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The Global Voice of Pilots

news



Runway safety examined
AS-PAC and Helicopter meetings

January 2007

Safe runways mean business



by Captain Rob van Eekeren, Vice Chairman AGE Committee

The ACI World Conference in Cape Town had as its theme: Airports Mean Business. IFALPA was given the opportunity to present a pilot's view at this Conference and this article summarises the presentation.

The air transport business essentially consists of moving payload (either passengers or cargo) from one airport to another. For air transport to exist the operator needs as bare minimum payload, an aircraft with fuel and a crew, and finally, a place to take off and land. As a key element in the matrix of the air transport business airports provide runways from which to take off or land, ramps on which to park, load and unload, and taxiways that connect the two. The core of this operation is the runway—no runway, no take off, no take off, no air transport business. Indeed, it is runway capacity that will be the limiting factor for aviation growth, and therefore the runway is an essential commodity.

Is that a problem?

Let's consider for a moment what a runway is, or rather its purpose. A runway is an area where aircraft full of people and highly flammable fuel can take off or land. Is this a problem? Ferraris, Porsches, and even a Mini Cooper love taking sharp turns at speeds in excess of 100 km/hr. Their steering and braking capabilities are superb. Unlike these vehicles or Michael Schumacher's FI car, aircraft are not

good at cornering on the ground. Indeed, they are limited in braking performance as well as agility.

This limited aircraft ground performance could, in the worst case scenario, result in two types of accidents on a runway: The first situation would occur where an aircraft cannot manoeuvre adequately enough, loses control and runs over the edge of a runway. This event is called a runway excursion. The other possibility is that the aircraft cannot stop in the length of the runway. This could result either in overrunning the runway, another runway excursion, or even a crash into another object on the runway (aircraft, vehicle, material, person, object, etc.). Since, as stated, aircraft are very limited in manoeuvring and braking capability, and since they carry lots of easy ignitable fuel, passengers and/or cargo, it would be fair to state that runways do require special safety precautions. The other type of threat that occurs when speaking of runway hazards is from an aircraft or other vehicle entering a runway when it shouldn't. This is called a runway incursion (Figure 1). Even when there is no loss of life or injury as a result of a runway incursion or excursion there are grave business implications for an airport, since this type of accident

ICAO definitions:

A runway excursion is a veer off or overrun off the runway surface.

A runway incursion is any occurrence at an aerodrome involving the incorrect presence of an aircraft, vehicle or person on the protected area of a surface designated for the landing and take off of aircraft.

Figure 1: ICAO definitions

could result in a temporary closure of the runway where the accident or incident occurs. And as I said in my introduction - no runway, no air transport. Clearly then, a safe runway environment is not only vital for safety and accident prevention but also makes sound business sense.

Are runways safe?

After the Tenerife and Milan Linate accidents, an industry wide effort was established to reduce the runway incursion risks. Key organisations, including ACI and IFALPA, worked in concert on this issue, which resulted in the ICAO manual on the prevention of runway incursions. Among other safety precautions, the manual calls for the establishment of Local Runway Safety Teams (LRSTs). These LRSTs are comprised of airport managers, air traffic controllers and pilots who work together in an effort to improve runway safety at specific airports. Although there is always the risk of an accident, it is fair to say that as a result of the work of LRSTs the industry has been able to considerably reduce the runway incursion risk. Even with the success from this effort there is much that is still needs to be done to reduce the risks further. For example, it is difficult to understand why airports still construct taxiways that cross runways. At Barcelona for example (figure 2), following the construction of a new runway (07R/25L) no fewer than eight new taxiway crossings were built! It is clear that the safest option in terms of reducing the threat of runway incursions is to have no runway crossings at all by taxiways, but eliminate this problem by constructing perimeter taxiways. The construction of a perimeter taxiway designs out the risk of avoidable incursions and therefore, as in the case of Barcelona, where there is ample space available for perimeter taxiways the decision not to build them is baffling.

