bud Calkin, vice president and general manager of Skedco.

Skedco products that have seen action include the Sked Stretcher, Oregon Spine Splint, HELITAG-helicopter tagline kit, Skedco Helicopter Bag set, Crew Chief Bag, Helicopter Medic bags, Sked-Evac

Litter Tiedown Strap, Sked-Evac Patient Litter Strap, Sked-Evac Medical Cargo Strap, Sked-Evac Battlefield Litter Tiedown Strap for all Sked litters, Skedco Tactikka Medical Headlamp, Skedco Extreme Medicine Knife and the Sked Inflatable Flotation System.

Some military commands that utilize Skedco products include 10th Mountain Division, 25th Infantry Division, all Stryker units, all special forces groups and all special operations units including U.S. Army Rangers, U.S. Navy SEALs, Delta Force, Joint Special Operations Command, U.S. Air Force Pararescue, U.S. Air Force Security Groups and many more, added Calkin. Skedco provides free training for any Skedco product.

“Skedco does a lot of research prior to building anything,” said Calkin. “We meet or exceed the intended requirements for our products without infringing anyone else. We try to make everything possible, a multi-use product. We are very good at that. Strength, ease of use and versatility are of utmost importance.”

Skedco’s future includes the Tactical Sked Litter. The litter weighs seven pounds and is a “hands free” carryable litter, as well as a hand carryable or drag litter, and is hoistable in the horizontal position.

“After 30 years of doing business with the military I am more motivated than

ever because of our dedicated volunteer military force that keeps me free,” added Calkin.

LifePort Inc., a Sikorsky Aerospace Services Company, currently employs its Stacking Litter Systems (SLS) at the Department of Defense and the Defense Logistics Agency, providing troop support for the U.S. Air Force Air Mobility Command. SLS is also used on international military aircraft including the Saudi Ministry of Interior S-92A helicopters and with the Colombian Army S-70 Blackhawk helicopters. Commercial users include CHC, Cougar Helicopters, Shell Brunei and Japan National Police.

“We design multi-mission, quick change systems [versus permanent installs] that are easy to install,” said Jeffery Jannitto, director, mission equipment, Sikorsky Aerospace Services. “Additionally, generally speaking, LifePort equipment is lighter weight and with increased capabilities. Historically, LifePort has been able to achieve an approximate 30 percent weight savings over competitor systems by utilizing lightweight materials and advanced design. LifePort systems are designed to have the same capabilities as dedicated installations while still providing multi-mission capability. Because of this, operators are able to utilize their aircraft for a variety of missions, thereby increasing the overall value of the installation.”

While SLS tend to be lighter, they can still accommodate a 350-pound patient in

the bottom and middle deck and still support a 275-pound patient on the top deck.

Also vital to medevac missions is a reliable intercommunication system. Telephonics provides just that with its TruLink wireless system, allowing untethered communications in and around military platforms.

“These military platforms create an extremely noisy environment and crewmembers typically attach a headset to a long cord for establishing communication between each other and with the host vehicle,” said Richard A. Jozefowski, senior director, Business Development Telephonics Corporation. “Or they resort to shouting and hand signals that are necessary to execute their mission. Long cords are cumbersome and present a safety hazard while shouting and hand signals risk miscommunication during critical mission operations. TruLink eliminates these hazards and risks by providing mobile crewmembers with clear voice comms between each other and the host platform over a short range [500 meters] wireless link.”

A user clips the TruLink Portable Transceiver onto their uniform and plugs it into their existing military headset. In this manner, users can speak with each other, communicate to crew on an aircraft’s intercom and communicate over the aircraft’s long-range radios.

“The TruLink system is ideal for medevac crew on helicopters and ground vehicles, and aeromedical evacuation [AE]

teams on fixed wing aircraft,” said Jozefowski. “Communication cords are eliminated so medevac crew maintains comms when leaving the platform to assist and retrieve a wounded patient. In addition, they have the freedom to operate in the tight confines on an aircraft without getting tangled up in cords. Communication is hands-free so they can fully focus on the patient, and the full-duplex feature enables them to readily collaborate across the team in crucial situations. The adaptive noise cancellation feature facilitates clear and effortless communication even under the whirling rotary blades of a medevac helicopter.”

TruLink is currently used across Army, Navy and Air Force aircraft platforms. A typical AE team consists of five crewmembers that are responsible for the medical care of multiple patients while being transported on-board aircraft. TruLink enables the AE medical crew director, flight nurse and medical technicians to move freely around the aircraft, untethered by restrictive cords, while maintaining hands-free, clear voice communication between each other in the high noise environment of the aircraft. These unique features enable the team members to focus on the safe transport of patients. ★

For more information, contact *MMT* Editor Brian O’Shea at briano@kmmimediagroup.com or search our online archives for related stories at www.MMT-kmi.com.

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