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COVER FEATURE: HARVEST OF TERROR (EXCLUSIVE)
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A QUESTION OF SURVIVAL
While it is one thing executing a successful forced landing onto a bitter ocean, being able to egress from a capsized helicopter without drowning or freezing to death in the process is something else. SARAH BOWEN checks out the latest in underwater escape training. 46

IRISH HELI EXPO
Punchestown Racecourse and Exhibition Centre, County Kildare, became THE helicopter hotspot from the 6th to 8th June as the inaugural Irish Heli Expo drew in the crowds from Dublin and beyond. Has this “first of its kind,” invitation-only event proven that the Irish helicopter market is stronger than ever? 57
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.

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The BOI considered 44 Terms of Reference and it deliberated for almost 20 months, considered evidence from more than 160 witnesses, reviewed 560 exhibits, conducted hearings over 111 days and produced approximately 10,000 pages of transcript. The full report includes 759 Findings and 256 Recommendations for improving aviation safety and is available for download at http://www.defence.gov.au/sea_king_boi/board_of_inquiry.htm

As background, the crew were conducting humanitarian aid operations. During final approach to a village, the helicopter adopted a 55° nose-down attitude before impacting the ground. A severe fire ensued. The accident was survivable but many of the deaths were attributed to safety deficiencies in seating, restraints, cabin structure and materials representing heightened impact, flail, and toxic smoke hazards and escape impediments.

There was a failure of the flight control system caused by the separation of the fore/aft bellcrank from the pitch control linkages in the helicopter’s mixing unit. This was the result of a series of maintenance errors and non-compliances some 57 days before the accident. Basically, somebody didn’t put a split pin in and the nut holding the linkages undid.

The unscheduled maintenance that led to the accident was characterised by a series of errors, oversights, inadequate supervision, repeated non-compliance with maintenance regulations, as well as poor communication and coordination between shifts.

When examining the actions of individuals, the inquiry found that the maintenance error and non-compliant practices were recurrent within the parent Squadron. So while individuals had erred or been non-compliant on the ship, their actions had almost been indoctrinated at an organizational level where violation had become the norm and almost expected. Although the Commanding Officer (unit manager) had identified the problems within the Squadron, he came to the conclusion that the embedded culture of shortcuts and work-stands had become entrenched, identifying this to higher command (senior management) but then reassuring them that the problem was being managed. This is not surprising to anyone in middle management where admittance that help is needed can be viewed as poor management. The message here is that while an operator needs a good reporting and assessing system there is also a need to for the data to be processed to form the ‘big picture’ and then action can be taken. Constant error can indicate that the system is too complicated or that compliance at best difficult and other measures need to be taken to either eliminate the error or at least minimise the impact of error. Constant violation can also be the result of a complex system but, as shown in this accident, if not stopped quickly, it can become ingrained in the organization’s culture.

The BOI also examined appropriate levels of crash survivability and injury minimization. The board noted that the intent of a prior recommendation was to make the Sea King safer for passengers in the event of an accident but over a period of 10 years, this became misconstrued through evolution as the task became more difficult and complicated. The report also noted that there had been a recommendation not to change the seating because the current seating “compiled” with an existing airworthiness standard but there had not been a proper risk assessment conducted. The report commented on a “compliance mentality” noting, that it was concerned about a minimalist approach to meeting safety compliance requirements, sometimes at the expense of achieving positive safety outcomes. Sound familiar?

After the helicopter crashed, a fire began when residual fuel from an engine or oil from a fracture reservoir came in contact with hot engine components. After about 5 minutes, the fire rapidly spread through the aircraft probably as a result of, in the Board’s opinion, the ignition of the contents of 12 250 gm butane cylinders that were onboard the helicopter. These cylinders had been consigned without the aircrews’ knowledge.

This serves to highlight an often-forgotten aspect regarding the carriage of dangerous goods. When the possibility of something going wrong with the goods under normal flight conditions is a concern of which most people are aware, in an accident, some commercial products such as these butane canisters can effectively turn into bombs.

Reading of this report by those in senior and junior management, operations and maintenance is, I believe, essential. You may not agree with all the findings but it will at least make you think. I would appreciate any comment or feedback on people’s thoughts about this report. I have some reservations about certain aspects but the issue I found particularly interesting was the discussion about safety versus compliance and how being compliant does not necessarily serve safety well.

Anyway, safe flying!
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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.
NEW PRODUCTS AND SERVICES

ARRIEL 2 HMU CERTIFICATION FOR TURBOMECA

Turbomeca Canada has been awarded certification to repair and overhaul Arriel 2 HMUs, giving customers in North America more options. Turbomeca SA issued the certification after reviewing the maintenance policies, repair and overhaul processes, quality assurance procedures, and the qualifications of the repair shop personnel.

The 15,000 m² facility is located near the Mirabel International Airport in Quebec about 30 miles north of Montreal, and between the 115 employees it has serviced over 500 engines since the company’s inauguration in 2003. They strongly believe the best way to improve responsiveness is to have people and technical resources as close to operators as possible.

BLUE SKY PARTNERS WITH HELICSA

Blue Sky Network, who provide two-way linking and managing transportation assets via satellite, has announced Spanish company Helicsa Helicópteros as its latest reseller. Helicsa is a member of the INAER Group, operator of more than 120 aircraft in Spain, Italy, Portugal and Chile, and has purchased, installed and received EASA certification for 16 of Blue Sky Network’s C1000, C1000A and D1000 kits onto EC-135-T2, AS-365-N2, AS-365-N3, BO-105, BK-117 and S61N.

The company plans to reach out to more customers around Spain and Europe in an effort to standardize various fleets with the Blue Sky technology.

NEW R44 ELECTRIC ATTITUDE INDICATOR

Mid-Continent Instruments, who have partnered with Robinson for the last 17 years, have announced the latest in a list of key components manufactured for the R44 – the 4300 electric attitude indicator. The instrument was designed specifically to survive demanding helicopter operations in high vibration environments and the company claims to have incorporated new technology to prevent premature wear and tear on critical parts.

The dual voltage gyros offer 10-32 volt DC replacement for use in either 14 or 28 volt helicopters, have anti-reflective glass to enhance visibility and reduce pilot fatigue. Their service life is said to be more than double that of most electric gyros.

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Don’t change your helicopter – change your performance.

Do you have your strakes yet?

BLR Aerospace Performance Innovation

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Don’t change your helicopter – change your performance.

Do you have your strakes yet?

BLR Aerospace Performance Innovation
These are 2 of our latest products, there are simply too many to list.

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- 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

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NEW PRODUCTS AND SERVICES

SEVEN AW139S ORDERED FOR HONG KONG

Heli Express has signed a contract for seven AW139s, highlighting the growing success of the helicopter in the scheduled and offshore passenger transport markets. It was chosen for its high speed, cabin comfort and safety record.

As the sole commercial helicopter operator between Hong Kong, Macau and Shenzhen, Heli Express runs more than 60 scheduled helicopter flights per day as well as an extensive range of helicopter services in the Pearl River Delta area.

DRF APPROVED AS DESIGN ORGANIZATION

Germany’s first air rescue organization DRF (Deutsche Rettungsflugwacht e.V.) has recently obtained approval as a design organization according to EASA Part 21J allowing them to independently carry out and approve technical modifications and repairs on the EC135, BK117 and BO105.

The work will include avionics and electrical systems, the implementation of new technologies, including the “Skytrac” flight-following system, as well as the installation of medical equipment.

The maintenance facility has been EASA Part 145-approved for some time, though previously work carried out had to be approved by an external design organization.

The new approval brings many advantages; large, costly co-ordinations and formal obstacles in the work process are omitted, and repairs and modifications can be implemented more rapidly, saving the company time and money. The approval process comprised development of an organisational structure, employee, several audits and the compilation of a manual.

MD DELIVERIES ON THE INCREASE

Arizona Taxi Aero of Amazon, Brazil recently took delivery of its first MD 600N. The delivery, MDHI’s 12th this year is a promising sign for the company as they expect to deliver a total 43 aircraft during this fiscal year, with 85 expected during 2008. Deliveries of this magnitude have not taken place at MD since 1999.

As the company nears the two-year anniversary of its acquisition by the Patriarch Funds Company Chairman and CEO Lynn Tilton says she has achieved her primary goal of bringing back an American legacy, and has likened MD to a “phoenix rising from the ashes.”

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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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NEW PRODUCTS AND SERVICES

NEW SKIDTUBES APPROVAL EXTENDED TO MORE BELS

DART has extended existing FAA approval of their Round-l-Beam skidtube for 204, 205, 212 and 412 to include the 210, and AB412/AB412EP models. The skidtubes are LH/RH interchangeable and are compatible with both DART and OEM crosstubes. The central l-beam web on the skidtubes absorbs most of the impact on landing so the tube maintains its structural integrity, and even with the addition of a central web, the weight is comparable to that of conventional tubes. In addition these skidtubes feature high strength CNC machined split saddles that make installation and field replacement easier.

A NEW ERA FOR UK AIR SUPPORT

The MET Police ASU has officially launched the three new EC145s into service. The helicopters have been kitted out with the most advanced mission equipment, customised by McAlpine, Eurocopter’s U.K. distributor in Oxford. The EC145 is capable of carrying one or two pilots and eight or nine passengers and cruises at 135 kts. Whilst their primary role will be surveillance, the inherent flexibility of its cabin, payload and performance will make the aircraft multi-role capable. The communications suite includes a Wescam MX-15 Electro Optic sensor, SkyQuest touch screen video management system, and the Gigawave digital video link, and represents the first full-scale use of this system in a U.K. police helicopter.

In it’s observation role the aircraft still has the capacity to carry three officers, or two police dog cages, and the rear observer’s station can be removed quickly to provide space for up to six additional officers in the main cabin. Rear cabin occupants have full access to tactical radios and can also view any infra-red or TV imagery.

