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Business Aviation Safety Brief

Summary of Global Accident Statistics

2002-2006

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1.0 Introduction

Business Aviation has established a record as one of the world's safest forms of transportation. Professionally flown aircraft of all sizes are operated on unscheduled routes to all corners of the globe, yet the safety record continues to be excellent in spite of the very challenging operating environment.

The exemplary safety record of business aviation can be attributed to professionalism and attention to safe operating practices. The business aviation community promotes safety through industry standards and good training, as well as through monitoring and analysing safety information to facilitate continuous improvement. The business aviation representative associations assist operators by providing safety data and programs in their respective countries. The Council representing the national and regional associations at the global level, the International Business Aviation Council (IBAC), has in turn developed a program to collect and analyse worldwide information. To that end, IBAC has contracted with Robert Breiling and Associates to develop global data on business aircraft accidents.

Summary information presented in this Brief is taken from the analysis conducted by Robert Breiling and Associates in 2007. Breiling's detailed Report contains information on accidents from all regions of the world.

This Business Aviation Safety Brief covers a five year period from 2002 to 2006. IBAC will update the Brief annually and the IBAC Planning and Operations Committee (POC) will review the information continuously to determine useful trend data. In addition, the IBAC Governing Board has determined that the Safety Brief will be scrutinized from time to time by independent organizations and feedback will be considered by IBAC's POC.

This summary data includes all accidents involving aircraft when used in conducting business operations. It does not include accidents of business aircraft when used in airshows and other non-business related flying.

Listings of Business Jet and Turboprop accidents that occurred in the preceding calendar year (i.e. 2006) are contained in Appendices A & B.

The compilation, analysis and publication of safety data is an essential foundation for the development of measures to prevent accidents and thus, is not a means unto itself. In this regard, and as a separate IBAC initiative, the International Standard for Business Aircraft Operations (IS-BAO) was introduced in 2002 and was designed to raise the safety bar by codifying safety best practices.

Recognizing that it will be many, many years before safety data will reflect the impact of the IS-BAO, IBAC commissioned an independent, retrospective analysis to subjectively assess the extent to which (i.e. in terms of probability) had the IS-BAO been implemented by the operator concerned the accident could have been prevented. A synopsis of the findings of this study are presented in Section 5.0.

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2.0 Business Aviation Community

2.1 Number of Turbine Aircraft

The Breiling Report contains data covering a five year period for the global population and the distribution of aircraft by region. A summary of the aircraft population in 2006, the last year covered by the report, is as follows:

2006 Global Business Aircraft Population	
Business Jets	14,317
Turbo Props	11,345
All Turbine Business A/C	25,662

Table 2.1a

Analysis

Business aircraft in North America represent 69% of the global fleet. South and Central America have approximately 10.4% and Europe 10.8% of the world's fleet. Other regions account for the remaining 10% of the fleet.

2.2 Number of Flight Hours

The 2006 summarized flight hour totals are as follows:

2006 Global BusAv Flight Hours	
Business Jets	5,500,684
Turbo Props	4,595,768
All Turbine Business A/C	10,096,452

Table 2.2a

Analysis

For the period 2002-2006, flying hours in North America represents 68% of the total, Europe 11%, Central/South America 11%, and the rest of the world 9%.

2.3 Number of Departures

The number of business aviation departures in the 2006 year is as follows:

2006 Global BusAv Departures	
Business Jets	3,997,127
Turbo Props	3,118,275
All Turbine Business A/C	7,118,699

Table 2.3a
(*Note: These are derived figures based on flight hours and sector durations typical for each category of jet and turboprop aircraft.*)

2.4 Organization of the Community

Business Aircraft operations are classified into three (3) separate categories:

1. **Business Aviation Commercial**
Aircraft flown for business purposes by an operator having a commercial operating certificate (generally on-demand charters).

2. **Corporate**
Non-commercial operations with professional crews employed to fly the aircraft.

3. **Owner Operated**
Aircraft flown for business purposes by the owner of the business.

(Note : Consult IBAC for formal definitions of the three categories. Two additional classifications are included in the Breiling Report, namely Government (public operations) and Manufacturer aircraft. These are not, by their use, considered to be "business aircraft", but are included in the data for completeness.)

