Gregg Rochna, owner of Maverick Helicopter, did not become the world’s largest EC130 tour operator overnight. His attention to details such as engine reliability and customer service is the essential key to his success. His engine of choice – the Arriel.
FALCON AVIATION – COMPANY PROFILE

This very new, very ambitious, Abu-Dhabi-based company is leading the charge to capitalize on the new markets opening up for commercial helicopter operators in not just the UAE, but the Gulf region.

COVERING GERMANY IN THE “GOLDEN HOUR” – EMS FEATURE

It was out of personal suffering and loss that DRF – the largest and most technically-advanced Helicopter Emergency Service in Europe was conceived. Today, almost four decades later, the story of this German air rescue team is a testament to its founders.

HeliExpo 2007 – Show Report

HeliOps was there in Florida in “full force”. We give you the low-down from the show floor.

INSURANCE MATTERS

CHRIS ESPOSITO explains the subtleties of the one thing that helicopter operators like to complain about and the first thing they need when things go wrong – insurance!
You can count on K-MAX.

Many missions require efficient heavy lifting. One helicopter does it better than the rest. Conceived and designed to perform repetitive external lifting, the K-MAX excels, lifting 6,000 pounds while delivering unmatched performance and reliability. What’s more, K-MAX has the highest availability rate and the lowest maintenance man-hour per flight hour of any helicopter in its class.

A fleet of hard-working K-MAX helicopters will be ready to respond to the most difficult missions — from delivering supplies to clearing debris or rebuilding — any where, any time. You can count on it.
A fleet of hard-working K-MAX helicopters will be ready to respond to the most difficult missions — from Conceived and designed to perform repetitive external lifting, the K-MAX excels, lifting 6,000 pounds while delivering unmatched performance and reliability. What's more, K-MAX has the highest availability rate and the lowest maintenance man-hour per flight hour of any helicopter in its class.

I was musing the other day about how to respond to an ever increasing number of near-misses between long-lining helicopters working in a remote area. While procedures needed to be put in place (and some already had been) there were real limitations in addressing problems with more procedures. I usually like to engineer the problem away or find a more robust, less human-reliant solution if possible. Interestingly, the company that was contracting the helicopter operators was already considering requiring the installation of Iridium-based flight following equipment and had been discussing terrain avoidance gear as well – TAWS or EGPWS. Were we to saddle the companies with TCAS as well? Were we going to say to the operators, "We want you to install three new pieces of equipment into your helicopters; flight following, TAWS and TCAS."

As much as each of these pieces of kit should enhance the safety of an operation, were they really essential and would they actually achieve what we wanted? Do they really help? As one non-aviation member asked at a meeting, "If we put TAWS in the cockpits of helicopters that operate in visual conditions, are we going to encourage pilots to fly in even more marginal weather than they stray into now?" Wow, that was a damn good question, and one that, quite frankly, I could not answer because in my heart of hearts – knowing that helicopter pilots tend to be very task focussed – I thought the equipment might just make an existing problem even bigger!

Another problem with installing extra equipment is its weight – which reduces the amount of payload a helicopter can carry; was this really what we wanted to achieve? Was the company going to get value for money – especially if the hoped-for safety benefits didn’t appear? Also, by putting more gadgets in the cockpit, would we be taking the pilots’ primary focus away from “flying” the aircraft to “operating the systems of the aircraft”? Would we then run into the fixed-wing automation problems such as “mode confusion” and loss of situational awareness?

There are no easy answers to these quandaries. I guess this is where a bit of risk assessment really comes into play along with prioritizing needs, wants and desires! In studying the systems and their applications to remote areas where communications can be a problem, I believe that flight following equipment was probably the highest priority in this case. Not only would it truly enhance safety, it would also provide a means of improving the efficiency of the operation – it would more than pay for itself and actually save the company money.

What about TAWS and TCAS? I think that in view of the nature of the operations I was considering, if I was going to recommend the installation of either, then my next choice would be TAWS – based on this particular situation and on occurrences in the area. It is important to stress that such a choice really depends on the task and environment (I think it could best be described as understanding the “context” in risk assessment).

One issue here is that – as far as I am aware – there isn’t a truly integrated cockpit for VFR helicopters; one in which modules can be plugged in or removed easily and cheaply, much as the modern PC can be configured. We keep adding bits and pieces to helicopter cockpits without any real understanding of the workload we’re putting on the (usually single-) pilot, or even if all the bells and whistles actually add to the pilot’s awareness of what’s happening around him or her. And in older helicopter cockpits, empty real estate on panels for additional displays or switches to be installed is a very rare commodity.

I wouldn’t mind hearing readers’ views on this issue....
Your solution.

As a global leader in helicopters, AgustaWestland offers you complete solutions designed specifically for you and your mission. From vertical lift support of military and police forces to corporate and offshore transport, to the demands of disaster relief, SAR and air medical operations.

AgustaWestland tailors solutions for you.

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FINMECCANICA Further on.

Everywhere in the future.
**NEW PRODUCTS AND SERVICES**

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<th>ROLLS ROYCE + ROBINSON = SMALL HEAVYWEIGHT</th>
<th>CERTIFICATION OF 206/407 AUTOMATIC ELECTRICAL INFLATION KIT</th>
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<td>Rolls-Royce will supply a new turboshaft engine to power the Robinson’s new R66 rotorcraft. The new RR300 engine represents a major step forward in the helicopter industry by providing 300 shaft horsepower at takeoff, excellent hot and high performance and outstanding value. The new R66 model, a five-seater, is Robinson’s first venture into gas turbine-powered rotorcraft and will complement the company’s existing line of piston-powered aircraft. Rolls-Royce expects FAA type certification by 2008 with full-rate production to follow. Under the agreement with Robinson Helicopter, Rolls-Royce will provide several hundred RR300 engines in upcoming years. The RR300 embodies new technology and advanced design methodology. Key attributes of the RR300 include: lower acquisition and operating costs; low-weight, compact design; improved specific fuel consumption; an embedded engine monitoring system; and an optional, through-life, peace-of-mind maintenance program.</td>
<td>DART has announced that their affiliated partner, Apical, has received FAA approval of its Automatic Electrical Inflation Kits for use with their Tri-Bag Emergency Float Kits for the 206A/B/L/L-1/L-2/L-4 &amp; 407. The Apical Automatic Electrical Inflation Kits provide back-up electrical activation in addition to the existing mechanical deployment mechanism provided with the Apical Tri-Bag Emergency Float Systems, with and without Liferafts. Two water-activated switches are installed on the underside of the fuselage to provide the automatic back-up. The electrical system is armed via an instrument panel mounted arming switch/indicator. If the pilot is unable to activate the manual inflation system, float inflation will be automatically initiated once the helicopter comes in contact with the water. Apical has also had the Bell 210 added to the FAA STC approval of the Tri-Bag Emergency Flotation System with optional Rafts. In addition to the Bell 210 model, the EASA certification also includes the 212, 412, 412EP, 412CF and AB412, AB412EP models. The approval also include the float compatible Heli-Access-Steps.</td>
<td>Apical has also received EASA certification of its Cargo Door Mounted Liferaft Kit for the S-76. FAA and Transport Canada certification was awarded in 2006. The S-76 Cargo Door Mounted Liferaft Kit includes two replacement carbon fiber cargo doors with integrated 10-man reversible life rafts, replacement hinges that connect to existing hardpoints, and a complete inflation system. The life rafts preserve access to the cargo compartment by being mounted to the interior of the door. After an emergency water landing, the kit is designed specifically to allow occupants to safely exit from the aircraft and enter one or both of the deployed life rafts. With a 121 lb (55kg) net weight increase, the Cargo Door Mounted Liferaft Kit is significantly lighter than other kits in the marketplace, while still meeting all applicable TSO-C70a requirements.</td>
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**EUROPEAN DISTRIBUTION**

Helicopter Concepts, has announced that Transair, Europe’s leading pilot shop, will distribute and resell its products beginning in March, 2007. Transair dispatches over 80,000 orders per year to more than 100 countries worldwide, and their website details thousands of products for pilots and aviation enthusiasts. The first Helicopter Concepts product offered by Transair will be the Autorotations in the R22 DVD video.

**PARTS FOR AFRICA, EUROPE, AND THE MIDDLE EAST**

Aviation parts manufacturer EXTEX has a new alliance with M International, a privately owned US Government subcontractor and export management company located in the Washington, DC area. M International will distribute EXTEX parts to its helicopter and fixed-wing customers in Africa, Europe, and the Middle East. M International was originally formed to provide competitive alternatives for the purchase, maintenance and overhaul of US – manufactured defense-related equipment. The company has since expanded its capabilities to encompass both the commercial and defense business sectors, with an emphasis on aftermarket support and modification of existing weapon systems. In addition, M International provides repair and overhaul solutions for turbine engines and accessories.

**BOND WINS LONG-TERM HELICOPTER CONTRACT**

Bond has been awarded a long-term contract for full operational and back-up helicopter support, including aircraft, pilots, engineers and base facilities, on behalf of two police forces in South Wales. An EC13T2i will be available to the South Wales and Gwent Constabularies seven-days-a-week for day-and-night operations under the seven-year contract which has options to extend for a further three years. Pilot and observers will use latest-generation NVGs, and the aircraft will also have the latest surveillance and communications equipment.

**AIR LOGISTICS EXPANDING**

Air Logistics is undertaking a US$4.5 million expansion at the Acadia Regional Airport in New Iberia that will add 150 new jobs to the 396 the company already has. The expansion will include a two-story, 27,068 sq/ft facility. The company had reportedly looked at several locations in which to expand, including some out of Louisiana but incentives there, including a nearly $1 million infrastructure grant, kept the company in New Iberia. This expansion will allow the company to move its finance department in with the other administrative departments currently at the airport. A new Flight Following Center will also be housed there.
Need help fast?

If your mission is saving lives, then there is no better helicopter than an MD Explorer.

Because it was designed by operators for operators, the MD Explorer has everything — and we mean everything — crews need and want in an air medical helicopter. And that means more than speed. With the most spacious cabin in its class and a full complement of advanced safety and performance features, the MD Explorer is user-friendly and tailor-made for the mission.

The bottom line? The world’s best air medical operators fly the world’s best air medical helicopter. The MD Explorer.

MD UPDATE: MD’s worldwide product support continues its upward momentum. For January 2007, backlog of major components has been reduced by 95% compared to this time last year.

Call an MD.
NEW FACILITY IN ALABAMA

ACROHELIPRO has announced approval for the construction of 36,700 sq/ft helicopter maintenance facility, located at the Andalusia-Opp Airport. The Airport Authority has included the new facility as a part of its US$35 million Capital Improvement Program for the airport. The new state-of-the-art facility provides assets including a newer, larger maintenance facility capable of accommodating additional maintenance work, capacity for a future expansion of 20,000 sq/ft, and opportunity for an increase in employment for local skilled tradespersons. Initial estimates indicate ACROHELIPRO will experience a workforce increase from the current level of 55 employees to more than 100.