SOLAR LED HELIPAD LIGHTS FOR SAPS

The South African Police Service (SAPS) is upgrading four helipads with wireless A704-5 solar-powered mobile helipad lights supplied by Carmanah Technology. With 26 helicopters in service, SAPS will use the lights for portable, emergency and semi-permanent helipad-lighting applications throughout the country. SAPS, which was formed in 1994 by amalgamating 11 policing agencies, chose the lights for their compact, self-contained design, and convenient carrying handle which allows installation in minutes with no trenching or cabling required. It is thought the mobile helipad lights will significantly reduce heliport operation and maintenance costs.
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### NEW PRODUCTS AND SERVICES

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<td>The French Civil Security Helicopter Group celebrated 100,000 flight hours on their EC145s. With 22 helicopter bases in mainland France and its overseas territories, the Civil Security Group has a fleet of 40 helicopters including 30 EC145s. The 100,000 flight hours represent a fifth of the hours flown by Arriel 1E2 engines throughout the world. The Civil Security Group, which is celebrating its 50th birthday this year, has decided to purchase four new EC145s between now and 2009.</td>
<td>Sikorsky officials provided a glimpse of a new strategic vision for the company during the Paris Airshow, unveiling an overview of its plans to incorporate European regions into its business approach. The company is positioning the S-92 for European SAR missions, beginning with the recent entry into service of the first SAR-configured S-92, owned and operated by CHC in the UK. The S-92 will be expanded to meet additional requirements in the UK, Ireland, Norway and Iceland, and with Sikorsky recently establishing an office in Warsaw, they now have a base of operation that is poised to embrace the European market.</td>
<td>During the Paris Airshow, Bell announced the creation of the First Responder Helicopter Safety Program to be offered by the Bell Helicopter Training Academy. The course is designed to provide Firefighting, Law Enforcement, and EMS personnel with information about the dangers, hazards and safety precautions of the helicopter environment and to teach the skills necessary to protect themselves and others. The training will be offered on DVD and will offer a user-friendly program allowing any agency to benefit, no matter their size, location or budget. It is hoped the course will increase awareness and safety to those working around helicopters.</td>
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### 100,000 FLIGHT HOURS FOR FRENCH CIVIL SECURITY

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The OH-58D Kiowa Warrior fleet has been accumulating significant operating hours in Iraq to the desert of Arizona, AFS systems are protecting engines, enhancing performance, under the harshest conditions, and their engines are reaching Time Between Overhaul limits. A true testament to the value of AFS inlet barrier filters. If you need effective engine protection, you need AFS. Wherever you find hard-working helicopters, you’ll find AFS systems. From the desert of engines of freedom.

ANSWERING TO TWO MASTERS*

State laws and legislations vs FAA regulations.

If you run into any state law or regulation that you think is probably preempted, don’t just ignore it. At the end of the day the only person that can say something is preempted is a Judge. Before that happens you ignore something at your peril.

YOU MAY recall that, a few columns ago, I advised that you should never take a cruise through the FARs and assume your job is done when trying to figure out your legal compliance on any issue. State laws and regulations sometimes have an effect as well. But let’s say you’ve now done that, and you find that there’s a state or local statute or regulation that’s completely inconsistent with what the FARs are telling you to do, or if not inconsistent, perhaps adds a layer of complexity on top of the FARs that you just don’t want to deal with? Exactly how much do you have to answer to these two masters?

Depending on the state directives, maybe not much, due to a legal doctrine known as “preemption.” “Preemption” basically means that, in certain circumstances, a federal schematic or set of laws can be deemed to be so comprehensive, and the public policy in having one uniform set of rules to govern is so important, that any state or local regulations are deemed to be superseded or voided, sometimes even where the federal statute doesn’t even specifically state that it preempts any state laws. There’s a recent case from right here in my home state of Tennessee that’s very illustrative. An EMS operator down in Nashville was flying along (pun intended), completely and properly certified and equipped as far as the FAA was concerned. Along comes the Tennessee Board of Emergency Medical Services and cites the operator for not having certain state-mandated equipment on the aircraft. (The real folly of this situation was that the state was agitated over the fact that their regulations called for the aircraft to have 1980s-era VOR navigational equipment installed and in use. It never occurred to them that the brand new GPS units in the aircraft might actually be better and safer. Turf battles sometimes trump common sense). After trying to talk some sense into the State Board and getting nowhere, the operator filed suit in the federal court, seeking to have the state regulations voided on preemption grounds. Their argument was basically this: “Issues of aircraft safety are the sole and exclusive territory of the FAA. The State of Tennessee has no business, or power, to do or say anything about what is or is not on my helicopter, so these regulations are void.” “Not so fast,” said the State of Tennessee. “Nowhere in the Federal Aviation Act does it specifically state that the Act preempts this kind of state law, so we’re perfectly able to promulgate this type of regulation.” The court wasn’t impressed with that argument, citing a proposition of law called “field preemption.” In other words, even if the United States Congress didn’t expressly say in the Federal Aviation Act that it was preempting state law – federal regulation in the field of air safety is so widespread and pervasive (and isn’t that the truth, right?) that there can be no doubt that it is the be-all and end-all when it comes to aviation safety. “Wait a minute”, said the State. “Our regulations don’t really conflict with federal law, they merely supplement it, so they should be allowed.” “Nice try, but it doesn’t matter,” said the Court. “If you’re preempted then you’re preempted for everything in the field of preemption, in this case aircraft safety, not just something that blatantly conflicts with the FARs.” Summary judgment was granted for the operator, and the state regulations are no longer enforceable – which, of course, kept the operator from having to go to EBay and dig up a set of VORs like the ones it had thrown away 10 years ago.

All of the above being said, however – keep one thing in mind: If you run into any state law or regulation that you think is probably preempted, don’t just ignore it. At the end of the day the only person that can say something is preempted is a Judge. Before that happens you ignore something at your peril. That means getting a good lawyer involved and going to court if necessary. Lastly, it’s also fairly clear that states can regulate what some areas have to do with helicopter operations – locations and hours of operation of heliports, for instance, are a couple of areas where operators have lost preemption arguments. ■
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CLAIMS

Believe it or not, there is a reason we pay those exorbitantly high insurance premiums every year. While most would argue there are certainly better ways to spend that kind of money, the real reason we keep renewing those policies is for our protection in the event we actually have a claim.

WHILE THE laws are different for most areas of the world, generally speaking aircraft insurance is not required by law. Those who opt out of paying those premiums usually end up wishing they had. A $250,000 annual premium for a large flight school beats paying millions of dollars in the event of a serious accident.

So what do you do when you actually have an insurance claim? There are several important things to remember. If there are any injured passengers or spectators, arrange for first aid care. If possible, protect the helicopter from further loss. Make sure you do not admit fault, and do not sign anything that would waive your right to subrogate against someone. Doing so can put your insurance policy at risk, and you may become liable for another’s actions. File an accident report immediately if the claim is not weather-related.

This will prove valuable later, as it will show you were quick to acknowledge the accident. The idea here is that you take charge; you should be the first to arrange for help for anyone injured, the first to report an accident, and the first to contact your insurance agent. Your agent should be able to provide you with paperwork to get the process started. He or she will also contact the insurance company and notify them of your claim.

A claims adjuster will then contact you and arrange for estimates to be taken. The insurance company is going to want a few things from you. Most importantly, they will want an accident report, as well as photocopies of the pilot’s documentation. This includes an airman certificate, medical, recurrent training certificate (if it was required), your last three logbook pages, and logbook entries showing any recent training or flight review. Aircraft information is also important; this includes the airworthiness certificate of the helicopter, registration documents, and logbook evidence of the last overhaul, annual, and 100-hour inspections. Weight and balance data should also be available. If you are renting, make sure you have a copy of the rental agreement, as this will determine who is responsible for insurance deductibles and other important information. If there are any medical bills or emergency service fees, remember to include them in the documents you send to the underwriter.

Make sure to take plenty of photos of the aircraft, and remember to include the registration number in the pictures. Also take photos of any property damage caused by the incident. You can email these photos to your agent or the claims adjuster if you have their contact information. You will also need to have contact information for each person on board the helicopter, as well as the contact information for the owner of any damaged property and any witnesses.

Oh, so you’ve provided all this information, now what? Hopefully you have the helicopter insured for its replacement value, which should allow you to transition to a new ship in the event of a total loss. Your liability limits will provide for any damages outside the helicopter, and will protect you from any lawsuits. One aspect of your insurance policy you should pay special attention to is any liability limit placed on passengers. It is common for many insurance policies to cover $1,000,000 of liability with a $100,000 sub-limit for passengers. This means if a passenger is seriously injured, there is only $100,000 available to them. You could be responsible for the rest of the medical costs. If you are involved in a lawsuit due to bodily injury or property damage claims, you must forward every summons or demand to your insurance company. Most policies include legal defense, which will obviously be important in the event that you are subrogated against.

Most of the time, insurance claims involve damage to the aircraft itself, and no injuries. Damage from windstorms, hail, and theft are common claims, and the process is relatively straightforward. A claims adjuster will inventory the damage and show the amount the insurance company will pay. If for any reason you feel this is not enough, you can involve a neutral third party to inventory the damage and determine the true cost of repair. Small dings and dents are usually not worth reporting, as your deductible may be higher than the cost to repair the damage. Also, make sure you understand what damages are excluded by your policy. Hot starts, for example, are usually specifically excluded, as are damages caused by the breakdown or failure of an engine component. Usually an engine that fails after overhaul would be the fault of the maintenance facility involved, and this should fall under their insurance policy, not yours.

I have had many clients express concern over what a recent claim would do to their insurance policy’s renewal. There are many factors involved in a claim, and any insurance company is going to focus on the details. Was it a weather-related claim while the aircraft was on the ground? If so, expect a small increase if any, as this was not directly the fault of the pilot. A tail rotor strike is going to be a bigger issue, as this directly relates to the judgment of the insured. A claim due to fuel exhaustion is much worse for your insurance renewal than a claim due to contaminated fuel. Once again, the issue is negligence, and a claim that shows a lack of judgment from the pilot or from the operation is much more likely to cause an increase in your insurance premium.

The most important tool you have in ensuring that you do not have a claim is your own judgment. Pilot error is going to cost you, and it is dangerous both for passengers and for your insurance premium. Safety is paramount, and you should make every effort to maintain a safe operation and a safety-oriented attitude. Remember that accidents do happen, and nobody is invincible. The best advice I can give is to buy as much insurance as you can afford, and hope that you never have to use it.
Now that you have chosen Bell, choose the team that specializes in financing Bell helicopters, Bell Helicopter Finance Group. We are part of the Textron division that has been financing aircraft for over 50 years and is known in over 50 countries. Our trusted experts know the industry, understand the global market and are passionate about helicopters. We are the financing power, no matter your mission.

Bell Helicopter Finance Group — Your Smart Solution.
A COMMON practice in the hotel industry is to substitute the expected liquids inside the bottles in the bar for cheaper products. It also happens in aviation. Again, referring to a previous column, passengers have a right to expect properly qualified and experienced flight crews, so is it fair to give them a pilot with only 600 hours to his name when the contract clearly specifies one with over 1,000? Is the company right to “do what you gotta do” when there are no other pilots available, or is it not willing to pay the money to hire somebody more qualified, and thereby make more profit?

I don’t think so! If the customer requires a certain level of experience, it’s not fair to just put anybody in the front seat and not tell them. A more positive approach would be to get the safety advisor representing those companies and have them fly with the pilots concerned, and get one-off certification for each of them. This would have the added benefit of helping customers to realize that low-time pilots are not necessarily a bad thing, provided they have the knowledge and common sense upstairs.

However, not having proper pilots at the controls appears to be happening in Europe with apparent government sanction. There are cases in which very low-time local pilots are being given type ratings on heavy helicopters, who are then the “paper pilot in command”, while the co-pilots, who are actually operators or technical advisors have not gone through the JAA licensing process, yet still do much of the operational flying.

In fact, their own foreign licences are very rarely validated. This dubious practice seems to be often used during the firefighting season.