3.0 Business Aircraft Global Accident Data
(5 year period 2002 – 2006)

3.1 Accidents by Operator Type

A summary of the total accidents over five (5) years by type of operator is as follows:

Accidents by Operator Type - Jet Aircraft				
Business Jet Aircraft	Total Accidents (5 yrs)	Fatal Accidents (5 yrs)	Average Total Accidents per year	Average Fatal Accidents per year
Commercial	75	22	15	4.4
Corporate	30	7	6	1.4
Owner Operated	21	4	4.2	0.8
Government	4	3	0.8	0.6
Fractional	11	0	1.8	0

Table 3.1a
*(Note: No analysis provided for **Manufacturer** operations conducted with **Jet Aircraft**)*

Accidents by Operator Type - Turbo Prop Aircraft				
Turbo Prop Aircraft	Total Accidents	Fatal Accidents	Average Total Accidents per year	Average Fatal Accidents per year
Commercial	253	73	50.6	14.6
Corporate	18	3	3.6	0.6
Owner Operated	105	39	21	7.8
Government	11	4	2.2	0.8
Manufacturer	0	0	0	0

Table 3.1b
*(Note: No analysis provided for **Fractional** operations conducted with **Turbo Prop Aircraft**.)*

Analysis

The majority of business aircraft accidents occur in the commercial category, where operations are governed by commercial regulations (such as FAA Part 135 and JAR OPS 1). The next most frequent number of accidents occurs with aircraft flown by business persons. Accidents of corporate aircraft remain rare.

3.2 Accident Summary by Phase of Flight

Five (5) year totals by phase of flight are as follows:

Accident Summary by Phase of Flight									
	Taxi	T/O	Climb	Cruise	Desc't	Man'v	App	Land	Total
Business Jets	8 5.7%	20 14.2%	6 6.3%	4.6 4.3%	6 4.3%	3 2.1%	14 10%	78 55.3%	141 100%
Turbo Props	12 3.8%	56 17.6%	32 10%	45 14.1%	9 2.8%	18 5.6%	87 27.3%	131 41.1%	319 100%

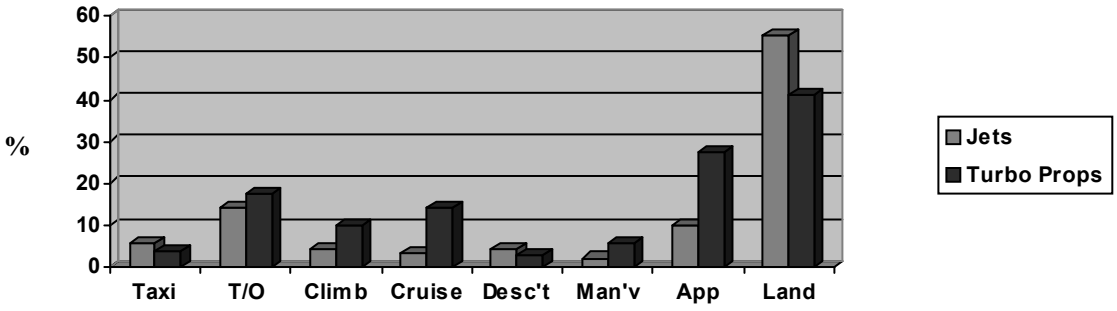

Table 3.2a

Analysis

The trend over a period of 35 years demonstrates a substantive decrease in the percentage of taxi accidents, and a notable decrease in accidents in the landing phase, although landing accidents remain as the most prevalent.

The trend indicates an increase in the number of accidents occurring in the approach phase. The percentage of accidents in the climb phase has also increased substantively for turbo prop aircraft. The distribution of accidents in the other phases has remained relatively unchanged.

(Note: Supplementary data collected by Robert Breiling over a 35 year period was used to develop this trend.)

4.0 Global Accident Rate Data

4.1 Accident Rate by Aircraft Type

The accident rate per 100,000 flight hours for each year over a five year period, as well as for the total, is as follows:

Accident Rate per 100,000 hours by Aircraft Type												
	2002		2003		2004		2005		2006		**5 Year Total**	
	Acc Rate	Fatal Rate	Acc Rate	Fatal Rate	Acc Rate	Fatal Rate	Acc Rate	Fatal Rate	Acc Rate	Fatal Rate	**Acc Rate**	**Fatal Rate**
Business Jets	0.50	0.11	0.51	0.21	0.73	0.19	0.56	0.13	0.69	0.13	**0.55**	**0.13**
Turbo props	1.66	0.61	2.24	0.75	1.85	0.54	1.46	0.39	1.39	0.41	**1.73**	**0.53**
All Bus A/C	1.03	0.34	1.31	0.45	1.31	0.45	0.98	0.25	1.01	0.26	**1.08**	**0.31**

Table 4.1a

Note: Some of the above figures have been re-stated as a result of the availability of subsequently published accident investigation reports and/or additional information.

4.2 Accident Rate by Operator Type

Global data for the numbers of aircraft in each of the business aviation operational categories (commercial, corporate and owner-operated) proved difficult to obtain as few States collect this information. Similarly, flight hours by type of operation are not available. Due to the lack of good exposure data, it was not possible to calculate, without some error, the rate of each category of operation. Additionally, the operational status of a single airframe may legally vary from flight to flight (i.e., an aircraft may be commercial on one flight and private on a flight made later on the same day or vice versa).

