focus

ON COMMERCIAL AVIATION SAFETY

SUMMER 2006

ISSUE 63

THE OFFICIAL PUBLICATION OF THE
UNITED KINGDOM FLIGHT SAFETY COMMITTEE

ISSN 1355-1523

27th National Aerospace FOD Prevention Conference

Conference Theme: **"FOD Prevention" An Essential Component Of Aerospace Safety**

Presented by: National Aerospace FOD Prevention, Inc.
Co-hosted by: The Boeing Company
Event Sponsor: Seattle – Tacoma International Airport

August 1-3, 2006
Seattle, Washington

Conference Description:

The annual conference objective is to make the industry aware of the need to prevent foreign object debris/damage from our aviation/aerospace vehicles, airports, runways, manufacturing shops, flightlines and all aspects of aerospace operations. The conference provides an effective forum for the exchange of ideas, solutions, expertise; and is a key resource for information, training, and support. Visit **www.nafpi.com** for more conference information.

Who should Attend:

Anyone who has an interest in flight safety. This conference attracts major industry representatives from: Airlines, Airports, Cargo Haulers, Aircraft Manufacturing & Repair, Military, Space, Support Industries, and many others from Aviation organizations.

Who should Exhibit:

Anyone who's products or services increase flight safety & FOD prevention. Examples: borescopes, cameras, lights, tools, tool kits/ tool control, FOD detection systems, aircraft protective devices, personal protective equipment, wildlife control, runway sweepers, vacuums, etc... Companies also exhibit to showcase their FOD prevention programs, products and services.

Conference Program:

NAFPI, Boeing and Seattle-Tacoma Airport invite's everyone to come to Seattle and take part in the 27th National Aerospace FOD Prevention Conference to see the latest FOD prevention techniques, equipment, and technological advancements used in the industry to prevent FOD, promote awareness, and combat a common enemy. Experience three days of facilitated open forum workshops, keynote presentations, learning sessions (workshops), benchmarking tours, and exhibits. Network and share proven methods and best shop practices of preventing FOD throughout the aviation/aerospace industry. FOD can come in many different forms, and produce disastrous effects if not identified and corrected.

Registration Fee = $275.00 per person | $250.00 Military / DoD Civil Service | Exhibit Registration Fee = $850.00 (Per Booth)

**************************************All Rates increase after July 11, 2006***************************************

For Registration information contact: Richard Bell (310) 331-6536, FAX (310) 332-1436, E-mail: rb.bell@ngc.com

For Exhibit registration contact: Richard Bell (310) 331-6536, or Andrew Kenney (321) 799-6168

Open Forum Workshops

INFORMATIVE PRESENTATIONS

FOD PREVENTION

LEARNING SESSIONS

KEYNOTE SPEAKERS

Airline & Airport Session

DoubleTree Hotel, Seattle Airport
18740 International Boulevard,
Seattle, Washington, United States 98188
Tel: 206-246-8600
Fax: 206-431-8687
(Ask for FOD Conference block of rooms)
Hotel Rate: $169.00 Per person.

You are responsible for making your own travel and hotel reservations
(Early registration is encouraged)

MILITARY TOWN HALL MEETING

EXHIBITS

Benchmarking Tour!

- **Boeing 737 Moving Line**
- **Sea-Tac Int'l Airport**

Visit: www.nafpi.com

The Official Publication of
THE UNITED KINGDOM FLIGHT SAFETY COMMITTEE

ISSN: 1355-1523 **SUMMER 2006** **ON COMMERCIAL AVIATION SAFETY**

focus

contents

Editorial 2

Chairman's Column 3

No.45 (Reserve) Squadron and RAF Multi-Engine Pilot Training 4

The ICAO English Language Competency Requirements 6

Fumes, Smoke and Fire in Transport Aircraft 9

UKFSC Members List 12

Working together to tackle level busts 14
Richard Schofield, Operational Safety Division of Safety, NATS

EU Blacklist for Air Carriers 16
Sue Barham, BLG

Communication Error, an Industry Campaign to Improve Standards 17
Karen Skinner, Supervisor, London Terminal Control

Automatic Radio Altimeter Call Outs An Underutilized resource? 18
by Alex Fisher, GAPAN

National Initiative Targeting Disruptive Passengers 19

It Couldn't Happen to ME 20
Lt Dan Denham Royal Navy
ex 801 Naval Air Squadron Operations Officer

UKFSC Seminar 24

Front Cover Picture: 4 RAF King Airs in box formation over-fly another 45(R) Squadron King Air in special 90th Anniversary livery at RAF Cranwell in Lincolnshire.

__FOCUS__ is a quarterly subscription journal devoted to the promotion of best practises in aviation safety. It includes articles, either original or reprinted from other sources, related to safety issues throughout all areas of air transport operations. Besides providing information on safety related matters, __FOCUS__ aims to promote debate and improve networking within the industry. It must be emphasised that __FOCUS__ is not intended as a substitute for regulatory information or company publications and procedures.

Editorial Office:
Ed Paintin
The Graham Suite
Fairoaks Airport, Chobham, Woking,
Surrey. GU24 8HX
Tel: 01276-855193 Fax: 01276-855195
e-mail: admin@ukfsc.co.uk
Web Site: www.ukfsc.co.uk
Office Hours: 0900 - 1630 Monday - Friday

Advertisement Sales Office:
UKFSC
The Graham Suite,
Fairoaks Airport, Chobham, Woking,
Surrey GU24 8HX
Tel: 01276-855193 Fax: 01276-855195
email: admin@ukfsc.co.uk
Web Site: www.ukfsc.co.uk
Office Hours: 0900 - 1630 Monday - Friday

Printed by:
Woking Print & Publicity Ltd
The Print Works, St. Johns Lye, St. Johns,
Woking, Surrey GU21 1RS
Tel: 01483-884884 Fax: 01483-884880
ISDN: 01483-598501
e-mail: sales@wokingprint.com
Web: www.wokingprint.com

Language Proficiency Requirements

In 1998 following the CFIT accident in Cali, Colombia and the 1996 mid air collision near Delhi, India called on the International Civil Aviation Organisation (ICAO) Assembly to take action to ensure that pilots and air traffic controllers were "proficient in conducting and comprehending radiotelephony communications in the English language".

In 2005 ICAO set the date of March 2008 as the deadline for the initial testing of English language proficiency to be completed. As yet it has not been clarified just how this is to be done.

Perhaps this will make regulators and aviators around the world sit up, take notice and more importantly take action.

In the United Kingdom the National Air Traffic Service (NATS) identified that communication was not up to standard and contributed to two of the high priority areas of risk in Air Traffic Control, level busts and runway incursions. For the past year and a half they have been trying to raise the awareness of the need for improved communication by both pilots and ATC controllers.

Air Traffic Controllers who work for NATS are subject to regular but random monitoring of their R/T procedures and use of the correct aviation phraseology. If they do not meet the standard, retraining is provided in order to encourage a higher level of performance. This regular monitoring ensures that a high standard is maintained.

Regrettably no such regular monitoring of the pilot community exists, and as a result, the standard of aviation English and phraseology heard over the R/T is not particularly good. Some operators endeavour to monitor R/T during simulator training sessions. Unfortunately this is not necessarily the best time to do this as crew are concentrating on the task at hand and there is a high concentration on procedures. Nevertheless an effort is being made.

It is of interest to note that pilots sit an initial examination for their R/T licence. There is no requirement for renewal testing for the rest of their career. No wonder that their proficiency deteriorates over a period of time. We all know that revision or retraining improves performance and that lack of any real monitoring leads to complacency.

Whilst on the subject of aviation English, we, in the United Kingdom, should not be smug about it not affecting us. There are many foreign and indigenous pilots flying for UK operators who would not pass an Aviation English proficiency test.

Proficiency does not occur overnight and several hundred hours of training will be required to bring a non-English speaking student up to the required standard. It is possible that these new requirements could make or break the careers of some pilots and Air Traffic Control Officers involved in international operations.

The economic effects on many airlines and ATC service providers could be significant if pilots and controllers are denied a licence to operate internationally because of the non-compliance with the ICAO requirements. Hopefully the training programmes will be good enough to produce the required result.

It is therefore time for us all to enthusiastically embrace the need for proficiency testing to bring us up to the required international standard, with a view to reducing any risk to safe operations that poor R/T may cause. It is important that those whose first language is English should set an example to the rest of the aviation community.

Perhaps in the interests of safety the regulators will consider introducing an R/T renewal every 5 years which includes a proficiency test. We know from experience that the present system is not ideal.

UK FLIGHT SAFETY COMMITTEE OBJECTIVES

- **To pursue the highest standards of aviation safety.**
- **To constitute a body of experienced aviation flight safety personnel available for consultation.**
- **To facilitate the free exchange of aviation safety data.**
- **To maintain an appropriate liaison with other bodies concerned with aviation safety.**
- **To provide assistance to operators establishing and maintaining a flight safety organisation.**

The Risk of Complacency

by Ian Crowe, Willis Ltd

This is my first column as Chairman of the Committee. I would like to thank the Past Chairman and Chief Executive, for making the smooth transition into the 'hot seat' and I very much look forward to the next 12 months.

The other day I was reading a book about the pioneering flights to Australia. The aircraft that are today museum pieces, offered the crew and passengers an outside chance of reaching their destination.

Whilst page turning, I reached a passage where the crew were discussing in an open cockpit the dangers of flying over a mountain range, in adverse weather conditions with concerns about engine performance.

As we all know in those early days flying was full of challenges, if not out and out danger. Things could hardly be more different from the experiences of flight in the 21st century.

Now, in our air conditioned, pressurised environments, we all take flight for granted, and in a way rightly so. There have been some tremendous developments in the aviation industry with advanced systems and extremely reliable engines.