Runway Excursions

But how about the other runway safety issue: runway excursions? Unlike incursions there is no ICAO manual on the prevention of runway excursions, and

yet runway excursions are the most common type of accident in air transport operations. This fact was established by the Netherlands National Aerospace Laboratory (NLR) survey of 300,000 air safety reports of incidents between 1997 and 2005 (figure 3), and was further supported in an April 2006 report by IATA that revealed that nearly one quarter (24%) of aircraft accidents are runway excursion events. Unfortunately, after these reports were published the trend continued. In 2006 there were at least 22 runway excursion accidents involving transport aircraft, and these accidents resulted in the death of 222 people, a toll which is greater than the total for the previous five years (table I). It is clear that runway excursions present a significant risk to the travelling public as well as airline and airport employees.

Further investigation of the statistics reveal that 75% of the runway excursions occurred in the landing phase, and of these 53% were veer-offs and 47% overruns. Additionally, 51% of the incidents happened on wet runways or runways contaminated with snow, ice, rubber deposits or a combination of all of these hazards. Given that less than 10% of all aircraft movements are on wet or contaminated runways the risk of overrun or veer-off is disproportionately higher (around 10 times higher) compared to a dry runway. A study by US-ALPA (figure 4) revealed that there are three main locations where aircraft (or the wreckage of an aircraft) will come to rest following a landing accident. These are: just before and short of the



Figure 2: When Barcelona Airport built a new runway (07R/25L) no fewer than eight new runway incursion opportunities were created

Top 10 accident categories (1997-2005)

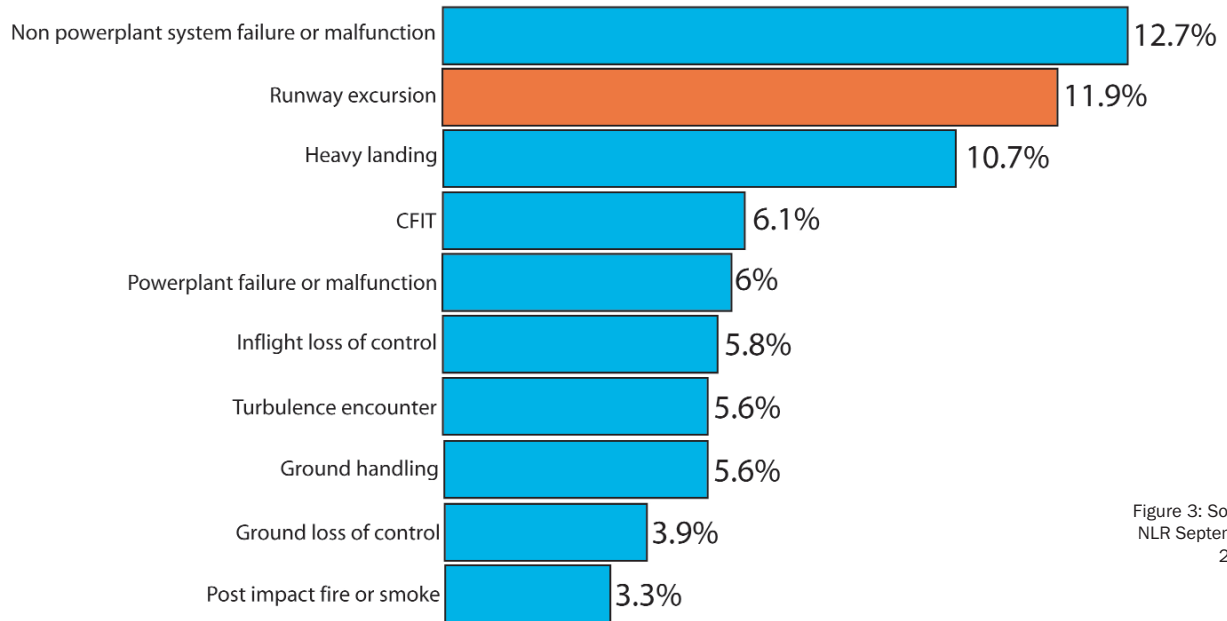


Figure 3: Source NLR September 2006

threshold, halfway in or out of the runway strip, or in the runway end safety area. But in all of these examples the aircraft is on the airport property. This has another implication for airports besides the safety and accident prevention aspect. Public perception of a crash of this kind tends to focus on the airport rather than the airline involved. For example, we talk of Toronto or Little Rock, Midway or Linate, Tenerife or Lexington. The airline names are rarely mentioned. As a result there is a risk that a given airport will suffer negative publicity in the wake of an accident. This is especially true if the accident investigation reveals a flaw in airport design or layout. Therefore, it follows that it is in airport's best commercial interest to ensure that their runways are as safe as is possible to make them.