The Kamov KA 32 is a case in point. This machine is certified under JAA rules as a single pilot aircraft, but not for cargo operations such as external loads, as these flights require two pilots. Although this aircraft is in the restricted category and cannot carry fare-paying passengers, it still essentially needs two qualified pilots at all times except when positioning! Many flights do not have the qualified second pilot and are against the requirements of the flight manual and are therefore illegal, meaning that there is no guarantee of insurance, because there would only be a payout if it was in insurance companies’ interests to do so.

The end result is a large helicopter which is heavier than the S-61, being flown by pilots with as little as 300 to 400 hours, aided by highly qualified but unlicensed people occupying crew seats with fully functioning dual controls. Those controls would not normally be there if the people occupying that seat were true advisors. (I suspect that an advisory position aboard a heavy aircraft on fire operations, without dual controls and manned by a 400 hour Captain would have few takers!)

This surely is not right, and it makes you wonder whether JAA is working properly, and will EASA be any better. EASA is severely under-funded and probably not capable of overseeing things properly.

The authorities concerned should ensure that everybody flying aircraft registered in their domain have proper licences, or at least have their ICAO ones validated.
Pilots know: each successful flight starts with the work of a competent engineer.

At Canadian Helicopters, all employees are moved by the same passion for doing things right. Their dedication fuels on work well done, contributing significantly to the Company’s efficiency and success.

If you share this exceptional commitment and passion for doing things right and are consistently striving to improve, why not join a Company made up of people just like you? Make this the most important decision of your career.

HERE IS WHERE WE SAY, “HAVE A GOOD FLIGHT!”
transmission mounts and engine deck are very much stronger than needed for air maneuvers, because they must also withstand the crash forces that would cause the transmission and engine to tear loose and tumble into the passenger compartment. Called “primary mass retention”, the newest regulations require the structure to stay together in crashes that are three times as severe as the older designs. Like modern cars, the helicopter’s passenger structural cage is designed to not be breached in the majority of survivable accidents. A glance at wreckage photos after accidents tells this story. Where the transmission of a 1960’s Huey design will tear loose easily and tumble into the cabin, that of a more modern helo stays put and rides along during the crash sequence.

The internal layout of the fuselage, under its skin, also shows the strong primary structural path that is followed in the whole landing gear and the transmission mounts, where the normal landing loads are brought to the structural heart, and where the crash loads are also carried. The crash landing case is more severe, generally, than any aerodynamic condition, and so the structure of most flying machines is actually designed around the ground cases, a paradox for most pilots who picture maximum sideslips and pullouts as the limiting conditions. For the more modern helicopters, the cage that carries the occupants is tied to this landing gear/ transmission path as a strong structural unit. The cage’s strength is set by the need to keep the cage’s dimensions during the worst case crash sequence (up to 16 to 20 Gs), so that the occupants are protected as the aircraft slides, rolls and tumbles before it stops. For older machines, no such rules were envisioned, and the result is sometimes a disintegration of the fuselage during the first strike, when forces of 2 to 6 Gs are all it takes to tear the fuselage apart and let the occupants ride out the rest of the sequence as solo participants.

Tied to the structure and most visible are the fairings, aerodynamic surfaces and outside skin (the “air passage” to most designers). They are designed to stabilize the aircraft, reduce drag and also take the pressure forces exerted by the maximum speed of the aircraft. The phrase “1.11 times Vne” appears many times in the regulations, since the authorities require that we test to a speed, and then let you fly to only 90 percent of that speed. These fairings, skins, and the aerodynamic surfaces are usually more delicate than those on a car, because the air loads are general pressure loads, and not at all pointed at small areas. Typical air loads can be about 100 lbs/sq ft for a helo designed for a 155 knt Vne. That is the reason why “no step” markings are on many helos because your feet press with a force many times that of a Vne airstream. The exception for the more modern machines is where bird strike requirements are folded in, making the exposed fairings and windscreens almost ballistic in strength where they protect underlying shafts and controls.

For more modern machines, the}

**FLIGHT DYNAMICS**

**THE VARIED ROLE OF THE FUSELAGE**

This is the third in a series of articles that describes a bit about the design features of our helicopters. Today, we discuss the fuselage.

IT IS THE structure that ties the helicopter’s pieces together, the cocoon that encloses and protects the occupants, and it is the aerodynamic shape that balances the craft and lets it slip through the air. To fill all these roles some compromises must be made, and the story of these compromises is the story of the fuselage. The story has two chapters; one for older machines that met design criteria from the dawn of helicopter flight, the bare minimum necessary to achieve safe flight; and another for the more modern machines that reaped the benefit of better technology to create stronger, safer fuselages that could achieve much more occupant protection in critical circumstances.

The heart of the helicopter is the structural attachment for the transmission, where the rotor’s forces meet the aircraft, and where they are conducted to its corners. Next time you have the cowlings open, look at the transmission feet and see the beams to which it is bolted. These are relatively massive, as they must stand the weight of the helicopter – multiplied by the load factor it can achieve – never less than twice the aircraft’s maximum weight. The transmission mounts also carry the maximum control force produced by the rotor head as it maneuvers the helicopter, a strong twisting movement that is compounded with the load factor and applied to these mounts.

The engine is structurally tied to the transmission mounts so that the engines and transmission ride as one element. Any deformation between the two will make the engine output shaft cock and possibly tear; an event that will provide excitement and war stories for years to come. In addition, the engine makes powerful twisting forces that strain the engine mounts that are tied to the mounting structure.

For more modern machines, the transmission mounts and engine deck are very much stronger than needed for air maneuvers, because they must also withstand the crash forces that would cause the transmission and engine to tear loose and tumble into the passenger compartment. Called “primary mass retention”, the newest regulations require the structure to stay together in crashes that are three times as severe as the older designs. Like modern cars, the helicopter’s passenger structural cage is designed to not be breached in the majority of survivable accidents. A glance at wreckage photos after accidents tells this story. Where the transmission of a 1960’s Huey design will tear loose easily and tumble into the cabin, that of a more modern helo stays put and rides along during the crash sequence.

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For more modern machines, the vertical tail keeps sideslip under control the same way, but in this case the tail rotor is a stabilizing influence. The tail rotor develops a strong increase in thrust when it is put in a sideslip. Thankfully, that thrust is in the direction to make the nose go straight again, so the tail rotor does most of the stabilizing work, and the vertical tail is just a minor contributor. The fenestron and NOTAR helicopters are exceptions. These anti-torque devices are immune to any change in thrust with sideslip, so that fenestron and NOTAR aircraft wander in yaw if not otherwise stabilized. For this reason, they both have big vertical tails and endplates on the horizontal tail to keep the tail behind the nose.

It is a surprise for most pilots to learn that the tail cone on many helicopters is designed to landing and crash loads which are often many times the force exerted by the tail surfaces. This is especially true of tail wheel helicopters, where the landing loads are carried by the tail cone, and dwarf the aerodynamic effects.

Next stop on our trip around the helicopter are the drive train and the control systems.
The Powerful Difference

We proudly use our experience and facilities to support the Warfighters of Oregon and the nation.

Columbia Helicopters is the only commercial operator of the Model 234 Chinook and Vertol 107-II, the civilian models of the CH-47 Chinook and H-46 Sea Knight. The company’s aircraft operate globally in extreme weather conditions, and are supported by one of the most outstanding maintenance facilities anywhere in the industry.

Columbia’s exceptional maintenance facility is a one-stop shop, able to meet all depot level maintenance requirements for internal and external customers.
HOW LONG HAVE YOU BEEN FLYING AS A COMMERCIAL PILOT?
I qualified as a commercial pilot around 15 years ago, and since then I have been flying freelance for various companies. I live in the Alps, close to Chamonix, Mont Blanc, but I travel around to wherever I am needed, whether it’s in Paris or Brittany, or another part of France. This season, I have started doing some work for Aviaxess out of Issy Les Moulineaux Heliport in Paris. I fly for the company on weekends and any time they are very busy and need an extra pilot.

WHAT GOT YOU INTO HELICOPTERS IN THE FIRST PLACE?
When I was about seven or eight, I lived in the North of France. Every year my family used to go on skiing holidays to the South, and as we drove down by car we always ended up going past Paris Heliport. Each time I caught a glimpse of the helicopters I would get really excited and yell “Papa, Papa, I want to fly helicopters when I grow up!” As I started to get a bit older, I got into motorbikes, and then jet skis, rally cars, even four wheel drives in the desert – anything with an engine really interested me! My true passion though, was in helicopters and that’s where I ended up. It was a strange childhood dream for a little girl, but it came true!

WHICH TYPES OF HELICOPTERS ARE YOU FLYING?
At the moment I’m doing most of my flying on the EC130 B4 and Squirrel. I also have quite a few ratings that have lapsed; Bell 47, JetRanger, R22, and R44 because there seems to be more demand for me to fly the larger machines. I enjoy my job very much and have over 1,000 hours total time. The EC130 is my favourite helicopter to fly.

HOW DID YOU END UP GETTING THE B4 RATING?
A company in the West of France was operating shuttles between some small islands off the coast and they needed another pilot to fly the EC130 over there. A year ago they gave me a fantastic opportunity to get the B4 type rating and I’ve been flying it ever since!

WHAT TYPE OF FLYING HAVE YOU DONE DURING YOUR CAREER?
Mostly public transport flights and freight operations. I don’t work with external loads but in the past I have carried out some occasional rescue flights around the islands.

DO OVER-WATER OPERATIONS BOther YOU?
Not at all, I don’t find it a problem. We operate public transport flights in single engine helicopters as it’s only a very short crossing to reach the islands, and the EC130 is equipped with floats. There is no requirement within the company for us to do underwater escape training for this type of work, but I think it is a good idea and I would like to have a go at some day.

WHAT DO YOU FIND MOST REWARDING ABOUT YOUR JOB?
The most important thing in my opinion is that everybody who gets into a helicopter with me comes out smiling! I like seeing the excitement the passengers show when they turn up at the heliport, whether it’s their first flight or whether they are frequent passengers in helicopters. I consider myself very fortunate and privileged to be a helicopter pilot.

WHAT IS THE MOST INTERESTING MISSION YOU’VE FLOWn?
I was flying for a company one day when a veterinary surgeon called us from around the Normandy Coast and asked if a helicopter would be available to transport a sick dolphin! We thought it was a bit of a strange request but we agreed to give it a go! I flew over there with a very experienced pilot, who has now retired, and we put the dolphin onto a bed of air. The flight time was two hours and since the dolphin’s sonar was not working he was completely disoriented. The vet came along with us, spraying water onto the dolphin as required and making sure he remained sedated. We took the animal to a special area where they treat sick sea creatures and I believe it was the first time the rescue of a dolphin had been carried out by helicopter in Europe. The dolphin lived for another six weeks but sadly it died shortly afterwards.