However, we should be mindful that in 2005 there was an increase in the number of fatal accidents, with over 900 fatalities when compared with the "safe years" (2001 – 2004), where in 2004 there were approximately 350 fatalities.

Many of these accidents were low profile losses in remote locations involving aircraft that were either old, or with a low number of passengers, or a combination of both.

With air travel for most of us becoming safer, perhaps there is a tendency to relax our guard and become complacent, handing over control to systems that are often not fully understood.

From the human factors point of view we could say that sophisticated systems, in a way, encourage complacency. Perhaps we need to return to the 'What if' culture.

The introduction of new information may not be helpful for all. Some of our more experienced folk are resistant to change whereas the newer recruits are less so.

To make the process more interesting we could mix talk and chalk with CBT.

To discourage complacency I believe we need to develop training procedures that promote imagination; the 'what if' rather than the "need to know" culture through programmes to develop professionalism, competency and commitment. In other words is it a job you have in aviation or a career?

Our Seminar theme for October 2006 will focus on training. Please make every effort to attend.

The more experienced pilots and engineers often talk about airmanship and apprenticeships. I'm not suggesting a return to the old days but, reviewing the past often helps us plan for the future, recalling that there are no new accidents, only new people.

My messages are therefore, encourage continual professional development, do not rely on statistics, review your near accidents, improve system knowledge and adapt your policies and procedures to reflect the true changing nature of aircraft operations.

Safety is a precious commodity which deserves our constant attention. We owe it to our passengers, aircraft and our industry.

No.45 (Reserve) Squadron and RAF Multi-Engine Pilot Training

Based at Royal Air Force Cranwell in Lincolnshire, No 45(Reserve) Squadron is responsible for the RAF's multi-engine pilot training. Although superficially similar to the commercial equivalent, military multi-engine pilot training is fundamentally different in many respects. A military pilot is expected to operate in austere conditions, with minimal support, and must independently balance the sometimes conflicting demands of mission success and flight safety. Above all, in addition to a high level of technical skill, they must both display and instil in others that fighting spirit vital to operational success. The demands placed upon the RAF's multi-engine aircraft pilots are very high: they can expect to operate in hostile combat environments with as little as 300 hours flying experience, where flexibility of thought in an ever changing tactical situation is essential. An effective, operationally-focussed training system is critical if they are to go in harm's way with minimum risk.

The Air Force achieves its goal of training its multi-engine pilots by introducing them to the necessary concepts as early as possible. Potential pilots will commence training at 45(R) Squadron having flown approximately 75 hours during Elementary Flying Training (EFT) on the RAF Grob 115E Tutor. EFT provides the essential flying skills and disciplines required to proceed to streaming, where students are selected to continue either multi-engine, fast-jet or rotary-wing training.

Those undertaking multi-engine training will proceed to fly approximately 30 hours during Multi-Engine Lead IN Training, (MELIN), on the Slingsby Firefly provided via civilian contract with Babcock Defence Services. MELIN is embedded within 45(R) Squadron and acts as a bridging course between EFT and operating a true multi-engined trainer. It introduces the essential concepts of a 2-crew cockpit and Crew Resource Management (CRM) on an easily managed platform, and starts to instil in student pilots the required ethos and spirit that is required of a combat pilot. An understanding of the human factors of a multi-crew cockpit is a crucial requisite to successfully carrying out the huge range of missions asked of today's military pilot.

Student pilots will continue their training on the King Air B200 provided under a private finance initiative with Serco Defence and Aerospace. In service in large numbers in the civil aviation community worldwide, this aircraft has proved itself to be a successful, modern and reliable military trainer, as demonstrated by its selection by, among others, the RAF and the US Navy. Although considered an interim solution whilst the RAF's proposed Military Flying Training System (MFTS) is introduced, the King Air contract is valid until 2011. The King Air has provided a significant improvement in aircraft availability, at no additional cost compared with its predecessor, the Jetstream 200, (the pre-production model). Additionally, with its advanced avionics and systems, the King Air provides greater training benefit and provides an additional flight safety edge. In particular, the introduction of Traffic Collision and Avoidance System (TCAS) has been of great value, not only in the familiar procedural environment, but also as an aid to situational awareness when operating on a see-and-avoid basis in Class G airspace and in the low flying system. The King Air's speed of introduction into service has been, by military standards, meteoric; the contract for service was approved in June 2003, and 45(R) Squadron was utilising the aircraft to their full potential conducting flying training by April 2004. These timescales are unprecedented and the result of a successful partnership with industry underpinned by a determination to provide a highly capable pilot to the frontline.

The King Air course is split into two distinct phases – basic and advanced. The basic phase focuses on general handling of the aircraft, basic instrument flying including radio aids navigation and introduces the student to operations at night. It also provides essential training in asymmetric flight, whilst continuously developing the student pilot's CRM and ability to operate within a multi-crew environment. To ensure that they develop a sound foundation in the basics of airmanship and situational awareness,

students are only allowed use of the basic modes of the Collins EFIS 84 avionics and flight system during this phase.

Once the students can fly the aircraft, they must learn to operate it as a military platform. The King Air advanced phase introduces more complex sortie profiles, making full use of the aircraft's advanced systems. In addition to operations in the civilian procedural environment, in the UK and abroad, students are taught low level flying, formation flying, and demanding multi-discipline simulated combat missions. All these elements are intended to advance both the student's skill-set, and also to continue to develop their airmanship, CRM, systems management and captaincy.

Throughout the King Air syllabus, full use is made of synthetic training via 2 Frasca Flight Training Devices. Training in the simulator and in the aircraft is considered complimentary and indivisible, and allows a continuum from part-task trainer to live flying. This holistic approach to flying training and effective use of the available synthetic trainer allows 45(R) Squadron to maximise the impact of each hour spent in the air. At successful completion of the course, after flying approximately 110 hours, both real and simulated, the pilots are presented their 'Wings'. Now they must proceed to their Operational Conversion Unit (OCU) for a further 120-150 hours flying specific to type.

One of the challenges facing the multi-engine training system is the diversity of aircraft it must prepare the student pilot to operate. Aircraft types include older, legacy aircraft such as the VC10 and Tristar through to state of the art, modern platforms such as the C-17 Globemaster II. The ability of 45(R) Squadron to produce an individual fully prepared to advance to any multi-engine OCU is demonstrative of the training system's continual and successful evolution. This success is underpinned by the excellence

of its QFIs, all of whom are military captains from diverse operational backgrounds, and by an excellent working relationship with industry partners.

Military multi-engine pilots are expected to operate in all roles, in all theatres, and must be prepared for operations in the tactical, low-level and night environments. Crews must operate a plethora of aircraft and role-specific systems, often simultaneously with other aircraft, whilst also ensuring their own safety utilising defensive, tactical, and for the future, offensive aids. It is 45(R) Squadron's proud boast that it does not produce transport pilots. Instead it graduates combat pilots who operate large aircraft.

A P ROGERSON
Flight Lieutenant

Footnote:

45(R) Squadron will be enjoying its 90 Anniversary this year and it is intended to celebrate the occasion with an Association dinner on Friday 29 September 2006. The events continue with a Squadron tour and a plethora of fun tournaments on the Saturday, and conclude with a Church Service on Sunday 1 October 2006. Any individuals with links to the Squadron, past or present, and are interested in joining these celebrations are invited to contact the 45(R) Squadron Association Secretary, Flight Lieutenant Duncan Wright at RAF Cranwell, 01400 267769, or in writing at the address below.

Flight Lieutenant Duncan Wright
45(R) Squadron
RAF Cranwell
Sleaford
Lincolnshire
NG34 8HB

Email: crn45sqn-qfi04@cranwell.raf.mod.uk

The ICAO English Language Competency Requirements

Introduction

Back in 1998 the ICAO Assembly, following observations that lack of ability to speak and/or understand English was a contributory factor in a number of accidents, decided to formulate Assembly Resolution A32-16 where the ICAO Council was urged to direct the Air Navigation Commission (ANC) to strengthen the provisions of Annexes 1 (Personnel Licensing) and 10 (Aeronautical Communications) to ameliorate the problem.

Subsequently, the ANC established the Proficiency Requirements in Common English Study Group (PRICESG) to assist the Secretariat in carrying out a comprehensive review of the existing provisions. The committee met over a number of years until 2001, including the setting up of a linguistic expert sub-group, before a submission was made leading to the ANC which, in 2003, adopted amendments to Annexes 1, 6 (operation of Aircraft), 10 and 11 (Air Traffic Services) as well as PANS-ATM Doc 4444.

The International Federation of Air Traffic Controller's Associations (IFATCA) nominated a representative to PRICE SG, as did its pilot counterpart IFALPA, with the UK CAA SRG Air Traffic Services Department and Eurocontrol making up the major organisations from Europe within what was a world-wide group representing both aviation and language training industries.

I took on the IFATCA responsibility from a Canadian, until the committee was effectively disbanded on successful completion of its work, and I attended subsequent seminars and workshops. At these later meetings, it became obvious that although ICAO had introduced the new requirements - leaving the method of introduction and approval of a scheme (possibly utilising outside organisations) for training and testing to the individual State Regulator - there were many concerns outstanding. ICAO had neither the resources nor remit to carry out any further work on oversight or accrediting any testing organisations without the Contracting States requiring this input, although agreement was reached to supply a guidance and implementation manual (published as DOC 9835) to assist Regulators and other organisations who would need to design packages for testing and training purposes.