Nevertheless, by applying US data relevant to the division between categories of operator, and by making the assumption that the division is relatively similar for the rest of the world, an estimate of the rate by operator type can be made. Given that the North American data represents approximately 72% of the global total, it is unlikely that the distortion generated by the assumption will be very large.

The percentage of flight hours for each of the three categories in the USA is as follows:

Commercial (Air Taxi)	22.6%	
Corporate	38.3%	
Owner-operated	39.1%	
Total	100.0%	(Averaged over 4 years)

Assuming a similar division globally, the accident rates per 100,000 flight hours are as follows (based on data over 5 years):

Global Accident Rates by Operator Type *(Extrapolated)* *(per 100,000 flight hours)*					
Operator Type	Hours of Operation (5 yrs)	Total Accidents	Fatal Accidents	Total Accident Rate	Fatal Accident Rate
Commercial (Air Taxi)	10,679,880	328	95	3.07	0.89
Corporate	18,099,090	48	10	0.27	0.06
Owner-operated	18,477,139	126	43	0.68	0.23
*All Business Aircraft	47,256,110	509	147	1.08	0.31

Table 4.2a

*Note: *This line includes the three lines above it, plus **Government**, **Manufacturers** and **Fractional** aircraft operators. Also included are accidents involving operators for which insufficient information was available to assign the operator type.*

Analysis

The accident rates calculated in Table 4.2 include both turbo-prop and jet aircraft. The rate data indicates an excellent level of safety in corporate operations, whereas the accident rates in the commercial sector warrants increased attention by the business aviation community.

4.3 Accident Rate by Departures

There is a growing trend for organizations reporting safety data to do so using accident rates per number of departures given that safety exposure is greatest during departure and arrival. Accidents of aircraft en-route are rare except for flights in low level flight in marginal visual conditions. Accident rates per departure, or flight segment or cycle, therefore provide more realistic safety correlations.
The accident rate per 100,000 departures is as follows:

Business Jet Accident and Rate by Departures *(per 100,000 departures)*					
Accident Rate	Departures	Accidents (5 Years)		Accident Rate	
		Total	Fatal	Total	Fatal
Large Jet Aircraft	3,858,308	16	5	0.41	0.13
Medium Jet Aircraft	6,768,413	39	13	0.58	0.19
Light Business Jets	8,305,862	88	17	1.05	0.20
*All Business Jets	18,932,583	143	35	0.76	0.18

Table 4.3a

Business Turbo Prop Accidents and Rates by Departures *(per 100,000 departures)*					
	Departures	Accidents (5 Years)		Accident Rate	
		Total	Fatal	Total	Fatal
Large Turbo Prop	785,337	50	16	6.36	2.03
Medium Turbo Prop	12,652,567	285	87	2.25	0.69
Light Turbo Prop	947,354	31	9	3.27	0.95
All Turbo Prop	14,385,258	366	112	2.54	0.78

Table 4.3b

All Business Turbine Accidents and Rates by Departures *(per 100,000 departures)*					
	Departures	Accidents (5 Years)		Accident Rate	
		Total	Fatal	Total	Fatal
All Business Aircraft	33,317,841	509	147	1.53	0.44

Table 4.3c

If an assumption is made that the distribution of departures for operator types of commercial (22.6%), corporate (38.3%) and owner-operated (39.1%) is relatively the same as the distribution between flight hours, the accident rates by type of operation can be calculated as follows:

Business Aircraft Accident Rates by Operator Type *(Extrapolated)* *(per 100,000 departures)*					
Operator Type	Departures (5 yrs)	Total Accidents	Fatal Accidents	Total Accident Rate	Fatal Accident Rate
Commercial (Air Taxi)	7,529,832	328	95	4.36	1.26
Corporate	12,760,733	48	10	0.38	0.08
Owner-operated	13,027,275	126	43	0.97	0.33
*All Business Aircraft	33,317,841	509	147	1.53	0.44

Table 4.3d

Analysis

A number of assumptions have been made related to the distribution of exposure data, and as a result the data should be used with some caution. Nevertheless, no other rate data is known to exist for worldwide business aviation. The results of the extrapolation should be sufficiently accurate to provide a reasonable comparison with accident information from other aviation sectors.

4.4 Comparison With Other Aviation Sectors

IBAC is experiencing increasing difficulty in drawing meaningful comparisons of business aviation safety data i.e. accident rates per 100,000 departures with those developed and published for other sectors of the aviation community. The incongruencies inhibiting such comparisons include; operational classification i.e. commercial vs. non-commercial, classification of accidents involving fatalities i.e. passengers only or crew, hull loss accidents, range of aircraft MCTOM encompassed by the data, lack of disaggregation by power plant i.e. turbojet, turboprop or recips etc. While it is unlikely that these incongruencies can ever be fully reconciled, IBAC is making every effort to understand and identify these factors and will continue to promote international recognition of the IBAC safety data.