AIR MEDICAL BUSINESS ACQUIRED

EraMed, part of the SEACOR group, has commenced operations with the completion of the acquisition of the air medical business formerly owned by Keystone Helicopter, a wholly owned subsidiary of Sikorsky. As a result of the acquisition, EraMed is now operating from 30 sites located in Ohio, Pennsylvania, Massachusetts, Maine, New Jersey and Puerto Rico. EraMed will provide pilots, mechanics and maintenance support 24/7 for 35 highly complex twin turbine engine helicopters. EraMed will operate as a sister company to SEACOR’s other aviation subsidiary, Era Helicopters, which supports the oil and gas industry in the Gulf of Mexico and Alaska, offers flightseeing tours in Alaska, provides environmental support and leases helicopters to third parties around the globe.

SACRAMENTO GETS HD FROM HELICOPTER

KCRA 3 is the first Sacramento area television station to broadcast local news in high definition. In addition to high definition studio cameras, the station’s news helicopter, LiveCopter 3, now becomes LiveCopter 3 HD, the only news helicopter broadcasting in high definition in the Sacramento area. LiveCopter 3 HD is an AStar that carries the Cineflex High DEF camera platform, including four on-board cameras.

SKY AT NIGHT

Sky Connect has unveiled new cockpit SATCOM dialers that are compatible with night-vision equipped aircraft. As more operators adopt NVG/NVIS to enhance tactical operations, Sky Connect enhances their strategic operations with automated tracking, secure voice telephony, and dedicated text messaging. The 11PD NVG/NVIS Dialer enables pilots and crews to dial 11 pre-stored numbers. The dialer interfaces with the tracking system with provisions for emergency and special status notifications. Both dialers are designed for use in cockpits where components must meet strict guidelines for illumination during the use of NVGs and both may be immediately integrated for use in night-vision equipped cockpits.
Our 350FX Series STC, based on the AS 350BA/B2 AStar, offers ease of maintenance, improved reliability and increased performance meaning...

...lower operating costs! Just a few reasons why our Honeywell powered 350FX Series STC, combined with our new GenerationFX product line will be valuable to you!

Contact us for the complete picture
NEW HELICOPTER-BASED EMERGENCY SMS MESSAGING NETWORK

The European Commission has selected a project called MARIUS (Mobile Autonomous Reactive Information System for Urgency Situations) which enables the dissemination to the inhabitants of a stricken zone of SMS alerts thanks to a helicopter equipped with a mini-mobile network. Rescue teams will be able to send SMS even on a zone where the mobile network is down and then will be able to send information to facilitate rescues. MARIUS aims to develop a pre-operational autonomous Command Post which can be deployed very quickly to manage every type of crisis. Coordinated by EADS, the project is mostly financed by the European Union. Major industrial and technological actors will provide their knowledge, among which: Thales, BAES, Selex, Eurocopter and Swapcom.

The innovation in MARIUS lies in the integration of the following state-of-the-art elements, customised to fulfil the requirements of a generic crisis management system for Security:

- An airborne segment equipped with EO/IR sensor, GSM detection & location sensor, SMS broadcast capability, a data link to the ground station and a radio system
- A mobile crisis management system
- The ground sensors (cameras) and their specific data link
- A micro-drone to demonstrate airborne surveillance functions in case of disaster
- The deployable wireless communications network

Swapcom, the French mobile software architect has been chosen as European specialist for information broadcast on telecommunication network. The first tests in laboratory were done in December 2006 and the consortium hopes to test the project on site (Valencia, Spain) by July 2007.

HELIWORX

Kaman’s Helicopters Division is expanding its focus and leveraging its depth of helicopter experience to meet the growing need for value-added engineering, manufacturing, and integration services. The company says that HeliworX, the Division’s 300,000 square-foot rotorcraft innovation and manufacturing support center, has the existing rotorcraft infrastructure that only a helicopter OEM can offer including specific experience, capability, and capacity to deliver high quality vertical flight solutions to the world’s prime helicopter manufacturers. Kaman’s HeliworX delivers a multitude of military and commercial components and has the ability to design, test, certify, and deliver complete helicopters, major metal and composite assemblies, complex components, and subassemblies.

Better performance starts with better technology
Nobody does it better than BLR.

Making aircraft safer and easier to fly is our passion at BLR Aerospace. From Tailboom Strakes and FastFin™ for helicopters, to Winglets and Vortex Generators for fixed-wing aircraft, BLR delivers aerodynamic improvements for safer, more efficient, more cost-effective operations. Thousands of operators are reaping the benefits of dramatic, proven performance enhancements, and demand continues to grow for BLR’s must-have technologies.

So if you want better performance, start with better technology.
And when it comes to technology, nobody does it better than BLR.

BLR Aerospace
Performance Innovation
Acquiring a good, pre-owned helicopter is time consuming. Lloyd Helicopters have over 20 years experience searching the world for quality helicopters. For extensive knowledge and meticulous attention to detail, consult the experts. www.lloydhelicopters.com
### FAA Certification of AW139 Liferaft Kit

DART has reported that their affiliated partner, Apical, has received FAA approval of its Liferaft Kit for the Agusta AW139. The Liferaft Kit consists of two externally mounted Liferaft Pod Assemblies and a Liferaft inflation reservoir with a mechanical activation system. The Liferaft Pod Assemblies are comprised of an aluminum mounting structure, a fabric top cover, a carbon fiber bottom cover, a 10-Man Reversible Liferaft and an integrated composite Passenger Step. The 10-man Reversible Liferafts are comprised of a twin tube design, a canopy and a survival kit. The Liferafts feature a 15 man overload capacity and meet all applicable TSO-C70a requirements. Both Liferafts are inflated with a single Liferaft reservoir assembly. Also provided is a mechanical Liferaft inflation system with two cockpit mounted T-Handles mounted along the door frame on the pilot's and co-pilot's side, and one T-Handle mounted in the passenger compartment subfloor accessible through an access panel.

### Igor in the Gulf

Sikorsky and Gulf Helicopters of Doha, Qatar have signed a MoU to explore establishing an Aviation Center of Excellence in the Middle East. The proposed Center would provide maintenance support, spares, training and design/development services to Sikorsky, Gulf and other commercial and governmental aircraft owners and operators in the region. This would include the establishment and management of a fleet management operations center to provide logistical support as well as local inventory of Sikorsky and other aircraft manufacturer’s spare parts. The Center would also establish and operate a customer support center to perform organizational, intermediate and various levels of depot level maintenance on rotary and fixed wing aircraft. Both parties will discuss Sikorsky’s conveyance, through structured training and educational initiatives and co-participation in design/development projects of aerospace design and support technology and know-how to employees of Gulf and/or the Center. In addition to the MOU signing, Sikorsky and Gulf signed a contract for a second of two S-92 VVIP aircraft. The first S-92 entered service in the Gulf region in 2006.

### Sky Connect Highlight

Sky Connect has achieved the largest tracker product sale; 125 systems to offshore oil operator Air Logistics. Air Logistics will install the Sky Connect satellite tracking and phone systems, including the Mission Management Unit (MMU), in their aircraft located in the Gulf of Mexico. The Mission Management Unit delivers voice, tracking, and text messages with a single-switch control.
LET’S ASSUME you are an airframe or parts manufacturer. You have designed your product to meet all of the airworthiness standards and the applicable regulations. An accident happens and, per standard policy, you are sued. Can you waive your type certificate or STC in the air and boldly claim that you are immune from liability since your design met all of the standards as set out in the regulations? Absolutely not! The Federal Aviation Act authorizes promulgation of “minimum standards” only. “Minimum” means exactly what it is supposed to in this context; it’s the bare essentials that will get you by, and that’s it. There is absolutely nothing in the statutory or regulatory framework that gives you an “out” for liability purposes. Ask anybody that works for an OEM. They’re sending airframes and engines out the door every day that are properly certified, with the full knowledge that they are going to be sued when an accident happens. They can, and have been, held negligent and civilly liable when a jury was convinced that the minimum standards weren’t good enough and more should have been done to make a product safer.

“Minimum standards” also apply to other situations. For instance, when is the last time that you read, and I mean really read, your insurance policy? There are minimum standards throughout most of them, especially for those of you who are operating aircraft. There are minimum standards on maintenance. There are minimum standards and parameters on where and when you can operate. There are minimum standards relative to your pilot’s qualifications and flight hours – maybe some that you haven’t paid enough attention to. A few weeks ago, a client asked me to take a look at its liability policy, not with minimum standards in mind, but rather with regard to another issue that had nothing to do with pilot qualifications. This client was operating three corporate jets under Part 91, and a Bell 407 under a Part 135 certificate. In reviewing the policy, the minimum standards for pilot flight hours seemed awfully high to me for a corporate operation. As well, one of its aircraft was limited under the policy, to two-pilot operations only at all times, which also surprised me because this particular jet was certified for single pilot operations and I knew full well that the client was flying it single pilot on a fairly frequent basis.

Some phone calls ensued, of course. This client had done what, unfortunately, a lot of folks do. When it came time to renew its policy, they had some conversations with the broker, who then turned around and handled matters with the carrier. When the actual policy arrived, nobody read it; they just assumed that it was consistent with what had been worked out with the broker, so they stuffed it in a drawer and forgot about it. Nobody realized that a miscommunication had led the carrier to insert the wrong standards relative to pilot ratings and minimum flight hours. This company had seven pilots, and not a single one of them had the minimum hours and ratings that were called for under the policy. On top of that, they had the single pilot issue on the one aircraft that they weren’t aware of either. We got it fixed, of course, but it sent more than a few chills down a couple of spines when everybody realized what would have happened in the event of an accident. In all likelihood, there would have been no coverage, all because of a misunderstanding and miscommunication regarding “minimum standards.”

So if you haven’t read your insurance policy in awhile, get it out and read it. Today.

PS: On an unrelated matter, and for those of you who take the same perverse interest as I do in the Capetown International Convention, that registry is now getting set up to record fractional aircraft interests. The problem over the last year has been the fact that the database couldn’t record more than one ownership interest in any given aircraft, which led to some conflicts between what was registered with the FAA registry versus Capetown. As of April 1, however, that is supposed to be fixed.
Protecting the engines of freedom.

Protecting the engines of the world.

If you need effective engine protection, you need AFS.

AFS leads the industry with high-performance, engine inlet barrier filtration systems for commercial and military propulsion systems. Our military systems are serving around the globe and the results are impressive — increased capabilities and reduced operating costs. The OH-58D Kiowa Warrior fleet has been accumulating significant operating hours in Iraq under the harshest conditions, and their engines are reaching Time Between Overhaul limits. A true testament to the value of AFS inlet barrier filters.

Wherever you find hard-working helicopters, you’ll find AFS systems. From the desert of Iraq to the desert of Arizona, AFS systems are protecting engines, enhancing performance, and delivering a range of benefits that help operators do what they do best.
IN A PREVIOUS column I mentioned that a lawyer who managed to get you in the witness box for any reason would be looking for any hook, however small, to hang a prosecution on – including any paperwork with which you might have been involved. Part of that paperwork could include your personal logbook and, as a result, if it is less than accurate and if you have never seen a good persistent detective at work, you could be in for a nasty surprise.

