

Farnborough Show Preview

What to expect from the 2014 version of the biannual international air show in the UK.

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AgustaWestland AW101 in the Norwegian SAR configuration. Photo courtesy AgustaWestland

Your correspondent has battled his way through the corporate jungle that is the Farnborough Air Show for more than a quarter of a century. The show was once a closed showcase for products of a thriving British aerospace manufacturing industry but, as that has declined over the years, the requirement to reach out beyond the White Cliffs of Dover has become more urgent.

Notwithstanding its reduced circumstances, 2014 marks the centenary of British aviation and July's show will offer airplane enthusiasts the opportunity to display each afternoon, alongside the latest hardware from around the world, classic warplanes such as the Avro Lancaster, Fairey Swordfish and Supermarine Spitfire.

It has to be said that, for helicopter nuts, Farnborough has never promised huge rewards. One reason for this is the absolute primacy given to the announcement of huge airline contracts, which – at a stroke – consign most rotary wing success stories to the back pages of the show dailies. Then there's the daily flying display with its dependence on whizz-bang fighter jets and fly-by-wire airliners (again), these days exploring the outer reaches of their flight envelopes with total confidence. With the notable exception of the Bell-Boeing V-22 Osprey, rotorcraft just don't have that all-important stage presence. By that I mean noise, basically. Here we all are, trying to make helicopters quieter while...

Having said that, one of two Farnborough flying displays I particularly recall involved two Grob motor gliders pirouetting gracefully, and almost silently, in a blue summer sky to a classical music soundtrack (the other is the cacophony from three Harriers hovering pointlessly in the drizzle at 50 feet above the runway, rendering all attempts at conversation hopeless for a full three minutes).

One-Stop Shops

There are other factors contributing to our “poor relation” complex. Over the years, almost every helicopter manufacturer has become absorbed into a wider aerospace or defense consortium; as a result, their own profiles at global shows like Farnborough, Singapore and Paris have become more subject to boardroom battles. This is why shows like Heli-Expo and Helitech survive and prosper – CEOs love to be the center of attention.



Bell 525 mock-up as seen at the company’s booth during Heli-Expo 2014 in Anaheim, Calif. Photo courtesy of Bell Helicopter.

But at Farnborough, Head Office saves on the dizzyingly high expense of taking part by investing in one huge chalet and booth, in which to cram everything they make. It then takes just one airliner flap section or undercarriage strut-and-wheel combo to knock, visually speaking, most helicopters into the long grass. Customers will find you but a big part of shows like this is concerned with making an impression.

Paradoxically, one recent absorption may lead to a higher profile this year. Not so much an absorption, perhaps more a rebranding exercise. Eurocopter, the Franco-German consortium, was never much of an attendant at Farnborough. ILA Berlin was a reasonable preference, but why direct your funds, even indirectly, into British aerospace anyway? Its stand caused few ripples and nobody died, giving the lie to the typical marketing manager’s cry of desperation. “If we’re not there, people will think we’re in trouble!”

Now, as Airbus Helicopters, they have a point to make. So while size will always matter, we can expect a strong rotary wing presence in amongst the better-known Airbus products. It is very likely that the EC175 will be on show, perhaps within a Chinese-themed setting. A huge commitment to build one thousand EC175/AC352 medium-twins for the global market was announced in March this year. AC352 is the Chinese designation for the model and Avicopter will build its share of the order in-country for the domestic market.

The rehabilitation of the EC225 will continue and any sales here will be trumpeted far and wide. The redesigned vertical bevel gear shaft for the EC225 is now EASA certified, enabling its production and retrofit on the aircraft’s global fleet, as well as its installation on all future EC225s.

The new design eliminates all three factors that, in combination, caused two vertical shaft ruptures during 2012. These resulted in two high-profile controlled ditchings in the North Sea.

Airbus Helicopters says the shaft provides corrosion resistance, compensates for residual stress and eliminates stress hot spots.

No doubt an NH-90 will be on static display – Qatar is to buy 22 of them in a deal worth 2 billion euros (\$2.76 billion) along with two Airbus refueling tankers. Expect an update on the ‘X’ research program: while the X3 (X cubed) may have done its duty, news on the AS365N’s replacement – the X4 – is long overdue.



Staff of SonAir following the EC225 delivery from Airbus Helicopters. Photo courtesy of SonAir

Finally, Rotor & Wing understands that progress on Airbus and engine manufacturer Turbomeca (Safran) contributions to the European Union’s Clean Sky project will be forthcoming.

The Clean Sky objectives are to:

- Reduce CO2 emissions by 25 to 40 percent (turboshaft and diesel engine, respectively).
- Reduce the noise perceived on ground by 10 EPNdB or the noise footprint area by 50 percent.
- Ensure full compliance with the European Union directive protecting human health and environment from harmful chemical substances.
- Demonstrators designed to deliver most of these improvements – including new rotor blades, optimized flight paths and a diesel engine – are now in place.

Bell Fight-Back Continues

Bell’s new, improved presence in 2012 was marked by the debut of the Bell 525 “Relentless” (gentlemen, how can a helicopter be an adjective?) in mock-up form. This year a SAR-configured 525, another mock-up first seen at March’s Heli-Expo, will be on show but it may be overshadowed by the 505 Jet Ranger X – the long-awaited successor to the still-popular Bell 206. (This won’t mark the helicopter’s European debut, by the way; that honor goes to the super-niche “Heli-UK Expo” event to be held elsewhere in England during June.)