Aviation Sector	Fatal Accident Rate (per 100,000 departures)
All Business Aircraft (Jet and Turbo Prop)[1]	0.44
Corporate Aviation (Jet and Turbo Prop)[2]	0.08
Boeing Annual Report – Jet aircraft MCTOM over 60,000lbs engaged in commercial scheduled passenger operations.[3]	0.05

Table 4.4a

1. Per Table 4.3c. IBAC rate is 5 year average.
2. Per Table 4.3d. IBAC rate is 5 year average.
3. Boeing – Statistical Summary of Commercial Jet Airplane Accidents, Worldwide Operations 1959-2007. Rate is for a 10 year period.

Ed Note:
The format and content of this section of the Safety Brief has been revised compared with all previous Issues. In this regard, it is noted that the rate in the Boeing published Summary for 2006 is for Fatal Accidents, whereas the rate previously published was for Fatal and Hull Loss Accidents. The Hull Loss rate for the 10 year period is 0.12.

4.5 Accident Rate Trend

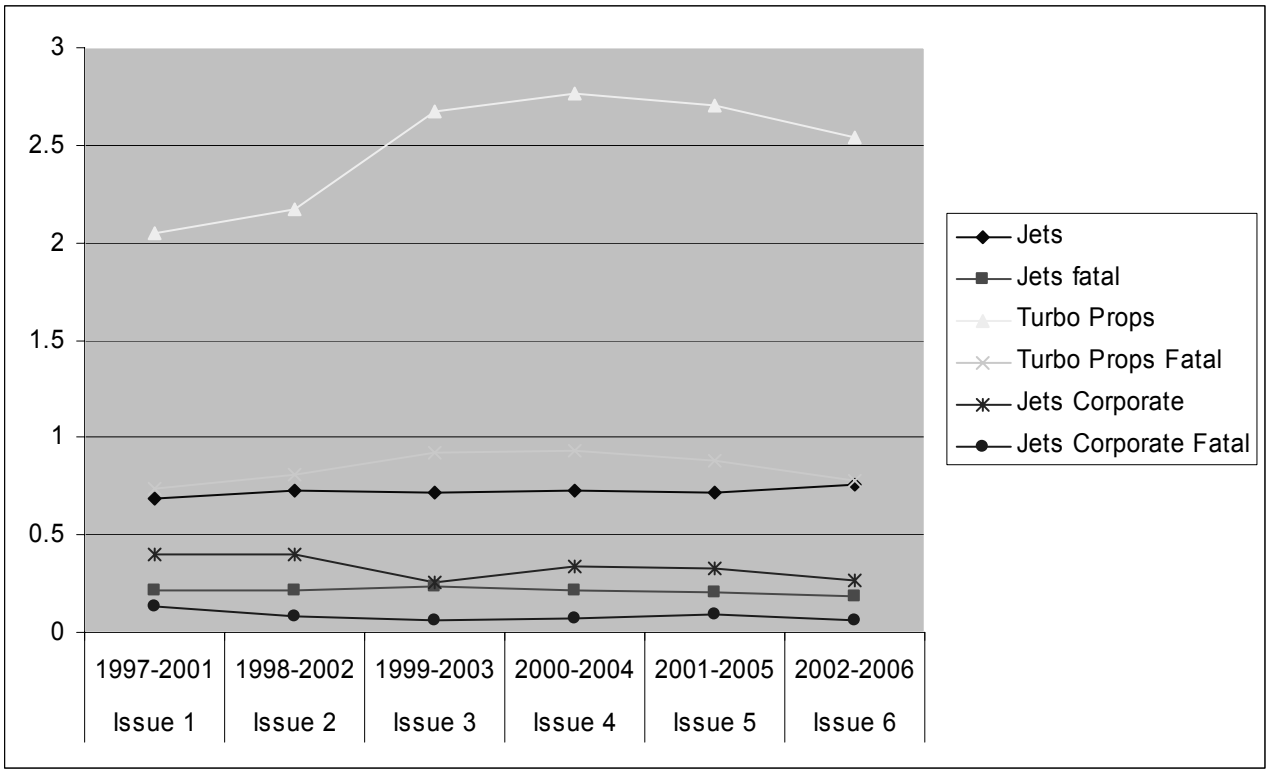

Table 4.5a

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5.0 IS-BAO Safety Value

A Code of Practice

The International Standard for Business Aircraft Operations (IS-BAO) is an industry safety standard introduced in 2002 as the industry's code of practice designed to raise the safety bar by codifying safety best practices. Given that there are very few accidents in the business aviation community, it will be many years before a determination can be made regarding whether or not the IS-BAO is making a safety impact. Therefore, to assess the safety value a study was initiated based on historical accident data.