Now I know there are high-time pilots out there who don’t log all their flying hours and one would hardly expect them to log all those pesky little air tests or even be accurate to within an hour or so, but you don’t expect to meet pilots who don’t keep a log book at all - even when some national regulations may only require one to be kept for the purpose of qualifying for license issues or upgrades. However, this is exactly what one pilot said when he rang me up one day to ask for a job. He claimed that he had over 10,000 hours. When I suggested that he might want to turn up at the office sometime over the following week with the usual box of doughnuts and his logbook, there was a short silence followed by the statement that he didn’t have one, “because I was never required to keep one”.

I took that statement at face value at the time, because in that particular country it was only ten years before then that the requirement for Operations Manuals had come into being, but the local safety consultant informed me that that pilot’s total hours were only 4,000 just two years previous to then, which partly explained that consultant’s somewhat large experience requirements for the most elementary of jobs. He was obviously trying to ensure that the pilot who eventually did the job would actually have 1,000 hours if he asked for 2,500!

Until then I had heard of some pilots putting down standby time as flying hours, or engineers on their way to being pilots claiming lots of ground runs in the same way, but had not really thought much about it other than leaving it up to their conscience. However, when you’re a Chief Pilot, and an accountable manager responsible for the well-being of a whole company, you have to start thinking of corporate liability and the repercussions of what the people for whom you are responsible are getting up to.

Inflating log book hours affects many otherwise innocent parties down the road. First of all, there are the passengers who are entitled to expect properly qualified flight crew at the controls. Secondly, there are the more honest low-timers who are desperately trying to get that first break. Then there are the employers who are ultimately liable for not checking things properly, although I can clearly see how hard a job this can be.

Insurers, too, have an impossible job, because flying hours are currently the only standard by which they can judge a pilot and on which they can base their rates. How can they evaluate whether the 5,000 hours claimed by a pilot is actually that, or just 50 hours repeated 100 times, assuming the total is accurate in the first place? As it happens, most pilots know the answer to this one already based on the nature of the work involved, but other agencies do not.

So, how can you check pilot experience? Without getting near the tricky subject of blacklisting, the usual background checks are important including talking to previous employers and/or colleagues who could give opinions on the applicant’s honesty and the reasonableness of experience claims. As mentioned before, the local safety consultant or auditor can be a good source of information.

After a certain amount of flying hours, it can be difficult to tell experience levels based purely on flying skills but gaps in pilot knowledge can be a dead giveaway, as they should certainly reduce with time. Decision-making skills are another. Some form of testing would therefore be useful, or at least a short course to ensure that the level of knowledge commensurate for that experience is actually held by the pilot. For example, a 200-hour pilot could be given enough training to become the equivalent of a 500-hour pilot, at least mentally; all that needs to be done is to establish what a 500-hour pilot needs to know, then build the training to fill in the inevitable gaps.

In the UK, there is an organization called the Institute Of Advanced Motorists. It allows drivers to take an advanced driving test, administered by a volunteer Class 1 police driver. On passing the test, membership of the Institute allows you access to cheaper insurance premiums, amongst other benefits. I think this sort of thing is an idea we need in aviation.
These are 2 of our latest products, there are simply too many to list.

We design & manufacture Long Range Fuel Systems, Rescue hoists, Special seating Radomes

We are specialists in the design of Modifications for the AS350, AS355, BK117

Our latest product is a Hoist System for the SA365 Series designed for the Breeze Eastern 600 Lb HS 20200

— Increases engine life 10 X
— 96.7% installed efficiency
— Lightweight
— Low pressure loss
— Reduced drag

BK117 SAND FILTER

— Electrically actuated power boom arm
— Ease of stretcher & person ingress
— Good skid clearance
— Facilitates difficult rescue missions

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e-mail: russellg@airwork.co.nz

“Smart Aviation Solutions”

www.airwork.co.nz
IN THE GOOD old days, (and for many that means right up till now), the pilot could always be relied upon to tell us exactly how the aircraft was flying, performing and if anything needed doing.

However, as helicopters and their power plants have become more complex, particularly the engine cycle count method – the old way is not enough.

There are many other factors to take into consideration with the managing and tracking of an expensive asset and the associated high maintenance costs.

Some owner/operators may be already thinking that they don’t need anything extra to assist them (and the cost that goes with this) but the advantages are there for all to benefit from.

To start with, the parameters recorded by a typical system available today may include:
- Airspeed
- Altitude
- OAT
- Time & Date
- Landings
- Battery Voltage (at start)
- Engine Shutdown Time (Dwell at idle)
- Latitude & Longitude (if GPS Interfaced)
- NR
- N1
- N2
- N1 cycles
- N2 cycles
- Engine Measured Gas Temperature(s)
- TOT, T4, TIT etc

✔ Engine Torque(s)
✔ Engine Fuel Flow(s)

A simple reliable monitoring system could satisfactorily operate with recording just a few of the above parameters to give the maintenance controller a good running picture of what is going on, together with engine power assurance checks and exceedances. As well as providing hard limit exceedances, parameters such as the recording of shutdown dwell time will give the maintenance controller an indication of poor operating practices, and what actions should be taken to address these before they become expensive problems.

So how does all this work and what other benefits can the Owner, Pilot and Maintainer get from this equipment?

From the parameter list (which is not exhaustive), the signals from engine speeds, temperature etc., are normally recorded by additional sensors installed in the aircraft.

The output of these sensors is taken to a computer which has recording device or memory where the recorded data is stored. From here the data will either be downloaded to a laptop or can even be sent by wireless means to a ground station for analysis.

This data will include normal flight data i.e. duration, cycles, and power assurance tests but can also include exceedences.

How the data gets from the aircraft to a ground station is not important for this discussion, but what is especially important for the owner and/or controller of a fleet of helicopters is that the data is correctly retrieved, stored and can be readily accessed for review and/or aircraft comparison.

In my experience having been associated with three Engine Monitoring Systems the following examples will help show the benefits of systems such as these:

- **Engine Cycles** – Accurate counting of both N1 and N2 cycles, and in the case of aircraft equipped with the LTS 101 powerplant, a 65 percent reduction in actual cycles being recorded due to much more accurate counting by the “computer” and a reduction in pilot workload.
- **Time Recording** – accurate recording of operating time from skids off to skids on.
- **Engine Parameter Change** – the ability to backtrack through a period of recorded history and determine at what point a temperature change occurred – in one case, exactly at the same time a seemingly unrelated component was replaced.
- **Main Rotor Exceedence** – In one case when an exceedence was reported by the pilot on a training flight, the exceedence amount that the pilot believed had occurred proved to be less once the data was analyzed. This meant that expensive rotor system parts did not require changing.
- **Reported Power Loss** – In one example the pilot believed a power loss had occurred and made an emergency landing, but in reality a sensor failure had occurred.
- **High Main Gear Box Overhaul Costs** – After an expensive gearbox overhaul repair bill and a fleet evaluation, a single trend was discovered that required some retraining and supervision.
- **Backup Display** – With the failure of an instrument, one monitoring system has the ability to display that parameter of the pilot visible monitoring system display. (Not all have this feature but some of you will understand that this could have a positive benefit on an MEL.)
- **Investigation QA** – In one incident where a minor mechanical display malfunction compounded with the pilot action taken, a detailed analysis for “lessons learned” and “systems understanding” was carried out.
- **Engine Chip Light** – Several exceedences were found on the data files but engineering had not been advised nor had the appropriate entries been placed in the log book.
- **Engine Rundown Time** – Several instances of this exceedence have provided the opportunity for some refresher training on the importance of this task together with the high cost of having to dismantle a power plant to rectify the above.

These are some clear examples of how the installation of this equipment can help you effectively manage your asset, assist with training – both pilot and engineering, as well as help reduce costs safely. ■
Some like it HOT....

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Knowing Your Rotor Heads

In a series of columns we will walk around the helicopter and talk about some of the differences and the advantages of one feature over another.

As we walk around our helicopter, we begin to realize that many of the features of the design are different from other helos. Everything has a purpose and every designer tries to make the best machine for the job at hand. So why the differences? We must always keep in mind that there are few absolutely correct or incorrect decisions; all design decisions are based upon mission and economics, and there are many ways to strike a balance. I like to think of a “balanced” helicopter design as analogous to a soccer ball, where the ball’s many flat facets are joined to create a nearly perfect sphere. If we think of each of the polygons as representing a different design attribute, like “engine power” or “number of blades” or “rotor head design”, we realize that a balance of all these individual features is required to create a perfect whole. If we decide to alter any one of the attributes by pulling it out from the center of the ball, it is obvious that some other attribute or attributes must sink in towards the center of the ball in order for the design to remain balanced. It is the constant battle to achieve such balance that results in helicopter designers having trouble sleeping.

The Rotor Head

There are three basic rotor concepts: teetering (sometimes called semi-rigid), offset hinge rotors (articulated, and bearingless) and rigid rotors. The teetering rotor is one where a hinge right at the mast allows the blades to teeter like a child’s seesaw. The Robinson has a fundamentally teetering rotor, as do many of the older Bell products. The teetering rotor has the great attribute of being simple and inexpensive, with few machined parts. It is also easy to maintain and light in weight and for these reasons it is favored for use in light trainers and homebuilts. The weakness of the teetering rotor is that it provides very little control power under certain situations, which means that the flight envelope of the helicopter is restricted. It leads to such problems as mast bumping and dynamic rollover – situations that are almost exclusively teetering-rotor issues. In spite of these difficulties, when flown carefully, a teetering-rotor helicopter is a fine machine. Its low cost and easy maintenance makes it a very good initial trainer.

The articulated, offset-hinge rotor is one where the blades are mounted away from the mast with flap and lead-lag bearings. These bearings can be grease-lubricated metal bearings, rubber/metal elastomeric bearings or flexible components of the rotor head. Hinge offset is a measure of the distance of that bearing from the mast, expressed as a percent of the total blade span, and so we might describe a helicopter as having a given percent of offset, usually between two and seven percent. Hinge offset measures the power of the cyclic controls – how quickly the helo follows up on our stick movements. (The teetering rotor, with its hinge at the mast, has a zero percent hinge offset and therefore has relatively low control power.) This hinge offset control power is derived from the way the blades flap, and put their centrifugal force at play on the rotor head. As the controls make the blade flap, it no longer aligns along the arm of the rotor head, and so it pulls strongly on the arm to rotate the helicopter. This produces a bending force on the rotor that is very powerful, and makes the rotor feel “snappy”. The higher the offset, the “snappier” the helo. Since this control is dependant only on centrifugal force, it is not dependant on how much lift the blade is producing and is available at low collective pitch and also low load factor. The extra control under conditions of low blade lift reduces the possibility of dynamic rollover and eliminates mast bumping entirely. However, the usual training guides make no such distinction, since they were written back when most helos had teetering rotors, and they therefore speak of these ills as if they were universal to all helicopters. This control power puts the mast and transmission mounts under higher stress, so they must be beefier and thus will weigh more. A glance at the thick mast of a Black Hawk and the skinny mast of a Huey gives the power of hinge offset real meaning.

Articulated rotors are particularly good in many applications, although they are more complex than teetering heads, with typically two or three times the number of parts. Modern articulated rotors with elastomeric bearings are usually maintenance-free. Bearingless main rotors are articulated, were the “bearings” are flexible parts of the rotor head, so that they have an equivalent offset somewhere between three and seven percent. Since bearingless main rotors have very few parts, they require little maintenance. However, well-designed articulated rotors with elastomeric bearings are similarly maintenance free.