YOU WROTE A BOOK CALLED “MÊTIER: PILOTE HÉLICO”. WHAT’S IT ABOUT?
I wanted to write a book for about two years. Many people don’t know about the world of helicopters so I started collecting reports and photos from pilots and helicopter operations around the world - I got 20 pilots to contribute 20 stories from all around the world of helicopters and I put them all together into a hard backed book which showcases different types of flying in different areas. It was incredibly interesting to do – I had the opportunity to meet marines and pilots from all over, and all of them had amazing stories to tell.

AND HOW IS THE BOOK DOING?
It’s only been out a short time, so it’s early days, but I had 3,000 copies published and the website www.bs-air.com is starting to generate a lot of interest already.

WHAT ADVICE WOULD YOU GIVE TO COMMERCIAL PILOT WANNABES?
Well you can either go the military route, or you can work hard to save the money to fund the training yourself. Building up time is the difficulty – if you don’t have the hours you don’t get the work, and if you don’t get the work you can’t build the hours! I got my hours up by calling around a lot, telling people that I was available, and travelling about all over France to go after the flying jobs! It’s a slow process and it took me a long time but once you get to a thousand hours, a lot more opportunities start presenting themselves and it just escalates from there on. The main thing to remember is that if you really want it, you should never give up.
WORLD EXCLUSIVE

Harvest of TERROR

PART II

STORY BY ROB NEIL
PHOTOS BY NED DAWSON & ROB NEIL
In part two of our exclusive and unprecedented coverage, ROB NEIL and NED DAWSON accompany the DOS Air Wing crews in their relentless pursuit in eradicating the poppy plants in Afghanistan whose profits ultimately fund world-wide terrorism. Rob and Ned experience first-hand the dangers that face these crews on a daily basis as they find themselves the target of an RPG attack.
The desolate red landscape of the Registan Desert (known simply as the Red Desert) gives way to the broad, flat expanse of the Helmand Valley on the other side of the Helmand River. It is March – springtime in Afghanistan – and the Helmand River is swollen with life-giving water; around 40 percent of the country’s total water resources flow through the Helmand Valley, making it a green and fertile garden at this time of year. Sadly, the green land that stretches as far as the eye can see on the other side of the river is almost entirely comprised of opium poppy plantations – thousands and thousands of acres of them.

As our Dept of State Huey II helicopter approaches the edge of the Red Desert, the relaxed atmosphere in the helicopter changes. The two medics in our “SAR bird” ready their M4 automatic weapons and take positions in the helicopter’s open doors. In the starboard doorway of the gunship helicopter 200 meters off our rear quarter, I can see the gunner manning the mini-gun as he maintains a vigilant lookout. We are entering hostile territory and these highly experienced professionals are ready for whatever the day will throw at them.

Ned Dawson, HeliOps’ publisher and I are back with the DOS Air Wing for the second part of our story on their extraordinary work in support of the Afghan Eradication Force (AEF) ground troops to eradicate the opium poppy menace. We were here in September last year and have returned in poppy season to see the manual “eradication” work first-hand.

We are amazed at the extent of the poppy plantations; even though we know that opium poppy is the region’s major crop it does not prepare us for what we see below. It is obvious as we cross from
the desert to the poppy plantations that it is a truly impossible demand to expect that ground eradication will make any impact at all on such a massive problem. It would require literally thousands of people and millions of dollars worth of equipment to even begin to make any significant dent in these plantations.

No one involved in the current eradication process is under any illusions as to its overall “effectiveness”; the decision to utilize the almost completely ineffectual manual eradication methods is entirely political. Although ground eradication can be effective in smaller growing areas, when one sees the scale of the problem in the Helmand Valley first-hand, and sees the million-and-one problems associated with ground eradication, it is rather difficult (for an independent observer) to understand the motives behind such a decision.

However, there is no doubt that the US (and international) policy-makers are serious about wanting to eradicate the opium trade. There is equally little doubt that the means to do this effectively are readily available in the form of widespread spraying. The DOS Air Wing operates highly effective spray control programs in some “impossible” terrain in Colombia (against some violent and determined terrorist opposition), and has made a substantial impact upon the cocaine trade in that country. Unfortunately, the US and the international community must tread very carefully to avoid “upsetting” the extremely delicate political situation within Afghanistan, and at present the use of spray – however environmentally harmless the spray that would be used might be – is not politically acceptable within that strife-torn country.

For the meantime, then, until common sense prevails and the necessity of introducing spray control becomes accepted, the men and women of the DOS Air Wing must daily risk their lives to protect those on the ground, who likewise risk their lives each day in the seemingly futile pursuit of “poppy eradication”.

Everyone involved in the poppy-eradication program seems to understand, or at least accept, the need to continue with the present ground eradication for the time being, because however ineffectual it might be, ground eradication is better than no control at all. It is indisputable that the drug-trade

We are entering hostile territory and these highly experienced professionals are ready for whatever the day will throw at them.
A typical walled compound surrounds an Afghan farmer’s home. The healthy-looking poppy crop within the walls is at least five times more “valuable” to the farmer than the crops outside.
and terrorism are inextricably linked throughout the world. The fight against drugs is one in which there can be no “giving up” if the civilized world is to have any chance at all of defeating terrorism.

The residents of the Helmand Valley are among Afghanistan’s most prosperous – thanks to the income they derive from their poison poppies. However, their “prosperity” is a relative term; no Westerner would consider him or herself “prosperous” were they to live in the mud huts of the Helmand farmers. As meager as it is in comparison to “wealth” by western standards, the relative wealth of these farmers is at risk from any effort to eradicate their poppies. Not surprisingly, then, the AEF is not welcomed with open arms in the Helmand.

Our pilots point out to us a cloud of dust in the distance – it is the dust kicked up by the convoy of vehicles belonging to the AEF, which our helicopters are here to protect. The AEF has almost finished its work in the fields for the day, and we are here to cover their withdrawal to their base camp. As we cross field after field of lush, green, healthy poppies, I shake my head at the seeming impossibility of the scale involved. I had imagined some covert, furtive process by farmers in disguised plantations hidden away in valleys, but this is so widespread and overt and obviously “accepted”.

I had imagined some covert, furtive process by farmers in disguised plantations hidden away in valleys, but this is so widespread and overt and obviously “accepted”.

TOP LEFT: With the multi-barrelled minguns fitted as here, the Huey is referred to as a “heavy” gunship; with the single-barrelled M240 guns it is known as a “light” gunship.

LEFT: The ground convoy makes its way towards the poppy fields amid a cloud of fine red dust that insinuates itself into everything.

ABOVE: A local “police officer” watches over a pickup truck loaded with RPGs. These deadly weapons are much in evidence everywhere.
in valleys, but this is so widespread and overt and obviously “accepted” – that I find it hard to believe what I am seeing.

As we approach the dust cloud, I see the scores of vehicles – tractors, four-wheeler motorcycles and trucks – of the AEF. They stretch for kilometers along the narrow dirt roads that border the poppy fields and irrigation canals. Lining the sides of the roads are hundreds of locals watching the convoy of vehicles. Having been a police officer for many years, I am well aware of the possibility for such a crowd to become unruly – even without the confrontational aspect implicit in the AEF’s presence here to “destroy” these people’s livelihoods (as they see it). Our crew tells us that they have never seen such crowds before … this may be an interesting afternoon!

It is a (slightly) comforting thought that the Air Wing’s helicopters have not been fired upon (that its crews are aware of) since they first arrived in Afghanistan at the beginning of 2006. The first poppy season was without significant incident – at least as far as the Air Wing was concerned. The AEF fought off attacks in 2006 and has endured more than a few this season, but these have not been while they carried out their work in the poppy fields – the attacks had been upon their camps at night, when there were no well-armed DOS helicopters circling overhead.

At an altitude of 300 ft, we maintain a standing patrol as the AEF finishes its work and begins an orderly withdrawal. As the ground vehicles line up and assemble along one of the bigger dirt roads to our west, our patrol path takes us a mile or so east of the convoy. The pilots – all ex-military and mostly ex-special forces pilots – understand the necessity to remain unpredictable and we never follow the same path twice.

Ned (on the left side of the helicopter) and I (on the right) both have our cameras out and we are photographing everything in sight through the open doors. As we roll out of a left turn and begin a turn to the right, my eyes are drawn by a bright orange flash and a puff of smoke below. It is unmistakably a deliberate “detonation” of some kind (an RPG launch, it transpires) and as I look towards it – a mere 300 or so feet away – I can see two men standing upright a few feet to the side of the source of the flash. The men are pointing rifles at us. As I point out the flash to Pete (the medic) beside me, we all hear the unmistakable sound of semi-automatic rifle fire. We are so close to the gunmen that the sound of the rounds is clearly audible over the noise of the helicopter.

Even as Pete alerts him that we are taking fire, the pilot is already responding and turning sharply away to the left. We have just had an RPG round and between 15 and 20 rounds of rifle fire directed at us, but there is no panic in the helicopter – just an immediate and highly professional response to a situation that these men have all been through many times.
times before in different places. There is no need to fuss; everything directed at us missed. However, the measured response of the crew paints a perfect picture for me of the kind of people we are accompanying.

Both pilots immediately demand responses, first from each other, and then the rest of us in turn – as to whether anyone is hurt. No one is. Neither pilot felt any hits on the helicopter, which appears and feels to them to be undamaged. They elect not to land to check it out, because amongst the hundreds of Afghans on the ground below us we know there are at least a few who do not take kindly to our presence, so it would not be sensible to land amongst them (I was guessing the pilots had seen the movie Blackhawk Down). The decision is made – although closely monitoring the helicopter – to maintain our existing patrol and check it out further when we refuel.

We know exactly where the bad guys are, and while our crew carries weapons and the mini-gun-armed helicopter is within 20 seconds of our position, there is no question of retaliating. We are safe, none of the good guys on the ground are in danger, and we cannot afford to risk hurting innocent bystanders. We have been told before that this is the policy – the Air Wing is here to protect the AEF and not as a combat unit – but it is further indication of the degree of professionalism amongst the crew that no personal desire to “get” the guys shooting at them enters the equation. From my own experience, I can imagine the frustration the guys must feel. It is not an easy thing to have the means to retaliate, yet sit there and take it and keep smiling – but it is the professional thing to do, as these guys’ actions clearly demonstrate!

Within minutes, we receive a report that the rear elements of the AEF convoy
AN/AAR-47
Threat Warning System
for Missile and Laser Protection
have also taken fire. They report just three rounds but have no idea where from. No one is hurt; we continue patrolling as if nothing untoward had happened until it is time to refuel.

After refueling, when a check of the helicopter reveals no damage, we return to escort the AEF back safely to their base camp before we depart for Kandahar. It has indeed been an interesting afternoon.

As we make the one-hour return flight to Kandahar, the pilots respond to a request from the base for details of the afternoon’s incident – the first since the Air Wing began operating in Afghanistan. The information will be passed to the embassy. While it has been no big deal to the crew, it is potentially an important escalation in political terms if the bad guys are now apparently prepared to “take on” the armed helicopters.