An analysis of past accidents required a considerable amount of subjective assessment as the analysts had to review the details of accidents against a full understanding of the IS-BAO to make a value judgment regarding whether the accident may have been avoided if the IS-BAO had been implemented.

The study was conducted by an independent analyst who reviewed a total of 500 accidents covering the period between 1998 and 2003. A total of 297 accidents of the 500 were considered to contain sufficient information to be further assessed. The study against the provisions of the IS-BAO standard was performed to determine a level of probability that if the flight department had known about and implemented the IS-BAO the accident may have been avoided. The data was classified and analyzed to determine the potential impact of the IS-BAO and the accidents were rated on a five point scale ranging from certainty of prevention to no effect.

Two assessments were made. First, the analysts made the assumption based on indicators that the flight department may have implemented the IS-BAO, and if implemented, the potential for accident avoidance. The accidents were then further analyzed to determine the potential outcome given that the IS-BAO was implemented in full before the accident. An audit by an accredited auditor leading to an IBAC Certificate of Registration is the recommended means of demonstrating full implementation.

As part of the analysts' work, the accidents were classified in a number of different ways to see if there were any meaningful trends in the prevention probability between the different factors. Classification methodologies applied include:

1. Simple Four Factors – Human, Technical, Environmental and Management.
2. Events – or significant type of accident (such as loss of control).
3. Breakdown on Human Factors.
4. Boeing Accident Prevention Strategies.

Probabilities were calculated for all accidents, phase of fight, type of accident, four factors (per above), type of operation, Commercial or non-commercial, fatalities and single versus two pilot operations.

A further step in the methodology included a quality assurance analysis by a group of current pilots through an assessment of a random selection of twelve accidents as a means of verifying the results of the analysts.

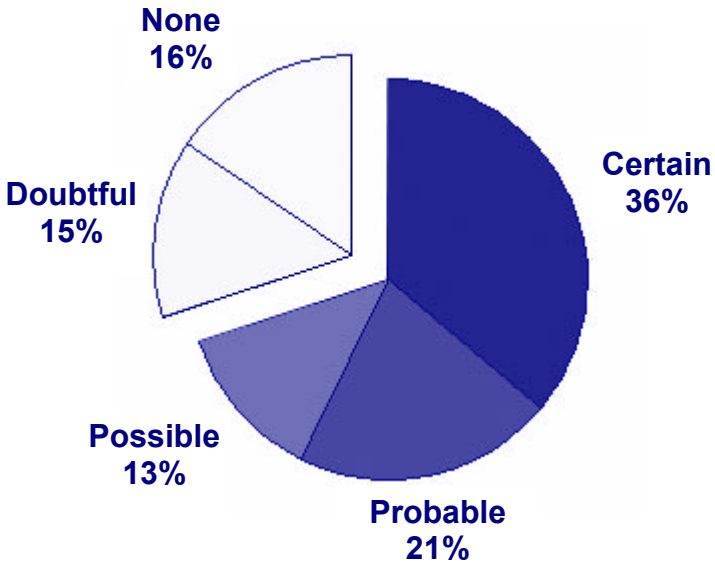
Results of Analysis

Criteria A

Assumes Operators Had Completely Implemented IS-BAO Prior to the Occurrence.

This part of the analysis made the assumption that the operator had implemented the IS-BAO standard in full. An assessment was then made regarding the potential that the accident could have been prevented. The following were the results of the assessment.

Certain of prevention	36.0% (107 of 297 accidents)
Probable prevention	21.2% (63 of 297)
Possible prevention	12.8% (38 of 297)
Doubtful of prevention	14.5% (43 of 297)
No prevention possibility	15.5% (46 of 297)



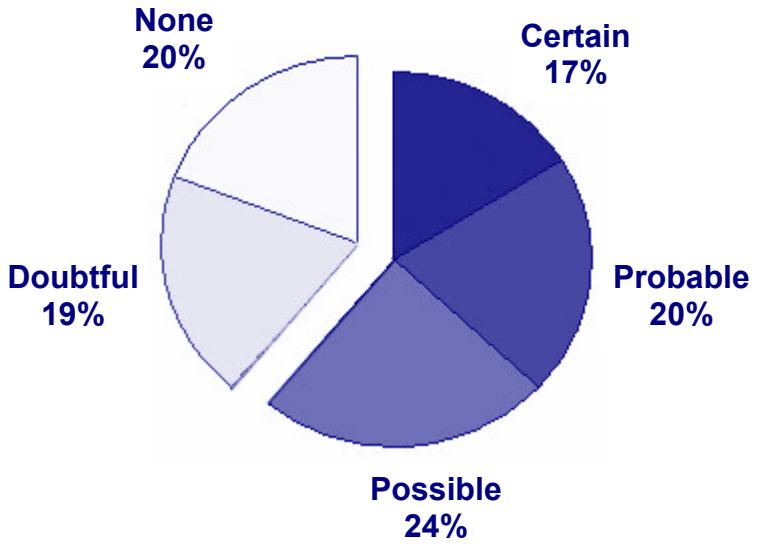
Conclusion - The probability of prevention is 57.2%, with a further 12.8% possible for a total of 70% potential that the aircraft accident could have been avoided.