The truly rigid rotor is a class of rotor head that is perhaps obsolete. It is one in which the blade is rigidly mounted to the head end with no bearing to allow blade flapping or lead lag motions. The typical Bolkow rotor head is an example of a rigid rotor. Rigid rotors have exceptional control power since the equivalent hinge offset can be as much as 12 to 15 percent. As a class, rigid rotors provided exceptional, crisp cyclic control and great agility to the pilot. However, because the blades are rigidly attached (using a stiff rotor head and metal bearings) and the blade cannot flap to relieve the helo of transient lift increases in turbulence, occupants experience a somewhat rougher and less stable ride under turbulent air conditions. As a result, designers have shied away from rigid rotors and moved toward bearingless rotors with a hinge offset that can be adjusted high enough to allow excellent control feel but low enough to allow blade flapping to isolate occupants from the effects of turbulence. Comanche and EC-145 are examples of this interesting blend of handling and comfort.

H Having examined the rotor head, the next subject will be those things that keep us in the air – the rotor blades.
Autorotations in the R22

Join Timothy Tucker (Chief Instructor, Robinson R22/R44 Safety Course) and Michael Zangara (Former Robinson Test Pilot) as they provide an instructor’s view of Autorotations in the R22 helicopter! With over 45 years of combined experience and 25,000+ flight hours, Mike and Tim provide a unique insight into autorotations like you’ve never seen before. This exciting live action video will simplify and explain the basics of autorotation aerodynamics and the four-phases of autorotation.

See what an autorotation looks like from the pilot's perspective, as well as other views from both inside and outside the cockpit. A variety of helicopter concepts are presented using easy to understand phrases and state-of-the-art computer animation. This interactive training DVD includes important safety information, as well as thrilling never-before-seen video of R22 autorotations!

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Amy Brown
Crew Change Pilot
Aberdeen, North Sea

Since obtaining her PPL(H) at only 17 years of age, Amy has followed her chosen career path; with dedication, commitment and perseverance she is now instrument-rated and flying Super Pumas for the offshore oil industry in the North Sea.

WHAT GOT YOU INTO FLYING HELICOPTERS IN THE FIRST PLACE?
As far back as I can remember my family has been involved in aviation and I was fortunate enough to accompany my father one day when he decided to try out an R22. As a result of the trip I had a trial lesson. I have to say I was overwhelmed by the experience, especially attempting to hover. Nevertheless, I was intrigued and decided to pursue the lessons. I spent my summer holiday flying and received my PPL license in the post a day or two after my 17th Birthday.

HOW MANY HOURS DO YOU HAVE TODAY AND ON WHICH TYPES?
I have approximately 1,000 hrs on R22, R44, EC135T and AS332L2 Super Puma.

WHAT IS YOUR CURRENT ROLE IN THE HELICOPTER INDUSTRY?
I work for Bond Offshore Helicopters as a crew change pilot, flying employees of the offshore oil industry to and from offshore oil installations.

ON A TYPICAL DAY, HOW MANY HOURS DO YOU FLY?
Each flight generally lasts two to four hours; sometimes you only do one flight, sometimes two, depending upon the requirement. Flights begin with detailed planning leading to an IFR or VFR flight to one or more installations, then a return leg to base. All flying is carried out in a multi-crew environment.

WHICH ASPECT OF YOUR TRAINING DID YOU FIND MOST INTENSE?
All of my training has been intense, and involved learning a lot of new information and skills in a relatively short time for each course; but particularly gaining an Instrument Rating as it is a very different way of flying to what I had been used to when operating VFR only.

OUT OF THE TYPES YOU’VE FLOWN WHICH HAS BEEN YOUR FAVORITE?
I have thoroughly enjoyed all of the flying I have done, so it’s quite difficult to pick a favorite. I fly the Super Puma regularly now and it’s a really awesome machine in terms of size and power – quite a contrast to the R22! For sheer style and class though, I’d have to choose the EC135.

WHAT WAS THE MOST CHALLENGING THING YOU’VE HAD TO DO SO FAR IN YOUR FLYING CAREER?
I’ve found that at every stage of my training, the particular test or exam I have been working towards at the time was the most challenging thing I’d ever done! However, I find the job I have now presents some exceptionally challenging situations – particularly flying in the weather conditions that we can get in Aberdeen, as we fly to and from oil installations of all shapes and sizes, night and day.

WHAT WAS YOUR BIGGEST “BREAK” GETTING INTO THE INDUSTRY?
I happened to be in the right place at the right time; I had a brilliant CPL examiner who was actually the one who advised me to contact Bond Offshore Helicopters in the first place, which I did!

WHAT IS THE MOST FULFILLING ASPECT OF YOUR JOB?
I find it highly fulfilling that I am able to do something I really enjoy as a career within a professional organization. It is also satisfying to be a welcome sight to the oil industry employees when they are getting on the flight home after a period of time offshore.

HAVE YOU ANY FUTURE PLANS FOR YOUR JOB?
I am really enthusiastic about flying, and have known for a long time that there is no other job for me, so with a lot of determination and hard work I pursued my chosen career path, and kept persevering even when I found it incredibly tough. I advise other young people to do the same and try to meet as many people as possible in the industry; show how keen and serious you are about a career in aviation.

HAVE YOU EVER HAD ANY EYE-OPENING EXPERIENCES WHEN FLYING?
Flying in the harsh winter weather conditions in Aberdeen has been eye-opening, and even the summer months can bring days of thick fog. A typical winter day can include flying in winds in excess of 50 knts, navigating our way around massive developing cumulonimbus clouds which can be throwing out hail and potentially lightening, whilst continually monitoring icing conditions. Sometimes we could take off into cloud and stay IMC until the decision point on the approach to the installation; it could be that one of the installations requires a landing on an unstable deck at night when it’s raining, with no visible horizon, low cloud, and movement which is reaching the accepted limits for landing. All these conditions have proven to be very eye-opening experiences.

WHAT WOULD YOU TELL TO ANYONE TRYING TO GET INTO THE INDUSTRY?
Yes, it is a company requirement, and it’s quite an experience! As a member of the flight crew, our underwater escape procedure is slightly different from the passengers’, in that we jettison our doors to exit the aircraft. We practice cross-cockpit exit, getting into dinghies from the aircraft and into the water and we discussed other aspects of survival at sea. I was apprehensive about the training, but actually it was very informative and the “ditching” of the aircraft into the water was not as dynamic as I expected, although the rolling of the helicopter underwater was quite uncomfortable and disorientating.

WHAT ARE YOUR VIEWS ON THE BENEFITS OF THIS KIND OF TRAINING?
The recurrent training that we receive gives us an experience representative of what may happen if it were necessary to land on water. This, like any emergency training, provides a plan or procedure in one’s mind to fall back on and follow, should a similar event occur. However, I have every confidence in the reliability of the aircraft that we operate, and the likelihood of ever needing to ditch is very small.

DO YOU HAVE ANY OPINIONS ABOUT THE UK OFFSHORE INDUSTRY?
I believe it is an extremely professional and safety-conscious industry. Helicopter operators are fully regulated and have regimented procedures in place to ensure that flights are conducted in the safest possible way, whilst remaining efficient and productive; it’s what you would expect from any professional operation.
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ACTING FAST
One very new, very ambitious company is riding UAE’s economic wave – Abu Dhabi-based, Falcon Aviation Services is leading the charge to capitalize on the new markets opening up for commercial helicopter operators in not just the UAE, but the Gulf region.
a Meteoric RISE in the EMIRATES

STORY BY MARK OGDEN
PHOTOS BY NED DAWSON & MARK OGDEN
THE UNITED Arab Emirates (UAE) is a federation of emirates whose estimated population of over three-million occupies some 30,000 square miles (77,700 km²) on the East Arabian Peninsula. It comprises the seven emirates (sheikhdoms) of Abu Dhabi (80 percent of the area), Ajman, Dubai, Fujairah, Ras al-Khaimah, Sharjah, and Umm al-Qaiwain. The city of Abu Dhabi is the capital.

Oil, which was first exploited in the 1960s, is critical to the UAE’s economy with oil exports being among the world’s largest. Oil revenues have made the per-capita income and GDP among the world’s highest.

Banking and financial services, regional corporate headquarters and tourism are becoming increasingly important as the federation seeks to diversify its economy. There is an accelerating move to establish private companies where government ownership was previously the norm throughout the region. Although Dubai has rightly attracted the world’s attention for the pace and extent of its development, Abu Dhabi has been making noises about its potential to exceed even Dubai’s extraordinary accomplishments.

TAKING THE EMIRATES BY STORM

Falcon Aviation Services (FAS) is a shining example of this move to private industry. It is a young company whose rapid expansion is a signal to the market that it is serious about what it does. Based at Bateen Airport, 10 km from the city center in Abu Dhabi, FAS was established in early 2006. The company’s facilities in Bateen include an air-conditioned hangar with 1,600 m² of floor space, as well as a private passenger lounge and reception area with sufficient land available for significant further expansion.

FAS began operations in September of 2006 under the direction of His Highness Dr Sheikh Sultan bin Khalifa bin Zayed Al-Nahyan – an influential member of
the Abu Dhabi Government and member of the Royal Family. As the UAE economy expanded rapidly, he could see that there was a very limited choice of aircraft types to serve the ever-increasing demand for aviation support services in the region. “His Highness has a flying background and is a keen aviation enthusiast,” explains Philip Markham, Falcon’s General Manager.

FAS is an eclectic mix of people from around the world. The Chairman is Salem Al-Kayoumi, an experienced ex-military jet and helicopter pilot who understands the region’s sensitivities and culture. Its General Manager, Philip Markham, is an Australian who lives with his family in Abu Dhabi. He has a background in engineering and extensive experience in both helicopter and fixed-wing operations in various parts of the world. He has worked with such companies as Bombardier, Abu Dhabi Aviation and Qantas Airways, where he managed the Royal Australian Air Force’s VIP Fleet of Boeing BBJ and Challenger 604 aircraft. Cal Fryer, a Canadian, is FAS’s Director Flight Operations and he has 22 years’ experience flying to the rigs in the region including nine years as the Chief Pilot at Abu Dhabi Aviation.

“We realized the other day, that the management team here has over 86 years of commercial operations experience in the UAE,” says Markham, “and so we’re not a new kid on the block”. He describes the team as one that could see the opportunities in the region and that wanted to deliver a quality product.

Markham is quick to point out that whilst the principal of FAS is certainly influential, he plays no part in putting deals together. “His Highness has made it very clear that we must grow and succeed of our own accord,” he said. As Abu Dhabi’s only fully privatized operator, the company maintains a very flat management structure; the key positions have full accountability along with the authority to make the necessary decisions to grow and improve the business. “It was made clear to me that we can make the quick decisions to buy new equipment in response to the market,” he explains “but at the end of the year it’s the balance sheet that counts. This is a business and one that must provide an acceptable return on investment.”