the condition of the runway. Airport performance charts that are used to make these performance calculations require very accurate data input. In the case of a runway contaminated with slush, snow or standing water calculation needs to be measured to the millimetre. If the depth of slush is judged to be 6mm instead of 5mm then the payload on a B-737 would be reduced by 1000kg, while on a B-747 this figure would rise to 5,000kg. To put this another way, in the B-747 example the payload reduction would be 50 passengers. Clearly, this has serious financial implications. However, a more serious error would occur in the other direction when the assumption made is that a runway is contaminated with 5mm of slush and the reality is that it is 6mm deep. In this scenario there is an elevated risk of

Are the tools adequate?

Again we should consider the basics and realities of the air transport business. The amount of payload carried by an aircraft determines profit. This is especially true in today's low fare/low yield environment. Clearly then, airlines strive to achieve the maximum payload possible on each flight. Aside from the commercial issues, this payload is determined by either the maximum takeoff weight and/or the maximum landing weight. While these parameters will have an absolute value they can, and often are, reduced by other factors, including engine out climb performance, obstacle clearance and usable runway length. There are other factors which must also be considered; for example, the wind direction and speed, air temperature and pressure, the airport elevation and

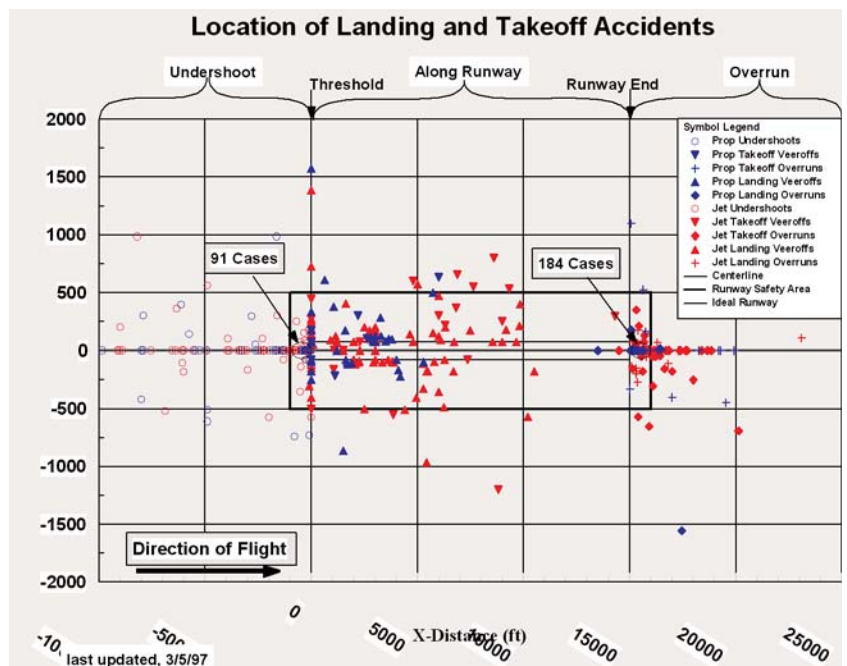


Figure 4: Source US ALPA

Accident date	Airport	Fatalities (onboard)	Fatalities(Ground)	Operator	Aircraft
10-1-2006	Puerto Jimenez, Costa Rica	0	0	NatureAir	DHC-6
26-1-2006	Padak, Sudan	0	0	United Airlines (Kenya)	Let 410
4-3-2006	Surabaya – Juanda, Indonesia	0	0	Lion Airlines	MD-80
17-3-2006	Oldfangak, Sudan	0	0	Trackmark Cargo	HS-748
22-3-2006	Philadelphia , PA, USA	0	0	Bankair	Learjet 35
16-4-2006	Guayaramerin, Bolivia	0	0	TAM	F-27
20-4-2006	Alexandria - International, Egypt	0	0	Jordan Aviation	Sabreliner
24-4-2006	Bost, Lashkar Gah, Afghanistan	2	13	Air Million Cargo Charter	An-32
1-6-2006	Bocas de Toro, Panama	0	0	Air Panama	J-31/S3I
3-6-2006	Manassas, VA, USA	0	0	East Coast Flight Services	FD-328JET
4-6-2006	Managua, Nicaragua	0	0	Arrow Cargo	DC-10
5-6-2006	Bandanaira, Indonesia	0	0	Merpati Nusantara Airlines	N-212
7-6-2006	Medellin, Colombia	0	0	TradeWinds Airlines	B-747-200F
9-7-2006	Irkutsk, Russia	126	0	S7 Airlines	A310
27-8-2006	Lexington, KY, USA	49	0	Comair	CRJ100
1-9-2006	Mashad, Iran	28	0	Iran Air Tours	Tu-154
7-9-2006	Lagos, Nigeria	0	0	DHL Aviation	B-727F
3-10-2006	Tarakan, Indonesia	0	0	Mandala Airlines	B-737
