

PAN—Police Aviation News is published monthly by POLICE AVIATION RESEARCH,

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HELITECH INTERNATIONAL 2014

RAI Amsterdam 14-16 October 2014

The very existence of Helitech International 2014 polarised opinion. On one side there were the professionals who might do business there and on the other side there were what might be called the enthusiasts – although that description is perhaps unfair as it includes a fair section of professional people who just happen to enthuse.

The first group can undertake their business interaction in any scenario and the second prefer to have a show and perhaps a degree of added value – for them departing from Duxford was a disaster that left them abandoning all things 'new' Helitech whether in London Excel or the RAI Amsterdam. Both groups loved the location and special atmosphere at Duxford but in truth to many professional attendees the mass of history housed at the Imperial War Museum [IWM], Duxford was a diversion from the main business of the event. Few will argue with the premise that some attendees were present mainly to gain free access to the exhibits at the IWM.

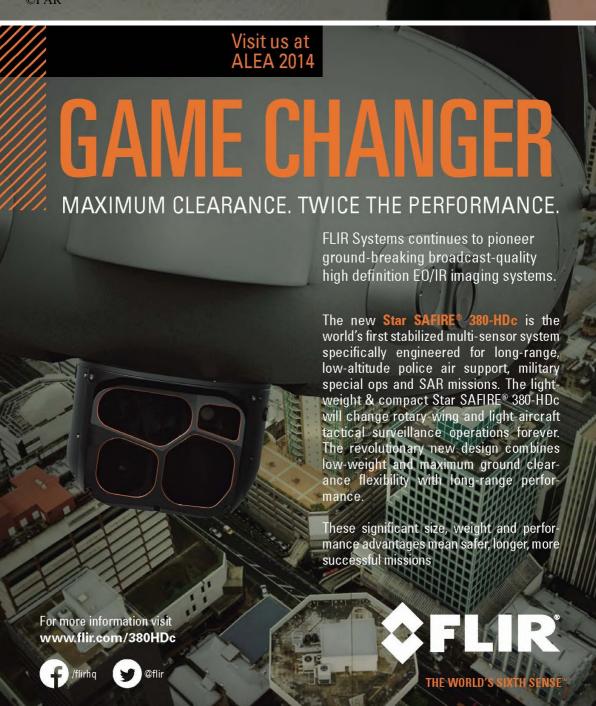
The arguments for and against Duxford will continue for some years yet – at least until we have forgotten the heady days both there and at Redhill as they slip into yesteryear. Already there are plenty around who never knew Helitech in wellington boots so it is only a matter of time before Duxford passes into a similar rose tinted memory.

Having got over the shock of Helitech in Docklands last year, where flight demonstrations were a rare treat almost everyone missed seeing; the RAI promised no flying at all. There was a small pad for flying but no one reported seeing it used. While the venue could easily take more aircraft on display [as could ExCel] the numbers were well down - there is no apparent intent to create a Heli-Expo in Europe in terms of scale but the decline in the number of airframes is worrying.

It seems that the organisers have proved a number of points – there is no real desire for demonstration flights and the people that matter [the major buyers] will come along to the event although the overall numbers will be down. The makeup of the absentees will vary with opinion but I am aware that the potential customers, the group that actually make up the prime need for the event were present in some numbers. The losers are the vendors of the food and other subsidiary services who lose overall footfall.

COVER IMAGE: Head to head in Amsterdam. The new, yet to be delivered, Wiltshire Air Ambulance charity Bell 429 on display opposite one of its major competitors from Airbus in the hall of the RAI. The number of airframes on display at this event was disappointingly low. Although numbers were down on a normal Helitech event, this was a first time out for the show on mainland Europe.





BELL HELICOPTER

The star of the show, if there needed to be one, was undoubtedly the Bell 429 scheduled for delivery to the Wiltshire Air Ambulance at the end of the year. The aircraft was apparently fully equipped and ready for delivery to the end user but is currently undertaking crew training. The Bell was delivered from the manufacturer wearing Canadian marks of C-GZLO but was wearing its operational marks G-WLTS at the RAI. After the display in Amsterdam the machine returned to England for a series of mainly ceremonial showcases in Wiltshire, all designed to ramp up the fundraising that will support it into the future.

