

In a Whirl

2009 Battlefield Helicopter Review



Written by: [Eric Tegler](#) on November 2, 2009

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Two French army EC725 Cougars, part of the contingent of 14 operating in Afghanistan. The French government ordered five more Cougars as part of an economic stimulus bill. Courtesy of Eurocopter GmbH/Frederic Lert

If anything became evident two-thirds of the way through 2009, it was that where rotary-wing weapon systems are concerned, defense establishments are taking a highly selective approach to acquisition, modernization and fielding. Cost and operational imperatives are dictating that where rotary wing systems are mature enough, they will be fielded (CH-47F, Eurocopter Tiger HAP) and where they are unable to meet acquisition/operational goals, they will be terminated (VH-71, ARH-70).

Likewise, the potential of rotary-wing-based unmanned aircraft systems (UAS) is clouding strategic decision-making as regards necessary future manned systems. Successful demonstration of various U.S Navy/Army Fire Scout UAS mission capabilities over the summer has American military acquisition managers (egged on by the Secretary of Defense and congressional representatives) mulling a revised mix of manned and unmanned aircraft. International observers are paying close attention.

On the industry side, developments through the third quarter make increasingly clear what rotorcraft market watchers have recognized for some years – the military rotorcraft industry in the USA can expect major change in the next decade. Bell, Boeing and Sikorsky have combined to field just one truly new military aircraft (the Bell Boeing V-22) in the last three decades. No new models are on the horizon and orders for current derivatives (CH-47, AH-64, UH-60, CH-53K) are expected to be filled some time short of 2020. Without significant innovation, or intervention by DoD, the sustainability of three U.S. rotorcraft airframers is in serious doubt.

The situation is evident in the medium/heavy lift segment, where non-U.S. manufacturers offer relatively new designs against improved derivative designs from the American airframers. New proposals for the U.S. Army's long tenured Joint Heavy Lift (JHL) program center on derivative vertical lift solutions, including another Bell/Boeing tilt-rotor. Potential transatlantic cooperation on an intra-theater heavy-lift rotorcraft was, in fact, among the first issues discussed in what has shaped up as a pivotal year.

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Support Aviation Battalion (GSAB), 82nd Combat Aviation Brigade became the fourth Army unit to field the CH-47F. The first F model Chinooks deployed to Iraq with the Fourth Infantry Division in July 2008. Likewise, CH-47Fs with the 82nd Combat Aviation Brigade deployed to Afghanistan in late spring.

Fielding of the F model came as Boeing began racking up foreign orders, signing a contract to provide 16 Chinooks to the Italian army in May, receiving requests for up to 15 more from Australia and Egypt, and inking a \$1.15 billion contract with the Canadian government for 15 aircraft in August. With its digital avionics and flight control system, the F is reportedly performing well in both theaters, enhancing situational awareness and enabling mission capability in poor weather conditions. The company's grounded RAF Chinook Mk.3 model (which experienced software problems) successfully completed its initial flight test phase in June as part of the RAF/Boeing "reversion" program. Boeing will put either the CH-47F or its V-22 forward for a relaunched CSAR-X program once the Pentagon completes its CSAR analysis and issues a request for proposals.

On the other side of the U.S. heavy lift house, the Navy/Marines' CH-53K overcame early year weight and center of gravity issues as its development continued. The Navy's selection of Rockwell Collins' Common Avionics Architecture System was viewed favorably both for its commonality with Army helicopters and its capacity to cost-effectively accommodate future system upgrades. With August came testing of the first 7,500 shp-class GE38-1B engine for the aircraft, and acknowledgement that the deployment date for the first CH-53K operational unit will slip from FY 2015 to "early 2016." Development problems with the helicopter's split-torque main gearbox and main rotor blade are the source of the delay. The schedule shift falls short of exceeding "baseline parameters" for the program budget, the USMC said. The next milestone for the 205-unit CH-53K program will be its critical design review, scheduled for the second quarter of FY 2010.

In May the Army launched Army Aviation Study II, the first major review of its aviation needs since the previous study led to canceling the Sikorsky/Boeing RAH-66 Comanche. The new study will review the findings of the first, whose results kicked off a wave of modernization programs funded with the Comanche's \$14.6 billion budget. Lt. Gen. James Thurman, the Army's deputy chief of staff, says the new study will "ensure we get it right" with ongoing programs like EADS North America's UH-72 Lakota light utility helicopter and the CH-47F Chinook. The review will also assess the failure of the ARH-70 and the Army's control of the Joint Cargo Aircraft. Progress with the Boeing AH-64D Apache Block III will no doubt come under review, and there was indeed progress to report.