The demonstration of professionalism continues when we reach Kandahar. There is no fuss or drama, simply a thorough and emotion-free de-briefing, during which the crew is asked, among other things, to explain its decision to continue patrolling and not land to check the helicopter. After an explanation, their decision is accepted. There is an atmosphere of mutual respect amongst the Air Wing’s personnel.

The Wing’s safety officer, who is once again our gracious and helpful host throughout our stay, takes his job seriously and asks us if we still want to accompany the next day’s mission back to the Helmand, when we plan to land and accompany the men on the ground. We do.

The next day dawns as fine and sunny as the last. The mission is running according to schedule and we are away nice and early. Following a roughly similar route across the empty Red Desert to the Helmand Valley, the test-firing of our crew’s weapons takes on a little more significance today.

The AEF convoy is still on-route to the cut site as we arrive overhead. After contacting “John” on the ground, we land through the cloud of red dust alongside the racing column of four-wheelers and trucks. The gunship circles overhead as Ned and I disembark and make our way to separate trucks.

The “road”, such as it is, is a diabolically rutted and bumpy track criss-crossed at regular intervals by muddy channels. There is still plenty of water around after recent rain and it has not yet begun to get really hot.

We drive for almost an hour along rough narrow tracks and roads, passing endless high mud-brick walls that surround every home. Our escorts wear body armor and carry automatic weapons, as do those in every truck in the convoy, and they are constantly alert for trouble with their weapons at the ready. The surroundings offer limitless hiding places and ideal opportunities for potential attackers to launch attacks.

Nearly everyone we see carries some sort of weapon. It is difficult to tell the difference between residents and local police, and the first time I see it I am startled at the sight of a robed Afghan man holding an RPG on his shoulder. He is apparently a local policeman – why on earth the police require RPGs is anyone’s guess, but then this is Afghanistan! As we drive further, we come across a battered old Toyota pickup at the roadside, another non-descript Afghani sitting in the vehicle’s rear tray which is bristling with half a dozen RPG launchers – another local policeman, apparently.

One wonders how many such weapons litter this violent country – how many such weapons were left behind by the Russians that now reside in the hands of goodness-knows-who.

As the convoy reaches the cut site, Ned and I join up again and we are assigned an armed guard to escort us into the fields. The police of the AEF, who are specially trained and equipped, are a more professional group than the local police – and we are soon to learn a few uncomfortable truths about the local police.
“I not go to school anymore; Taliban come to school – tell us anyone who go to school have their head cut off.”
The local people watch proceedings from the shelter of their mud-brick homes. Their expressionless faces give nothing away, but the throngs of children willing to approach our convoy seem friendly and welcoming.

As we prepare to join the cutters, a young boy approaches us and addresses us in English. “Hello,” he says. “I your friend.” It surprises us to find a youngster out here in the Helmand Valley who speaks English and we ask him where he learned it. “I learn in my school,” he replies. We ask where he goes to school. “I not go to school anymore; Taliban come to school – tell us anyone who go to school have their head cut off.” He is neither exaggerating nor joking. It is a grim reminder of the realities of life for these people. The local farmers might make more money from opium than from wheat, but an inseparable association with terrorist overseers is one of the consequences they must pay for their part in the Helmand’s narcotic economy.

It is not the only price they must pay these days. At the second property we visit, its owner watches quietly as the AEF knocks down his crop. I wonder what the man is thinking as I snap his picture. He sees me with my camera pointed at him and walks calmly towards us. He is unarmed, but I wonder what he will say.

Through our interpreter, the farmer introduces himself as the land’s owner. He understands that we are journalists and wants to tell us what is happening. Apparently, although he has paid the local police the equivalent of US$100 for “protection” from having his crop cut, it is being cut anyway. Understandably, he is not happy.

We have only been talking to him for a few minutes, when we notice three men approaching us across the field. Two of the men are armed with AK47s and, while they do not appear threatening, our escort is wary. The larger (unarmed) man is one of the local leaders. He tells us the same story as the farmer in whose field we are standing. Several other farmers whose properties have been cut today have been forced to pay protection money to local police but their crops are being cut anyway. We establish from this man that it is common practice. To refuse to pay protection money invites a beating – or worse.

In reality, the local police seldom know which properties are destined to be cut – certainly not until the last minute. The properties to be cut are negotiated by “committees” of local leaders (like the man we were speaking to), and representatives of the AEF and local government. One suspects that powerful local people avoid having their crops damaged and only a few unlucky “token” properties (those of the poorer, “less important” farmers) are targeted for the sake of appearances. According to our informant, while local police may prevent some cuts, they rarely appear to make much effort to dissuade the cutters.

We get the chance to speak to the AEF’s senior US advisor on the ground – a man with a distinguished special-force background. He tells us that many of the Helmand Valley’s “farmers” are not local but are transient growers, here to make a “quick buck” growing poppies – or to find wives. One gets the feeling that the Helmand Valley might be the eastern equivalent of the Wild West goldfields in the late 1800s. He confirms what
the farmers have told us about the corruption. It is a real problem for the AEF, and one that the ground eradication process unavoidably invites in such a lawless land.

He tells us that a much hoped-for spray program was in place at the start of the season and was all ready to go, but was halted at the last moment. It must have been a frustrating blow for him, but like all the other involved in this game, he simply gets on with doing the best that he can in the circumstances.

He tells us how the AEF visited farmers in the Badakhshan Province before the poppy season and ploughed farmers’ fields there. The AEF was welcomed and its goodwill paid off in reduced poppy cultivation. Although bemoaning the ineffectiveness of ground eradication in general, he admitted that it did have effects beyond the simple destruction of individual crops. In smaller poppy-growing areas, the eradication of crops has more of an impact throughout a community. Farmers who have lost a crop to eradication are less likely to devote time, effort and money to growing another poppy crop if they fear it may also be destroyed.

The policy decision to use ground eradication is made at the national level in Afghanistan and is independent of external policy. Any possible future decision to spray will likewise be made by the Afghan government. From an outsider’s perspective, having seen the situation on the ground, and having spoken to locals who are enduring the real-life consequences of the political to-and-fro, it seems inevitable that if the Afghan government is serious about controlling the opium trade, it will have to introduce a comprehensive spray program. Delaying the inevitable is not good news for international community who are on the ground in Afghanistan trying to restore peace and unite a broken nation. It is particularly bad news for those on the front line of the war on drugs – like the DOS Air Wing and the AEF – for they are at the very front of the global fight against terror. It can only be hoped that effective controls (spray) can be put in place as soon as possible.

If it is, it will undoubtedly be the DOS Air Wing that carries it out. An efficient and corruption-free spray program to target the major poppy producers would soon halt the flow of opium – and thus the funding to terrorist organizations that still very much depend on it for support.

My third mission with the Air Wing the following day illustrates the dire need for a different approach. After the usual Red Desert transit, we meet up with the AEF at their base camp. Their late start is not the result of inefficiency, but is a political (and potentially violent) standoff with local residents angry at another day’s planned eradication. After spending two hours on the ground (long enough for us to have to fly away and refuel) the day’s cutting is called off. Ground crew and the kilometers-long convoy of vehicles all turn round and head back to base camp. It is the ultimate demonstration of the reality of the current ground eradication program. Today the locals had decided they didn’t want the AEF to cut down their poppies ... so they didn’t!

Between our September 2006 visit and our return to Afghanistan in March, Ned and I had the opportunity to visit the Air Wing’s management team at Patrick Air Force base in Florida. After meeting the Wing’s Director, Sharon Nell, the Operations Division Chief Paul O’Sullivan and Deputy Director Rob Carlson, it was obvious why the Air Wing’s operations are so effective and professional. The attitude that pervades the DOS team exists because those at the top understand exactly what those at the coalface are doing, and they have their complete support.

Having met the management team, it was interesting to later hear those on the ground in Afghanistan talking about them. While there are (and will always be) some points of difference between members of any large team, something that stood out immediately was the universal respect with which those at the top were viewed – something I found both unusual and heartening.

Unlike many managers, the DOS leaders are not afraid to get their hands dirty. When Ned and I arrived in Afghanistan, Sharon Nell was there accompanying the crews on missions to experience conditions for herself. This was no ivory-towered politician hiding behind a desk and delivering unworkable edicts. Paul O’Sullivan and Rob Carlson are both ex-military and highly respected, and the whole Air Wing team realizes that neither man has accidentally stumbled into his position in the State Department.

Only weeks after Ned and I left Afghanistan, an Australian television news crew was accompanying the AEF’s ground eradication teams in the Oruzgan Province when they came under attack from a significant group of insurgents. Our friends in the Air Wing were on hand to support the ground forces and a fierce ground and air-ground gun battle ensued, during which several AEF members were wounded and several insurgents killed. The very helicopters in which Ned and I had flown only weeks earlier took numerous hits and were almost shot down. Thankfully, none of our good friends in the Air Wing were injured, but having seen the photos of damage to their helicopters, it was a close thing indeed. The “honeymoon” period for the Air Wing appears to be well and truly over. HeliOps’ thoughts and best wishes will be constantly with them.
Whether its high technology systems to decrease the time between the “Sensor and Shooter” (PRISM IDM), or low-cost solutions to establish digital communications in the cockpit (Mini IDM), militarized hardware for data transfer (AN/USQ-131B - Memory Loader Verifier Set), or self-protection equipment for our warfighters (AN/ALE-47 - Countermeasures Dispenser Systems), Symetrics Industries has the capabilities to meet your mission requirements for performance, reliability and cost.
For more than half a century the red “Dragons” of the Groupement Hélicoptères have been rescuing those in peril from raging sea and mountain precipice. DINO MARCELLINO drops into the Dragons’ den to observe first-hand the skill and dedication of this highly trained group of men and women.
number), has already started to arrive at the Groupement Hélicoptères’ 22 bases that are scattered around French territory. With the last of the Dragons’ Dauphins now retired and its Ecureuils at midlife (having been introduced in 1986), this year is as much a year of transition as it is a 50th anniversary. This renewal of the fleet has brought with it a new yellow and red livery – a new skin for the Dragons.

But before we discover today’s organization, we have to take a step back in history.

**HISTORY IN BRIEF**

While its history goes back further,
the Groupement Hélicoptères was officially formed on 19 June 1957. Its first base at Grenoble, in the south-east, was established to support mountain rescues in the region, and a second at Lorient on the north-west coast, was set up as a maritime rescue base.

The first helicopter was modest: an Agusta-Bell AB-47.G2 with a ceiling of about 10,000 ft. Turbines arrived in the form of an Alouette II in May 1958, and new bases were opened at Clermont-Ferrand and Perpignan. The Alouette III started a new era in 1962, defining the next 35 years of Groupement Hélicoptères’.

In 1997 a headquarters, Echelon Central Groupement Hélicoptères, was established at Garons Airport in Nimes, along with a maintenance center.

