

PRIVATE OPERATION OF BUSINESS AIRCRAFT - A REVIEW

Business Aircraft in Europe only represent 10% of the worlds fleet of Business Jets and Turboprops. They are divided into three separate categories;

1 Business Aviation Commercial

Aircraft flown for business purposes by an operator having a commercial operating certificate(generally on-demand charters) under public transport regs & holding an AOC

2 Corporate Private

Non-commercial operations by professional crews employed to fly the aircraft.

3 Owner operated

Aircraft flown for business purposes by the owner of the business. This can refer to all types of aircraft from a Gulfstream to a Cessna 150.

- This review has concentrated on the third category- owner operated.

The first question to consider: "**Is there a problem in this area of operations?**" from the statistics prepared by Robert Breiling and Associates for a 5 year period from 1997-2001 it can be seen that owner operated business aircraft have a good safety record compared with Commercial operations. **The best safety record is that of the Corporate category which is run on a non commercial basis.**

In 2003 there were 25 accidents and 2004 the figure was 19 with no Part 91 (private operators) business jets involved but 1 fatal turboprop accident.

Does this mean that problems are not present in the private category?

No, must be the answer and Business and Commercial Aviation published a review of 12 years of Business Jet accidents last April identifying the areas most likely to be the cause of an accident (based on info fro US NTSB, UK Air Accidents Branch, Canada and Australia plus Air Claims)

Whilst not identifying which category was involved the statistics could apply to all at one time or another.

Approach and Landing still top the number of accidents followed by Mechanical, Takeoff and Controlled Flight into Terrain (CFIT)

- Differences of operations between Private and Commercial

Private	Commercial
ANO	JAR OPS1
Remunerated	remunerated
& owner pilots	
Unaudited	Audited
	Additional layers of regulations

- Experience and levels of Competency

Are private category pilots any less competent than commercial?

Not necessarily so as the owner operator will have undertaken a full conversion course on the aircraft and is willing to undergo regular refresher training plus the mandatory checks in accordance with the ANO's. It is essential that he/ she keeps themselves current on type and builds up experience with the aid of a competent instructor who can assist in the more critical areas such as operations into marginal airfields, ETOPS, MEL compliance etc.

The fact that Commercial operations have a marginally worse safety record than the Private operators cannot be associated with the lower levels of experience in this category and their competency may well be as good if not better.

- **Initial / recurrent training**

A vital area which is so important for both private and commercial pilots. A private owner/ operator buying a new aircraft will have the advantage of free training from the manufacturers and a continuing programme of checks and recurrent training can be arranged with an established training organisation. Commercial crews also have free initial training on new aircraft but the further training can be influenced by cost constraints such as price of simulator and distance of provider, usually in the USA.

Accidents and Incidents involving single-pilot light jets flown for business purposes from 1991-2002 came to 153 and over 50% were on the approach and landing phase of the operation.

With the introduction of **Very Light Jets (VLJ)**, high performance Turbos and single crew operation, it is even more important that the training is conducted to a very high standard and regular recurrent periods are spent in the simulator. For a private operator this may mean an expensive trip to wherever the simulator is situated, most likely in the USA, but no compromise should be accepted. Whilst ANO'S go a long way in covering most aspects of the operation , private pilots require increased knowledge through the various manuals as required for commercial ops. The NBAA has issued Training Guidelines for single pilot operations of the next generation of VLJ's. This document offers a training outline that represents the minimum curriculum necessary to satisfy a VLJ transition training programme.([download nbaa.org/public/ops/safety/vlj](http://download.nbaa.org/public/ops/safety/vlj))

- **Standard of Equipment**

The private sector appears to have a similar standard as the commercial one although the introduction of more and more systems for improving safety such as EGPWS, TCAS, Glass Cockpits etc means ever increasing costs to the individual. To operate in the same airspace the private pilot must comply with the state regulations including 8.33 MHz radios, RVSM, ETOPS etc which all add to the cost of the operation.

- **Overseas Registrations**

Concern was expressed that aircraft registered outside the UK were somehow less safe and not operated to the same standards but this does not appear to be the case.

The main reason for overseas registration is financial, although the costs of registration in the UK are decreasing, they are still substantial compared with other countries such as The Cayman Islands, Bermuda etc and they accept FAA licences without question.

Although these operators are audited by local agents according to their countries regulations, they are less frequent than those within the EU. The reason why their charges are less is that they are state funded whereas the CAA has to be self financing. In theory all those operating an "N" registered aircraft in this country are supposed to obtain the permission of the Secretary of State but in practice this does not usually occur.

Examples exist of N registered operations in Europe being conducted by crews unfamiliar with European procedures in the air and on the ground.

The **European Aviation Safety Authority (EASA)** is now up and running and will gradually replace the current JAR'S. This is not expected to take place until 2007 but already it is accepting FAA certification and that of other EU countries without special conditions.

An International Standard for Business Aircraft operations is being developed, the primary purpose being to promote the harmonization of quality operating practices for business aircraft operations on the International level. **IS-BAO** looks like being accepted by EASA as the standard for business aircraft, which can only enhance the safety standards for the whole community.