Earlier this year, it was accepted that the initial ethos was insufficient for the great majority of countries and the Manual on the Implementation of ICAO Language Proficiency Requirements was in need of further development. The PRICESG members were therefore asked to reconvene so as to provide further input to the ICAO Secretariat, and this took place during April 2006, hopefully to finalise the work bearing in mind the short timescales you will see in the next section of this article. The work included such things as defining qualifications appropriate for those who will design and/or carry out the tests, guidance for Regulators on how to choose external organisations who offer to carry out training and testing for those States who do not have either resources or expertise to do things themselves, and laying down the structure for test procedures themselves, although it has to be recognised that the work produced guidance material only.

Overview

The 2003 Annexe changes simplistically mean that Pilots, Controllers, Flight Navigators (who use RTF) and Ground Radio Station Operators who are involved in International Services must be qualified to at least ICAO Level 4 English Language Competency standards, and to the same level where the native language is not English. The ICAO Rating Scale for English Language is divided into 6 levels, with Native Speakers or 'Experts' being Level six and each sub-set being specified in terms of the six specific areas of ability covering:- Pronunciation, Structure, Vocabulary, Fluency, Comprehension and Interaction and all these words have specific meanings to the linguistic community, as can be seen below.

From the date of implementation of the changes late in 2003, for any licence application from a pilot after March 2004 or for any Air Traffic Control Officer after November 2003, he/she had to satisfy the Licensing Authority of compliance with the need to speak and understand the language for radiotelephony communications. However, until March 2008 when the new rules also apply to those already holding a licence, States are permitted to establish this competency in any way they wish.

Tests to satisfy the requirements from March 2008, however, have to be by specific reference to the new ICAO Rating Scale applied by the relevant State Regulator and using what are known as Holistic Descriptors.

An example of this is the detail below that is for the ICAO minimum Level 4 (although again, some of the wording is specific to the language industry).

Pronunciation: - Pronunciation, stress, rhythm and intonation are influenced by the first language or regional variation and frequently interfere with ease of understanding.

Structure: - Basic grammatical structures and sentence patterns are consistently well controlled. Complex structures are attempted but with errors which sometimes interfere with meaning.

Vocabulary: - Vocabulary range and accuracy are usually sufficient to communicate effectively on common, concrete and work-related topics. Can often paraphrase successfully when lacking vocabulary in unusual or unexpected circumstances.

Fluency: - Produces stretches of language at an appropriate tempo. There may be occasional loss of fluency on

transition from rehearsed or formulaic speech to spontaneous interaction. Can make limited use of discourse markers or connectors. Fillers are not distracting.

Comprehension: - Comprehension is mostly accurate on common, concrete and work related topics when the accent or variety used is sufficiently intelligible for an international community of users. When the speaker is confronted with a linguistic or situational complication or an unexpected turn of events, comprehension may be slower or require clarification strategies.

Interactions: - Responses are usually immediate, appropriate and informative. Initiates and maintains exchanges even when dealing with an unexpected turn of events. Deals adequately with apparent misunderstandings by checking, confirming or clarifying.

Effects on UK Aircrew and ATCOs

There are a number of areas that are particularly germane to us, even though the great majority will invariably be assessed as Level 6 or 'experts', but from the above it can be seen that any testing needs highly qualified examiners.

Firstly, however fluent you are, for the UK to comply with the Annexe changes, arrangements will have to be made by your employer to satisfy SRG in whatever method is finally approved – probably an external company accredited to do this test should you not be initially assessed as a native English speaker. The latter process, however, does not have to be made by a language expert and may be undertaken (for example) as part of initial training and examination for aircrew/ATC licences (by an appropriately qualified assessor).

'Native speakers' will not have to undertake a further assessment or test after this has been established, but there will be ongoing requirements for those who are assessed as Level 4 (maximum every 3 years) or Level 5 (maximum 6 years), and a need for training/re-testing for those below this competency.

Discussions are taking place within the European Commission to mandate Level 5 for ATCOs at some designated 'high density' units, and the UK is waiting for input from EASA and JAA as well as comment from industry before deciding on the way ahead for this country. It seems likely, for example, that Level 4 will be a requirement for all JAR/FCL and UK PPL holders as potentially they have the entitlement to fly overseas, and overall requirements may eventually be higher than those of ICAO.

It is important to realise that the ICAO requirements are applicable to 'Language' and not just English, although the latter is a pre-requisite where its use is mandated in accordance with the Annexes. Furthermore, the sole use of English for RTF is not mandated, so the new requirements are applicable to the majority of pilots, controllers, and aeronautical station operators no matter which country they are working in.

Testing

The rationale is to test plain language in an aviation environment, which means that although it is not feasible to completely separate standard phraseology from ordinary use, it is not the aim to actually test the use of any elements of the ICAO Radio Telephony Manual (DOC 9432) - which forms the basis of the UK CAP413 document. The operational aspects will invariably be covered in the relevant environment by competency or recency examiners.

However, what phraseology is used in the test package will be those appearing in the international sphere rather than the UK document - although I suspect that this will not be of a major significance. Commercial UK pilot licence RTF tests already use the ICAO standards, although the PPL written and practical examinations are based on the national document.

The six elements all need to be confirmed as competent (with the lowest score determining the attainment level), so it is likely that there will be a number of sections making up the complete test. To comply with ICAO Personnel Licensing Annexe 1, once the assessment has been completed - necessary by 5th March 2008 - an additional endorsement will be added to the licence.

The testing organisation will have to be approved by SRG, so unlike the unregulated English language training industry, the examination side will be strictly regulated - although in practice how prescriptive this will be in other areas of the world may depend on the expertise (or lack of) and resources available within the Regulator or contracted organisation to provide this.

ICAO will be publishing an updated Manual of Implementation that will recommend guidance for training and experience necessary for all the individuals involved in the testing, starting with the Test Design Team and going right through to those assisting with the administration and 'feed' individuals, along with suggested procedures for the test itself and a basis for Regulators for choosing outside expertise to assist setting up the scheme. It can be seen that the whole procedure requires a good deal of expertise and experience, and few regulators will initially be able to do this without high calibre contract staff or outside individuals/bodies deemed to be 'experts' in this field.

Training

Following on from the international needs mentioned above, many countries of the world will be in the market for this, prior to even contemplating putting staff forward for a test. Without doubt there will be organisations who will claim to be leaders

in the field without having any aviation experience, as until recently there have been few who have even considered any involvement with there being quite a limited market - but there is now going to be a large requirement and the opportunities for commercial gain (although test development is likely to be expensive).

Linguistic experts suggest that it takes between 100 and 200 hours training for a candidate to exhibit any noticeable difference in ability. Training (and possibly testing) may be web based, use Computer Based Techniques, or classroom work structured for individuals or groups. There are some companies who intend to test using the ordinary telephone, others by computer assessment or voice recognition/assessment techniques, whilst the majority would appear to prefer a combination of different methods.

Conclusion

Before 5th March 2008, almost every UK Commercial Pilot and ATCO, together with a number of other related licence holders, will be required to undertake either an assessment to confirm Native English/Expert English Language Level 6 status, or for those who do not meet this competency, complete an SRG accredited test to satisfy a minimum of ICAO Level 4.

Those who reach Level 6 will retain this status permanently, but those of Level 4 will need to re-test within three years, whilst those at Level 5 will be required to undergo another test within six years although this can be undertaken operationally providing the tester is specifically trained for this task.

Pilots and Controllers in other areas of the world where English is not the native language, will be required to have an assessment in the language for the licensing country, and, where involved in International Services (when English has to be available), an English assessment to at least ICAO Level 4 Rating Scale.

Those who fail to reach Level four may be restricted in their operating sphere or airspace until they are able to satisfy the requirements, as ICAO regulations do not permit this aspect to be filed as a difference.

Bob Trott
GATCO/IFATCA

Anyone who would like further information can contact me at trottonrg@ntlworld.com

Fumes, Smoke and Fire in Transport Aircraft

This is a very much shortened version of an original paper by Capt John Cox, prepared for FOCUS by Peter G Richards FRAeS and published in full by the Royal Aeronautical Society.

Summary

From records going back over 200 years, we acknowledge that any kind of airborne machine, by the nature of its construction, is susceptible to an in-flight fire. We have very detailed records now and these show that in-flight smoke and/or fumes potentially leading to a fire, causes a diversion at least once a week in the USA alone.

Reviewing the statistics from 1987 to 2004, the four leading categories leading to in-flight fatality, out of the 17 available, were Loss of Control, Controlled Flight Into Terrain, Specific Component failure (other than engines) and In-Flight Fire. FAA Advisory Circulars, Manufacturers, International organisations and learned society journals repeatedly draw our attention to the hazard of in-flight fire and its precursors.

Risk assessment techniques ensure that sufficient emphasis is placed in equipment design and operational familiarity, but the onset of in-flight smoke, fumes and fire in an aircraft is so traumatic for all on board that anything that can improve things still further is worth consideration and debate.

This paper will demonstrate that, from what we know thus far, where we can we must improve things, to make survival and recovery assured. To this end, recommendations in equipment design and airworthiness, protective equipment, maintenance, and pilot procedures are made .This is a very abbreviated report and the full 41 page text will become available via the UKFSC office or the original author.

A Historical Viewpoint

In 1785 we have our first in-flight fire, with Jean-Francois Pilâtre de Rozier's hydrogen filled balloon catching fire over the English Channel and the loss of all lives. When we commenced flying aircraft, it was not long before these became 'victims' of fire also. So manufacturers began to mitigate against the risk by providing improved materials, and regulators and operators addressed the operational requirements for dealing with the risk.

Recently, the FAA acknowledged that it may well nigh be impossible to 'eradicate all possible sources of ignition' in fuel tanks, despite several years and millions of research dollars attempting to do so. Their 'examinations of large transport airplanes … revealed many anomalies in electrical wiring systems and their components with contamination by dirt and debris'. The FAA has an Notification of Proposed Rule Making consultation window open until October 2006, to address this.