Up here, the 412 is the choice for offshore, the EC130 is the go for tourism work, the A109 for corporate air taxi and I believe the MD902/EC145 for EMS.
AgustaWestland's 139 is proving popular as a SAR helicopter in the region.
In July 2006, FAS won a SAR contract to supply the UAE military with two AgustaWestland AW139s, two Bell 412EPs, and crews for SAR duties throughout the UAE. The aircraft and crew are subcontracted from US-based Evergreen Helicopters and operate from the FAS facility in Abu Dhabi and two other military bases. "Evergreen’s ability to modify and equip each of the helicopters with FLIR, Nite Sun and rescue hoist in less than 55 days was nothing short of amazing," says Markham.

In September, FAS gained its UAE Air Operators Certificate (AOC). A month later it became an approved maintenance organization (AMO), and the company was officially launched in November. In the meantime, its fleet grew to eight helicopters including two A109s, two AW139s, two Bell 412EPs, an EC130 and an EC135. The company is also stepping into the fixed-wing support market having purchased a Gulfstream G450 and it is looking to introduce a second.

With the exception of the EC135, none of the aircraft is older than two years. Markham explains that the company would have loved to have had a single-source supplier for its helicopters but found that no one supplier built the ideal machine for each market. “At the moment – up here – the 412 is the choice for offshore, the EC130 is the go for tourism work, the A109 for corporate air taxi and I believe the MD902/EC145 for EMS. We would love to bring the S-76 on line for corporate and offshore work but it is such a long wait (2010 to 2011) for the new D model,” he explains. However, he is happy with the A109’s performance. “It really is the corporate air taxi machine of choice at the moment.”

The region is hard on helicopters. Machines that may work well in Europe

**EARLY SUCCESS**

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The region is hard on helicopters. Machines that may work well in Europe

**TOP LEFT:** The AW139 power is valuable for the summer desert temperatures.

**TOP RIGHT:** The UAE military SAR contract includes aircraft and crews sub-contracted from the US-based Evergreen.

**ABOVE LEFT:** FAS was impressed that Evergreen modified and mobilized the AW139s for the contract in just 55 days.

**ABOVE RIGHT:** A109s form the backbone of a growing VIP fleet being developed by FAS.
To the rescue – the AW139 has the room and power needed for desert operations.
or North America may not have the power to operate in temperatures that can exceed 45°C or have systems robust enough to handle the heat, corrosion and erosion. The company is also looking for more VIP support helicopters and is steering towards the Dauphin 365N3. “We looked at some other helicopters such as the EC155 but frankly the high density altitude conditions in summer here mean we need high performance (Cat A) machines and some current production aircraft are certainly marginal in that area,” explains Markham.

As far as the EMS market is concerned, Markham says it really came down to just two machines – the EC145 or the updated MD902, “...and some companies are easier to work with than others.” As a general comment, he says that all the helicopter manufacturers could learn from the fixed-wing OEMs. “Things like AOG support and customer response is something that the fixed-wing manufacturers do very well,” he says. “For some reason, the VIP/corporate market in the Middle East has been largely taken for granted or ignored by the helicopter manufacturers, although I think we’re now seeing companies such as MD Helicopters being a lot more active through distributors like Action Aviation.” But Markham also acknowledges that some OEMs are struggling with the intense activity in the helicopter market.

“When you have companies ramping up production rates from 25 to 200 helicopters a year, then there will be growing pains.”

FAS is looking to expand further into the tourism and corporate markets, offshore support and EMS sectors, and provide crewing and maintenance services throughout the region. “The Abu Dhabi Tourism Authority is making a big effort to develop tourism here and I see that we need to invest in a quality helicopter fleet to address the needs of that market” comments Markham. Indeed, Abu Dhabi has won the rights to stage a Formula One race in 2009 and is already a very active participant in offshore powerboat racing. The company has purchased another EC130 B4 to increase its capacity in the tourism market and is looking to buy a third. “The EC130B4 is probably the best here for tourism work,” Markham continues, “but for some reason Eurocopter has not replicated its military market success in the region’s civilian sector with FAS being the only commercial operator of its products in the UAE. Bell remains the benchmark when it comes to product support but it just doesn’t have modern products at this time to meet the market expectations.”

The EC130 is certainly becoming the backbone of what FAS hopes will be an active tourism market. The first
Agusta is winning the VIP market with the A109’s comfort, speed and availability.

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The shortage of pilots up here is seeing a bidding war going on between the established operators that is ratcheting up pay scales at the moment. The shortage of pilots up here is seeing a bidding war going on between the established operators that is ratcheting up pay scales at the moment.

A “CAN DO” CULTURE

In winning a contract to supply crews to the UAE armed forces for the eight AW139s that they recently purchased for SAR Operations, the company is taking on a new role as a supplier of qualified people. The challenge for FAS is in sourcing the right kinds of people and the company makes no apology for handpicking them. “The shortage of pilots up here is seeing a bidding war going on between the established operators that is ratcheting up pay scales at the moment. We won’t play that game and we offer what we regard a good package and realize it may be a little less than what’s on offer in the region. But we believe that money isn’t everything. People don’t leave because of companies, they leave because of management and we seek to be a good employer who cares about its people.”

Like other operators, finding experienced helicopter pilots and engineers is becoming more difficult as the world’s industry continues the high levels of activity that began about two years ago. According to Markham, the FAS management team’s vast experience has enabled it to develop effective networks around the world through which it is able to source the people that the company needs.

“We also believe in being "creative,"” he continues. “For example, we recently hired some pilots from Blue Hawaiian for our tourism work; they’re excellent people and really know their stuff.”

“Big Challenges

Establishing a company with the industry in its current state of frenzied

FAS also see significant potential for privatization in the EMS market. Markham explains that in order to capitalize on this potential – in a field that many may perceive as "government" work – FAS will have to produce data to substantiate its view that it is the right way to go, and this will take some time. If FAS is successful, it could signal a significant change throughout the Middle East as the countries’ populations are demanding quicker responses and greater access to the modern medical services that exist there.

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We are more interested in establishing good relationships with potential and actual customers. I think that if you are able to establish a trust, then the work will flow from that.
activity has been challenging for the managers. A particular source of frustration has been trying to obtain customer support from helicopter manufacturers with large order backlogs for new helicopters.

However, the real business challenge for FAS is in breaking into the region’s resource support sector. Abu Dhabi Aviation and Gulf Helicopters are the big players here and they are unlikely to make it easy for any new player to enter the competition. “All we can really do is knock on doors and hope to get a foot into the market based on our team, our collective experience and quantifiable success,” says Markham. “Once the companies see the quality of what we deliver then we will succeed, but one of the challenges we have is that the oil companies are locked into long-term contracts with existing suppliers.”

As well as the operations side of the industry, the company is looking to establish itself as the major maintenance support center in the region, intending to become an OEM-recognized service center. FAS recently signed up its first third-party maintenance customer from a private operator of a corporate Agusta A109E also based in Abu Dhabi. The company also provides technical support services and has staff contracted in East Timor, Nigeria and Dubai.

OPPORTUNITIES

As opportunities appear, the company believes that it has the resources to compete using new machinery and highly qualified people. However, it seems that it is not taking an overly aggressive approach to the market. “We are more interested in establishing good relationships with potential and actual customers. I think that if you are able to establish a trust, then the work will flow from that,” Markham explains. “We also have to think outside of the box and are prepared to look at innovative if not unique solutions to the market needs.” FAS’s position as the first operator of the EC130 in the UAE is evidence of this approach.

The people in Falcon seem to thrive on challenge and look likely to expand the company outside of the UAE in the not too distant future.
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It was out of tragedy and frustration that the largest and most technically-advanced Helicopter Emergency Medical Service (HEMS) in Europe was conceived. The story of DRF (Deutsche Rettungsflugwacht e.V. or German Air Rescue) is an ongoing testament to the power of a strong emotional desire to help others, born of personal suffering and loss.
**THE BJÖRN STEIGER** Stiftung (Björn Steiger Foundation) was formed by two parents whose young German son died as the result of a road accident on 3 May 1969. At that time there was virtually no air-mobile rescue service or effective ground-based rescue infrastructure in Germany, and tragically, eight year-old Björn Steiger died on the way to hospital after waiting an hour for land-based rescue services to arrive at the accident scene. Whilst German authorities of the time considered air-rescue services to be unnecessary and disproportionately expensive, the new Foundation soon realized that ground-based services needed to be augmented by air-rescue. This would enable major advances in preventing loss of life in time-critical medical emergencies.

By 1972 the Foundation was able, with donations, to finance its first civil air-rescue helicopter, a leased Alouette III. This formed the basis of what has become the largest, most modern air-rescue alliance in Europe, and DRF is still operated independently as a non-profit organization, supported by donations, sponsors and membership.

Today, with DRF’s partners, HSD, HDM, ARA and Helitalia (who make up “TEAM DRF”) the operation has grown to 44 HEMS bases and a fleet of 53 helicopters across Germany, Austria, and Italy. Their innovative approach to air rescue encompasses the latest technologies, including new flight following systems, moving maps and digital flight logs. On the medical side, every rescue helicopter is equipped as a mobile intensive care unit. These units have all the apparatus needed to treat a patient onboard as if they were in the hospital itself.

As Germany has a population of over 83 million people and the country covers over 357,000 square kilometers, effective air-rescue capability is of paramount importance. Of the four HEMS operations now active in Germany, DRF is the only non-government, not-for-profit organization and, while it is unique in the sheer scale of its operation, its objective, like all other HEMS providers, is fast and comprehensive patient support.

The majority of the DRF fleet (35 helicopters) comprises BK117s, BO105s and EC135s. The TEAM DRF alliance also

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**TOP:** Getting to a patient within the golden hour is crucial to giving them the best chance of recovery.

**ABOVE:** The EC135 gets called out to an emergency near the Black Forest, and lands in a private garden around 1,000ft MSL.
flies EC145s, A109s, Bell 412s, Bell 222s and MD 900s. By 2009 the BO105 will no longer be able to be used for air-rescue in Germany as a result of JAR-OPS 3. This regulation will mean that all aero-medical transport helicopters, whether used for HEMS or ambulance duty, will have to meet Performance Class 1 specifications. Although the 105s have a couple of years before their graceful retirement, DRF is replacing them with EC135s and BK117s.

The DRF network within Germany is made up of 29 air-rescue bases and each base is home to one helicopter, with each base covering an approximate radius of 50 km. When an emergency call comes in, dispatch decides which emergency vehicles are needed for the mission. Should a helicopter be required, the alarm sounds and often the machine is airborne before the pilots receive details of the destination or the medical condition of the patient. Each DRF crew includes one pilot, a paramedic and an emergency physician. At a typical base like Leonberg, near Stuttgart, three pilots, six paramedics and 14 doctors rotate shifts. Pilots work for up to seven days

With 36,499 missions flown in 2006 alone, DRF has undoubtedly saved many thousands of lives since the avoidable and tragic death of Björn Steiger.

ABOVE: The EC135 cockpits are kitted out with the Canadian SkyTrac flight following system, and the DRF hope to have the entire fleet using the system by the middle of the year.