While the original Jet Ranger – and the Long Ranger – are still finding customers, particularly in the traditionally conservative U.S. law-enforcement and EMS sectors, the Airbus Helicopters EC120 and Robinson’s R66 have been making inroads into its wider private and commercial customer base. Five years ago, Bell was criticized for its lack of new models in a position to

compete with Airbus' own stable; now the Texas-based OEM offers solutions to both ends of the weight spectrum, in time to make an impact in the still-simmering Chinese GA broth. Sitting in the middle, the light twin segment will probably be represented at Farnborough by one of two commercial Bell 429 sales to have been completed in the UK over the past 12 months. The national electricity grid, now known as PowerGen, is operating one to patrol and inspect its infrastructure while the other has been acquired by a police force in Southern England.

One can only speculate as to the detail of the deal that Bell must have struck, so as to gain a foothold in the mature British police helicopter market (dominated as it is by Airbus and, to a lesser extent, MD Helicopters). Such a pity that its peak profit potential must have surely passed: the new National Police Air Service now plans to gain an advantage from buying in bulk and many forces are experimenting with unmanned rotorcraft for tasks such as search and surveillance.

As for Sikorsky (United Technologies Corporation), expect to see an S-92 and S-76D, the S-97 Raider mock-up and, possibly, a recently-revived Schweizer S300C.

Exactly 19 of the latter are being built as a sort of Limited Edition aimed, no doubt, at the Chinese training helicopter market.

Sikorsky is also responding to its domestic customers who bemoan the lack of spares available for their own aircraft. News of any further S-300 production is still awaited.

Russia: Geopolitics Playing its Part



AW159 Wildcat. Photo courtesy AgustaWestland

As part of Russian Technologies, further details on the new-generation Kamov Ka-62 medium twin will be made available from Russian Helicopters. We know that the 12-15 seat machine, fitted with Turbomeca Ardiden 3G engines and a Zorkler transmission, will enter production next year. The first models are destined for a Brazilian operator and, indeed, the prospect of local assembly and MRO capabilities has been mooted by the manufacturer. However, the company's presence at the show may depend on progress in resolving the current impasse between the West and Russia regarding the latter's annexation of Ukraine.

With its (partially) English heritage, AgustaWestland (Finnmeccanica) can be relied to make a splash at Farnborough, and put most of its current product lines on display in a vast, fenced-off arena to the east of the exhibition area.

In January the company signed contracts with the UK Ministry of Defense; the first to convert 25 Royal Air Force's AW101 Merlins for maritime operations and transfer them to the Royal Navy, and another to support the British Army Apache AH Mk.1 fleet with maintenance services over a five-year period. These contracts followed the start of deliveries of the new Merlin Mk.2 in summer 2013.

A static AW101 might well be in Royal Norwegian Air Force livery – 20 of them are on order to replace its aged Westland Sea King SAR fleet.

Important results have been achieved with the AW189 medium program. It was chosen by the UK government as a new SAR platform with an order for eleven aircraft by the Bristow Group, which will also use it for offshore operations. Certified in early February this year, the AW189 is now entering service and around 130 aircraft are on order for customers worldwide. Deliveries of the AW189 also represent the rollout of the AgustaWestland Family concept, which features the AW139, 189 and 169 models. Operators of both the AW139 and AW189 will benefit from commonalities across design, components, certification and safety standards, support and training approach with "unprecedented" levels of flexibility and reduced operating costs in fleet management.

Meanwhile, new program development continues with the AW149 military helicopter, the AW169 light intermediate and the AW609 tiltrotor. With four prototypes flying, the AW169 helicopter is set to enter the market and start operational activities in early 2015. Around 120 AW169s have already been sold to customers worldwide to date including options and framework contracts.

The AW139 intermediate twin is still unmatched in the global market as the bestselling helicopter in its category with orders for more than 760 units so far from 200 customers in 60 nations and holds a 56 percent share of the market in its class. Earlier this year, AgustaWestland unveiled a new utility vehicle which further expands its range of light twins. The AW109 Trekker, is the first light twin to offer skid landing gear and features the latest Garmin G1000H glass cockpit. Certification is expected in 2015.

No doubt an AW159 Lynx Wildcat, currently entering service with both the British army and navy, will be somewhere in the static display.

Finally, a long-shot. AgustaWestland completed the AW609 flight envelope expansion trials in December 2013 and the autorotation trials in April this year achieved "major milestones" in the development of the first civil tilt-rotor. The concurrent industrialization phase of the AW609 is also taking shape across the AgustaWestland network and associated supply chain, with new equipment and tooling being acquired to guarantee that existing orders (almost 60 so far) can start to be fulfilled immediately after FAA type certification in 2017.

Apart from the daily shuttles from nearby airfields, there won't be many helicopters in the air during the show. So it would be all the more impressive to see the AW609 flying over the Hampshire countryside. To reassure its customers the aircraft needs to demonstrate its credentials, particularly in the offshore support and air ambulance sectors. Flight envelope expansion has been proceeding apace and it will by now be capable of making an international proving flight from northern Italy to southern England.

Such a sortie, not just to take part in the air display but to depart and approach via a non-interfering direct approach to a spot on the ground, would be worthy of close examination and generate good media coverage. It's the future of rotorcraft and, who knows? It might even knock whizz-bangs from the Show Daily front page.