



# Delivering the Goods

News from the U.S. Coast Guard Acquisition Directorate

July 2009

## MH-60T Helicopter Project Highlights Acquisition, Engineering & Logistics Partnership

By Hunter Keeter

**W**ASHINGTON—A successful partnership between the U.S. Coast Guard’s acquisition and engineering communities is upgrading and extending the service life of 42 MH-60 series Medium Range Recovery helicopters.

The conversion from MH-60J to the MH-60T gives the Jayhawks new cockpit avionics, improved sensors and upgraded communications systems that add up to a significant boost in mission capability for these powerful aircraft. Additionally, the Coast Guard and aircraft manufacturer Sikorsky have developed a Service Life Extension Program (SLEP) that will fly the Jayhawks well past their advertised 10,000-hour service life. These efforts are funded by both the acquisitions and operations budgets.

“The project gets us out to 2027 with the aircraft, which wasn’t in the original plan when we bought the H-60 back in the 1980s,” said Capt. Doug Menders, manager of the Aviation Acquisition Program with the Coast Guard’s Acquisition Directorate. “The avionics upgrade gets rid of 12 of our top 20 mission degraders on the MH-60J. So we get a little longevity and whole lot more capability out of the aircraft.”

The service’s MH-60 fleet includes 39 MH-60Js and three converted MH-60Ts. In a given year, approximately 35 of these aircraft are operational, while seven or eight are undergoing Programmed Depot Maintenance (PDM) at the Aviation Logistics Center (ALC) in Elizabeth City, N.C. The SLEP and conversion efforts are designed to fit into the ALC’s PDM schedule. Based on a rate of seven or eight conversions



A Coast Guard Tactical Law Enforcement Team member fast ropes from an MH-60J helicopter at Coast Guard Sector San Diego. The Coast Guard is modernizing and extending the service life of its 42 MH-60 series helicopters.  
*U.S. Coast Guard photo by PA3 Henry G. Dunphy*

per year, the Coast Guard will finish the MH-60T conversions by 2015.

“As long as we continue with the PDM cycle every 48 months, do the SLEP to keep the airframes in good shape, and renew the wiring harnesses, Sikorsky [and the Coast Guard have determined that] we can keep flying the aircraft,” said Lt. Cmdr. Eric Bader, Medium Range Recovery helicopter system manager with the Coast Guard’s Engineering and Logistics Directorate. “Four hundred and fifty-one million dollars sounds like a lot of money until you compare that figure with the cost of buying a new fleet of aircraft, which would be in the billions of dollars.”

### Economy of Scale

As a centerpiece of the MH-60J to T conversion, the Jayhawks’ cockpit avionics are replaced with the Rockwell-Collins Common Avionics Architecture System (CAAS). The CAAS is adapted from all-glass cockpit systems developed for the U.S. Army’s 160th

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Special Operations Aviation Regiment's MH-60L Blackhawks, Boeing MH-47G Chinooks, and some other Department of Defense (DoD) aircraft. The system replaces older analogue instruments with five, 6-inch by 8-inch color, night vision goggle-compatible Multi-Function Displays (MFDs). The MFDs show flight data (including altimeter, artificial horizon, airspeed indicator, etc.), weather radar, camera imagery and other information.

"Our goal was to get into a large logistics system that DoD had," Menders noted. "The Army is using the CAAS cockpit on more than 2,500 aircraft. The Coast Guard is able to leverage that logistics infrastructure. So we are trying to achieve as much commonality as we can."

Additionally, the MH-60Ts' CAAS is similar to the cockpit avionics installed on the flight decks of several other Coast Guard aircraft, including the EADS-CASA HC-144A Ocean Sentry Medium Range Surveillance aircraft and the Lockheed Martin HC-130J Hercules Long Range Surveillance aircraft.

### Sensors and Other Capabilities

Meanwhile, the Coast Guard has made other improvements to its entire H-60

fleet, including the addition of Airborne Use of Force (AUF) equipment for all operational and converted aircraft. The AUF kits, which gave the helicopters their MH-60J or T designation, added Kevlar ballistic armor and weapons mounts for a Fabrique-Nationale M240B 7.62mm medium machine gun and a Robar RC50 .50-cal. precision rifle.