The presence of the aircraft was a draw for certain UK air ambulance operators faced with making a decision on new aircraft in the near future. Opposite it on the floor was the main competitor from Airbus Helicopters the EC145T2. Flight demonstrations have been undertaken in both aircraft types but this was an ideal opportunity for the potential buyers to compare the two competitors side by side and to easily check back on points missed in the initial viewing of each. A little down the aisle was the AgustaWestland offering – the AW169 – albeit in mock-up form and not therefore a true airframe representative. The presence of these three in close proximity did serve a purpose and enabled assessments to be made.



The AW169 is significantly bigger than either the 429 or the 145 but remains the only true modern technology competitor to the 429 in current production. The 145 has all the bells and whistles but it remains a BK117 at heart.

Individual manufacturers made their choices about attending Amsterdam and two spring to mind as being either absent or having the 'wrong' aircraft. Sikorsky were not at the event so we might assume that they no longer see such as the S-76D as an EMS airframe and MD Helicopters brought their only current production airframe the 500 series as the potential competitor 'new and revised' 902 remains a year or so away and will presumably lose the current round of replacement by default.

Unfortunately for Bell it is not a straight competition. The Wiltshire contract was partly won because the overall capabilities of this fine aircraft fitted well into the needs of the charity that is to run it. Wiltshire is a small county but others looking at its capabilities need more range for their operations and at that point it falters – unless a reassessment of their actual range needs can overcome the perceived shortfall.

Bell Canada made a renewed bid to have the US Federal Aviation Administration [FAA] reconsider its 2012 decision that rejected a 500 pound weight increase for the Bell 429 but this was again denied in a ruling from the FAA on October 17. This leaves the Bell sales team to sell the undoubted advantages of an aircraft with large reserves of power at its disposal but the detail – like the range issue - does not always work in their favour.

With EASA approval in hand, an increasing number of European operators of the legacy Bell Huey design are equipping their helicopters with the FastFin® Tail Rotor Enhancement and Stability System from BLR Aerospace.

The company has delivered four systems to Agrarflug Helilift in Ahlen, Germany, two to Heli Austria, and four to the UK Ministry of Defence. The t

en FastFin-equipped helicopters are flying critical missions in challenging environments, often at high altitudes, in locations that range from Africa and Cyprus to Spain and Ecuador.

In Cyprus, the UK Ministry of Defence is flying Bell 412s for fire fighting and search and res-

cue missions at elevations ranging from sea level to 6,000 feet density altitude. Heli Austria performs utility work in the Alps with its 212 and 412 aircraft. Agrarflug flies 40 Bell Mediums worldwide for fire fighting and offshore oil transport. Agrarflug is operating several FastFin equipped aircraft and additional installations to their remaining fleet are underway.





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The system is now standard on new production 412s underlining that the manufacturer accepts the value of the FastFin System in improving the operational efficiency and effectiveness of Bell Mediums by enhancing hover load, wind azimuth tolerance, hover stability and safety.

With FastFin, most operators expect to receive between a 10% and 90% increase in useful load depending on specific model and density altitude.

AIRBUS

Airbus Helicopters' presence at the show reflected the general downsizing of the new Helitech in terms of the number of models it was showcasing. The manufacturer may have been pushing the enhancement of its product line, the improvement of its services portfolio and the continuous increase of customer satisfaction but they did not come across as in any way as vibrant as they have done in the past.

The teaming of Airbus Helicopters and Priority 1 Air Rescue for search and rescue (SAR) mission training was highlighted by the two companies' joint presence at the Helitech. With courses for both pilots and crew, this mission training combines the full resources of Airbus Helicopters as one of the world's leading rotorcraft manufacturers with the emergency response instruction capabilities of Priority 1 Air Rescue, a leader as well in its domain.

Courses offered include SAR mission planning, hoist operation, flood/swift water rescue, mission mountain/vertical surface cliff rescue, maritime boat/vessel rescue, basic mission fast-rope, basic mission rappelling/abseiling, air medical evacuation, and basic utility external load operations/ aerial fire fighting missions.