Block III improvements include some 25 technology insertions aimed at extending the Apache's sensor range in all domains, paired with extended range weapons like the Joint Common Missile. Open systems architecture and "Level IV" control of UAVs from inside the helicopter are complemented by hardware upgrades, including up-rated engines and a new composite rotor blade.

The Block III Apache kicked off the year with a successful first powered flight of the Longbow unmanned aerial system (UAS) data link assembly. The data link allows sensor and flight path control of UAS' at long ranges, and reception of real-time, high-definition streaming video on the Apache's multi-function displays. In April an AH-64D successfully flew with a new radar electronics unit configuration of the Longbow fire control radar. During May, Egypt requested a possible sale of 12 AH-64D Block II Apaches, while the administration blocked a similar request from Israel for six Block II AH-64Ds, citing concern over connected Palestinian casualties.

In June an Apache Block III prototype successfully demonstrated Level IV UAS connectivity, fully controlling the navigation of an assigned UAS. The following month, the Army awarded Lockheed Martin a \$142 million production contract for the Apache Arrowhead target acquisition designation sight/pilot night vision sensor. If Block III stays on track, the program will see a Milestone C production decision in April 2010.

The Washington, D.C. National Guard became the first National Guard unit in the country to operate the EADS North America UH-72 Lakota in March, receiving three of a total of eight. The Lakota has also been put forward by EADS as a possible candidate for a future armed aerial scout helicopter in the wake of the recently killed Armed Reconnaissance Helicopter program. A re-competition of the ARH program remains on hold while the Army completes an analysis of alternatives. In July a UH-72A successfully completed high altitude/hot temperature flights, demonstrating its potential to meet mission profiles required by the Army for its ARH successor. The Lakota variant is called the Armed Scout 645 by EADS North America, and would be built at the same American Eurocopter Columbus, Miss., facility where the company is producing 128 (345 possible) UH-72As for the Army.

As far back as October 2008, Boeing announced it would offer its AH-6 when the Army revives its ARH competition. The company reiterated the offer, and added a lighter version of its AH-64 as a possible armed aerial scout helo candidate in March. The Hughes/MD 500-derived AH-6 demonstrated the high/hot capability an ARH successor will need in a series of May-June flight tests. As potential competitors position themselves for the ARH follow-on, the Army continues moving to keep its aging OH-58D Kiowa scouts flying. In April the service signed a contract with Bell Helicopter Textron to modify an additional 27 OH-58Ds under the Kiowa Warrior Safety Enhancement Program. The program is set to end in 2010, making a timely decision on a new scout helicopter increasingly important.

In May, Sikorsky unveiled its X2 Light Tactical Helicopter technology demonstrator at the Army Aviation Association annual convention. The X2 design emphasizes high speed, maneuverability and low acoustic signature. Sikorsky sees the X2 in applications from armed reconnaissance and close air support to combat search and rescue and unmanned roles. The X2 first flew in August 2008 and is progressing toward the milestone of achieving a 250 knot cruise speed.

The U.S. Navy continued its effort to recapitalize its medium lift SH-60B/F, HH-60H Seahawk, HH-1N Huey, UH-3H Sea King, and CH-46D Sea Knight fleet with the acquisition and introduction of the MH-60R/S. The new <http://www.defensemedianetwork.com/stories/in-a-whirl-2009-battlefield-helicopter-review/>

multimission Seahawks deployed on a carrier (USS *John C. Stennis*, CVN 74) for the first time in January and were subsequently cited for the commonality and interoperability facilitated by their open architecture software.

Upon returning in July, the -60R and -60S squadrons (HSM-71, HSC-8), which deployed with more aircraft than traditional (19 vs. 12), reported greater effectiveness, particularly in the sea control and anti-surface roles. The MH-60R and S frequently operated as a hunter-killer team, the 60R using its sensors to obtain situational awareness while the 60S came in and took out any small threats. The next MH-60R/S squadrons to deploy (HSM-77, HSC-2) will join the USS *Abraham Lincoln* strike group early in 2010.