Another key feature of the AUF upgrade was a Rockwell Collins AN/ARC-210 multi-mode radio, enabling Coast Guard aircrews to communicate across a broad frequency spectrum with first responders (such as federal, state and local police, fire and rescue personnel) and DoD partner units.

Working with FLIR Systems Inc., the Coast Guard has developed an Electro-optical Sensor System (ESS) for the H-60s. The ESS that is installed on one MH-60J, aircraft No.6037, captures thermal images of law enforcement and search and rescue targets. The system is housed in a motorized turret on the aircraft's nose and includes an electro-optical/infrared camera, a daylight camera, a laser range finder and a laser illuminator.

Back on the H-60 Conversion and Sustainment Project, an Elbit Inc. Digital Mission Data Recorder supports

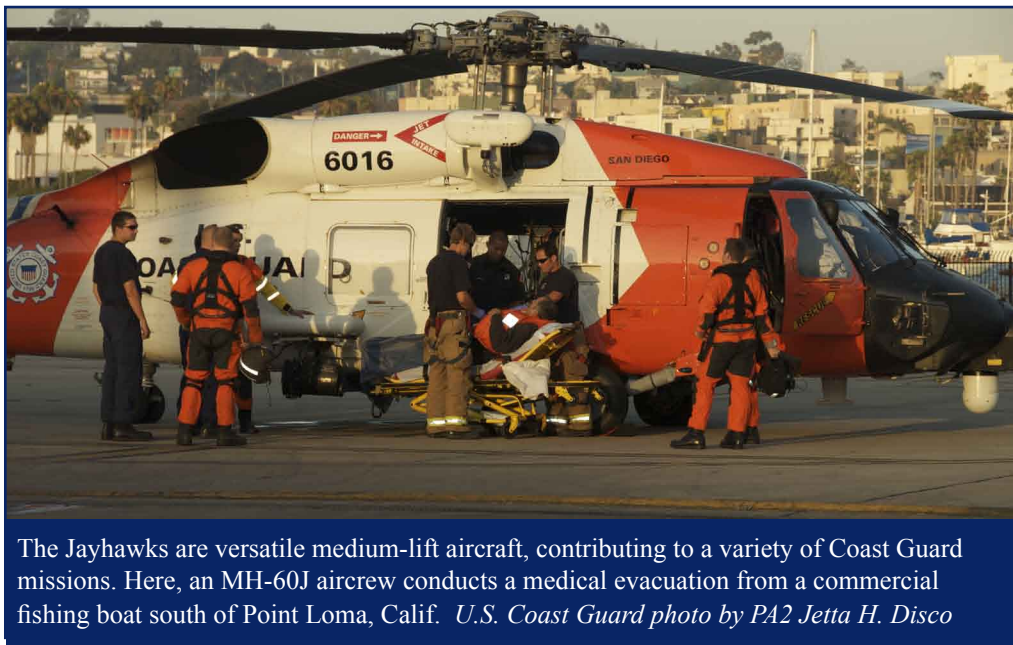
evidence collection during law enforcement and AUF operations. And the project installs a Rockwell-Collins DF-430 406MHz direction-finding set. Since its introduction in 2006-2007, the DF-430, which is used by several other classes of Coast Guard aircraft, has proven instrumental in many life-saving search and rescue missions.

Initially, the MH-60T's sensors suite includes a Primus 700A weather radar, also used by the Army's H-60s. This radar performs meteorological, terrain mapping and some search functions. In the near future, the Coast Guard plans to make a request for proposals to industry potentially seeking up to 150 new surface search radar sets for 42 MH-60Ts, 102 EADS-Eurocopter MH-65C Dolphin Multi-mission Cutter helicopters, and spares.

"The Primus radar is a great weather radar. It is very capable of mapping the ground, rivers, shorelines, big vessels and other hazards. The crews are getting more out of it than just the weather," Menders said. "We are going to be putting in a highly automated surface search radar [as we can't afford to add another crewman to the aircraft]. We hope that [new] radar will have a small target mode, which will help us detect small boats and the semi-submersible craft that are out there."