LEFT: The helicopters are maintained by the DRF at their own maintenance facility at the DRF-Operation-Center in Baden-Baden.
with seven days off-duty, and must rest for at least ten hours between shifts. They are on duty for a maximum of 2,000 hours a year. Leonberg operates an EC135, Christoph 41. Its FADEC-equipped engines allow a very quick response time from the moment the emergency alarm sounds to the time the skids leave the ground. Michael Klippert is one of the three Leonberg pilots. He says, “Of the three helicopters, I prefer the EC135. It gives us a good lookout and ergonomic position, and the FADEC is very important in our line of work since we have a legal obligation to reach the emergency within around 15 minutes. The fast start-up and shut-down is also useful at the scene if there are lots of people around; you don’t really want the rotors turning for too long with children running about.”

Each rescue helicopter flies an average of three missions a day, although during summer this can increase to seven or eight. “The highest number of missions I have flown in one day is around 12,” Klippert remarks. Since each emergency mission takes about an hour on average, a day like that would result in the HEMS crew working practically non-stop. “Days
are longer in summer and people are more active. They go cycling, swimming, and mountain climbing, so it’s more likely accidents will happen,” he adds. “People ask if we get traumatized seeing so many accidents. The thing is, accidents happen whether we are there or not, and by going on a mission we are doing the best we can for the patient. Helping them gives us a good feeling. We are not heroes, we’re just normal people doing our job and we have to stay focused on that.”

The EC135 usually flies two or three missions before refuelling, and because it sits on a trolley, getting it to the pumps or in and out of the hangar is quick and easy; it has to be because the alarm could sound at any moment. If a helicopter develops a problem and can’t fly, a mobile maintenance team is immediately dispatched. However, if the problem cannot be rectified within three hours, a replacement helicopter is delivered to the base.

Each rescue base has access to weather information from the German weather service, but there are very few weather stations in the country and the information can be unreliable. Pilots must therefore rely on their local knowledge and experience to gauge suitable flying conditions. “After ten years at Leonberg you get used to the kind of weather you can expect, and you know if it’s flyable,” says Klippert. Most TEAM DRF operations are day VFR, with the exception of eight bases where they also fly night VFR operations. Weather minima are prescribed by JAR-OPS 3, with no special dispensations besides the German “Good Samaritan Laws”, where any citizen may “bend” regulations in the interest of saving life.

Every day pilots make important decisions about weather and other hazards; HEMS crews never know where they are going until the last minute, every mission bringing a new challenge and yet another unfamiliar landing site. Even with HEMS crew members (who are also trained in navigation and other aviation subjects) lending an extra pair of eyes, it’s not always easy to spot hazards like wires and loose objects. Last year a helicopter landed at a factory in Regensburg, and a metal sheet which appeared to be secured, flew up and came down through the rotors causing severe damage.

The Leonberg rescue center receives between three and twelve emergency call-outs every day, depending on the time of year.

Weather minima are prescribed by JAR-OPS 3, with no special dispensations besides the German “Good Samaritan Laws”, where any citizen may “bend” regulations in the interest of saving life.
The alarm sounds and often the machine is airborne before the pilots receive details of the destination or the medical condition of the patient.
damage to the blades. Luckily it caused no serious injuries. Klippert remarks, “If I cancel a flight, or abort a mission, I’m never questioned about it. During all my years with DRF we’ve only had to leave the helicopter at an accident scene three or four times due to weather. When we make a decision the company accepts it and never puts pressure on us to take risks; that’s the way we like it to be.”

HEMS pilots can end up landing in some peculiar places to get to the patient. Franz Winklmaier, one of DRF’s air-rescue pilots, describes one of his most memorable experiences. “Some years ago I had to land – well – hover, with one skid on a boat on the Rhine River, as there was not enough space to perform a landing. The doctor and paramedic left the helicopter whilst I hovered it. I had to fly out of there pretty quickly as the ship was heading for a fog patch. Fortunately the patient wasn’t critical so our medical team remained on board with him. Every landing is unique!”

ADVANCED TECHNOLOGY

DRF hopes to have the Canadian developed SkyTrac system fitted to the entire fleet by the middle of this year. Andreas Losberger, responsible for Fleet Planning at the Karlsruhe/Baden-Baden Airport Operations Center comments, “We’ve been testing the flight-following system since 2005 and have already installed it on 15 of our helicopters; our plan is to equip each helicopter as it comes in for a 600-hour service.” SkyTrac is linked to the moving map in the cockpit, improving communication

Every rescue helicopter is equipped as a mobile intensive care unit. These units have all the apparatus needed to treat a patient onboard as if they were in the hospital itself.

TOP LEFT: The crew unload the empty stretcher as the doctor treats the patient at the scene.
LEFT: Moments later the patient is brought to the helicopter and transported to a specialist hospital for further treatment.

OPPOSITE PAGE
TOP LEFT: HEMS pilot Michael Klippert describes emergency areas covered by Christoph 41.
TOP CENTRE: Finding a suitable landing site that isn’t too far from the accident scene can sometimes be tough.
TOP RIGHT: The majority of the DRF fleet have a moving map system in the cockpit.
RIGHT: The medical equipment on board one of the EC135s turns the helicopter into a mobile intensive care unit.
BOTTOM LEFT: Doctor Susanne Parade will deliver emergency care to the patient at the scene.
BOTTOM RIGHT: Back at base, the flight following system provides an overview of all the active helicopters with their respective locations and availability.
The DRF helicopters are regularly seen flying over Stuttgart and other parts of Germany with over 50 helicopters flying several missions every day.

between emergency dispatch, the rescue bases and the helicopters, ensuring fast and efficient medical care in rural areas. Dispatch sees the exact position of each helicopter in real time and can contact and direct the closest available aircraft to the emergency. In the future, mission data will be sent straight to the cockpit, and DRF will update software continuously using Jeppesen GPS data via PCMCIA cards or hard disk replacement.

As in all industries, computers have revolutionized the “paper-war” and DRF no longer relies on paper tech-logs. After each mission the pilots enter flight details onto an electronic system, enabling maintenance to see exactly how long they have until the next inspection. The planning system is updated with this data nightly, and each morning a watch list is generated showing the helicopters and parts due to expire. “We have been using this system for five years, and it’s really helpful,” Losberger remarks. “It makes it possible to look up flight logs within seconds, and it’s useful when it comes to ordering parts or planning services.” In a move to bring every system into the electronic age, DRF is also developing a similar piece of software for technical maintenance logs, as a joint venture with a software company. “There’s an incredible amount of data-programming required to get this system up and running, but we hope to have it ready within about a year,” Losberger adds.

The maintenance hangar has six parallel helicopter bays which are nearly always in use for inspections and major services. Each helicopter base is also an approved line maintenance station with six mobile technicians who carry out inspections and minor maintenance on-site, usually over-night to reduce downtime. These “small” inspections include everything up to a 150 hr service on a BO105, a 300 hr check on a BK117, and a 400 hr on an EC135. The maintenance facility also comprises full workshop facilities. DRF employs over 40 mechanics and inspectors, who also fit the helicopter-borne medical equipment on-site. EASA regulations permit airworthiness reviews and inspections to be conducted on-site by DRF’s own personnel; these are certified by the Luftfahrt-Bundesamt (LBA-German CAA) and reviewed during regular audits. The
DRF has also been recently approved to EASA Part 21 (design organization approval). Air-rescue does not come cheap. Each new helicopter kitted out with medical equipment can cost in excess of 3.5 million Euros (US$4.5 million), and that's without considering ongoing costs. DRF has learnt that the best way to minimize those costs is to keep everything in-house, from maintenance to pilot, HEMS crew and doctors’ training. Their Type Rating Training Organization (TRTO), Part-145 maintenance facilities and Operations Center ensure that everything can be done under one roof without the need to ferry aircraft around the country. Rüdiger Bosch, an instructor and examiner, co-ordinates the pilot training six times a year. “Each of our 70 DRF pilots must complete a training week comprising practical and theoretical flight techniques, first aid, fire-fighting, airport security and two flight checks with an examiner every year.”

All the DRF’s pilots have a minimum of 2,000 hours in helicopters, and some have amassed up to 12,000 hours. Many were former Army or Border Police pilots, but with far fewer pilots from state organizations entering the civil market, some argue that eventually there will be a pilot shortage. The DRF has already started hiring civil pilots who have obtained their CPL(H) privately, and currently employs four or five young pilots who learned to fly outside of the military. Three of them trained in the USA, then came back to fly for small German companies doing power-line control flights until they had built enough hours to fly air-rescue missions. Winklmaier, who is also head of training of the TRTO, explained how new pilots
obtain their type ratings. “If a pilot joins the company without the ratings, we take them through 40-50 hours in the classroom and eight flight hours plus a check-flight, which lasts around an hour and a half.” After that, the pilot flies at least 10 missions under the supervision of an experienced pilot.

In barely 35 years DRF has led Germany from an almost non-existent rescue infrastructure to the forefront of world HEMS standards. Every aspect of the operation is to the highest standards found worldwide, and the people that make up the organization reflect the pride and confidence that goes with such an outlook.

With 36,499 missions flown in 2006 alone, DRF has undoubtedly saved many thousands of lives since the avoidable and tragic death of Björn Steiger. I have no doubt that his parents still mourn their child, but I am equally sure that the rest of Europe is forever in debt to their subsequent efforts and vision. DRF is a superb example of what can be achieved with dedication, foresight and commitment to excellence. It is an example to the rest of the world – a fine memorial to one child and a great legacy to those still living.

The sun sets on the Leonberg rescue center and the helicopter is put away ready for the next day’s rescue missions.
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Once a year an opportunity arises that anyone and everyone, including the Who’s Who of the industry, gather in one place at one time to showcase and find out about the latest and greatest in rotorcraft technology. This March 1-3 – Orlando Florida was THE place to be.

**Feedback from the FLOOR**

Cockpit modernization was a hot topic at the show with plenty of options on display.

Suffolk County Police took delivery of their brand new multirole EC145 at the show.

The Eagle Single attracted plenty of attention.

A potential customer tries out the interior of the new S76D mockup.

The new look R-44 with a glass cockpit.

**HELIEXPO 2007**

**STORY BY MARK OGDEN**

**PHOTOS BY ROB NEIL**
Heliops recognises that Heli Expo brings together the global helicopter industry, so we were there in full force. We brought in the team from around the world to provide in-depth and informative coverage from the Show floor. Mark and Sarah Bowen from the UK, Phil Croucher from the UAE, Nick Lappos and Greg Davis from the US, HeliOps’ editor, Mark Ogden from Australia, and of course this writer and HeliOps’ publisher, Ned Dawson from New Zealand.

It might not have had the level of “razzmatazz” as the Dallas event, but sales of helicopters announced by the end of the second day (with a day still to run) exceeded US$732 million! This was an amazing US$112 million more than at the same time in 2006.

The “SECRET-THAT-HAS-NOT-REALLY-BEEN-A-SECRET”

While there were few major product unveilings, the impact of those that were announced has the potential to be great. In particular, two separate product announcements by different manufacturers offer exciting possibilities at the smaller end of the helicopter market. The whispers within the industry were finally confirmed by both Rolls-Royce and Robinson. It’s official – there is to be a Robinson R66 and it will be powered by the new Rolls-Royce RR300 turbine. The world’s biggest selling helicopter company now looks poised to become the world’s even bigger selling helicopter company.