From early accidents, we learn of smoke rapidly overcoming the ability of the crew to control the aircraft, due to incapacitation, loss of visibility and ultimately control. An early National Transportation Safety Board report on the loss of a TWA Lockheed Constellation in 1946 determined that the architecture of the aircraft wiring through the wing root to the fuselage 'resulted in intense local heating due to the electrical arcing' igniting the insulation and thus generating 'smoke of such density that sustained control of the aircraft became impossible'. Contributing to this was the difficulty in gaining access to inspect this location in detail and although this accident happened 60 years ago, we still have incidents and accidents today that originate from poorly maintained and inspected wiring or components.

The Jet Era

We are now in the Jet era and great strides have been made in the investigation of accidents. In 1973 made an emergency landing just short of Orly airport near Paris with dense smoke throughout the aircraft. Although all 117 passengers survived the landing, all but one succumbed to smoke induced asphyxiation. The flight crew had opened the flight deck windows to improve visibility, but this tactic had failed, as smoke became drawn to the flight deck and thus they elected to land 70 seconds flight time short of the runway.

That same year, another accident to a freighter B707 became uncontrollable when the visibility on the flight deck deteriorated and the crew became so disorientated that the flight crashed. Crew actions became uncoordinated such that the flight engineer, believing the source of the smoke was the Essential AC bus bars, selected the 'source switch' to a dead source - external power - and thus de-activated the Yaw damper. This action compromised the flying controls and flaps configuration.

The lessons are clear. Smoke or fumes and flight deck activity do not mix and more could be done to provide flight crews with realistic competencies to deal with this. Some mitigation was introduced by providing automatic fire extinguishing in aircraft toilet waste receptacles and by banning smoking in the toilets too. Yet we entered the wide-bodied or 'Jumbo jet' era with the same cabin airflow modelling as we have always had.

The Next Generation

The advent of wide-bodied and then more advanced 'Electric jets' has given rise to ever more complicated and integrated avionic wiring and control systems. Attempts were made to lighten the weight

of all this wire and some serious hazards introduced by the choice of some kinds of insulation. Electrical smoke became the number one hazard for crew to deal with, yet both checklist drills, and fire suppression or control lag far behind. Our mindset seems to remain stagnant in terms of choices of wire bundle size, routing, support, insulation and circuit control. We must also remain alert to the fact that it is not just the wiring that can generate smoke and fumes. The whole aircraft needs to be kept in focus, especially during deep maintenance, when opportunities must be taken to clean things out thoroughly. *This author personally experienced an in-flight smoke-generating incident from un-cleaned passenger oxygen generating canisters. Years of dust trapped between the canisters and their heat shields filled the cabin with dense smoke while the oxygen generating process was taking place. Not surprisingly, this precipitated an immediate diversion and successful landing, as there was no checklist to cater for such an event.*

The aviation community has recognised that multiple layers of protection are needed if advancement in fire safety is to occur. This brief historical perspective shows that we need to continually review and learn from our mistakes. We enter the era of intense Regulation.

Regulatory Improvements

Our regulators, both the FAA and the CAA/JAA have not been idle about addressing mitigation strategy, both in design and construction, - drills and equipment too.

Standards have been set for fire extinguishing in cargo holds, toilet waste bins, portable extinguishers in the cabin and engine nacelles. Cabin furnishings have come under requirements for fire blocking chemical retardant too. Flight and cabin crews now have standards for their personal protection, but for the flight crew, these need constant development. Airflow requirements are now made, but the means of achieving them remains decades old. On board equipment, such as the crash axe, have rarely been utilised to assist in locating the seat of a fire, nor any training given to facilitate this. Knowledge of the need for and use of a Smoke barrier seems all but non-existent.

It can no longer be acceptable for flight crew to need to put on two devices to protect themselves from in-flight fumes or smoke. The required standard must be a full-face mask and goggles as a combined headset, adjustable to any seat incumbent and with sufficient duration of supply to enable safe landing. Beyond this, the training and checking of crew competence must surely require that smoke drills be practised with 'suitably safe' real smoke. Getting the smoke to stay away from the flight deck would have immense benefits, as many accidents testify. Training crews not to open windows or ports will help too, but ensuring the air-flow, under all pressurisation conditions, keeps the smoke away will save many lives. Yet five years after the first all embracing regulation to promote this we have Swissair Flight 111 and later Air Trans Flight 913 that both crashed killing all on board, from uncontained smoke and fire. In neither case did the crew locate the source of the fire.

It could be comforting to note the harmonisation between the two sides of the Atlantic and with both acknowledging the significance of ageing jet aircraft fleets world-wide, common standards are set and enforced. But things like Supplemental Type Certification need very serious review as it was a clear failure of this process that 'enabled' the Swissair accident. An IFE update bypassed the Cabin Bus isolation switch such that a wiring fire in a non safety-critical circuit precipitated a fire through much of the aircraft control circuitry.

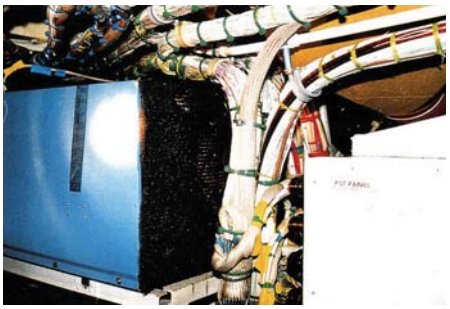
Recommendations

These recommendations cover all aspects of transport airplane design, manufacture, operation and maintenance.

1. Evaluate all aircraft for single point failures of wiring and potential effect on the aircraft systems.
2. Improve the engineering by choice and route of wires, so that the routing does not endanger any critical system wiring. Apply the same rigour to Supplementary Type Certification for modifications as is required for original Type Certification.
3. Require Arc Fault Detection circuit interruption technology to be fitted to all new and existing jet transports.
4. Conduct continuous smoke testing to demonstrate smoke evacuation for a type certificate.
5. Install Fire Access Ports or dedicated fire detection and suppression systems in inaccessible voids of aircraft.
6. Mark areas of minimal internal damage for access by emergency services.
7. Increase the number and locations covered for remote sensing to alert flight crew to the onset of smoke and fire, using whichever technology is most appropriate.

Protective Equipment

1. Implement vision assurance technology for flight crew during flight deck smoke situations.
2. Install full-face oxygen masks and provide sufficient oxygen for flight crew to use during any emergency descent and landing smoke/fumes event.
3. Supply and increase the size of the Halon fire extinguisher to 5lbs and develop suitable replacement chemical extinguishers.



General view, looking forward and outboard, of the aft inboard corner of the galley chiller unit (blue) in relation to the wiring looms. Crew emergency oxygen bottle is located beneath chiller.

General view of damaged wires after chiller removal, with partially failed loom nearest the camera. Areas identified A and B exhibit wire damage not directly related to the loom failure. Of significance, damage at A is approximateley the same height as the failed section of loom.

"Pictures kindly supplied by the UK Air Accident Investigation Branch, from their investigation into the serious incident of an on-board electrical fire and subsequent en-route diversion into the UK of N643UA in 1998. There are several significant lessons that can be drawn from the investigation. The lack of conformity to required maintenance processes, while an obvious candidate, should be 'measured' against the airworthiness design compromise of putting the chiller module so close to electrical looms without robust shielding to protect them. Wiring damaged by poor 'housekeeping cleanliness' had also occurred, such that drilling swarf from cabin floor activity had been blown by the chiller fan into the looms, too. The lack of arc tracking or arc fault detecting circuit breakers, now available but yet to be retro-fitted to all transport aircraft, means that this incident, or others closely similar, could be repeated at any time."

Maintenance

1. Include in the Maintenance programme a regular and systematic cleaning programme of all the thermal insulation blankets and smoke barriers.
2. Modify maintenance practices to minimise the ingress of dust, debris, swarf and any other contaminants into the insulation blankets.
3. Improve wiring inspection programmes to utilise new technology thus minimising the need to disturb wiring bundles.

Flight Crew Procedures

1. Implement flight-crew procedures for using auto-flight systems to reduce workload. There should, however, be a manual reversion capability to provide control where the auto-flight system becomes unserviceable or has to be disabled.
2. Eliminate the need for flight crew to open windows or ports. Improve airflow routing to remove any smoke or fumes from the flight deck automatically, with manual reversion.
3. Review and if necessary re-design all Smoke and Fumes removal checklists to comply more with advanced thinking such as the Flight Safety Foundation template. This should include 'memory' items, prevention of checklist 'bottlenecks', font size and type style, rapid location of correct drill, both on cards and electronic format. Length of checklists to be kept to a minimum.

Flight & Cabin Crew Training

1. Assure that all aircrew receive appropriate training in the use of a crash axe, smoke hoods and all types of fire extinguisher carried. With this include a demonstrated competence to deal with smoke, fumes and fire checklists and when these should be abandoned. Apply realistically simulated smoke to establish true competence, stressing the importance of crew interaction, maintenance of any smoke barriers, problems of communication and ways of assisting flight crew from the flight deck following an emergency landing. For Flight Crew, the need to remain 'Situationally Aware' even while dealing with a smoke removal drill.

Conclusions

This has been a very abbreviated précis of Capt John Cox's paper that I would urge all FOCUS readers to obtain to read in full. There will continue to be in-flight fires because it is not possible to entirely eliminate all the ignition sources and keep them clear of the numerous flammable materials on board, especially in remote and inaccessible locations.

Effective, multiple layers of mitigation are the only answer. Continuous review and modification is needed from the initial design of the aircraft, through approval to manufacture, from regulation to operation and above all in the calibre of people involved. Only then can we honestly say that we have done all we can to reduce the risk of in-flight Smoke, Fumes and Fire in Transport Aircraft.