### Production Processes

The Coast Guard has followed a disciplined process in implementing the H-60 Conversion and Sustainment Project. The first step was to build and test a prototype MH-60T, aircraft No. 6027. The next step was to build a validation and verification aircraft, No. 6017. The prototype is now at the Aviation Training Center (ATC) in Mobile, Ala., where the Coast Guard is developing a training curriculum and concepts of operation. So far, more than 30 pilots have qualified on the MH-60T. The first production aircraft, No. 6028, and soon the validation and



The Jayhawks are versatile medium-lift aircraft, contributing to a variety of Coast Guard missions. Here, an MH-60J aircrew conducts a medical evacuation from a commercial fishing boat south of Point Loma, Calif. *U.S. Coast Guard photo by PA2 Jetta H. Disco*

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verification aircraft will be based at Air Station Elizabeth City.

"Since we got the project started in January 2007, we have been methodical, developing a prototype first to look at whether the technology was going to work," Menders said. "Then we [converted] a validation and verification aircraft to look at our industrialized processes in the actual PDM line. That helped us make sure the processes we developed for the prototype were going to work in production."

During overhaul, workers at the ALC's product line remove the MH-60Js' dynamic components, including the main rotors and tail rotors, and strip the airplane down to "bare

metal". This allows them to check for corrosion and cracks on the airframe and components. Once stripped and repaired, the workers repaint the aircraft, install a new wiring harness and add the components necessary to convert the J-model to the MH-60T.

The Coast Guard is making use of existing infrastructure to carry out the conversion project. "Instead of paying for a unique conversion line at a contractor's facility, the Coast Guard owns the process and the infrastructure," Bader said. "That gives the service a lot of flexibility. By mastering the learning curve, we have developed the same high level of expertise that you would find at any contractor's facility doing similar work."

Challenges ahead for the H-60 Conversion and Sustainment Project include funding the radar upgrade and the replacement of worn dynamic components, such as rotor blades. Bader and Menders noted that another challenge will be to manage the project's configuration over time such that the desire to add technology to the aircraft doesn't outstrip available resources, increase the product line learning curve or slow the PDM process.

The Coast Guard plans to achieve initial operational capability with an MH-60T unit in September 2009 at Air Station Elizabeth City. That air station has already received its first MH-60T aircraft, as has the ATC Mobile, which has received two MH-60T aircraft. ■

## Rescue 21's Disaster Recovery System Ready for Hurricane Season

*By Linda M. Johnson*

The Rescue 21 Disaster Recovery System (DRS), a self-sufficient mobile system designed to temporarily restore full Rescue 21 communications in the event regular communications are lost, can now be deployed throughout the continental United States with as little as 24 hours notice. This is an important capability as the U.S. Coast Guard prepares for the busiest months of the hurricane season, which are August and September.

This marks the first hurricane season the DRS will be fully deployed by the Coast Guard. Previously a contractor was responsible for deploying the system, which meant the DRS could not be moved from its contractor-owned Huntsville, Ala., storage facility to an area close to an approaching hurricane without an approved contract and contingency funding.

Rescue 21 is the Coast Guard's advanced direction-finding communications system designed to better locate mariners in distress and save lives and property at sea.



Communications Area Master Station Atlantic team members test a 127-foot portable tower equipped with Rescue 21 antennas as part of a recent training exercise in Huntsville, Ala. U.S. Coast Guard photo by Lt. Mark E. Moriarty

"We have a lot more flexibility than ever before. DRS now can be deployed quickly, whereas in the past, the Coast Guard needed a contract action in order to move it," said

Capt. Al Arsenault, Rescue 21 assistant project manager. "DRS is just one part of the next generation of communications that Rescue 21 is delivering."

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The Coast Guard's new responsibilities include the transportation, staging and set-up of the DRS equipment. The Coast Guard worked closely with the contractor to complete the physical transfer of the DRS equipment and conduct a hands-on training session and exercise this past spring.

"Now we can plan in advance. Previously we had to receive money and permission to move the system. We can be proactive instead of reactive," explained Lt. Mark Moriarty, Rescue 21 assistant logistics manager.