GROUPEMENT HÉLICOPTÈRES TODAY

Today, the Groupement Hélicoptères comprises 40 helicopters and 300 men and women spread across 22 bases – 21 in France and 1 in Guadaloupe (there are also 7 seasonal detachments). The numbers are important; 18,000 hours flown a year and more than 10,000 people rescued. Year-by-year these numbers are growing.

The Echelon Central co-ordinate the activities of the bases and develop and test equipment for use by the group. The maintenance center keeps the entire fleet running smoothly, with each helicopter transferred there for its 600-hour overhaul.

The Dragons’ main missions are search and rescue, coordination of rescuers, and the transportation of people and equipment in times of civil emergency. Its secondary missions include urgent hospital-to-hospital transfers (normally done by helicopters of the Medical Service, the SAMU), police support, and fire-fighting support.

AGENTS’ LAIR

To find out just how the Dragons work HeliOps visited the Grenoble base at Le Versoud Airport. Grenoble, named “Dragon 38” (on being département 38 d’Isère), was chosen because it is both the oldest and the busiest base. The base, built in 1968 with hangar space for just two helicopters, is open continuously – 24 hours a day, 365 days a year. As such, at least one pilot and one mechanic are on duty from dawn to well after sunset. The crews, who live close to the base,
RIGHT: Optimal visibility from inside the EC145 thanks to large windows and small frames.

CENTRE LEFT: Accident scenes are often crowded, with ambulances, police vehicles, witnesses, and plenty of onlookers.

CENTRE RIGHT: During the flight to the hospital patients are cared for and continuously monitored by the medical crews.

BOTTOM LEFT: Before the patient is even transferred into the helicopter, they must first be stabilized by the paramedics.

BOTTOM RIGHT: All crewmembers work as a team, with the pilots regularly assisting with moving a patient into the back of the helicopter.

“We try always to fly a mission and it is rare that we are unable to.”
are also on call overnight. There are no administrative personnel at Grenoble, so all paperwork is split between the pilots and done during dead-times – not that there are many of those.

The crew on duty the day we visited was mechanic Didier Esperon and pilot Vincent Saffioti, a highly experienced team (see “Dragon Profiles”). Saffioti, the Base Commander, welcomed me on to the base with typical French savoir-faire. Rescue flights made by Dragon 38’s two helicopters continued unabated during the day. The crews flew around 1,200 hours and 1,400 missions in 2006, rescuing 1,150 people, and this year doesn’t appear to be any different.

Dragon 38’s EC-145 (Dragon 38-1) is permanently stationed at Grenoble, while its Alouette III (Dragon 38-2) spends about half of its time at Grenoble and the remainder (two months in the summer and four in the winter) on seasonal detachment to Alpes d’Huez a famous ski station well known by cyclist fans as a stage on the Tour de France.

The area covered by Dragon 38-1 (Grenoble) has a radius of 100 kms, the outer limits of which can be reached in 25 minutes. Normally the EC-145 flies with only 400 kg of fuel (70%), but many refueling points are dispersed throughout the operational area so consecutive missions can be flown without having to return to the base.

Six teams of two – a pilot and a mechanic – fly the two helicopters on a roster system. Typically the pilots and mechanics are an experienced team, but when either a new pilot or a new technician is posted to the base he is teamed up with an expert as his opposite number.

A pilot arriving at the mountain base already has 4,000 hours under his belt, but he isn’t considered an expert until he has flown for at least an entire year, experiencing both winter and summer conditions. This may appear excessive, but when you consider that most mountain rescues occur in bad weather – in snow or rain – or at night, this cautious approach is wise.

“We try always to fly a mission and it is rare that we are unable to,” explains Saffioti. “When it does happen it is possible for the rescue crews to go in by foot, but of course it may take hours or even days to reach those in danger. In any case, it is very difficult for a helicopter crew to say no to a rescue mission!”

Working as a team is very important, and this is why the helicopters units like Grenoble have the pilot on the right and the winch on the left.
Doctors and paramedics are from the National Health Service, while all rescuers are experts in mountain rescue and are seconded to the Dragons from the Gendarmerie (military police), Sapeur Pompier (fire brigade), or Police.

CHAIN OF ALERT

Dialing 112 in France puts you in contact with the Fire Brigade Rescue Room. The operator, trained to understand the gravity of the situation, will alert the appropriate rescuers who will then assess the situation and decide on a course of action; whether to use a helicopter or to go in by road and on foot; what equipment will be needed, and the size and structure of the team. Another important figure in this evaluation is the doctor, who is a volunteer specialized in the mountain environment.

Intimate knowledge of their territory is a distinct trait of successful rescue teams, and the Sécurité Civile crews typically stay at the same base for many years. The accumulated wisdom is irreplaceable. At Grenoble, 75% of the crews have been there for 20 years or more.

Working as a team is very important, and curiously this is the reason why the helicopters of mountain rescue units like Grenoble have the pilot on the right and the winch on the left.

Saffioti explains that with mountain flying – particularly when flying near a face or descending into a canyon – it is best to have the winch operator on the opposite side to the pilot to maintain visual clearance all around the machine. Saffioti qualifies this by adding that most rescues are better made with the winch cable fully extended, thereby keeping the helicopter clear of any obstacles. (Another advantage of using a long cable is that the rotor downwash is less severe for those on the ground.)

For their colleagues based on the coast flying maritime operations, the opposite is true; with no other obstacles and the only landmark a ship’s mast, it is preferable to have the winch on the same side as the pilot. In any case, the winch can be moved to either side in less than an hour to accommodate the preferred configuration.

The EC-145’s winch is more capable than the Alouette’s in all respects – faster, longer (90 m versus 40 m), and able to lift more (270 kg versus 136 kg). In fact, the EC-145 is wholly a more capable helicopter (see "EC-145 vs SA 316B"); its twin engines’ greater carrying capacity and faster cruise speed meaning that the EC-145 will complete any given mission faster and safer.

The composition of the team on board depends on the type of mission. For a mountain rescue a doctor and two rescuers might be carried, or perhaps a doctor, a rescuer and a canine unit (dog and handler); for a road accident a doctor and a nurse; for an evacuation mission just the pilot and winch operator might be on board.

With an operation as varied as the Dragons’ – from the sea level to 4,000-
meter high mountains, and from sheer ice
faces to roads, woods, lakes and rivers –
the fixed equipment on board is minimal.
Instead, rescuers and doctors load the
necessary equipment for each particular
mission.

A “ROUTINE” MISSION

The emergency alarm sounds; a boy
has been run over on a road in a nearby
valley. The doctors are already at the site
and are treating the patient, but the boy’s
serious condition means he needs an
immediate transfer to the hospital.

Being a road accident, rescuers are not
required and so the helicopter takes off in
a few minutes. It flies past the green Isère
Valley, with the spectacular Massif de la
Chartreuse on the left (which, according
to Saffioti, is a “factory of alerts” because
of its popularity with parachutists and
ultra light flyers), and a few minutes
later the helicopter is flying up a lateral
valley. The valley’s only road cuts through
the dense wood and the accident scene,
blocked off by the Gendarmerie, is
obvious.

The EC-145 lands in the middle of the
road, some 10 meters from where doctors
are working on the patient. The boy has a
head trauma and must be stabilized and
placed on a stretcher before he can be
flown to the hospital. Finally the patient
is loaded on board and the mechanic
closes the rear doors and the helicopter
lifts off for the hospital.

During the flight the doctor and nurse
monitor the boy’s vital signs, continually
evaluating his condition, and liaise with
the staff at the hospital.

An ambulance is waiting at the
hospital’s pad and the crew help the
doctor offload the patient before
returning to base to refuel, ready for
another mission. The total flight time
was 51 minutes, with 200 kg of fuel used.
Hopefully a young life has been saved.

SEA DRAGON

To see the third helicopter type in
the Dragons’ fleet, the Ecureuil AS 350B1,
HeliOps also visited the Groupement
Hélicoptères base at Cannes, in the south
of France. As its commander, Bernard
Denis, explains, “Cannes is similar to the
other Sécurité Civile bases. But here we
fly rescue missions both over land and
sea, so [there are] some differences in our
equipment, our crews and our training.
For example, while we have a rescue
team and a doctor, we might also
deploy one or more frogmen for an emergency at sea.”

In any case, most missions aren't at sea because, thanks to the surrounding area with its many canyons and spectacular faces, scores of people come to this part of France to practise extreme sports such as canoeing, climbing, via ferrata, and trekking.

Last year was a relatively quiet year for rescues at Cannes — “only” 750 missions totaling 870 flight hours, with 1,450 winchings and 450 people rescued. But this year there has been a clear increase, and it doesn’t appear to be waiving.

HeliOps spent two days on the bases and many hours with the men and women of Sécurité Civile. At the end it was clear that their common thread is a strong determination and satisfaction in their work. This is probably the reason that they are revered throughout France. When you need their help they will be ready.

**EC-145 vs SA 316B**

<table>
<thead>
<tr>
<th>Engine(s)</th>
<th>EC-145</th>
<th>Alouette III</th>
</tr>
</thead>
<tbody>
<tr>
<td>Passengers</td>
<td>9</td>
<td>5</td>
</tr>
<tr>
<td>Useful load</td>
<td>1,290 kg</td>
<td>900 kg</td>
</tr>
<tr>
<td>Cabin volume</td>
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<td>1.5 m³</td>
</tr>
<tr>
<td>Cruise speed</td>
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<td>175 km/h</td>
</tr>
</tbody>
</table>

**DRAGON PROFILES**

**COMMANDER VINCENT SAFFIOTI (Pilot)**

Attended fighter pilot school in 1975 and went on to train as a helicopter pilot in 1978, flying anti-tank helicopters in the Aviation Légère de l’Armée de Terre (the French Army Air Corps). Posted to Escadrille de Haute Montagne (High Mountain Squadron) based in Grenoble, amassing a great deal of experience in mountain flying.

Retires from military service in 1990 and enters Sécurité Civile. Assigned to Annecy and Chamonix bases, at the foot of Mont Blanc (the highest mountain in Europe). Becomes commander of Grenoble in January 2007 and converts from the SA 316 to the EC-145.

**HeliOps: What qualities does a pilot need to do this type of work?**

Vincent Saffioti: Above all, great professionalism. A rescue pilot must always remember that he is there to help other people and that he needs to be performing at his best. He is responsible for the team on board and, as some missions are carried out in extreme conditions and at the limits of both the helicopter and its crew, the rescue pilot must decide before beginning any mission whether he is capable of accomplishing it.

Each day, each mission is immensely satisfying. Having the opportunity to help others is amazing – I love this job and I couldn’t imagine myself out of Sécurité Civile.

**DIDIER ESPERON (Crewman and Mechanic)**

Twenty years of military service, first in the Marine Nationale (French Navy) on aircraft carrier operations, then with the helicopter service of Gendarmerie Nationale (French Military Police).