10-10-2006	Stord, Norway	4	0	Atlantic Airways (Faroe Is)	BAe- I46
8-11-2006	Norway House, Manitoba, Canada	0	0	Perimeter Airlines	Metro
16-11-2006	Manila, Philippines	0	0	Aboitiz Air Transport	YS-II
17-11-2006	Barranquilla, Colombia	0	0	Cielos Airlines	DC-10

Table 1: Runway excursions 2006

a runway excursion with all the risks to life, limb and infrastructure that go with it, not only within the airport itself but, as was sadly demonstrated at Chicago Midway, to those in the vicinity of the airport. The problem is that while for purposes of a mathematical calculation we can suggest this figure or that figure, the value of the calculation is eroded by any inaccuracy in the data input (rubbish in = rubbish out). Of course, in the real world it is impossible to measure contamination depth with that kind of accuracy and so there is the risk that either the commercial interest, or worse safety, will be compromised.

Is the information factual, correct and usable?

As we have seen, accurate information for pilots to use in their performance calculations for take off or landing is of vital importance. However, a problem arises when the quality of the information provided to pilots is variable, and in some cases, completely inadequate. Consider the information from Geneva (LSGG), Munich (EDDM) and Sao Paulo (SBGR) shown in the figure 5. The information in the Geneva ATIS and Munich NOTAM are in

line with ICAO recommendations but are in effect useless to the pilot making performance calculations. What does “breaking action unreliable” really mean for the performance figures? How meaningless for the purpose of calculation is the phrase “slippery when wet”? What implications do these statements have for landing distance required by a particular aircraft? What handling issues can the crew expect after landing? These questions cannot be answered by the crew with any accuracy, and therefore risk to the aircraft, its passengers and crew is elevated. While the Sao Paolo NOTAM seems to feature some hard data (since the friction figures have not been correlated with the performance data of a given aircraft type) it is still impossible to make a determination what the affect on an aircraft and it’s performance will actually be. Thus, it is possible that on an

LSGG: ATIS: BRAKING ACTION UNRELIABLE.

**EDDM: A2200/05 NOTAMN
Q)EDMM/QMRXX/IV/BO/A/000/999/4821N01147E005 A) EDDM B) 0509231013 C) 0609302359 EST E) RWYS MIGHT BE SLIPPERY WHEN WET.**

**SBGR: J1321/05 NOTAMR J0649/05
Q) SBBS/QMRXX///A /000/999/ A) SBGR B) 0510202311 C) 0512210000 E) RWY 09L/27R OPR**



New York JFK's investment in EMASs has proven its worth in a number of overrun incidents.

arrival or departure the information supplied to pilots is not in line with figures required by the aircraft operating manual.

Is there good news?