Criteria B

Takes into Account Operators Background and Probability of Introduction of IS-BAO.

The assessment of whether the accident may have been prevented if the flight department had known about the IS-BAO, and if the operator was sufficiently responsible to implement the standard and had done so thoroughly, produced the following results:

Certain of prevention	17.2% (51 of 297 accidents)
Probable prevention	20.2% (60 of 297)
Possible prevention	23.9% (71 of 297)
Doubtful of prevention	19.2% (57 of 297)
No prevention possibility	19.5% (58 of 297)



Conclusion - The probability of prevention is 37.4%, with a further 23.9% possible for a total of 61.3% potential that the aircraft accident could have been avoided.

Criteria C

Probability of Prevention by Types of Operation and Aircraft.

The analysis showed that there is a greater probability that the accident could have been prevented for jet aircraft type accidents versus turboprop. This was a trend consistent through most methods of analysis and type of accident, although in some cases there was little to distinguish between jet and turboprop probabilities. For example, for the landing accidents (the most common type of accident) the probability of prevention was much greater for jets than turboprop aircraft. Yet, for loss of control accidents there was substantially no difference. The reason for the difference considered by the analysts was that there would be a greater potential for prevention in two pilot operations more typical in jet aircraft.

As would be expected there was a significantly greater probability of prevention related to Management Factors compared to Environmental factors, whereas Technical Factors and Human Factors ranked in the middle of these two.

There was no significant difference between the probability of prevention of commercial operations (air taxi) versus non-commercial. Evidence indicates that there is a higher probability that IS-BAO implementation would prevent accidents with two pilot operations versus one pilot.

Accidents with causal factors related to human performance totaled 232, and were broken down into the following;

1.	Knowledge Based (no standard solution)	37
2.	Rule Based (need to modify behaviour)	46
3.	Skill Based (routine practiced tasks)	149

There was no significant difference between the probability of prevention between these three categories.

Conclusion

The study by an independent analyst indicates that the IS-BAO standard has considerable potential to improve safety. The extent of potential benefit depends significantly on the commitment of the operator to implement and adhere to the standard.

Appendix A

Business Jet Accidents 2006

2006 Business Jet Accidents						
Date	**Model**	**Description**	**Region**	**Phase**	**Operator**	**Fatalities**
02/01/2006	HS-125-700	Aircraft deviated left and impacted a lake short of field, dayVMC	Europe	Approach	Comm	Yes
05/01/2006	CE-560 U	Rt. wing hit runway during landing, acft.veered, hit snow bank	NA	Landing	Frax	No
09/01/2006	DA-20E	Iran military aircraft crashed due power loss in IMC due fuel exh.	Asia	Descent	Military	Yes
14/01/2006	L-24F	Pilot lost site of rwy. lights, veered to side, hit concrete stanchion	Africa	Landing	Comm	No
15/01/2006	CE-550	Aircraft hit by plow while taxiing to ramp after landing	NA	Taxi	Comm	No
24/01/2006	CE-560 U	Crash downwind, fast approach, attempted late go around	NA	Landing	Corp	Yes
25/01/2006	L-39MS	Aircraft crashed during circling ILS approach in blowing snow	NA	Approach	Pvt/Bus	Yes
01/02/2006	CE-500 I	Gear failed to retract. On ldg rt. gear failed. Acft went off rwy side	NA	Landing	Pvt/Bus	No
09/02/2006	CL-600	Acft landed hard due wake turbulence, right gear penetrated wing	NA	Landing	Corp	No
11/02/2006	CE-501 SP	Nose gear failed on landing, aircraft slid off runway side	NA	Landing	Pvt/Bus	No
15/02/2006	DA-200	Due smoke in cockpit, crew diverted and overran runway landing	Europe	Landing	Comm	No
16/02/2006	CE-525 II	Aircraft veered off runway side and nose gear collapsed	NA	Landing	Corp	No
16/02/2006	CE-501 SP	Crashed during descent into Iraq, IMC, snow, night, dark	Asia	Descent	Comm	Yes
22/02/2006	NA-265-60	On landing, reversers failed to deploy, runway overshoot	SA	Landing	Military	No
26/02/2006	L-39MS	Former military trainer crashed while maneuvering for a movie	NA	Maneuver	Pvt/Bus	Yes
09/03/2006	L-35A	Aircraft crashed on TO, VMC day. Prior maintenance conducted	SA	Takeoff	Military	Yes
22/03/2006	L-35	Aircraft swerved and veered off runway side during TO, nite, VMC	NA	Takeoff	Comm	No
14/04/2006	DA-2000	Left engine cowl separated and hit stabilizer during cruise flight	NA	Cruise	Corp	No
04/05/2006	HS-125-800	Control lost during VMC mtnce. stall test flight	NA	Maneuver	Mfgr.	No
15/05/2006	NA-265-75	Aircraft landed long and overshot runway, dark night	Africa	Landing	Comm	No
16/05/2006	CE-525 I	Aircraft ran off runway end resulting in gear collapse	NA	Landing	Corp	No
24/05/2006	IAI 1124	Declared electrical emergency, diverted, veered off runway side	NA	Landing	Comm	No
24/05/2006	Velocity 900	Acft. Lost power on approach due blocked fuel vent, landed short	NA	Approach	Pvt/Bus	No
02/06/2006	L-35	Aircraft crashed short during approach in marginal wx	NA	Approach	Comm	Yes
03/06/2006	DO-328	Takeoff abort, runway overshoot due airspeed indicator errors	NA	Takeoff	Corp	No
14/06/2006	L-60	Rt. main gear sheared after hitting unmarked spoil heap landing	Europe	Landing	Comm	No
22/06/2006	Sport Jet	Acft lifted off momentarily during takeoff then impacted ground	NA	Takeoff	Mfgr	No
24/06/2006	CE-560E	Acft landed long, attempted an abort, overshot into field, burned	NA	Approach	Pvt/Bus	No
26/06/2006	DH-125-3A	Main landing gears collapsed landing, fire followed	SA	Landing	Corp	No
05/07/2006	NA-265-40	Hard landing punctured fuel tank, fire followed, dark night	CA	Landing	Comm	No