**HeliOps: Just a few minutes after finishing a rescue mission, the helicopter’s panels are opened and work quickly begins on checking fluid levels and critical components. Why such immediate maintenance?**

Didier Esperon: I was trained as a mechanic on board an aircraft carrier, where we had to always be ready for the next mission. Mistakes or oversights were not allowed. The rescue service is no different and I cannot relax until I am sure everything is okay.
Ditching into a dark, angry sea is something many pilots try not to think about too often. While it is one thing executing a successful forced landing onto a bitter ocean, being able to egress from a capsized helicopter without drowning or freezing to death in the process is something else. But what does an individual think about underwater escape training? SARAH BOWEN attended a course in the UK and here’s her story.

PHOTOS BY SARAH BOWEN
IN EMERGENCY situations, unlike fixed-wing aircraft, a helicopter may be quite capable of making a controlled landing onto water, but more often than not, due to its design and the added likelihood of damage to the fuselage, a helicopter will sink, and it will sink rapidly and unexpectedly. A ditching helicopter is also likely to invert - if the weight and location of the main rotor hub and transmission does not do it, the action of the rotor blades impacting the water is almost sure to. It has been estimated that inversion may occur in as many as 77 percent of all ditchings.

The focus of Helicopter Underwater Egress Training (HUET) is to make the final part of the ditching - the egress, more survivable. Once out of the helicopter, the crews are then faced with survival and rescue, but that is a whole other subject.

HUET HISTORY

HUET is an integral tool in the training of personnel involved in over-water helicopter transport and is a requirement in various sectors of the industry, including military, search and rescue, emergency response, as well as oil and gas platform work. For the latter, it is the Offshore Petroleum Training Organization (OPITO) who insist upon workers carrying out Basic Offshore Safety Induction & Emergency Training (BOSIET) and Further Offshore Emergency Training (FOET) in the UK. The Royal Navy practice extensive escape training at Yeovilton, and the US Navy and Marine Corps do the same at Pensacola, Florida.

HUET was first introduced in an attempt to increase helicopter ditching survival rates after it was noticed that although a crew and its passengers may often survive a forced water landing, they would often drown inside the fuselage. A ditching helicopter is also likely to invert if the weight and location of the main rotor hub and transmission doesn’t do it, the action of the rotor blades impacting the water is almost sure to. It has been estimated that inversion may occur in as many as 77 percent of all ditchings.

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A NEW PLAYER

Traditionally the market for HUET equipment was dominated by Survival
Systems in Canada, who developed the Modular Egress Training Simulator (METS) to suit a large number of aircraft configurations. Today, however, EDM, a UK-based company active in the field of training and simulation for around 35 years, has added some competition to the global HUET market. EDM recently supplied its first state-of-the-art trainer to the Fleetwood Offshore Survival Center near Blackpool. The unit was produced and certified entirely in-house in the north west of England by the EDM project team.

Paul Kain, Business Development Manager at EDM, noted that although supplying trainers is quite a niche market, it is also a very global one. “We’ve currently got seven or eight enquiries for HUET trainers around the world, and we’re pretty hopeful we can get a few more off the ground. We’re very competitive and our heritage in design, engineering and manufacture gives us confidence that we have all the necessary skills to offer a first class product.”

A good HUET course is undoubtedly a plus for aviation safety – if those on board can anticipate what they might face in the water, the number of lives claimed by such accidents may well decline. Although fidelity is unquestionably important, the real key benefit of HUET is in learning to remain calm and executing procedures in the correct order.

It was noticed that although a crew and its passengers may often survive a forced water landing, they would often drown inside the fuselage.

TOP LEFT: Boiler suits and dry suits are worn to keep in essential body heat.

TOP CENTRE: The trainer has a max gross weight of 3,400 kg (7,495 lb).

TOP RIGHT: Seating can be re-configured to represent various aircraft types.

LEFT: Students learn the importance of keeping one hand on the exit at all times.
A group of students carry out their first fully-submerged egress with divers on standby in case they get into difficulty.
After the last ditch, life jackets are inflated to simulate a full rescue operation. When the HUET trainer is inverted 180 degrees, spatial disorientation must be overcome in order to make a successful escape.

Training is carried out using various breathing aids. Fleetwood Offshore Survival Center (FOSC) was formed some 18 years ago in answer to the call for offshore emergency response training. The center’s resource has slowly evolved and, with the addition of the trainer, FOSC claim to have one of the best-equipped centers of its kind. Their “Environmental Training Tank” encompasses a wave machine, a range of life rafts and helicopter winches, and light and sound effects to simulate emergencies in all weather conditions. Survival gear can make maneuvering difficult in the calmest of waters; in rough, stormy and dark conditions things can be far worse. Although the water temperature is not replicated, the ability to simulate the elements could well leave the student more adequately prepared for a genuine escape. Joseph Bottomley, Head of Offshore Operations at FOSC, spent 15 years in the Merchant Navy before joining FOSC. As a Master Mariner by profession and fully qualified HSE Diver, he has been involved in HUET since the center opened. “Prior to the new HUET trainer we had worked with two others – one on a manually operated single-seat device, and another on an articulated arm seating three students and turning over on conveyor chains. EDM approached us when we were looking for a change and asked for our views on the most important qualities of a HUET trainer. We got all our instructors together for a brainstorming session and decided on the features we’d like to see on our HUET – and that’s exactly what we ended up with,” says Bottomley.

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FLEETWOOD
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SURVIVAL BASICS
As a newcomer to underwater escape training, you don’t really know what to expect from a HUET course, only that you are about to embark on an exercise that may one day save your life. An introductory course such as that offered by FOSC can include a theory session on the safety aspects to be considered when flying over water, and a practical session covering various ditchings the correct use of life rafts and in-water survival techniques.

Remarkably, the only parts of the body making contact with the water during training are the hands and face. The tight-fitting dry suit worn by students over a boiler suit keeps the water out, but more importantly keeps the body heat in, an essential survival technique. “If there are...
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survival clothing might be advantageous once clear of the aircraft, you wouldn’t particularly want it inhibiting your movement whilst still trying to get out. For this reason it is important students learn how to release the air and remember not to inflate life jackets until clear of the openings.

Learning any new skill can be daunting. The HUET is no exception and even though procedures are thoroughly explained there is a lot to take in. Exercises can include escaping from the surface, waist deep in water into a raft, to fully submerged ditchings with or without inverting the trainer. “Keep one hand on your exit, one on your belt buckle at all times,” says the instructor repeatedly. That hand provides your only link to the outside and it is vital you don’t take it away; it helps you find your way out quickly and easily, and in doing so it’s not even necessary to open your eyes underwater.

“DITCHING AND ROLLING”

As the HUET trainer lowers gently into the water, it’s only natural to recite the egress procedure in your head. The brace position is adopted and the re-breathers donned, but with much to remember and the added pressure of being submerged, simple tasks like releasing your harness can easily be forgotten. “When someone fails to undo their belt it’s quite noticeable,” Bottomley comments. “The diver can tell by your facial expression that something’s not right and he’ll be there within moments to assist.” It just goes to show that even in the comforts of a warm training tank one can become overwhelmed and thrown by the situation. In a real event it’s imperative to be both mentally and physically prepared.

As the helicopter is inverted, the biggest obstacle to overcome is spatial disorientation. Your inner ear and sense of balance can become disrupted and due to the effective loss of gravity you rely on your hand, still placed firmly on the exit, to guide you out of the upturned aircraft. Thinking about which way is up can lead to confusion and attempts to egress the wrong way, and it takes practice and discipline to stop “thinking” and just get out.

HUET VERSATILITY

Although the HUET trainer is a relatively simple piece of kit as far as technology goes, dunking people into the water, even in a controlled environment,
instructors, and has a maximum gross weight of 3,400 kg (7,495 lb). It consists of a mechanical rotation system with a pneumatic brake system and is 2.2 meters (7.2 ft) in diameter. Though modeled loosely on the cabin of a Super Puma, the beauty of the HUET is that it can replicate a range of different helicopter types with its interchangeable bulkheads and seats. “We’ve been exceptionally pleased with our HUET trainer,” Bottomley remarks. “I believe it ranks as one of the best, if not the best in the world.”

The rotation ring is the most expensive part of the HUET, made from high-grade stainless steel and operated to the highest level of safety. Kain explains how each unit can fit individual criteria. “In the military world there’s a strict specification drawn directly from training needs analysis. In other industries standards may be set by commercial personnel or trainers, thus a wider variety of equipment can be used to fulfill their requirements, for example variations on window, door and seat configurations. We consider it essential to work with the customer to fulfill their training needs.”

The HUET equipment at FOSC can accommodate ten personnel including is not something you do without total confidence in the equipment. Parts must be non-corrosive and undergo rigorous quality assurance testing, particularly the seat harnesses, as it’s crucial they don’t fail or jam. EDM also make sure parts have no sharp or jagged edges and that the HUET has a UPS protecting occupants from becoming trapped in the event of a power failure.

FURTHER TRAINING

OPITO has compiled a set of standards for the training of oil and gas workers who travel to rigs on-board helicopters. The course covers the worker from arriving at the heliport, selection of transit suit, emergency exits and drills, and the various escape scenarios such as on dry land, upright on water and capsized underwater. Initial training does not involve the use of doors and windows, only clear openings. Training is “refreshed” every four years by a one-day session. As learning is based on repetition and refresher courses play a vital role in success rates, it is arguable as to whether one course every four years is enough to retain competency of such important skills. Those returning more frequently clearly keep more current than those who don’t.

FOSC also deliver training to military pilots involving the use of Short Term Air Supply System (STASS), a small cylinder containing compressed air used by pilots when the aircraft ditches into the sea. Similarly the police, ambulance and fire services put their staff through HUET training and use a version of the STASS known as PSTASS. This consists of a cylinder of compressed air fitted with a demand valve and nose clip, and is worn around the waist during the flight. Training includes the use of doors and windows and delegates must clear their egress route prior to escaping.

In the UK, underwater egress training is not mandatory for private pilots, so unfortunately few really bother with it. A PPL can fly over water provided they wear
a life jacket and carry a raft, but nowhere is there a requirement to complete a potentially life-saving HUET course. There is also a degree of apprehension amongst pilots who have heard “rumors” that it can be risky. “HUET is not dangerous despite what some people think. We train between 50 and 120 people every week, even non-swimmers, and we have several qualified divers in the pool. Non-swimmers are particularly good [as] they listen to exactly what the diver says and they do as they’re told!”, Bottomley remarks. As a day’s survival course costs less than an hour’s flying, it is invaluable for any pilot who flies over water and should be a priority.

**THE BOTTOM LINE**

Some accidents are survivable. Others are not. Accidents like the recent AS 365N crash off Morecambe Bay in which seven people lost their lives may not have been survivable due to the impact forces, but in accidents where the ditching was controlled or even uncontrolled from a low height, it may be possible to make it out alive. HUET skills at the very least, give people a fighting chance.

For occupants of helicopters like the S-76 and AS 365, where passengers are seated in rows and those in the middle do not have direct access to an exit, HUET is of particular importance. Without training for the correct egress procedures, panic and confusion could easily break out when submerged and disoriented.