Happily there is some good news. While it is obvious that more effort is needed to reduce the risk of runway excursions, some post accident provisions seem to be paying dividends. It appears that the casualty rate in runway excursion accidents is lower than for runway incursions. An explanation might be the implementation of mitigation factors like the installation of frangible structures in the runway undershoot and overruns, and the establishment of runway end safety areas (RESAs). It may also be that the effectiveness of the rescue and fire fighting services and their equipment and training is also paying off in a reduction in the death and injury toll. It would seem that the investment made by airports in these areas has been shown to be a wise one.

The way forward

A number of strides have been made in recent years in reducing the number of runway incursion incidents and these gains have been made as the result of a world and industry-wide approach to the problem. It appears obvious to me that this momentum must be carried forward into the area of runway excursions. In the last six months, IFALPA has contacted FAA, Eurocontrol, JAA, ACI, FSF, IFATCA and IATA to work together on runway safety. The Flight Safety Foundation will host a Conference in February with all these organizations present under the umbrella of the roadmap to safety, and this event will specifically deal with the subject of runway safety. It is expected that this Conference will be the start of a world wide campaign to reduce runway excursions. The policy development on this subject should be ready within two years and the period of implementation should not exceed

five years. IFALPA believes that the goal of this effort should be a reduction of 50% of runway excursions in the next seven years.

Conclusion

Indeed, it is runway capacity that will be the limiting factor for aviation growth, and therefore the runway is an essential commodity. No runway - no take off, no take off - no air transport business, no air transport business - no airport business. Runway capacity will be reduced as the result of accidents. Therefore it is vital that this essential commodity be made safe for aircraft operation. Runway safety is degraded by the risk of runway incursions or runway excursions. This effort requires a joint worldwide campaign, especially on the subject runway excursions, to not only to safeguard airport business but also to save human lives.



Captain Rob van Eekeren graduated in aviation science from the Royal Military Academy and then completed military flight training in Canada. Commissioned in the Royal Netherlands Air Force, he flew NF-5 fighter aircraft for 15 years and was appointed as an instructor pilot and later flight commander. Following his staff college course he was appointed a staff officer at the Royal Netherlands Air staff. He was initiator of the establishment of the NATO Flight University and tactical leadership programme in Florennes. After his military career he became the duty operations manager at Schiphol airport. Two years later he joined KLM Royal Dutch Airlines as a pilot, flew for five years on the B747-400 as a second officer and later co-pilot. He was appointed Captain in 1995 on the B737 (-3, -4, -8 & -900). He is a past chairman of the technical committee of the Dutch Airline Pilots Association (VNV/VTZ), past chairman of the Dutch liberal party national air transport committee and is presently the Vice Chairman of the IFALPA AGE Committee.

Walking in Memphis: Helicopter Committee looks at training and accident prevention

Valerie Godfrey reports from Memphis

This was the first meeting for the new Chairman, Captain Glenn Christiansen, of the Norwegian Air Line Pilots Association (NF). In his opening remarks he thanked the Professional Helicopter Pilots Association (PHPA) for again hosting the HEL Committee meeting, this time in the city of Memphis.