Appendix A

Business Jet Accidents 2006 continued

2006 Business Jet Accidents Continued

Date	Model	Description	Region	Phase	Operator	Fatalities
10/07/2006	CE-560	Landed long, overshot runway, stopped in creek	NE	Landing	Comm	No
15/07/2006	L-55	Inflight electrical fire during final approach	NE	Approach	Comm	No
16/07/2006	HS-58A	Hawker Siddeley jet fighter crashed during air show	NE	Maneuver	Pvt/Bus	Yes
19/07/2006	CE-560	Aircraft overshot landing and terminated in a cornfield, 2949 ft.rwy	NE	Landing	Corp	Yes
22/07/2006	CE-550SP	Main gear partially collapsed taxiing after landing	NE	Taxi	Corp	No
24/07/2006	F-86	Military fighter jet takeoff aborted, aircraft overshot runway	NE	Takeoff	Pvt/Bus	No
25/07/2006	Spec.33VLJ	Controls reversed, wing hit ground during initial lift-off	NE	Takeoff	Mfgr.	Yes
17/08/2006	DA-2000	Aircraft damaged by hail during flight	Europe	Descent	Corp	No
28/08/2006	HS-125-800	Mid air at 16,000 ft. with glider, pilot parachuted, Hawker landed	NE	Descent	Frax	No
29/09/2006	EMB-135	Mid air with Airline 737which crashed. 155 fatal, Legacy landed	SA	Cruise	Comm	Yes
02/10/2006	L-21	USAF L-35 crashed during approach in VMC, gusting conditions	NA	Approach	Military	No
10/10/2006	Bae-146	Charter air carrier overshot runway landing, fire followed	Europe	Landing	Comm	Yes
01/11/2006	HS-125-700	Aircraft landed with landing gear retracted	NA	Landing	Comm	No
08/11/2006	L-35A	Engine failed during takeoof/climb, aircraft control lost	Asia	Takeoff	Military	Yes
26/11/2006	L-35A	Runway overshoot, hyd. malf., reversers failed to deploy	NA	Landing	Comm	No
29/11/2006	Grob 180	Crashed returning to land after takeoff on test fight, new biz jet	Europe	Approach	Mfgr.	Yes
01/12/2006	L-36	Right elevator separated during maneuvering on special mission	NA	Maneuver	Public	No
03/12/2006	CE-501 SP	Lded short, hard, sheared main gear, buckled wings, wind shear	CA	Landing	Comm	No
17/12/2006	MS-760	Aircraft landed with landing gear retracted	NA	Landing	Pvt/Bus	No
17/12/2006	CE-560 U	Hyd. problem reported, aircraft landed with right main retracted	NA	Landing	Pvt/Bus	No
19/12/2006	T-39A	Sabreliner landed short following approach in IMC	CA	Landing	Comm	No
31/12/2006	T-39A	Sabre impacted a pole during a low pass, crashed into houses	CA	Landing	Comm	Yes

