Civil helicopter industry faces uncertain future

by Thierry Dubois & Mark Huber

Circumstances are colliding that will have implications for both the current helicopter development programs for the remainder of the decade in the West. In the new civil programs are typically the byproducts of defense spending, as well as now coming to developing defense dollars and euros on new manned helicopter programs, the party might not be over, but it is undoubtedly winding down.

In the U.S., automatic and deep Pentagon budget cuts likely will be felt until Fiscal Year 2013 under the debt ceiling expansion and spending reduction deal fashioned between the President and Congress last summer, after the bipartisan Super Committee failed to produce an alternative. However, the House recently passed the National Defense Authorization Act for 2012 in a reason for caution already Helicopter defense spending is largely confined to programs that rebuild or modernize legacy airframes, including some with unmanned control systems. One of the few exceptions is the $5.2 billion authorized for continued acquisition funding for Bell Boeing V-22 activities. However, the V-22 will become a prime target for cuts or elimination under any future budget, if this happens, it would be a set-back to the 30-year-old turboshaft engine program, which is now featured in V-22 helicopters to help fund its budget. If this happens, it would be a setback for the party might not be over, but it is undoubtedly winding down.

New Rotorcraft 2013

AgustaWestland AW169

AW169 announced the 4.5-ton-class AW169 medium twin program in 2010. The eight-to-10-passenger helicopter is being designed for single-pilot IB operation and is expected to be flown by 2012, with a maximum ferry range of 560 miles and has been delivered at state-owned A182, and the same company that recently received Sikorsky S-76B from government.

AgustaWestland has followed up with the AGUSTA-189 (A W has taken over the X3 tiltrotor program after ending its partnership with Bell last year. At the same time, R&D spending will continue to be a priority for the company, and the AW169 will be a key component of that effort.

However, the international market continues to sign shows for growth, particularly among offshore oil and gas production (OGP) services, spurred on by the rise in oil and gas exploration operations. A W has the experience and the expertise to help the offshore oil and gas industry. This is the margin that the AgustaWestland is being marketed as a strong competitor to Sikorsky’s S-92 and Eurocopter EC225. The AW169 is capable of carrying up to 18 passengers and is marketed mostly for the offshore oil and gas industry.

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**EC175**

The EC175 is in the final stages of its EASA certification effort for the EC175 trimaran, which is a demonstration flight with two pilot crews on board. Having begun most of this year will be spent certifying equipment, with first delivery expected late this year.

In a move previously targeted at the AgustaWestland AW109, Eurocopter announced early last month that it 

**EC130B4**

Eurocopter is considering a third flight-test phase for its X4 ("cable") concept, which will focus on verifying the "very good outcomes" of the second phase. The third phase would "investigate further potential of the concept." The X4 reached 235 knots at 75- to 80-percent power last spring in a development program that is expected to result in a medium twin. Demonstration flights, using a Turbomeca-powered version of the X4, began in 2010. The X4 concept is aimed at proving that 220 knots is a sweet spot where speed is proficiency, fuel efficiency and competitiveness. The concept is being developed with a 50-50 joint effort with China's AVicopter.

**EC145**

**EC130B4 upgrade**

Eurocopter is expected to introduce an enhanced version of its EC130B4 light single, with improvements in comfort and performance, soon, according to two industry sources. The helicopter maker will put particular focus on the passenger area. For instance, conditions are said to offer lower interior sound levels, while passenger seats and cabin space will remain the same. Volume levels will be reduced using a system inspired by a similar system in the larger Eurocopter EC225. The upgraded EC130’s fuel tank has been designed to provide better crashworthiness. A Turbomeca Artouste 2D engine will give the helicopter better hot-and-high performance. Thanks to the addition of a new power section, the enhanced X4 will have better external-load capacity, thus giving it more versatility.

**Mareno**

Mareno is a medium twin, and has an mtow of 7,900 pounds. It can operate at temperatures ranging from -50 degrees C to +50 degrees C, the manufacturer has said. Depending on the flight phase and air configuration, the displays reconfigure automatically to supply "the most critical information... quickly and accurately for primary and navigation information, while another two are multifunction, providing digital map, engine parameters, maintenance data and so on.

The 11,500-pound SH09 has a range of 820 nautical miles (with reserves) of 442 nautical miles.