Rolls-Royce had a mock-up of the RR300 on display, although there was nothing to see of the proposed R66 at the Robinson stand. Negotiations between Rolls-Royce and Robinson have been underway for a long time – as many have guessed. By all accounts, it was a little bit of a “Catch-22” for both companies, with Rolls-Royce being understandably reluctant to commit to an entirely new engine without a specific market, and Robinson understandably...
reluctant to design a completely new helicopter without an appropriate engine to power it.

Robinson had always insisted that it would not consider a turbine machine if it could not fit with the company’s ethos of “simplicity and affordability.” Its helicopters’ simplicity and affordability (particularly in relation to their effectiveness) have always been key to Robinson’s success. The fact that Robinson is to begin producing a turbine helicopter must mean that Rolls-Royce has come up with a winner in its RR300. It will also mean that whole new generations of helicopter pilots will be able to remain in the Robinson family from ab-initio entry to the helicopter world in the R22, through CPL and either private ownership or basic commercial work in the R44, to now being able to transition to larger turbine machines via the new R66. The R66 will be a five-place or – as Kurt Robinson put it – “a true four-place plus fuel and bags” helicopter.

It will be interesting to see how many other manufacturers begin looking at Rolls-Royce’s RR300 to power their various offerings in the near future.

Other new helicopter announcements at the show were Sikorsky’s first SAR-equipped S-92 for the UK Coast Guard.
that are currently working on SV systems of their own) convince regulators (and pilots) that it is effective and workable. Heli-Expo – like other aviation trade shows around the world – serves to highlight to the wider industry that these companies are serious about investing in such technology.

**Bell’s Big Bombshell**

Big news of the Show was Bell’s cancellation of its 417 helicopter program, just a year after it was announced at Heli-Expo 2006! There were many differing views on Bell’s decision to axe the 417 (for which it had 130-odd orders). Bell has perhaps been a victim of its own success, in that the company – like many other manufacturers – is struggling to meet the enormous demand for new machines. By cancelling the 417, it will be able to concentrate on other programs and to maintain its high level of support for existing products.

Many were disappointed at the
With the demand for helicopters of any kind at an all-time high, it is not surprising that re-engining is becoming an increasingly popular option for operators who want to upgrade but are unable to obtain new helicopters.

Tilton herself makes no bones about the fact that the full recovery process will take “at least two years” but her claim that it will not only recover but will surpass the MD of old is not made lightly; she knows full well that her credibility rests upon her word.

MD plans to deliver 48 aircraft in 2007: 26 single engine and 22 902s. (It plans to deliver between 70 and 80 in 2008). These are the numbers of helicopters that Tilton knows MD can deliver – it might be able to deliver more, but Tilton refuses to promise anything she cannot guarantee (She has twice deferred delivery of her own MD902 to promote customers’ deliveries).

It was a happy (and busy) sales team on the MD stand in 2007, with more than 60 aircraft ordered. As MD’s Director of Sales and Marketing, Christian Giller, remarked: “It’s a totally different mood this year, for us and the customers. We’re back!”

Of all the smiles at Heli-Expo, the biggest must have been those on the faces of everyone at Eurocopter. The company continues from strength-to-strength with an order backlog value of €11 billion at the end of 2006!

Recently appointed Eurocopter CEO Lutz Bertling spoke about the company’s record year in 2006: 615 orders (up from 401 in 2005), 381 helicopters delivered (compared to 334 in 2005) and an 18 percent increase in turnover to €3.8 billion. When asked about Eurocopter’s historically poor record of after-market support, Bertling said the company has changed the way it measures AOG performance. He said the company

**LEFT:** Canadian operator London Air Services had the second of 3 AW139’s they have ordered on display on the Agusta Westland stand.

**ABOVE:** French engine manufacturer Turbomeca wasn’t to be outdone when it came to stylish displays, and was easily recognizable.
would now be measuring itself upon actual delivery of spares to the customer rather than, as was previously the case, by the state of its global inventory. He acknowledged that it did not help to have spares in existence and sitting on Eurocopter’s shelves if they were not reaching the customers.

At the Eurocopter briefing, Bertling presented the crews of Hong Kong’s Government Flying Service with awards for their bravery and professionalism in rescuing 91 people at sea during a typhoon in the South China Sea. The presentation was a heart-warming celebration that drew a well-deserved standing ovation for the three Government Flying Service representatives present to receive the award.

New Zealand company Flightcell International attracted significant interest from a number of high-profile customers for its DZM flight tracking and data transfer module. Already fitted to numerous helicopters in New Zealand, including Auckland Rescue Helicopter Trust’s latest machine, the Flightcell DZM (which is brand new to the market) is achieving significant sales success internationally. While there are other systems that perform some of the functions that the DZM does, it really has no direct competitors and is in a class of its own in its ability to track aircraft anywhere on earth, and send and receive data – and integrate all onboard communications via cell phone or satellite phone – all simultaneously, and all in a package weighing only 500 grams!

Simulation continues to be a big and increasing business around the world, and there were a number of different simulators on display including – in addition to the more commonly configured pilot simulators – a full-motion, head-mounted display “helmet” simulator, built by Atlantis Systems International of Canada, that is designed to teach autorotations. While initially designed to teach autorotations, the unit can be configured to train pilots in such things as deck landings or sling work.

With the demand for helicopters of any kind at an all-time high, it is not surprising that re-engining is becoming an increasingly popular option for operators who want to upgrade but are unable to obtain new helicopters. There
were several companies offering re-engining options for various models, including different versions of the Bell Huey and Eurocopter AS350 families.

Other upgrade options included any number of fascinating and attractive instrument refits and installations by several manufacturers including Sagem Avionics’ particularly striking “glass-cockpit” display in a Robinson R44.

As visually impressive and exciting as such shows are, perhaps their greatest value lies in the opportunities they provide for so many members of a unique and wonderful industry to get together face-to-face, shake hands and talk deals.

Opinion was unanimous amongst those I talked to on Day Three of the show. Heli-Expo 2007 had been a big success. Visitor numbers were up, sales were up and confidence was up. “Not as exciting as last year,” was a comment heard once or twice, but it referred more to the absence of flashing lights and “razzmatazz” than to the real excitement – the networking and sales opportunities that are simply not possible outside an event like Heli-Expo.

HAI is to be congratulated for a job well done in hosting the 2007 Heli-Expo. As the Orange County Convention Centre’s doors closed behind the last Heli-Expo exhibitor, organisers may have breathed a brief sigh of relief that another year’s expo had gone off without a hitch but as anyone who has attended the massive event will understand, HAI is already hard at work preparing for the 2008 event in Houston. Can’t wait – see you all there!

“I found that the “old-timers” (those who have attended many Heli-Expos), noticed the lack of “buzz”, but still agreed that it was more worthwhile than previous events, while the “first timers” appreciated the value of the networking opportunities such a venue provides.”

HeliOps’ UK Editor, Sarah Bowen

“The event brought to mind the song by Prince, “1999”. Everyone I spoke to realized they were all part of a giant industry “bubble”, the likes of which none of them had ever seen before – and they all realize things will undoubtedly get “ugly” one day. However, until then, – like it says in Prince’s song – they’re partying like it’s 1999!!!”.

HeliOps’ legal correspondent, Robert Van der Vurst

“I missed the “buzz” but loved the show. The standout event seemed to be the opportunity to assess the industry’s important issues through the opportunities to network with long-time colleagues as well as new contacts.”

HeliOps’ Editor, Mark Ogden
If there’s one thing that helicopter operators like to complain about and the first thing they need when things go wrong – it’s insurance. CHRIS ESPOSITO, a licensed commercial and instrument-rated helicopter pilot and a licensed insurance agent, explains the subtleties of insuring your helicopter.
HELIICOPTER PILOTS are a rare breed, and while most insurance companies think we laugh in the face of danger and fly into places you couldn’t squeeze a small car, the reality is that we are generally a responsible bunch. A helicopter demands a certain amount of coolness, a light but sure touch on the controls, and a pilot who thoroughly understands the machine. You would think that with such professionalism and knowledge, insurance companies would be clamouring for business. However, many insurance companies are quick to run and hide when asked for a quote. To be fair, there are insurance companies that will gladly offer terms but there are others that will decline no matter what seasoned insurance agent you send against them. The key is to know what programs to look for and to find an agent who understands your operation and your helicopter.

UNDERSTANDING FROM ALL ANGLES

As an insurance agent, I can sometimes understand why some insurance companies hesitate to quote on an aircraft with a thin aluminium airfoil ripping through the air at 300 mph. As a helicopter pilot, I can see why so many helicopter operators are frustrated by the insurance industry. Helicopter insurance premiums are expensive because there are so few helicopters operating compared with the fixed-wing aircraft with which they share the skies.

Insurance companies relish statistics and rely on such numbers to determine premiums, so they are understandably cautious when dealing with the limited number of helicopters out there. I have seen $8,000,000 jet premiums that are less than a $360,000 helicopter (the insurance premium was around $30,000 a year). Unfortunately, having an annual insurance premium at about 10 percent of a helicopter’s value has become almost the norm, despite the fact that many of us never have an incident, let alone an accident. It can be incredibly frustrating to know that your operation has grown to

TOP: These wirestrike in Australia added one more X to the statistics database and was actually a wire from the power pole to the ground that caught out this pilot. Because of dense bush backgrounds many of these wires are nearly impossible to see.

ABOVE: The pilot of this Bell 206 that hit wires while doing ag work in New Zealand, became yet another statistic. For ag pilots, wires are by far the biggest danger they have to face.

OPPOSITE PAGE: Low level and in amongst wires has always been a high risk environment when working on fire-fighting tasks.
be more experienced and safety-oriented, yet your insurance premium remains high year after year.

Another thing to consider is that helicopters are rarely “dinged”; when they do have a loss, it is more often a “big one” for the insurance company. Most fixed-wing accidents are landing-gear or ground-related incidents that are not usually a total loss. As any helicopter owner or operator knows, helicopter parts are expensive – even minor mishaps are never cheap to fix, and a rotor-strike is an expensive ordeal. From a liability standpoint, those moving parts carry a lot of energy, and in the event of an emergency, people and property outside the aircraft could be in serious danger from debris.

Accident rates are also much higher for the civil helicopter industry than they are for aeroplane operations. This is due to numerous factors, ranging from the lack of available simulators for specific helicopters, to the task and complexity of the machine itself. Many insurance programs require extensive simulator training on a yearly basis for jet aircraft, but it is much harder to find a suitable helicopter simulator course that would accomplish the same goals. Insurance companies look at all of these factors, and helicopters are simply less common and more expensive than their fixed-wing counterparts.

**SO WHAT CAN YOU DO TO LOWER YOUR PREMIUM?**

As disheartening as this may seem, there is hope for those who prefer flying-wing flying. There are several excellent programs for specific helicopter manufacturers, including Robinson (through AIG), Bell/Eurocopter (through USAIG) and Schweizer (through W Brown). Airborne law enforcement, municipal, and governmental operations have special programs and underwriters as well. As with all aviation insurance, a good agent can help to secure a solid quote. Ask about their experience with helicopters; their relationships with helicopter underwriters can make a difference in the premium you are quoted.