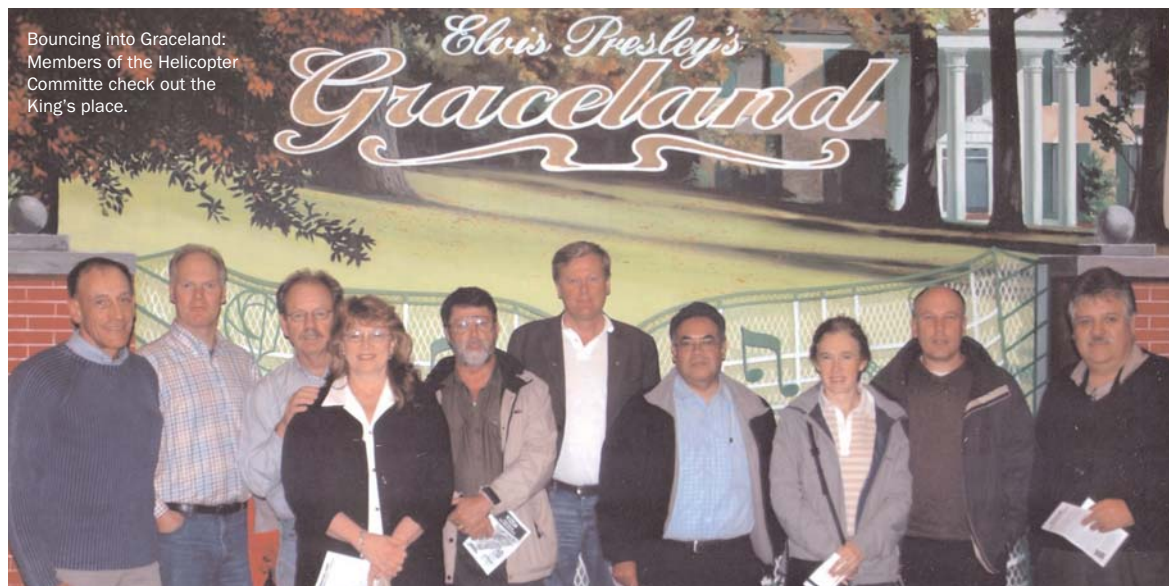
As with previous HEL Committee meetings, a great deal of the time during the discussions focused on the continuing need to reduce the accident rate. Capt Christiansen explained that 55 – 60% of all helicopter incidents and accidents are caused by human error; “training must be improved and attitudes must change for this figure to be reduced”. He also stated that ‘attitude is everything’ and that safety must come from the top down within any organisation or operator.

Mr Tony Cramp, Senior Aviation Safety Advisor (Americas) representing the Oil and Gas Producers (OGP), gave the group an extremely informative presentation entitled ‘Helicopter Safety – Potential Mitigation Measures’. The presentation included statistical data gathered over many years, with most of the information focusing on the 1990’s but some information from the early ‘80’s was also included. Capt Christiansen stated that OGP does excellent work and leads the way in safety initiatives.

During the meeting several policy papers were presented. The Committee conducted a review of the HEL related policy contained within IFALPA Annex 8, Part IV (Airworthiness) and IFALPA PANS-OPS, Volume II, Part V, which is concerned with instrument approaches for helicopters. Since the Committee agreed that the statements contained within the documents were still valid, they ‘Reaffirmed’ all the policies without change. The Committee has also undertaken a review of the

IFALPA Heliport Manual and IFALPA Annex I4, Volume II, Heliports. Additionally, the Industrial (IND) Committee has also referred text to the HEL Committee for review that is concerned with flight time/duty time limitations for helicopter operations extracted from their Industrial Manual (I Manual). An initial review of this section was begun in Memphis but it soon became clear that a Working Group would need to be formed to conduct an in-depth review of this issue. It was decided that Capt Christiansen would coordinate the group.

Of course no trip to Memphis would be complete without a visit to Graceland, the home of Elvis Presley. Thanks to our wonderful hosts, and especially Captain Butch Grafton, President of PHPA, the group visited Graceland in the evening of the second day and thoroughly enjoyed the tour. On the last day of the meeting the Committee endorsed the nomination of Captain Jack Bower as Vice Chairman for a further two year period. The IFALPA Deputy President, Capt Carlos Limon, closed the meeting by thanking Capt Christiansen for taking on the role of Chairman and added that he believed that the Committee now had a stable platform from which to develop and grow. He hoped that with the dedication and commitment displayed by the members of the HEL Committee it would serve to encourage other IFALPA helicopter pilots to join in supporting the Committee’s work.



Bouncing into Graceland: Members of the Helicopter Committee check out the King's place.