Full members

Chairman
Willis Ltd
Ian Crowe

Vice-Chairman
BMED
Robin Berry

Treasurer
Air Contractors
Capt. Anthony Barrett-Jolley

Non Executive Director
RAeS
Peter Richards

Aegean Airlines
Capt. Dimitris Giannoulatos

Aer Arann
Capt. Paddy Callahan

Aer Lingus
Tom Curran

AIG Aviation
Jonathan Woodrow

Airclaims
Paul Clark

Air Atlanta Europe
Capt. Andrew Wood

Air Contractors
Capt. Anthony Barrett-Jolley

Air Mauritius
Capt. Francois Marion

Air Seychelles
Ben L'Esperance

ALAE
Dave Morrison

Allianz Marine Aviation

Astraeus Ltd
John Denman

BAA plc
Francis Richards

BA Connect
Capt. Ed Pooley

BAE SYSTEMS Reg. A/C
Alistair Scott

BALPA
Carolyn Evans

Belfast Intl. Airport
Alan Whiteside

BMED
Robin Berry

bmi regional
Peter Cork

British Airways
Steve Hull

British International
Capt. Terry Green

CAA
Dave Lewis - MRPS
Sarah Doherty - Safety Data Dept.
Ed Bewley - Flight Operations

CargoLux Airlines
Mattias Pak

Cathay Pacific Airways
Rick Howell

CHC Scotia
Mike Whitcombe

CityJet
Capt. Tom Murphy

Cranfield Safety &
Accident Investigation Centre
Graham Braithwaite

CTC Service Aviation (LAD)
John Dunne

DARA
Richard Allen

DHL Air
Peter Naz

Eastern Airways UK Ltd
Capt. Jacqueline Mills

easyJet
Capt. Lance Jordan

Emerald Airways
Fred Holloway

European Air Transport NV/SA
Vincent Lambotte

European Aviation Air Charter
Ron Hendrick

EVA Airways
Richard Lovegrove

Excel Airways
Graeme Stagg

First Choice Airways
Patrick Cafferky

FlightLine
Capt. Derek Murphy

Flyglobespan
Capt. Steve Brown

Flyjet Ltd
Stefan Kondak

GAPAN
Capt. Alex Fisher

GATCO
Richard Dawson

GB Airways
Capt. Rob Alabaster

Goodrich Actuation Systems Ltd
Gary Clinton

Gulf Air Co
Capt. Manin Al Said

Hong Kong Dragon Airlines Ltd
Kwok Chan

Independent Pilots Association
Peter Jackson

Jet2.com
Tony Stevens

Irish Aviation Authority
Harry McCrink

Loganair
Capt. Stephen Gates

London City Airport
Gary Hodgetts

Lufthansa Consulting GmbH
Capt. Simon Searle

Malaysia Airlines
Capt. Ahmed Zuraidi

Manchester Airport plc
Simon Butterworth

Monarch Airlines
Capt. Tony Wride

MyTravel
Chris King

NATS
Paul Jones

Penaville Servisair
Keith Gibson

NetJets
Capt. Catherine Thompson

PrivatAir
Capt. Patrick Danalet

Qatar Airways
Norman Tregaskis

Rolls-Royce Plc
Phillip O'Dell

Ryanair
Capt. George Davis

SBAC
Martyn Graham - Secretariat
Vic Lockwood - FR Aviation

ScotAirways
Paul Calder

Shell Aircraft
Grant Campbell

Singapore Airlines
Capt. Patrick Lee

Smiths Aerospace
Dr. Marvin Curtiss

SR Technics Ireland Ltd
Frank Buggie

TAG Aviation (UK) Ltd
Ken New

The Boeing Co.
Thor Johansen

Thomas Cook Airlines
Capt. Roger Chandler

Thomsonfly Ltd
Jez Last

Virgin Atlantic Airways
Gavin Staines

Willis Ltd
Ian Crowe

Group members

bmi
David Barry

bmi Eng.
Tom Webster

bmi baby
Jeremy Purry

Bond Offshore Helicopters
Tony Duff

Bond Offshore Helicopters (Maint)
John Crowther

Bristow Helicopters
Capt. Derek Whatling

Bristow Helicopters Eng.
Andy Evans

Eurocypria
Capt. Constantinos Pitsillides

Cyprus Airways
Capt. Spyros Papouis

flybe.
Neil Woollacott

flybe. Aviation Services
Chris Clark

MOD
DASC Capt. Michael Evans
DASC Eng. Wg Cdr Ian Woodhouse

QinetiQ
Flt. Lt. Jackie Doncaster

QinetiQ Eng.
Paul Wright

RAeS
Peter Richards

RAeS Eng.
Jim Rainbow

Co-opted Advisers

AAIB
Capt. Margaret Dean

CHIRP
Peter Tait

GASCo
John Thorpe

Legal Advisor
Vanessa Leigh
Barlow Lyde & Gilbert

Royal Met. Society
Dr John Stewart

Working together to tackle level busts

by Richard Schofield, Operational Safety Division of Safety, NATS

In the UK, NATS and the CAA define a level bust as a deviation of 300 feet or more from the assigned level. This definition may differ from the definition used by other states or service providers, aircraft operators may also use a different definition. For example, NATS does not include events caused by a late revision by ATC to a clearance which is passed too late for the crew to accurately capture the level as a level bust.

The number of level busts reported by NATS ATCOs has risen since the beginning of 2004.

2003	203
2004	303
2005	394
2006 Jan to Apr 30th	172

Reported level busts for the first quarter of 2006 are 50% higher than for the same period in 2005 and a 100% over the same period in 2004. Some of the increase in reported level busts in the second half of 2005 and in 2006 is partly due to improved reporting by controllers and by operators rather than a genuine increase in events.

Some level busts result in a loss of standard separation. Standard radar separation in the UK will usually be 1000 feet vertically or 3 or 5 miles horizontally. The number of level busts which have resulted in a loss of separation has remained broadly the same in the last 18 months which can be attributed to improved conflict detection and resolution by ATCOs. Although the improvement in the losses of separation is positive, level busts remain potentially safety significant events and together we must continue to reduce the rate of level busts and to continue to reduce the number of events which lead to a loss of separation.

Whenever possible and practicable, each level bust reported by NATS staff is investigated; the depth of the investigation will generally depend on the significance of the events. Based on the investigation a causal factor will be assigned to the event based on the NATS Event Factor Description scheme. The top causes of level bust events since 2004 are summarised above;

Top causes of level busts by year, 2006 to the end of April	2004	2005	2006
Correct pilot readback followed by incorrect action	19%	30%	25%
Failed to follow cleared SID	9%	13%	12%
Audible incorrect readback not detected by ATC	9%	14%	5%
Incorrect pilot readback by correct aircraft	7%	10%	6%
Pilot readback by incorrect aircraft	6%	10%	6%
Failure to follow ATC Instruction	3%	7%	7%
Poor Manual Handling	9%	5%	9%
Aircraft Technical problem	6%	5%	n/a
Altimeter Setting error	5%	5%	13%

Within NATS we use the causal factor information to target actions and activities to eliminate the causes of these events, some of these causes are within the ATC domain and we have the ability to influence them. Some of these activities have already included the identification and elimination of hot spots at units, digging deeper to understand issues such as R/T loading and a drive to improve controller R/T standards across all of the NATS units. We have also identified solutions which can be delivered with an increased use of technology; we are sure that the introduction of Mode S technology at the London Terminal Control Centre will improve conflict detection and resolution and enhance controller situational awareness.

Within NATS we recognise that level busts are not a new phenomenon, that there have been a number of different initiatives by various groups to address the problem over a prolonged period and that level busts are not the only issue for aircraft operators. However, we believe that level busts are a safety issue for the industry and that we all need to work together to tackle level busts. Working together will ensure that we understand the real causes of level busts and will improve the safety performance of the industry.

In June of 2005 the Chairman of NATS wrote to a number of airlines to express the concern of the NATS Board about the increasing number of level busts in the UK. In the 11months since the letter was written there has been a renewed focus on level busts, one of the key benefits of this renewed focus is the fact that NATS and aircraft operators are working closer together to agree the issues and to deliver the correct actions. Some of the benefits of this closer relationship have been;

- Improved notification to operators about level busts in the UK after incidents and a quarterly update on performance to approximately 60 operators

- The formation of a group of 17 airlines based in the UK or Ireland to share information on airline best practice
- A review of airline SOPs, facilitated by NATS and led by the AAIB, to try to determine a relationship between SOPs and level bust performance
- The distribution of education and awareness material
- A drive to improve pilot and controller R/T standards which included input into FODCOM 1-2006
- The development and sharing of safety information
- Targeting actions at groups with a disproportionate rate of level busts such as corporate and private operators

We believe that the actions NATS and the industry have taken, or are planning to take will have a positive affect. Moreover we will start to see a genuine reduction in the rate of occurrence of level busts and of the associated risks but it will take time and we may not completely eliminate them. In order to deliver the improvements in level bust performance and in other safety areas that the industry is focussed on we believe that we need to continue to work together to fully understand why safety events are occurring and to ensure that the correct actions are in place.

We accept that we can't provide all of the answers or advice and welcome input from the industry; we'd be pleased to receive your input. For more information please visit www.levelbust.com or contact Richard.j.schofield@nats.co.uk

EU Blacklist for Air Carriers

by Sue Barham, BLG

New rules on EU-wide blacklisting of airlines and on provision of information to passengers on carrier identity came into effect in January 2006 via Regulation (EC) No. 2111/2005.

Hitherto, the banning of air carriers for safety-related reasons has been dealt with on a piecemeal basis by individual EU member states. The consequence is a lack of uniformity across the EU, with airlines subject to an operating ban in some countries but not in others.