Insufficient emphasis is placed upon helicopter ditching and survival techniques despite lives being lost each year as a result. HUET saves lives. It is a proven system that can make all the difference – subconsciously the procedures learnt mean you’re “armed and ready” in case of a real emergency, although hopefully you will never need to use them ….
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Punchestown Racecourse and Exhibition Center, County Kildare, became THE helicopter hotspot from the 6th to 8th June as the inaugural Irish Heli Expo drew the crowds from Dublin and beyond. Has this “first of its kind,” invitation-only event proven that the Irish helicopter market is stronger than ever?

STORY & PHOTOS BY SARAH BOWEN
IT’S IMPOSSIBLE to know what to expect from a brand-new exhibition, especially one that’s only open to private invites. The Irish Heli Expo was no exception. What kind of people would be attending and would the turnout be as successful as the organizers hoped? As I stood in the blazing sunshine watching a couple of Bell 222s, an S76 and an EC-155 arrive at Punchestown, one of the first things that crossed my mind was “Where the heck are all these stunning machines coming from?” The helicopter industry in Ireland seems to keep a fairly low profile, but there appears to be a recent influx of corporate VIP helicopters. And as I had just experienced sweltering in the 26-mile gridlock out of Dublin, enviously watching the odd helicopter whizz by, it’s little wonder people are taking to the skies!

The Heli Expo was not open to the general public, which in one respect limited the number of visitors coming through the gates; although exhibitors seemed to agree this was a positive move that made the show more focused. The majority of visitors were private aircraft owners, or potential buyers, which provided a fantastic opportunity for the attending dealerships to showcase their helicopters to the Irish market. Amongst exhibitors in the outdoor chalets were Premier Aviation, based at Weston Executive Airport in Dublin, and official sponsors of the show, Hennessy Aviation, McAlpine Helicopters and Sloane. There was also an impressive static line-up outside, which included everything from the R22 to an EC-155.

Although the helicopter manufacturers
themselves were not exhibiting, the dealerships and distributorships representing them were making their presence felt. Bell/Textron products were showcased by Hennessy, and McAlpine was representing the Eurocopter range. Sloane Helicopters, who has recently branched out into Ireland due to increased demand, were there on behalf of Agusta-Westland and Robinson. As yet there is no official Sikorsky distributor in Ireland, but both Air Harrods and Lynton Aviation were there, with Lynton providing demo flights in Lord Haughey’s S-76C. According to the organizers, Eastern Atlantic was due to exhibit both MDH and Enstrom helicopters – however they were unable to attend. Schweizer had a prior commitment to AeroExpo in the UK which unfortunately clashed with this show’s dates. Rumor has it that Lynch & Co. is set to obtain the Enstrom dealership in Ireland within the next couple of months.

**GROUND SUPPORT**

With so many helicopter movements, ground support really was kept on its toes. Simon Tolley of ST Aviation, based in Cornwall, UK, was on site throughout the show, marshalling and working with ATC to ensure the arrivals and departures ran smoothly. “It was fantastic to be invited to work at the Irish Heli Expo, especially being the very first of its kind in Ireland,” Tolley remarked. “To meet so many enthusiastic people was really great, and on the first day I arrived in Dublin I was met by the legend himself, David Ward of the very successful Events Direct. I have worked with this company for many years and knew that [the Heli Expo] would be successful with Events Direct’s experience running heliports. Once we got to Punchestown we were greeted by some gents who informed us that we were actually at the wrong racecourse! When we eventually got our bearings, Michael Nolan, the helicopter site manager, gave a briefing and we all set to work,
There was a vibe amongst many of the exhibitors that simply talking to people and making a presence was the best business they had done all year.

TOP RIGHT: This A109 arrived for the static line-up, but also performed a few shuttle runs between the show and Weston Executive Airport.

ABOVE LEFT: The TLC Helilift sprung into action as soon as each helicopter touched down on the tarmac “H”.

ABOVE CENTRE: Outside were several “chalet” exhibitions to support the helicopters on display.

ABOVE RIGHT: Coptercovers produced and displayed a special edition “Irish Flag” R44 cover.

whitewashing the FATO (Final Approach and Takeoff Area) and the H.*

There were actually two landing sites – a tarmac area for helicopters making up part of the static display, and a grass area for visiting aircraft (designated “Charlie” parking area), which was a little further away. Many of the arrivals for static parking initially landed at “Charlie” and then re-positioned to the tarmac once ground support were ready and the surface had been swept. The organizers had put on VIP transportation, collecting visitors from their aircraft and dropping them off right outside the reception area. ST Aviation works very closely with Helimates in its ground support and fuel capacity, and during the show handled an average of 60 movements per day. This figure topped 86 on the second day, with 21 helicopters simultaneously parked at “Charlie” – an excellent turnout and a great success for a first event.

One of the products that made the ground handling so efficient was the TLC Helilift. Each helicopter had a slot time and, as one landed on the pad, the Helilift moved in and made light work of shifting the skid-mounted helicopters across to the static display line. This meant the helipad could be kept clear for the next arrival, or the sweeper could move in and give it the once-over to eliminate any FOD (Foreign Object Damage). The Helilift’s revolutionary and patented design gives it the capability and versatility to handle almost any make or model of helicopter without the need for reconfiguration. Tony Hancock of TLC Handling was impressed with the organization behind the Heli Expo.

“I think the show was handled in a very professional way. In my opinion it will grow to be of great value to both the helicopter industry and Southern Ireland, and I will continue to offer my support.”

THE BUZZ

Whilst the Irish Heli Expo wasn’t your typical trade event delivering seminars
and product unveilings, it did have a unique buzz about it and a prominent focus on private ownership and corporate helicopter services. It was also a chance to catch up with familiar faces that you only ever see at exhibitions. There was a vibe amongst many of the exhibitors that simply talking to people and making a presence was the best business they had done all year. Nobody was really trying to sell anything, they just got talking and the business took care of itself – another advantage of the invitation-only approach. Amongst the visitors were quite a few newcomers to the industry, including various high-profile business executives who wanted to find a better way to travel around, and possibly even buy their own machine. There were also quite a few pilots in attendance, both private and commercial, and even some pilot wannabes who were looking at purchasing a light helicopter with a view to obtaining their PPL(H). Although the main focus of the event was of course helicopters, a “luxury zone” was set up inside the hall, complete with a few high profile sports cars, a boat and to top it off some glamour models!

Inside the event center there was also a strong presence from the IAA (Irish Aviation Authority), who were emphasizing safety issues and new procedures concerning the airspace around Dublin. With the recent increase in the volume of helicopter traffic in Ireland, aviation officials have been developing new air routes over Dublin to allow better handling of the rotary movements by ATC (Air Traffic Control). As of May 2007, the IAA reports over 150 helicopters on the Irish Aviation Register, which is an increase from around 50 in 2000, and that’s not counting the many “N-registered” helicopters and those registered in other nations but residing in Ireland. It was good to see so many people stopping by the IAA stand, talking with some of the controllers about the new procedures, as well as flight plans and other regulations relating to flying in the vicinity of Dublin.

**FEEDBACK**

Amongst the positive feedback from
as long the organizers do not try to go head-to-head with the already packed diary of Expos, the potential for success looks promising. The three-day event was blessed with brilliant sunshine throughout, despite a misty start on the set-up day prior to the show. The weather was a lucky break for organizer Dave Scully, with such a large percentage of visitors flying in by helicopter.

“We are more than happy with how the event turned out,” he said. “Feedback from visitors was really encouraging and we will soon be announcing the dates for Irish Heli Expo 2008. We may even look at a public day next year as well.”

So it looks as though the Celtic Tiger really did roar at Punchestown; during the three days over €21 million of business was conducted in aircraft orders and other purchases, and the show attracted people from every corner of the globe. Ireland now operates 35 A109s compared with the 24 in the UK, and two more A109 Grandes are due to be delivered in the next couple of months. Ireland is a fantastic country. What more could you ask for? Great people, loads of helicopters, and the Guinness – well, that’s a story for another time!

WILL THERE BE ANOTHER?

If there were teething problems in this first year, they were largely unseen, and as long the organizers do not try to go head-to-head with the already packed diary of Expos, the potential for success looks promising. The three-day event was blessed with brilliant sunshine throughout, despite a misty start on the set-up day prior to the show. The weather was a lucky break for organizer Dave Scully, with such a large percentage of visitors flying in by helicopter.

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PILOT ERROR – Part 1

In the first of a two-part story we explore the psyche behind the contention that “sometimes it is the pilot who makes a mistake and we should be prepared to accept that it happens.” In the next issue, we explore the facts to support this belief.

THE LOSS of an aircraft and its crew is devastating, especially to the families of those now gone. Life quickly becomes a search for some meaning, for a reason. Often it becomes a search for someone to blame. If the inquiry finds that pilot error is a prime cause emotions run strong, as support kicks in for the memory and honor of the dead and their hard-earned reputations.

The harsh judgment that the crew caused the accident seems so very wrong to those who knew how good those pilots were, who took pride in the skill and courage that these loved ones showed in their years of successful flying. How do we reconcile this? Where do we turn to find the truth about the tragedy that engulfs the family? Here is my view:

We are pre-set to believe that accidents are caused by the machines. Crews train to fix the aircraft when it breaks, fly it home and take the bows from their peers. Emergency checklists are a backward training tool – you start with the answer (“hydraulic system #1 failed...”) and work backward to the question. This presets us to set our minds to know that the aircraft caused the accident. When we hear that an aircraft crashed in Pavlovian fashion, we search our minds for the checklist item that might have been the culprit. Thus our training pre-sets us to believe that the aircraft must be at fault.

Our legal systems do not help.

Trial lawyers pop up and jump into the debate, providing family members with the comforting information about possible causes that exclude pilot error. How could he discuss pilot error when his compensation depends on finding someone else to blame, and to pay? Our litigious civil society (in contrast to the civil and military aviation infrastructure) seeks answers not by employing independent, high-integrity experts but by employing lawyers, and paying them millions if they can sell their case to a jury. An “expert” can be bought for a few dollars to testify that black is white, up is down and that the rotor blade fell off just before the aircraft plowed into the ground while the pilots were discussing fishing trips. It is no coincidence that NTSB accident findings cannot be used in court, where millions of dollars are at play. NTSB findings are above that. Families who seek facts and justice from trial lawyers will feel especially harmed when a court finally dismisses theories of cover-ups and unproven component failures and instead places the cause in the cockpit.

It is simply impossible to believe that Hal or Dave or Jim, veterans of thousands of hours of good, careful flying, made such a fatal mistake. How could this guy who has saved plane-loads of passengers in the past, possibly have NOT seen that light bulb, NOT heard that call from ATC, NOT have turned the fuel valve on?

“All men – kings and serfs alike – are slaves to other men and to circumstances – save, alone, the pilot – who comes at no man’s beck or call, obeys no man’s orders and scorns all men’s suggestions…”

Mark Twain, 1866 former Mississippi riverboat pilot
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