On the stand could be found the aforementioned EC145T2 and an 'evolved' EC130 T2. The rest of the display was set up to emphasise the company's solutions that enhance customer satisfaction, in particular by providing the highest level of Support & Services performance and quality not a crowd drawer at the best of times although Bell make a big point of their success in this field.

The Fenestron on the EC145 has a new-design tail gear box with lower maintenance costs, and incorporates a duplex tail rotor actuator and dual hydraulic circuits. It is installed in a new damage-tolerant, all-composite tail boom. In applying Fenestron technology to the EC145 T2, Airbus Helicopters brings this tail rotor's benefits for improved flight and ground safety, enhanced anti-torque control efficiency, and reduced power demand in forward flight and lower sound and vibration levels.

The development of the new tail configuration is seen by most as a great improvement but it does come at a price. The balance of the original BK117 was set up around a simpler light tail rotor set up and a different cabin structure. The significant technical developments over the years that have morphed the type into what is now referred to as the EC145 have complexly altered the airframe if not the Type Certification.

In the plain utility and air ambulance configuration the machine is now tail heavy, where a law enforcement option overcomes this problem simply carrying its necessary role fit of cameras and searchlight forward. One result is that in standard form the forward section of the skids are weighted to counteract the tail. Carrying lead is not necessarily a positive point

but the type remains at the top of the selection list for both EMS and airborne law enforcement (ALE) missions.

The EC130 T2 is also a legacy of the past, and a very successful one at that. This latest variation on the original AS350 is a highly popular people carrier and air ambulance with this, the latest member of Airbus Helicopters' EC130 family, logging more than 120 orders since its unveiling in 2012.

Benefitting from +improved operational performance, increased versatility and enhanced comfort, the EC130 T2 is fitted with a more powerful Arriel 2D turboshaft engine and upgraded main gearbox. In addition to the active vibration control system for a smoother ride, the helicopter's redesigned cabin interior structure is equipped with a full flat floor.

There was no EC135 present but the manufacturer was able to announce further sales of two latest-version aircraft for Avincis - Bond Air Services' EMS operations in the UK from next summer.

The Airbus Helicopters UK customer centre covers the full spectrum of sales and support throughout the lifetime of all the company's helicopters in the region.

The EC135 T3/P3 is the latest-generation version of the company's proven EC135 helicopter, and as has been proven over two decades of service is perfectly suited for the demanding requirements of EMS and law enforcement missions, in particular thanks to its cabin size and rear clamshell doors, allowing for an ease of access.

The main upgrades of the T3/P3 version (T3 with a Turbomeca engine and P3 with a Pratt & Whitney) are focused on a new main rotor design, new direct air intakes and new FADEC software. These technical improvements offer an increased Maximum Take-Off Weight (MTOW), significant performance enhancement from AEO and OEI-CAT A from Sea Level to hot & high environments, and increased mission capability and versatility. This latest version of the EC135 was launched in 2013, and its type certification is expected for mid-October. The first delivery should have taken place by now +subsequent to the show.

TURBOMECA/SAFRAN

Although the manufacturer did not bring an EC135 to the show Turbomeca (Safran) were promoting the latest variant of the popular Airbus Helicopters type in announcing EASA certification of the Arrius 2B2plus turboshaft engine powering it.

Specifically developed to power light single and twin helicopters, the 2B2plus powers the Airbus Helicopters EC135 T3. The first delivery to a customer from Airbus Helicopters is expected in the coming weeks.



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The 2B2plus is the latest member of the Arrius family, which has recorded 7 million flight hours and made it the most used engine family of its class on the market. In addition to its reliability, it offers a number of advantages over existing models: the engine delivers a 6% power increase in hot and high conditions compared to the previous 2B2 version, strongly contributing to the T3 ability to carry more than 200 kg extra payload at the same altitude.

A 4,000 hours TBO (Time Between Overhaul) coupled with low fuel consumption makes the 2B2plus one of the most competitive engine in its class.

Its flight profile increases the safety margin of particular missions, such as EMS missions, flown over congested areas, where a strong single-engine performance is required.