The new EU regulation provides for the establishment of a "Community list" of banned airlines and requires each Member State to enforce an operating ban within its territory in respect of those carriers listed. The initial list was published by the Commission in March and contains around 100 carriers, the vast majority of whom are African-based. The list has come under attack from the African Airlines Association as implying that all African carriers are potentially unsafe.

The Regulation provides for the list to be updated - to add or remove carriers from the list - by the Commission, either on its own initiative or at the request of a Member State. Although the idea is to promote cohesion across the EU as to which carriers may or may not operate in the EU, the Regulation does however also provide for individual Member States to impose or continue a ban in respect of a carrier who does not appear on the Community list if there is considered to be a specific safety issue affecting that particular Member State. It would seem, therefore, that there remains scope for a lack of uniformity across the EU.

Air carriers are given the opportunity to be heard in relation to any proposal to place them on the Community list. The impact on a carrier of an EU-wide ban is likely to be severe and the Regulation expressly recognises that such a hearing may have to be dealt with urgently. Time will tell whether the mechanism for hearing representations from carriers will be able to move at the pace necessary to address any carrier objections expeditiously and this may be tested shortly if any of those carriers on the initial list decide to formalise their objections.

The Regulation includes an Annex setting out "common criteria for consideration of an operating ban for safety reasons at Community level". Consideration of whether a carrier should be banned requires an assessment of whether the carrier is meeting safety standards. The following are some of the matters which are to be taken into account:

- Verified evidence of serious safety deficiencies on the part of the carrier, including persistent failure by the carrier to address deficiencies identified by ramp inspections, or an operating ban of the carrier by a non-EU country because of deficiencies related to international standards.
- Lack of ability and/or willingness of a carrier to address safety deficiencies.
- Lack of ability and/or willingness by the authorities responsible for regulation of the carrier to address safety deficiencies demonstrated, for example, by failure on the part of the third country regulatory authorities to implement and enforce relevant ICAO safety standards.

At present, although many countries maintain their own blacklist, they do not make the list available to the general public, one exception being the UK. The Regulation, however, changes that position. The general public will have full access to the up-to-date Community list through the websites of air carriers, national civil aviation authorities, EASA and perhaps through the displaying of a notice at airports.

The other important aspect of the Regulation concerns the provision of information to passengers as to the identity of the carrier who will operate the flight for which a passenger holds a reservation. This part of the Regulation applies to "air carriage contractors", i.e. either the carrier which sells a ticket to a passenger or, if the flight forms part of a package holiday, the tour operator or, if a package or seat-only sale is made by an agent, the agent in question. The basic obligation is that the "air carriage contractor" must, at the time the reservation is made, inform the passenger of the identity of the operating air carrier.

An amendment to the Regulation's provisions in the drafting stage sought to address one of the main objections the package travel industry had to the proposed new rule. Tour operators will often not be in a position to tell their customers the definite identity of the airline who will operate the flight element of the package at the time a holiday booking is made. Frequently, bookings are made many months before the tour operator has finalised its charter arrangements with the carriers concerned. Tour operators were concerned that compliance with the Regulation would therefore be impossible from their perspective.

The Regulation now requires that, if the precise identity is not known at the time of reservation, the passenger must be told who the air carrier is likely to be and must then inform the passenger definitively as soon as the identity is known. Although this might ease the concerns of the package travel industry, the wording is

still opaque and it is not particularly straightforward for a tour operator to assess precisely what information it must give to passengers and at what stage in the booking process. What does seem likely is that the new rules will require some adjustments in the booking process or in the way communications with passengers prior to departure are dealt with to ensure that the information requirements of the Regulation are being met as far as possible.

The information obligation applies to any flight which is part of a contract of carriage which started in the EU and, broadly, the flight is either departing from or returning to an EU member state. To take an example, if the passenger has a return trip ticket London-New York-London, he must be informed of the identity of the carrier who will be operating both sectors of the booking. However, a passenger who books to fly New York-London-New York has no such entitlement in respect of either sector of his air travel.

A final point to note is the consequence for a contract of carriage of the intended carrier being placed on the Community list of banned air carriers, necessitating cancellation of the flight. In these circumstances the Regulation:

- provides that passengers are entitled to reimbursement or re-routing in accordance with their rights under EC Regulation 261/2004 on denied boarding and cancelled or delayed flights; and
- if the flight is not covered by EC Regulation 261/2004, for example because it was to be operated into the EU by a non-EU carrier, it imposes an obligation on the air carriage contractor to provide reimbursement or re-routing.

Bearing in mind that the air carriage contractor may simply be the travel agent who sold the air ticket, this latter provision could potentially be onerous.

Communication Error, an Industry Campaign to Improve Standards

by Karen Skinner, Supervisor, London Terminal Control

Have you ever felt frustrated by poor RTF standards?

I guess we have all experienced an occasion where time has been wasted clarifying what a pilot or controller meant to say when they have used non-standard RTF, or maybe more seriously an incident has been caused by a missed or incorrect readback.

NATS is working with industry to reduce incidents of this nature and is focusing on improvement of RTF standards for both controllers and pilots. As part of this work, pilot RTF standards are now being focused on and in conjunction with the airline community NATS is working on the production of a DVD based training module for commercial pilots. This DVD will follow on from the "Top Ten Tips" leaflet many of you will have received with CHIRP and also a Phraseology booklet which is currently being developed.

These three projects, when combined will help to standardise RTF whilst also drawing attention to what is currently "best practice".

The strength of the DVD is that it is being put together by pilots, controllers and regulators with input from airlines wishing to raise safety standards. The finished product will, therefore, be relevant and interesting to all. A flexible style is anticipated so that whilst the training can most usefully be carried out in a classroom/discussion environment, Airlines will also be able to copy and distribute the DVD as a self-study aid and encourage debate after individuals have completed the course.

The final content and format is due for completion shortly, so if you have anything you would like included, eg phrases you don't understand, pet hates or phrases that you don't like to hear, then please contact me at:- Karen.skinner@nats.co.uk .

Also if you would like to receive the final product on DVD please register your interest at the email address above.

Automatic Radio Altimeter Call Outs
An under-utilized resource?

by Alex Fisher, GAPAN

Accidents continue with monotonous regularity in which pilot altitude awareness seems to be less than it should be. GPWS and EGPWS have had a great effect on accident numbers, but there are still examples of landing long or short, or mis-setting or mis-reading altimeters, or continuing below DH or MDH without visual reference. Radio (or radar) altimeters have been part of standard instrumentation for many years; on the face of it knowing the exact height above ground ought to be an enormous safety advantage. It should be impossible to bump into the ground if you know it is there. And yet, the Rad Alt is not typically included in the pilot's scan, and it is easy to see why. It is hard to extract much information from an indication that is changing quickly in an arbitrary way that reflects the uneven contour of the ground below, and one that is not immediately related to the profile being flown which is based on altitude, not height. So if the Rad alt is used at all, it is as an altitude awareness crew call out at some predetermined figure. The usefulness of such call outs is, however, questionable as we all know that the first thing that a stressed out, rushed, crew does is to forget to make the standard calls; and if you are not expecting to be low during a procedure (and why should you be?), the chances are not high that you will notice the one indication that you are.

All that has now changed; along with EGPWS, aircraft typically now have a radio altimeter auto call out function. This little gizmo doesn't add crew workload, and, above all, it isn't affected by stress and it won't (often) forget to do its little job. But to be effective, the call outs have to be recognized, thoroughly understood and firmly associated with a simple fact:

The exact call outs are pin selectable and so may differ from fleet to fleet, the table below represents a typical selection. So the modus operandi is not for the crew to call 500, 100 etc in order to elicit some parrot like response, but to leave the automatics to do it. When a call is heard the instinctive reaction to it has to be 'is that sensible, and do we satisfy the simple criteria given above?' So when you hear **500**, you must ask yourself 'Are we on approach and if this is a non precision approach, are we close to MDA(H)?'. At **100** if you can't see the threshold, there could be many reasons, too low, too high or just insufficient visibility, but all say 'Don't continue'. Finally, even if you have passed all the previous tests, when that disembodied voice yells **50**, if you can still see the threshold, you are far too low.

These calls are not a substitute for EGPWS, which can give much earlier warnings based on its frightfully clever terrain database, but they are a useful addition to the pilot's armoury, and do address some things the EGPWS does not; think of them as an extra slice of Emmenthal in Prof Reason's Swiss cheese.

One final thought: if no one ever touched down beyond the Touch Done Zone markings or lights there would be substantially fewer over runs. If the end of the zone seems to be approaching, and you aren't on the ground yet, a go around would seem to be a good option…..If you can't remember what the TDZ and Threshold lights and markings look like, a very good time to remind yourself would be before your next flight.

Call	Meaning
1000	**MUST** be level or on an approach (1000ft is typical minimum obstacle clearance before final approach)
500	**MUST** be on approach, approaching MDH if Non Precision
100	**MUST** be in sight of threshold (except Cat 3)
50	**MUST NOT** be still in sight of threshold
ELSE GO AROUND	

National Initiative Targeting Disruptive Passengers

The UK Airport Police Commanders Group is behind a national initiative targeting disruptive passengers. Police Commanders at all of the UK's airports and the Crown Prosecution Service have agreed a protocol with UK airlines and airport authorities through the Department for Transport, the UK Flight Safety Committee and the British Airline Pilots Association.

The protocol lays out the responsibilities of the police together with airlines, ground-handling staff and airport licensed premises when dealing with disruptive travellers. The protocol encourages the adoption of a zero tolerance approach to disruptive behaviour, both in flight and on the ground prior to boarding. The protocol also clearly sets out the individual responsibilities of travellers themselves and the consequences of poor conduct.