### DRS Assets

The Coast Guard owns four sets of readily-deployable DRS assets, three of which are now stored at the Communications Area Master Station Atlantic in Chesapeake, Va., and one is stored at the Communications Area Master Station Pacific in Point Reyes, Calif. Each set consists of a truck with a suite of transmitting equipment, a portable telescoping antenna tower, two satellite dishes,

and auxiliary generators. The Coast Guard has also established DRS capability at its Operations Systems Center (OSC) in Martinsburg, W.Va., that can replicate a Sector Command Center's Rescue 21 communication capabilities in a safe location during a disaster.

DRS will restore communications in the event of a tower failure, damage to a remote transmitting site or the communications lines to that site, or the loss of a Sector Command Center's Rescue 21 communications. DRS restoration capabilities include voice and data communications, caller position location (i.e. lines of bearing) and communications recording, archiving and retrieval.

DRS was successfully deployed last year for Hurricanes Gustav and Ike to keep Rescue 21 communications systems running in Sector New Orleans. In preparation for Hurricane Gustav's arrival, the Coast Guard relocated its New Orleans Rescue 21 watchstanders to OSC Martinsburg, where they were able to maintain watch over the Crescent City while

staying out of harm's way. While everyone hopes for a calm hurricane season this year, Rescue 21 is better equipped and more prepared than ever before to restore emergency communications in the event of a natural or man-made disaster.

By harnessing today's cutting-edge technology, Rescue 21 enables the Coast Guard to execute all its missions, especially its search and rescue mission, with greater agility and efficiency. Rescue 21 is currently standing watch and saving lives over more than 28,000 miles of coastline at 20 of 39 Coast Guard Sectors.

Humboldt Bay, Calif., Southern New England, Northern New England and Corpus Christi, Texas, are the next four sectors scheduled to accept Rescue 21 through the end of 2009. When fully deployed in 2017, Rescue 21 will provide coverage throughout the coastal continental United States, Hawaii, Guam, Puerto Rico and the U.S. Virgin Islands, as well as modified coverage in Alaska and along the Western Rivers, including the Mississippi River. ■

Dear Master Chief Ayer,

Q. Why is it taking so long to get our new cutters and boats built and operational? It never used to take this long.

A. This is a simple one. Because we are working hard to get it right.

Building a new ship is not like buying a new car. Unbeknownst to the consumer, a car company has the advantage of building a few dozen prototypes, testing them, holding focus groups with potential customers, changing the design as needed and finally putting the design that works best in the dealership. In the shipbuilding business, we run what we build. And what we build must meet a whole host of complex interoperable mission requirements, operate safely and last for 30 to 40 years.

The American taxpayers expect us to spend their money wisely. It pays to identify issues early on in the process, develop solutions and then move forward. Once we select the best design available and award a contract to build, we start slow. We call this Low Rate Initial Production, or LRIP, and test what we build with Operational Testing and Evaluation, or OT&E. This gives us time to find and fix problems so hopefully Coast Guard operations will receive only fully mission-ready cutters, aircraft and systems.

To keep things in perspective, the 270 WMEC project began in 1973 and the lead cutter *CGC Bear* was commissioned in 1983. Congress authorized funds to build *CGC Healy* in 1990 and she was commissioned in 1999. The initial contract for the first National Security Cutter (NSC) was awarded in 2002, and *CGC Bertholf* was commissioned in 2008 and is on its first operational patrol as I write this. The second NSC, *Waesche*, is now more than 85 percent complete and scheduled for builders trials later this summer. The first Sentinel-class Patrol Boat was awarded in 2008 and is scheduled to be delivered in 2011.

Our acquisition team, which includes the Acquisition Directorate, the three technical authorities and sponsor, are working hard to get the right equipment and systems to you as soon as possible. You need and deserve it.

— MCPO Brett F. Ayer, Command Master Chief, Coast Guard Acquisition Directorate

[To submit a question for an upcoming Acquisition Directorate newsletter, please email Master Chief Brett F. Ayer directly at: [Brett.F.Ayer@uscg.mil](mailto:Brett.F.Ayer@uscg.mil) or [acquisitionwebsite@uscg.mil](mailto:acquisitionwebsite@uscg.mil).]