The 2B2plus has a simple and modern design that is facilitating maintenance tasks. Customers also benefit from a computerized maintenance aid that makes use of the data recorded from the Engine Electronic Control Unit.

To date, 650 customers across 75 countries have chosen the Arrius for their operations and Turbomeca has sold more than 3,000 engines of this family. This proven reliability, combined with Turbomeca's renowned service and support capabilities, make it the best engine for critical missions.

NEW EXPLORER

Both Universal Avionics and MD Helicopters, Inc. (MDHI) were at the show independently and promoting their forthcoming joint venture in the advanced MD902 on the Universal Avionics stand.

With the Next Generation flight deck for the MD Explorer the two companies have partnered to bring the most advanced technology into the flight deck of the redesigned light-twin helicopter. The programme is well underway with many significant progress updates but the airframe remains in very low production in its original format.

The two manufacturers state that the Next Generation single-pilot IFR-capable flight deck will be available through MDHI for production and retrofit of any MD Explorer helicopter. The new flight deck features large format high-resolution LCD displays with LED backlighting. A collective-mounted Cursor Slew switch allows for a unique "point and click" display control allowing pilots to keep "hands on, head up" during all phases of flight for unprecedented situational awareness. www.uasc.com/md.

Whether there will be sufficient airframes young enough to warrant such a major reworking in a year or so remains to be seen. The major operators of the MD902, the UK air ambulance community, have been shopping for replacements of their weary airframes for some months now and many have already made the leap of faith into other competitor airframes simply because the choice of airframes is there.

AXNES

Axnes Aviation AS, a specialised manufacturer of advanced and highly durable wireless intercom systems for use under harsh conditions on aircraft and other platforms, chose Helitech 2014 to unveil its Polycon Next Generation (PNG) wireless intercom extension system.



Three years in development the new digital secure radio system will enable cordless intercom capability both in cabin and at a considerable range from the Aircraft.

The initial launch was for the SAR version to upgrade the existing Polycon, but later developments in 2015 will include versions tailored for cordless EMS, cargo operations, military and VIP requirements.

In standard form the system offers a specification that is fully duplex, with 15 hours of normal battery operation (this can stretch to 45 hours purely on standby), remote radio keying, an integrated Maritime AIS SART beacon, remotely activated Handset GPS position reporting, secure communications, four mixable intercom loops (groups),



waterproof to IP68 – 1 m for $\frac{1}{2}$ hr – and providing a dual band UHF / maritime VHF capability.

AXNES successful POLYCON wireless ICS system is installed on more than 750 aircraft world wide and was developed in cooperation with CHC Norway and UK RAF SAR. The company is based in Grimstad, Norway.

NIGHT VISION

Boise, Idaho based Aviation Specialties Unlimited Inc., (ASU) announced that the company has signed a new sales and service agreement with Vienna, Austria based Helikopter Air Transportation GmbH (HeliAir).

With the agreement, ASU will train HeliAir technicians on night vision goggle cockpit modifications at their maintenance, repair and overhaul facility in Vienna. Together ASU and HeliAir will service and maintain not only HeliAir's night vision goggles, but also customers' goggles throughout Europe with an onsite goggle maintenance lab and facility. HeliAir will provide sales and support for ASU products. ASU in return will gain exclusivity to sell HeliAir's unique products in North America including an exterior mirror used in EMS helicopters.

The parent company of HeliAir is OAMTC which has 16 primary rescue bases, six winter seasonal rescue bases, a hospital-to-hospital service, 47 pilots, a technical pilot, 285 physicians and 185 crewmembers that fly in 27 EC135 aircraft. HeliAir covers as a full service provider the needs of national and international customers has a team of 44 professionals in engineering, design and maintenance and within this 17 licensed engineers (EASA 145) with an important contribution to the success of OAMTC and its rescue service. Within two years, HeliAir will completely modify all existing aircraft within their entire fleet and will be able to fly and operate using night vision goggle equipment.

DOWNLINK

On the eve of Helitech event Enterprise Control Systems Ltd announced the launch of the three elements of its Evenlode Series.