Across the Atlantic, the French army spent the first half of the year preparing to send three of its 20 Eurocopter Tiger HAP tactical helicopters to Afghanistan. The aircraft from the 5th Helicopter Regiment arrived in Kabul on July 26, ready to partake in armed reconnaissance and fire support missions with ISAF forces. The Tiger remains a competitor for the Indian Air Force's attack helicopter requirement, in contention with the Kamov Ka-50 and Mil Mi-28 for a 22 unit order.

A month earlier, the French Defense Ministry ordered five EC725 Cougar medium-lift helicopters as part of the government's economic stimulus plan. The five new Cougars will join 14 EC725s already in operation in a variety of missions, including NATO ISAF support. The order follows a March Mexican Ministry of Defense buy of six EC725s for transport and security missions. Meanwhile, AgustaWestland was awarded a Helicopter Tactics Program Implementation study contract by the European Defence Agency, and delivered its 21st AW101 helicopter to the Italian Navy, which has ordered 24 for ASW and other missions.

In June, a miniature helicopter (Scheibel's Camcopter S-100) became the first UAV ever to fly a demonstration at the Paris Air Show. The significance was not lost on the industry/government gathering, as militaries around the globe start to seriously embrace unmanned systems for a variety of airborne roles.

One of the most significant is the U.S Navy/Army Northrop Grumman MQ-8B Fire Scout, which embarked on a series of tests and demonstrations in a year leading up to its first deployment. The Fire Scout (P6) ushered the year in with nine autonomous landings aboard USS *Nashville* (LPD 13) in late January. Dynamic interface testing continued through the spring, with autonomous landings on USS *McInerney* (FFG 8) and May tests of the aircraft's Unmanned Common Automatic Recovery System.

Operational Evaluation was expected in August, during which a land-based MQ-8B (designated P7) successfully demonstrated its reconnaissance, surveillance and target acquisition/intelligence, surveillance, and reconnaissance (RSTA/ISR) capabilities at Yuma Proving Ground in Arizona. P7 capability demonstrations were scheduled to continue through the fall. The same month, Northrop Grumman landed a maritime sensor demonstration contract from ABS Group, a systems engineering contractor for the U.S. Coast Guard. The test will validate ship-deployed UAS aircraft payload capabilities using a USN baseline sensor payload (FLIR Systems, Inc., BriteStar II electro-optical/infrared/laser designator range finder and Telephonics 1700B search, surveillance, tracking and imaging radar system).

Evidence of how seriously Vertical Unmanned Aircraft Systems are being taken surfaced in May with a Marine Corps request-for-proposals for an "Immediate Cargo Unmanned Aerial System." The RFP calls for a VUAS capable of delivering ten tons of supplies at high altitudes and across distances of 150 miles within 24 hours. The Marines want to field the new aircraft in 2010. Boeing and Kaman Aerospace/Lockheed Martin have received contracts to demonstrate their potential candidates by the end of 2009.

Boeing will demonstrate the A160T Hummingbird unmanned rotorcraft that it successfully flew at the Army's Yuma Proving Ground in May. Kaman/Lockheed Martin will demonstrate an unmanned version of Kaman's K-MAX intermeshing rotor helicopter. Other candidates include the Northrop Grumman Fire Scout and the Mist Mobility Integrated Systems Technology SnowGoose.

Army observers will also be involved in the demonstration phase, though Naval Air systems Command will be the contracting authority. Marine Corps Systems Command developed the requirement based on an urgent need for troop resupply at forward operating bases in Afghanistan, which have required truck convoys crossing rough terrain along ambush-vulnerable routes.

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Heavy lift capabilities will be an important part of the strategy moving forward regarding the Marine Corps War-fighter lab's "Lighten the Load" initiative as well as impacting the mobility and effectiveness of the new JLTV. Looking forward to seeing these new technologies develop.



Lindsey Brooks

12:50 PM November 4, 2009

What a cool helicopter!



Scott Reph

1:18 PM November 4, 2009

The miniature helicopter UAV strategy has merit.



Chuck Oldham (Editor)

3:42 PM November 4, 2009

It does. But the enablers for UAV orbits over Afghanistan, Iraq, or elsewhere are satellites and bandwidth, and we're going to have to keep ahead of the curve on those issues as well.

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