The following represent some of the actions and sanctions identified within the protocol:

- Abusive and aggressive behaviour will not be tolerated and those persons who commit criminal offences will be prosecuted to the full extent of the law.
- Drunkenness is not acceptable and anyone who shows up for their flight in an unfit state will be denied carriage and may be removed from the airport.
- Persons denied carriage because of their behaviour will have their flight tickets invalidated, without compensation.
- Should passengers become drunk on board the aircraft they will be liable to prosecution, which may result in a substantial fine, or a period of imprisonment.
- Where additional expenses have been incurred by the Airline, such as divert and landing fees, as a consequence of bad behaviour, the Police will apply for compensation for that Airline as part of the prosecution case.

The initiative sets out national minimum standards and promotes the development of bespoke local arrangements.

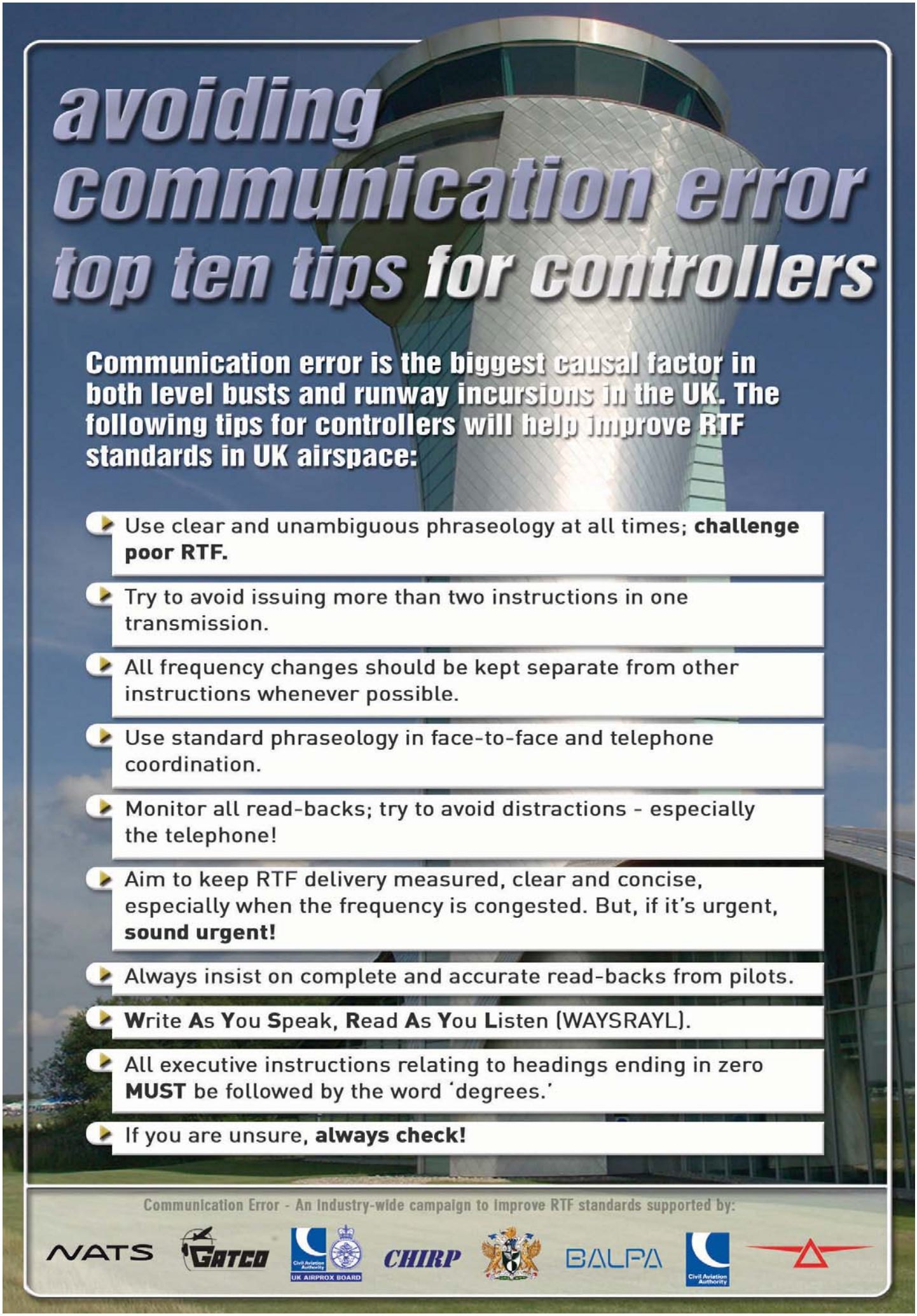
It is not only the uniformity of the police and CPS response that is significant but also the support of many of the high volume scheduled and major charter airlines, as well as airport authorities and ground agents. Additional support from Government and professional bodies also add weight to the project.

The protocol assists the industry in developing a robust response when confronted by aggressive and abusive behaviour. It also sets out in practical terms how the industry, together with its partners within the control authorities, can adopt a strategy that deals with both prevention and enforcement, based on mutual understanding and the exchange of information.

This iniative has been produced by the UK Airport Police Commanders Group on behalf of APCO. The Commanders Group represents some 59 airports in the UK and Northern Ireland; clearly a good many of these do not have a permanent police presence and are serviced from the local police station.

The Initiative is that of UK Police Commanders Group on behalf of ACPO and represents some 59 airports in the UK and Northern Ireland.

For more details contact:
Sgt. Crompton-Guard
Greater Manchester Police


avoiding
communication error
top ten tips for controllers
Communication error is the biggest causal factor in both level busts and runway incursions in the UK. The following tips for controllers will help improve RTF standards in UK airspace:
Use clear and unambiguous phraseology at all times; challenge poor RTF.
Try to avoid issuing more than two instructions in one transmission.
All frequency changes should be kept separate from other instructions whenever possible.
Use standard phraseology in face-to-face and telephone coordination.
Monitor all read-backs; try to avoid distractions - especially the telephone!
Aim to keep RTF delivery measured, clear and concise, especially when the frequency is congested. But, if it's urgent, sound urgent!
Always insist on complete and accurate read-backs from pilots.
Write As You Speak, Read As You Listen (WAYSRAYL).
All executive instructions relating to headings ending in zero MUST be followed by the word 'degrees.'
If you are unsure, always check!
Communication Error - An Industry-wide campaign to improve RTF standards supported by:
NATS
GATCO
UK AIRPROX BOARD
CHIRP
BALPA
Civil Aviation Authority

avoiding communication error

top ten tips for pilots

Communication error is the biggest causal factor in both level busts and runway incursions in the UK. The following tips for pilots will help improve RTF standards in UK airspace:

- Maintain RTF discipline – use clear and unambiguous phraseology at all times. **Avoid** unnecessary RTF.
- Both pilots should monitor the frequency whenever possible.
- **Do not** read back a clearance as a question, and avoid asking confirmatory questions on the flight-deck (e.g "He did say flight level 110 didn't he?").
- Ensure you pass all information relevant to your phase of flight. For example: On departure, pass call-sign, SID, passing level, cleared level or first step altitude.
- On frequency change, **wait and listen** before transmitting.
- Take particular care when issued with a conditional clearance. When reading back a conditional clearance, make sure you state the condition first.
- **Check** RTF if there is a prolonged break in activity on the frequency.
- Set the clearance given, **not** the clearance expected.
- ATC instructions should be recorded where possible.
- If you are unsure, **always check!**

Communication Error - An industry-wide campaign to improve RTF standards supported by:

NATS GATCO UK AIRPROX BOARD CHIRP BALPA

It Couldn't Happen to ME

by Lt Dan Denham Royal Navy
ex 801 Naval Air Squadron Operations Officer

Sat on a desk in the instructors' office at 899 Squadron I had just read an article in an old dusty "Cockpit" magazine[1]. The article in question was in Issue 64, the Winter 98 edition, and described a particularly nasty instance of Hypoxia. The part which stuck in my mind was when he described the lethargy he felt towards checking the Master Warning light and cancelling the audio signal. Accusing an instructor of senility whilst on an Operational Flying Training course may not have been the wisest start to the day but as you can guess it got worse ...

I was nearing the end of the course; I had been on 899 Naval Air Squadron for nearly a year by now and only had 5 flights to go before finishing the course and going to the front line. Today's sortie was reputedly the hardest of the entire course; it involved flying as a singleton attacking a pair of enemy fighters (simulated by two other Sea Harriers from 899 flown by Air Warfare Instructors) at both long and short ranges, eventually entering a visual fight, targeting both without being seen, and all of this with no restrictions on where the enemy could go. It could have been 250 ft or 40,000 ft or one at each extreme. All of these variables promised an extremely taxing sortie. Levelling at 24,000 ft to put myself in the middle of where I thought the enemy would be I felt remarkably relaxed, confident even. That should have been the first warning sign (the same feeling after a couple of pints of being the best looking, funniest and most charming man in the bar). I had a transit of about 10 minutes before reaching my Combat Air Patrol (CAP) Station and so checked all of my radar and weapons systems thoroughly before the `fight's on'. Throughout this period the autopilot was selected on holding me level at 24,000 ft giving a cockpit altitude of approximately 14,500ft.

The next event was the master warning light came on with the accompanying audio warning. How annoying I thought to myself. It wasn't cancelled; I didn't even check which caution had come on. Nothing in my brain said: "Emergency, react now". I carried on at 0.7 Mach straight and level with the autopilot selected on heading west over North Devon. At this point the other two Sea Harriers were positioning about 80 miles away over the Dartmoor area. I don't know how many seconds the alarm went on for, but I remember consciously thinking that I should probably cancel it, but only because it was beginning to annoy me. So I did, I reached up pressed in the button and the noise went away. Did I check which caption was associated with the alarm? No I didn't, despite the OXY caption being only about two inches from the master cancel button I had just pressed.