Evenlode I is a standard Downlink or Transmitter /Video, Audio, GPS and Telemetry Data. **Evenlode II** is a Transceiver which allows for Uplink and Downlink of Dual HD Video, Audio, GPS and Telemetry Data. Evenlode II can also used as an airborne relay to extend the range of a Surveillance System.

Evenlode III is a Data Terminal that has all of the Video and Data Exchange of IP systems and sensors on airborne, maritime and land platforms

If required, an upgrade from one Evenlode option to another is facilitated by a Firmware Upgrade and does not require removal of the system from the aircraft.



Evenlode Series options employ a robust, high definition, encrypted COFDM technology, optimised for surveillance applications and superior range.

SAFETY

Cobham Mission Systems introduced its brighter Helicopter Emergency Egress Lighting System to the helicopter industry at Helitech. Cobham's next generation HEELS system features new proprietary lighting technology that is being introduced for use on aerospace platforms. The superior brightness of the Cobham HEELS system makes it easier for passengers to identify egress exits after an emergency over-water helicopter ditching. Cobham's brighter, lower power and highly reliable lighting systems exceed airworthiness requirements offering an innovative alternative to the current technology.

Additionally, Cobham's HEELS, providing an extra layer of safety, are available with a wide variety of sensor activating technologies including water sensors, g-sensors and Permanent Magnet Generator (PMG) sensors.

The modular design of Cobham's HEELS can be configured for any particular aircraft platform with different light strip sizing, controller and battery options. Cobham HEELS, which recently completed environmental DO-160 testing for airborne equipment, is due to be integrated onto a major commercial helicopter airframe with final testing expected to be complete by November 2014.

With survival of passengers in oil industry crashes under the spotlight Cobham Mission Systems Sector introduced the Survivor+™, a new class of maritime safety system, to the helicopter industry. The equipment incorporates a SOLAS-approved inflatable life jacket and a tethered single person life raft into a compact vest, that looks similar to a personal para-







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chute when worn.

As the only system of its kind available in the commercial market, Survivor+ is a strong candidate to improve safety on offshore transport helicopters. It can be used in conjunction with immersion suits and Emergency Breathing Systems (EBS) and is ideally suited for use on crew transport vessels and aircraft for workers engaged in cold water region operations on rigs and offshore support vessels.

It enables the individual to remove themselves from the water and the elements in as little as 60 seconds, Survivor+ is designed to reduce the number of deaths at sea which occur after a survivable ditching. When a ditched helicopter is inverted in the water, it may become impossible to inflate the onboard life rafts, but with Survivor+, crew and passengers could exit the aircraft and activate their own personal raft.

John Swain, CEO of Survival Systems Training, a world-leading Nova Scotia-based offshore cold water survival training facility, has tested Survivor+ and believes its unique approach to personal safety could fill a "glaring void" present in helicopter safety. He said: "A large percentage of people who escape after a ditching drown once they are out of the aircraft. They aren't injured, but they drown because there is no survival equipment. There is no reason why this should happen. External life rafts will only activate if the aircraft is







upright. If the helicopter tips, then they will have no raft and they will be in the ocean without protection.' Survivor+ can reduce fatalities under a number of different incident profiles.

The lightweight Survivor+ can be donned quickly, even when wearing an immersion suit, and is designed for comfort and agility, so does not hinder working and ensures maximum readiness in the event of an emergency. Survivor+ is manually inflated.

Conceived as a complete solution for workers in the continued drive to improve offshore safety and prevent loss of life at sea, Survivor+ is certified to IMO (International Maritime Organization) A.520 (13) for Personal Life-Saving Appliances by Lloyd's Register.

Cobham has secured the Australian Maritime Safety Authority (AMSA) contract to provide an airborne search and rescue capability in Australia for 12 years from 2016, with aircraft modification and mobilisation activity to commence later this year, see details in the November issue.

The number of airframes on display at this event was disappointingly low. Although numbers were down on a normal Helitech event, this was a first time out for the show on mainland Europe and it is uncertain where it will be in two years time, RAI was an acceptable site within easy access of the airport and acceptable for even the day tripper.

Next year it is back to London and the ExCel Centre where we will be able to judge whether the protest vote of potential visitors who stayed away because of the move away from Duxford will continue.