If you are operating a helicopter fleet, a meeting with your agent and the underwriter at your location can
help them understand your needs and allow them to see your commitment to safety. Structured safety programs and demonstrated risk management systems can greatly affect the underwriter’s understanding of your operation, and can lead to substantial premium reductions.

Solid maintenance programs are important assets when trying to negotiate a low premium. Operators should also keep in mind that certain helicopter models have been proven over the years, while others may be new to many underwriters and accordingly have higher insurance premiums. Programs such as the USAIG’s Bell/Eurocopter program target specific models, which the underwriters are more comfortable quoting from a risk standpoint.

Training goals should also be considered; sending pilots to school prior to having them added to aircraft will make underwriters more receptive to any pilot changes your operation may have. Also, many insurance companies view the FAA-mandated currency requirements as bare

Unfortunately, having an annual insurance premium at about 10 percent of a helicopter’s value has become almost the norm, despite the fact that many of us never have an incident, let alone an accident.
but because of the high cost of a turbine (and the maintenance involved), most schools prefer using piston aircraft for training. There are a few operators I know of that offer turbine-only training, and some flight schools are making their entire fleet turbine. Since turbines are historically more reliable, there should be a decrease in insurance rates for “turbine” schools (related to the hull value), and as the prices come down this may make some flight schools more attractive to underwriters.

Instructor qualifications should be taken into account as well; a low-time instructor with little flight training experience will obviously be less attractive to an insurance company than someone with years of instruction under his or her belt.

As a pilot insuring your personal helicopter, logged rotorcraft time is your most important asset. As you build hours in a specific aircraft, you will often see a lower premium on renewal. With more complex helicopters, completing specialized training may make a difference as well. Be sure to check for programs that pertain to your specific aircraft, as you may notice substantial savings through some underwriters.

You should also consider carrying liability-only coverage if the aircraft has no outstanding loan. Paying for any damage to the aircraft yourself may make more sense than spending $30,000 a year to insure your Enstrom, and

**BE CAREFUL**

Helicopter flight schools understand the high cost of insurance and they are forced to pass this cost onto their students. This can force them to settle for substandard insurance coverage. Minimums, and obviously prefer extensive pilot training at frequent intervals. The Bell and Eurocopter programs through USAIG actually take training a step further by allowing preferred policyholders to redeem up to $30,000 a year in “safety bucks”. These safety bucks can be used for flight and maintenance training, and the USAIG has seen a decrease in accident rates since the scheme began.

Helicopter flight schools understand the high cost of insurance and they are forced to pass this cost onto their students. This can force them to settle for substandard insurance coverage.
liability coverage will protect you in the event that you damage property or injure someone. While it is usually a good idea to buy all the insurance you can afford, a $3,000 liability-only policy for a $100,000 helicopter might make more sense to you than spending $10–15,000 a year to insure the hull as well. Seek guidance from a qualified aviation insurance agent for recommendations specific to your circumstances.

WHEN IS A BARGAIN NOT A BARGAIN?

Always use a licensed agent and an admitted insurance carrier. A popular non-admitted manufacturer’s program automatically depreciates the aircraft’s value as it accumulates hours. This program also requires that you pay the expenses to recover the downed aircraft and return it to the factory for repair, and it requires that you share any liability insurance you buy with the manufacturer. Sure, you will pay a smaller premium, but you may incur thousands of dollars in other costs in the unfortunate event of a claim. These relocation and transport expenses coupled with the automatically reduced hull value and halving of your liability coverage can be a huge burden.

It is important to understand all the policy terms and conditions; the last thing anyone wants is a surprise when they need their insurance company the most. The “bargain” insurance company may not be such a bargain when you don’t have the coverage you need.

Special attention should be paid to the covered territory of your insurance policy, and make sure to discuss your operations with your agent to determine if it will be necessary to expand the covered territory beyond the standard. Consider the issuing company also; their location may require that you carry higher limits than in other areas, or comply with special regulations. When flying into Mexico, for instance, you are required to carry insurance through a Mexican insurance firm, even if your policy includes Mexico as a covered territory. That means you may find yourself in hot water if you are without the proper paperwork (despite the fact that your insurance company will pay the damages). Obviously special care should be taken when travelling outside your normal operating area.

WATCH THE FINE PRINT

To avoid any problems with your insurance company, be sure to always operate within policy guidelines. Special attention should be given to the open pilot warranty (if there is one); this will explain the qualifications necessary to act as pilot-in-command of the aircraft and still keep coverage in effect. Also pay attention to any “fine print” in the policy; an example of this would be recurrent training requirements. Most policies will require recurrent training at an approved school – if you are unsure about a school being accepted by your insurance company, ask your agent to check for you. Assuming anything about an insurance contract is likely to come back and haunt you later. Also, while most policies cover the removal and disposal of wreckage (or the relocation of a damaged aircraft), it is extremely important that you understand your insurance company’s role in the process. As I have stated, certain non-admitted insurance carriers will require
Bell 206, which has been around in one form or another since the 1960s, is likely to cost less to insure than a new design. The statistics the insurance company crave are there, and they are able to determine exactly how the helicopter has performed from a risk standpoint. It is also easier to find training programs for that helicopter, and many instructors are thoroughly familiar with it. Twin-turbine helicopters are also more attractive to insurance companies due to their reliability and improved safety. Corporate transportation and touring operations should see better insurance rates (related to the aircraft's value) with twin-turbine helicopters. For flight schools, the most common aircraft are the Schweizer 300 and the Robinson R22. This is due, in part, to the simplicity of the aircraft and the lower insurance rates available for them. That being said, there is a place in the insurance market for any helicopter. I have had success insuring everything from Rotorway experimental helicopters to turbine Alouettes. What it really comes down to is your experience, the precautions you take in ensuring safe flights, and how hard your insurance agent is willing to work for you.

FOLLOW THE GROUND RULES

Insurance companies want to work with you, but there are situations where insurance simply will not pay, and these situations should be avoided at all costs. Flying outside of a covered territory, having an unapproved pilot operating the aircraft, inadequate maintenance, and unapproved operations are all examples of what might leave you wide open to litigation. Obviously a touring operation should not be giving instruction, and in the event of a claim the insurance company would cite your disregard for policy guidelines as their reason for not covering you. Not maintaining aircraft to the specifications required by government regulations is not only foolish, but it is also another way to anger the claim department of your insurance company. If you follow the rules, take adequate safety precautions, and avoid pushing the limits of the “grey areas” of your insurance policy, your insurance company will be there for you when you need them.

One last aspect to consider is the aircraft itself. A helicopter such as the Bell 206, which has been around in one form or another since the 1960s, is likely to cost less to insure than a new design. The statistics the insurance company crave are there, and they are able to determine exactly how the helicopter has performed from a risk standpoint. It is also easier to find training programs for that helicopter, and many instructors are thoroughly familiar with it. Twin-turbine helicopters are also more attractive to insurance companies due to their reliability and improved safety. Corporate transportation and touring operations should see better insurance rates (related to the aircraft’s value) with twin-turbine helicopters. For flight schools, the most common aircraft are the Schweizer 300 and the Robinson R22. This is due, in part, to the simplicity of the aircraft and the lower insurance rates available for them. That being said, there is a place in the insurance market for any helicopter. I have had success insuring everything from Rotorway experimental helicopters to turbine Alouettes. What it really comes down to is your experience, the precautions you take in ensuring safe flights, and how hard your insurance agent is willing to work for you.

Avoid pushing the limits of the “grey areas” of your insurance policy.
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Columbia’s exceptional maintenance facility is a one-stop shop, able to meet all depot level maintenance requirements for internal and external customers.
I CRANK the light turbines, which quickly jump up to full rpm, and softly light the LCD panels with signs of their health. The ceramic turbines are the same as those that power commercial truck transports, eat bio-diesel fuel with nicely controlled appetites, and are so reliable that between the three of us who own this machine, we can't remember hearing of a field failure. The turbines run smoothly, but do sound like a dentists drill every now and then – no wonder, when each tiny turbine is spinning at about 50,000 rpm! The new left hot section works well; we slipped it into the power module last week (it had reached its three-month replacement time, so we had to tear open the package on one of the spares we had bought in bubble cards, just in case.) Those single-crystal turbines just keep on spinning, don't they!

I warm up the “IFR-like VFR” kit, which hums softly for the first few seconds. Like video gamers who walk through Jurassic landscapes or fight their way through medieval castles wearing wide field of view glasses, as I fly at night and in weather, I can see full color moving images of a world that only exists inside the navigation data base, housed in computer video memory. As I slip on the wide-field projection glasses, I can see the test pattern waft slowly across the screen from the far left to the far right, overlaid on the real world scene through the windscreen. As the kit aligns itself, I can see the projected window frames on the display slowly walk over until they overlay the real windshield boundaries. I fly regularly in a blend of real and artificial images, blended to give me the view I need, even when clouds touch the ground. If I weren’t so cheap, I would have bought the FLIR module, and would have the wide-field infra red sensors coupled into the device, so white-out and brown-out conditions would be transparent, but as I said, I am just a bit too cheap.

With this Visionics kit installed, I can fly any VFR helo on instruments without expensive autopilots, because the display makes the world look like a good visual simulator. Thanks to those rabid video gamers, this kit costs only $199.95, and is rock-solid reliable, since it contains liquid crystal technology that has been around for 20 years.

As I lift to a hover, I debate whether to engage the fly-by-wire controls in Helo mode, or just drop the machine into Drive and let it do all the detailed work. In Helo mode, it flies like the Bell 47 I loved so much at Ft Rucker, and makes me lust after those early days when it took real work to keep the greasy side down. But today I am just out for a stroll, so I use Drive, and the velocity-stabilization is engaged. In Drive, all I have to do is press on the small joystick to select the direction, and let the speed build to what I want. From hover to Vne, the machine just does what I ask, and I don’t have to juggle attitude, winds or turbulence. If there is a flight-control failure in any module, the maintenance tag will capture it in the HUMS, and I will just have a new card popped in before the next flight.

The belly laser is working overtime as I pass over the newly strung wires at the end of the heliport. The controls have logged the position of the wires into their memory as a new patch in the Jeppesen map base, so those wires are now a permanent part of what the controls “know” about home base. Next time I fly near them, the controls will be sure to prevent me from hitting them – after all, the FBW has the “Prevent Mode” hard wired into Drive. If I actually tried to hit the wires next time, the controls would gradually fade my control power, and at about three meters from them, I would find myself pushing full stick into the wires, with my request just canceling the “Prevent” mode protection. My instructor demonstrated this to me when I first flew – she actually just drove toward the hangar wall, pressing on closer to the concrete until the aircraft just stopped, and sort of bobbed in and out, like a trusty hunting dog that won’t jump off the cliff, no matter how firmly I command him! If I were doubly silly, I could override the Prevent mode with the button on the cyclic, but the record of that move would make my insurance agent very, very angry.

By 175 knts, I am awash in the views this world has to offer – the real view as the salt marsh skims through my chin windows, and the artificial one as the nav system superimposes a faint red glow around traffic 2 miles away until my eyes center on it for a second. The auto-detect then fades the red, because the aircraft knows I saw that conflict.

Well, I can’t keep this running dialog going, having too much fun. See you later!
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