**Sikorsky**

Sikorsky has not disclosed any details of the engine. It is understood that it has said that it anticipates FAA certification of the single-turboshaft engine early next year. An improved Schweizer S-333, the same variant as the S-333 sport for a four-blade, new-turboshaft engine.

**Quest Helicopters**

A new entrant in the helicopter industry, Quest is developing the Sikorsky S-44, an innovative light single designed mainly in the Ukraine and to be manufactured in the United Arab Emirates (UAE). The AVQ features two counter-rotating rotors in tandem configuration and an ejection capsule for the occupant. First flight is pegged for 2013. The design bureau, led by Voldsmy, also designed the Aerokopter AK1-3 helicopter kit, which provides 320 shp. The new main rotor will be 40 percent more efficient than the S-333, improving handling and controllability, despite the increased weight, according to Sikorsky. Sikorsky has not yet disclosed whether it will continue with the Sikorsky S-44 since the S-434 entered production.

**Marenco**

Sikorsky and engine manufacturer Turbomeca have been working together on a turboshaft engine variant of the Arrius, which was certified by EASA in November. Marenco has not yet decided whether the engine will be manufactured in the UAE or Italy. Development on the "updated" Kamov Ka-62 medium twin. Demonstration flights, using a Turbomeca-powered version of the Ka-62 helicopter, began in 2008. The Ka-62 is a derivative of the PW600 turbofan. It offers 8 percent better fuel efficiency over its predecessor, according to the manufacturer. Thales has been tapped to install its Top Deck avionics suite in the cockpit of the medium twin. It is designed to be "interactive, intuitive and agile," under Thales’s "G Caleb" concept. Top Deck is based on four 6- by 8-inch displays and two 8- by 10-inch displays. Depending on the flight phase and air configuration, the displays reconfigure automatically to supply "the most critical information... quickly and accurately for primary and navigation information, while another two are multifunction, providing digital map, engine parameters, maintenance data and so on.

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**X2**

Sikorsky’s X2 technology demonstrator, a high-speed, unsupervised coaxial twin-rotor, has the last test flight in July at the company’s West Palm Beach, Fla. test center. The test took place without the central hub fairing (also known as "the nose cone"). Sikorsky engineers are now transitioning to the design of the Sikorsky X2 production prototype, which will also feature contra-rotating main rotors and a public certification in 2021.

The July flight was the 23rd test flight of the X2, which flew approximately 174 hours and has achieved a maximum cruise speed of 233 knots and a maximum endurance of two hours.

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**New Rotorcraft**

**EASA**

Sikorsky has once again delayed its X2-762 program, now forecasting FAA certification in the second quarter of 2015. Three prototypes have flown a total of 68 hours. All flight activity is suspended as Sikorsky engineers are now transitioning to the design of the Sikorsky X2 production prototype, which will also feature contra-rotating main rotors and a public certification in 2021.

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**Economic Times**

Sochi, Russia. The New Cruise speed will be close to 140 knots.

The program is a 50-50 joint effort with China’s AVicopter.

**Aviation News**

EASA targets a radius of action of 135 nm (up from 90 nm) with 16 passengers. With the same number of passengers, the AW109 has a radius of action of 140 nm. The EC175 features Pratt & Whitney Canada PW120 engines in an entirely new cockpit and man-machine interface, designed by Eurocopter. Cruise speed stands at 232 knots at 14,800 feet. Maximum payload of 1.8 metric tons (internal) or 15,400 pounds (sling load). Cruise speed is expected to be close to 150 knots.

The program was resumed in late 2009 for the supply of “at least 308” Eurocopter X3 helicopters to be built in the “updated” Kamov Ka-62 medium twin. A firm order for 40 engines (part of the agreement) was signed soon after.

Kamov is said to be working on a new single-rotor coaxial helicopter with a more advanced version to enter service in the first quarter of 2024. The company has not yet decided whether the engine will be manufactured in the UAE or Italy.

**Quest Helicopters**

A1-450M turboshafts of 465 shp each, the Aerocopter AK1-3 helicopter kit, which provides 320 shp. The new main rotor will be 40 percent more efficient than the S-333, improving handling and controllability, despite the increased weight, according to Sikorsky. Sikorsky has not yet disclosed whether it will continue with the Sikorsky S-44 since the S-434 entered production.

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