It was all a bit sparse in terms of full size exhibits and esit was rare to find and jossling in the aisles but good business was done. Top left Robinson brought an R44 and an R66 for the small static park, time for integrators to discuss ... Fast cars ... the broad aisles were one thing but the Russian stand fared badly in an atmosphere that may have been tainted by sanctions over Ukraine. [all images PAR]



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In the aftermath of the show in Amsterdam a PAvCon team headed south towards Brussels and dropped off at the town of Brede and its small airport. This is to be the site of the 2015 PAvCon Police Aviation Conference.

Until October this small and unremarkable airport was called Seppe after the man who set it up, now new owners have big plans for the renamed Brede International Airport including a string of new hangars and an attractive restaurant. You can see the structures in the background of the photograph above. Most are finished but require final fitting out and the circular building on the end will not be completed until year end.

The prime reason for the visit was to satisfy ourselves that this bright new project will be ready in good time for PAvCon next May. It will be, there is enough completed already with the exhibitors and the conference in the hangars. We hope you will join us there!

Meanwhile the Editor is off in foreign parts so details of the event and hotels will not be appearing just yet. Sign up to the system on the www.pavcon.org web site to ensure you are kept informed!



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COMMERCIAL WAY SHOW

21-22 October 2014

Back across the English Channel – La Manche as the people across the other side would have it – two recent exhibitions have looked at the thorny subject of the unmanned craft and PAN is well aware that a number of police and emergency services agencies from across Europe has made their way to examine what was on offer.

One of the events on offer was the Commercial UAV Show located at Olympia in West London. The event was aimed at a broad market bringing together agriculture, pipelines, infrastructure, facilities, environment, border security and more.

The co-located conference offered case studies delivered by commercial end users alongside interactive roundtables that allowed networking and deliberation on what the organisers, Terapin, thought the most relevant key topics.

Initial feedback suggests that they, the potential customers, have given what they saw a mixed reception – some were very positive and other equally negative.

For British police operators [currently only one] the onward march of the National Police Air Service [NPAS] in drawing in all things aerial under a single government umbrella is breeding a move in some areas for individual law enforcement agencies to gain, or renew, an independent capability that is hoped will fall outside the interest of NPAS.

Whether any of these operators will join the ranks of UAV users remains to be seen, there is a will but the choice of machine and capability is daunting and that was represented by the wide range on offer in Olympia.

With the attending inquisitors having come from air support where they had call upon some very powerful sensors flown in high altitude hovering helicopters it is a double challenge in downgrading their expectations of sensor capability and having to put up with fixed wing



craft travelling at low level simply to get the correct mix of range/endurance/covert ability. The entire silent electric helicopter UAVs offer very low endurance – which is tends to suggest that the operational needs are going to have to be met by a mix of carrying vehicles. The options are rotary wing, fixed wing and aerostat. The latter could be unfairly referred to as a portable tower CCTV as unlike the other pair it is otherwise static.





All of these options were present in Olympia, and there were plenty to choose from. I can readily think of several leading contenders that were not presenting their wares at Commercial UAV so it was certainly not an A-Z on the subject, just a good representation. Again it is the usual problem of too many shows in the same region and there were two events showcasing the UAV in the London area in the space of a week.

There are signs that there is a failure of the two sides to mesh, there are craft of every shape and size but despite all the hardware diversity no-one is yet offering the right product mix to entice the police. In truth no-one really knows exactly what they want so the blame lies with many.

The vendors were each offering their take on a vehicle – and there were some weird variations on the flying theme – and many were offering to carry aloft 'any old camera' rather than a system – and others were offering the software, leaving the customer to draw in the various elements and make up their own solution.

There were reports that there seemed to be a lack of understanding of the complex science of downlink among the vendors and that was something the air police have some knowledge on.

Next year the organisers have plans to relocate the Commercial UAV Show to the ExCel Centre in Docklands; this will offer a vast improvement on Olympia 2 which since changes in the rail system has become very isolated and awkward to attend in recent times.

More importantly the move to a larger venue might attract a broader range of vendors and not just the smaller end of the market.