The role of the CAA in monitoring the operation of Private Business operations is less clear unlike those operating with an AOC.

- **Culture of Safety**

A culture of safety must be generated early on in a pilots career and this must stem from the top downwards. Safety is the most important aspect of the operation and must override commercial considerations, and this should be easier to instil in the mind of the private owner/ operator.

Commercial crews are sometimes subjected to pressures from individuals and companies to operate in marginal conditions which can lead to unsafe operations. The introduction of VLJ ops with single crew means even more emphasis being placed on safe practices within the capability of the individual.

The above applies equally to Turboprops and high performance pistons as well as Helicopters. It seems from recent events there has been an increase in accidents involving privately operated helicopters and this must be a cause for concern. Is there a problem in training? The JAA is completely rewriting the FCL2 on Helicopters and this draft will be available for consultation in March. Recently there was a safety symposium in Anaheim USA analyzing Human Factors in Helicopter Accidents and their opening statement included the following;

"Rotorcraft accident rates have increased over the past several years and the one element that appears to remain constant is Human factors which was the root cause of approximately 75% of all helicopter accidents whether with the pilot, the mechanic, the supervisor or management. Virtually every one of these accidents could have been prevented."

More detailed analysis of accidents to Business Jets has been published and show that in the first three months of 2005 there has been a significant increase in fatalities involving business jets and turboprops compared with the same period last year. The number US registered business turbine airplane fleet worldwide experienced **22** total accidents, 5 of which involved fatalities from **12** last year to **24** this year. Business jet accidents doubled from **5** in the first quarter of last year to **10** in the same period this year. 5 involved fulltime professional crews.

With the introduction of the VLJ's and single pilot crew it will be vital to have a comprehensive training programme in place to highlight the increased workload involved, the proper preparation for a stabilised approach and the factors that can reduce the risks wherever possible such as operating into areas of adverse terrain served by limited approach and runway facilities.

Whether privately or commercially operated, lessons are there to be learnt and must be widely distributed. Business aircraft often operate into smaller airfields lacking the safety equipment associated with airports serving scheduled commercial air traffic.

80% of the accident investigations place pilot decision making as the primary cause. Cockpit resource Management is an essential element in the training of all pilots and crew but it is not a requirement for jet charter operators outside the EU and still accidents take place due to poor crew co-ordination and not following standard operating procedures. **Training and safety go hand in hand being the most important issues to improving the already enviable safety record of Privately Owned Business Aircraft.**

Quotes from the Industry,

National Air transportation Association

“ must improve charter operations safety..”
“ the lack of reliable Charter activity data is a very serious problem”

Safety Standown Seminar – Wichita, USA,

“ majority of accidents still caused by Human Error”

Bombardier Agostino

“ Simulator training is essential but its NOT sufficient”
“ Strict adherence to SOP'S a must”
“ A commitment to knowledge based training, active communications, meticulous planning, and strict adherence to sop's leads to situational awareness and calmness under pressure”

Kern

“ Business jet crews increasingly under pressure from their companies to do ‘ more with less’ squeezed between speed, quality and cost metrics as passengers expect to pay less for better service”

Rosekind

“Fatigue can impair judgement and performance.”

“ must promote team effort and discourage lefthand seat despots”

“ Let team members share in decision making when time permits.....in critical situations its vital to switch to a Captain orientated, authoritarian style to accomplish all tasks without delay

PS. NEITHER PRIVATE INDUSTRY NOR GOVERNMENT COLLECT SPECIFIC DATA ON BUSINESS AIRCRAFT SAFETY. THE FAA DOES NOT DEFINE SPECIFICALLY WHAT CONSTITUTES A BUSINESS AIRCRAFT FLIGHT. SOME BUSINESS JETS OPERATE UNDER RULES GOVERNING PRIVATE PILOTS, OTHERS ARE REGULATED LIKE SMALL AIRLINES

EXTRACTS FROM BUSINESS & COMMERCIAL AVIATION APRIL 2005 AS PREPARED BY BREILING ASSOCIATES

The FAA recommending industry-based joint steering committee to examine accidents involving turbine powered business aircraft to see if there were common themes that could be addressed through best industry practices.

NPRM (notice of proposed rule making) would require CVR's (cockpit voice recorders) to retain at least 2 hrs of cockpit audio (at the moment only 15 min)

Also 10 min independent backup power source for CVR (only applied to newly manufactured aircraft)

FDR's to sample data more frequently to see exactly how the a/c is being operated.

In the last 10 years business jets had 17 high speed RTO's accidents and 47 incidents and nearly half caused by traffic conflicts.

Abort order issued by ATC but a/c above V1, usually at airports using intersecting runways for takeoff and landing.

INADEQUATE monitoring is one of the most contributing factors in app/landing, CFIT, Loss of control and runway excursion accidents.

Essential 1 pilot monitors ATC and is not distracted by checklists, briefings etc.”

This just highlights that to reduce the number of incidents and accidents in the Business Aircraft environment continual attention must be paid to the fundamentals, SOP's, preparation, monitoring, and attention to detail. Members of GAPAN involved in the day to day operations of Business Aircraft have contributed their expertise and time in helping prepare the above review.