Asia Pacific restructuring dominates in Auckland

by Carole Couchman in Auckland

The Asia/Pacific Regional Meeting was held in Auckland, New Zealand, 27-29 November 2006, and generously hosted by NZ ALPA. There was a welcome reception held at the SkyCity Tower, which featured a traditional Maori welcome, wherein Captain Masayuki Ando became our "Chief" and accepted the welcome on our behalf. The first day of the meeting was an interesting seminar that included presentations and discussions and the opening address was given by the Minister for Transport Safety, Hon Harry Duynhoven. The presentations given were on the subjects of FOQA, Drug and Alcohol Testing, Work Sharing and RNP Terminal Procedures. The day concluded with the presentation of the interim reports from the Executive Vice President for Asia/Pacific and the Regional Vice Presidents from the Region. The second day featured the business meeting where there were updates and discussions on the various technical issues affecting the Asia/Pacific Region. Industrial reports from the ten Member Associations were also presented and there were further discussions on how to



Delegates led by 'Chief' Ando were welcomed with a traditional Maori reception.

progress the restructuring in the Region. The day was concluded by the Delegates and Officers participating in a yacht race in the harbour. On the third day there was a training seminar on the IFALPA Airport Liaison Representative Scheme, which was well received. A full report of the meeting is available on the IFALPA intranet.

Elected Representative Seminar

6-8 February 2007

Chertsey, UK

Taking on the responsibility for the management of your Pilot Association is a daunting prospect for many elected representatives. For the first time, IFALPA is offering a three day seminar which aims to give both newly elected and long serving elected representatives a grounding in a variety of skills vital to the good management of an association.

Topics covered include:

Financial Management, Contract Negotiations, Media Skills, Communications Training and an overview of current flight safety issues

Act Now!

Places at the seminar are limited and will be allocated on a "first come, first served" basis. For more information see www.ifalpa.org To reserve a place contact Tricia Salmon email: triciasalmon@ifalpa.org

Current Recruitment Bans

The following airlines are currently subject to recruitment bans and or other sanctions while they are in dispute with an IFALPA Member Association. For full details please see the IFALPA website www.ifalpa.org

Bolivia:

Lloyd Aereo Boliviano

Hong Kong:

Dragonair

India:

Air India
Air India Charters
Air India Express

Italy:

Italian Helicopter Companies

Kenya:

Kenya Airways

Dates for your Diary

January

22-25

4th Executive Committee & Board Meetings

Chertsey, UK

Contact: Heather Pric: heatherprice@ifalpa.org

25

Media Communications Seminar

Chertsey, UK

Contact: triciasalmon@ifalpa.org

26

Committee Chairman's Meeting

Chertsey, UK

Contact: Heather Price: heatherprice@ifalpa.org

February

6-8

Elected Representative Seminar

Chertsey, UK

Contact: Trisha Salmon: triciasalmon@ifalpa.org

March

12-14

5th Executive Committee & Board Meetings

Dubrovnik, Croatia

Contact: Heather Price: heatherprice@ifalpa.org

16-20

62nd Conference



Dubrovnik, Croatia

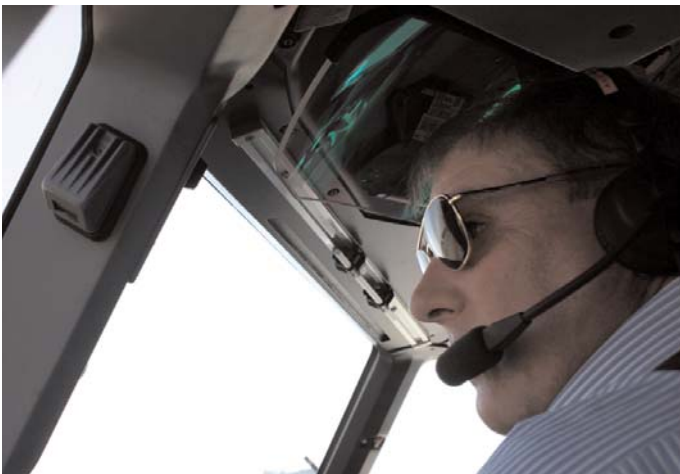
Contact: Heather Price: heatherprice@ifalpa.org

21

6th Executive Committee & Board Meetings

Dubrovnik, Croatia

Contact: Heather Price: heatherprice@ifalpa.org



Have an idea for an article or want IFALPAnews to cover your story? Contact Gideon Ewers, IFALPA Media and Communications Officer Tel. +44 1932 579041 or email gideonewers@ifalpa.org