Another few seconds passed and I thought to myself that I really should check what it was that set off the Master Warning. At last after maybe 30 seconds I looked at the warning panel situated to the left of the Head Up Display. OXY in red. So it's an OXY caption. Oh well I thought to myself the OXY caption has come on. Nothing. No immediate actions. No radio call. No pulling the emergency oxygen. No rapid descent to below 10,000ft. No checking the connections. Nothing. Nada. Rien. Blissful, lethargic, intoxicated nothingness!!!

By this stage I remember a radio call from the leader of the other section of fighters asking if I was ready to start the exercise. I radioed to him that I `had a minor oxygen snag and to standby'.

So there we are, I knew I had a problem, I had seen the warning with my own eyes, I had even radioed the nature of my problem to the leader of the other players and the listening Fighter Controller. So at last I raced through the initial actions declared a PAN and returned home ... or did I ? You guessed it ... No!

It was at about this stage that I noticed that my breathing started to become laboured. It was harder to draw air through the oxygen mask than normal and so finally I decided to get out my Flight Reference Cards (FRCs) and run through the OXY drill. I knew the immediate actions, I had even practised them recently in an Emergency Simulation, but I couldn't remember them and so as I had been taught on numerous aircraft types I didn't make them up - I got out the cards to run through them. I did at this stage select 100% oxygen.

This is where my faculties really started failing. I couldn't find my FRCs. Of course they were where I always kept them throughout my entire flying career, in the pocket on my right knee but I had forgotten that. Eventually I found them. I started skimming down the index looking for Oxygen failure, but I couldn't find it. I must have flipped the cards over 5 times looking for it. The reason I couldn't find it was because I could no longer read. Then and only then did I realise that I was now massively Hypoxic. I couldn't read the cards. I looked up and could only just make out the instruments and the Head Up Display (HUD) was blurring.

I swore out loud rolled the aircraft on its back and pulled into a vertical dive. I was below 10,000 ft in a few seconds and all of my faculties quickly returned. I now obviously declared a PAN and curtailed my sortie ... No!

I called up the other players, said I had sorted out the snag and was happy to continue the sortie maintaining below 10,000ft as my oxygen had run out.

After a couple of attempts to set up the first engagement, sanity and a stinking

headache set in and I finally returned to Royal Naval Air Station, Yeovilton. Obviously having informed them on the ground about my near death experience ... No!

Having shut down the jet I still felt distinctly unwell. I informed the Air Engineering Mechanic at the jet that the oxygen had run out and walked in, signed in and informed the engineers that the oxygen bottle needed changing.

I found my authoriser and again told him that the oxygen had run out and I had felt a bit dizzy, but I was fine now. The debrief was uneventful and I played down the incident, just saying I hadn't felt well which is why I curtailed the sortie.

I drove home a few hours later still feeling worse for wear and remember sleeping for about 14 hours that night.

The next day over lunch at the Squadron I told the whole story to the listening audience. Included in this was the Air Engineering Officer who, on hearing the full, unadulterated version, rang the Watch Chief and pulled the jet off the line for an oxygen system inspection. It was subsequently discovered that the oxygen system did have a leak.

After this incident the entire Squadron was educated on the effects of Hypoxia and to always assume that it has occurred after a failure or depletion of the oxygen system. My nonchalant statement to the ground crew (whilst still under the effects) could have caused the aircraft to get airborne later that day with a re-occurrence of the same incident.

This incident raises many issues both in the air and on the ground:

- A few more seconds without oxygen and I would have been unconscious.
- The aircraft would have carried my dead body over the Atlantic where it would have run out of fuel and crashed.
- Having not informed the other players of the nature of the problem they could not have known the seriousness of the incident.
- What would or could they have done even if they had known?
- Once recovered I should have then gone through the FRCs and returned to base, having declared a PAN, and been met by medical services and gone straight to the medical centre.
- Tell the whole story to the Engineers or they will assume a routine failure with a routine cause.
- Hypoxia affects individuals differently. I remembered my hypoxic chamber run during training and not being able to read then, which is the only thing that saved my life.
- The effects of Hypoxia can last for hours if not days and medical attention should be sought immediately after any hypoxia incident.
- Your judgement is impaired for a long time after hypoxia.
- The entire Squadron needs to be aware of the effects of Hypoxia including the ground crews and it should always be assumed that it has occurred with any instance of Oxygen failure or depletion.
- Whilst airborne, if another pilot, or in the case of two seat jets, member of the crew, informs you of a `minor oxygen snag' don't let it lie - question them - talk through it with them - annoy them, and if necessary tell them what to do.
- If there's any doubt there's no doubt - declare a PAN, return home and, if necessary hand to anyone who raises an eyebrow, or quotes "lost training" at you ... a copy of this article !!

This article is reprinted with kind acknowledgement to The Royal Navy Flight Safety Magazine COCKPIT – Winter 2005/6 Issue No.185

(Footnote)
[1] The Royal Navy's Flight Safety Magazine

UK FLIGHT SAFETY COMMITTEE

A RE-EVALUATION OF AVIATION TRAINING

Annual Seminar 2006

2nd/3rd October 2006
The Radisson Edwardian Hotel Heathrow

SEMINAR OBJECTIVE

The complex world of modern airline operations demands the highest levels of both competence and commitment. The operation of the most advanced aircraft types and their maintenance, ground and air traffic handling, and the processing of many hundreds of passengers per flight, requires an ever-changing training commitment. Once again, the UKFSC has brought together a cross-section of experts to re-evaluate the scope of training needs and the resources required. If your company aspires to be among the best, you should attend this Seminar.

PROGRAMME

2nd October 2006

2000hrs Seminar Dinner
After Dinner Speaker - Paul Barron - CBE - Chief Executive NATS

3rd October 2006

0800 - 0900	Registration
Session Chairman - Capt. Robin Berry - BMED	
0900 - 0915	Welcoming Introduction - Ian Crowe - Chairman – UKFSC
0920 - 0945	Keynote Speech - Capt. Bob Screen - Aviation Consultant
0945 - 1020	Training Deficiencies - What the Accidents Tell Us - Dave King, Chief Inspector of Air Accidents - AAIB
1020 - 1040	Refreshment Break
1040 - 1115	Training on Automated Systems - Capt. Simon Wood – BSc, BA, MSc Director, CAA Flight Operations Research Centre of Excellence - Cranfield University
1115 - 1150	Air Traffic Controller Training Coping with Change - Suzie Rudzitis, General Manager Training & Operational Resources - NATS
1150 - 1225	Questions
1225 - 1340	Lunch
1340 - 1415	Military Training for the 21st Century - Gp.Capt.Les Garside - Beattie - Head of RAF Training
1415 - 1450	Decision Making in Command - Capt. Chris White FRAeS - Parbrook Aviation
1450 - 1505	Comfort Break
1505 - 1540	Engineering Training - Steve Pennington, Director Maintenance Training and Standards - Alteon
1540 - 1615	Cabin Crew Training for European-wide Operations - Chris Hewitt - easyJet
1615 - 1645	Questions
1645 - 1700	Closing Speech - Ian Crowe - Chairman - UKFSC

SEMINAR INFORMATION

- Hotel Accommodation

Hotel accommodation is not included in the Seminar Registration Fee. A rate of £147 (including breakfast & VAT) has been negotiated with the Radisson Edwardian Hotel (valid only until 30th August). If you require accommodation please contact the hotel directly on Tel. +44 (0) 20 8759 6311 and quote Block Booking Code 1002 UKF when making your reservation.

- Seminar Dinner

Dress for Dinner – Black Tie

- Cancellations/Refunds

Cancellations received prior to 25th August 2006 will be refunded 50% of registration fee. Refunds after this date will not be given.

SEMINAR REGISTRATION FORM

Please complete in full one registration form per person. (Photocopies accepted)

(Please print clearly)

First Name: Surname:

Company: Job Title:

Address:

Tel No: Fax No:

e-mail:

PAYMENT INFORMATION

Seminar Fee: UKFSC Member £185 ☐ Non-UKFSC Member £235 ☐

This includes the Seminar Dinner on the even 2nd October, lunch, refreshments and car parking. This does not include hotel accommodation - please see 'Seminar Information'.

Payment is by Sterling cheque only. No credit cards are accepted. Bank transfer is available, details on request (please note an additional cost of £6 will be added to cover handling charges). The UKFSC is not VAT Registered.

Sterling cheques should be made payable to UK Flight Safety Committee.

- Do you plan to attend the Seminar Dinner on Monday 2nd October? Yes ☐ No ☐
- Do you require a Vegetarian alternative? Yes ☐ No ☐

PLEASE SEND YOUR COMPLETED REGISTRATION FORM WITH YOUR CHEQUE TO:
UK Flight Safety Committee, Graham Suite, Fairoaks Airport, Chobham, Woking, Surrey GU24 8HX
Tel: +44 (0)1276 855193 Fax: +44 (0)1276 855195 email: admin@ukfsc.co.uk
Confirmation will be sent to you on receipt of your Registration Form and payment.

WOKING PRINT & PUBLICITY

are proud to be producers of Focus Magazine

we provide quality:

- design & artwork
- scanning
- imaging
- pre-press
- web design
- litho printing
- digital printing
- print finishing
- promotional gifts

For 25 years Woking Print & Publicity has provided an exceptional Print and Design service to our many clients. To arrange for one of our professionals to visit you call:

01483 884884 or email: **sales@wokingprint.com**

innovative design ▷ quality print ▷ exceptional value

Woking Print & Publicity Ltd
The Print Works • St Johns Lye • St Johns • Woking • Surrey • GU21 8RS
Telephone: 01483 884884 • Fax: 01483 884880 • ISDN: 01483 598501
Email: sales@wokingprint.com • Web: www.wokingprint.com

WOKING PRINT & PUBLICITY