Appendix B

Turbo Prop Accidents 2006

2006 BUSINESS TURBOPROP ACCIDENTS

Date	Model	Description	Region	Phase	Operator	Fatalities
05/01/2006	BE-100	On landing aircraft slid off runway side into a ditch	NA	Landing	Pvt/Bus	No
11/01/2006	BE-100A	Aircraft landed hard, night,IMC, damage reported substantial	NA	Landing	Comm	No
12/01/2006	BE-350	impacted trees during non-precision approach, IMC dark nite	Europe	Approach	Comm	No
20/01/2006	PA-46TPC	Aircraft landed hard, tire blew and aircraft swerved onto grass	NA	Landing	Pvt/Bus	No
21/01/2006	CE-208B	Power loss in cruise,hit trees attempting emergency landing	NA	Cruise	Comm	Yes
02/02/2006	BE-200	Aircraft pitched & rolled violently on 2nd VFR app. & crashed	NA	Approach	Pvt/Bus	Yes
04/02/2006	TBM-700	Aircraft landed hard and left wing hit ground	NA	Landing	Pvt/Bus	No
08/02/2006	SA-226TC	Acft pitched over and dove into ground after pilot had problem	NA	Cruise	Comm	Yes
15/02/2006	BE-C90A	Right main landing gear collapsed during landing roll	NA	Landing	Corp	No
15/02/2006	CE-208	Airxcraft undershot approach and was substantially damaged	SA	Approach	Comm	No
22/02/2006	BE-200	Landing gear problem,pilot elected to land with gear retracted	SA	Landing	Comm	No
28/02/2006	BE-200	Landing gear problem,pilot elected to land with gear retracted	Africa	Landing	Comm	No
05/03/2006	CE-208B	Aircraft damaged during emergency landing after power loss	SA	Cruise	Comm	No
18/03/2006	BE-99	Aircraft crashed in mtnous terr. during VOR app.in ice/snow	NA	Approach	Comm	Yes
24/03/2006	CE-208B	Aircraft crashed following power loss during initial climb	SA	Climb	Comm	Yes
26/03/2006	PA-31T	Aircraft landed with gear retracted during touch & go landing	Europe	Landing	Comm	No
28/03/2006	CE-208B	Crashed into mountainous terr. attempting VFR in marg.wx.	NA	Maneuver	Mfgr.	Yes
31/03/2006	PC-12	Acft. damaged when thieves stole gold cargo. Acft parked	Africa	Static	Comm	No
07/04/2006	BE-300	Aircraft overshot the runway during landing	SA	Landing	Public	No
13/04/2006	CE-208	Aircraft crashed landing on a tree covered strip	Africa	Landing	Pvt/Bus	No
26/04/2006	BE-C90B	Aircraft ran off runway side during landing	Asia	Landing	Corp	No
28/04/2006	CE-208B	Aircraft collided with high terrain operating in marginal wx.	Africa	Maneuver	Comm	Yes
11/05/2006	BE-200	Gear problems after TO, nose gear jammed up on landing	Europe	Takeoff	Comm	No
03/06/2006	G-159	Aircraft forced to land by military as was drug smuggling	SA	Landing	Comm	No
12/06/2006	BE-90A	Aircraft crashed attempting to land after both engines failed	NA	Approach	Public	Yes
20/06/2006	AC-690A	Landed long after IFR approach, pilot swerved off side to stop	CA	Landing	Corp	No
23/06/2006	BE-C90	Landing gear was retracted during touch and go landing	NA	Landing	Public	No
24/06/2006	PC-12	Aircraft crashed 5 mi.SE of airport, practice engine out, VMC	NA	Climb	Pvt/Bus	Yes
25/06/2006	MU-2B-60	Acft crashed shortly after departure due engine malf/failure	NA	Climb	Comm	Yes
30/06/2006	CE-208B	Crashed during night approach, Mozambique	Africa	Approach	Comm	Yes
01/07/2006	SA-227AC	Aircraft landed hard resulting in substantial damage	Oceania	Landing	Comm	No
18/07/2006	BE-100	Aircraft experienced a hard landing	NA	Landing	Comm	No
21/07/2006	PA-46TPC	Power lost initial climb, damaged during emergency landing	Europe	Climb	Pvt/Bus	No

Appendix B

Turbo Prop Accidents 2006 continued

2006 BUSINESS TURBOPROP ACCIDENTS continued

Date	Model	Description	Region	Phase	Operator	Fatalities
28/07/2006	AC-690A	Aircraft crashed in VMC, Alaska, no other information	NA	Cruise	Comm	Yes
29/07/2006	CE-208	Float plane collided with 3 ft. berm during water takeoff	NA	Takeoff	Pvt/Bus	No
29/07/2006	DHC-6-100	Aircraft clipped power line during parachute drop takeoff	NA	Takeoff	Pvt/Bus	Yes
04/08/2006	EMB-110P	Cargo flight crashed during missed approach	NA	Approach	Comm	Yes
10/08/2006	PA-42	Aircraft went off runway side during landing	SA	Landing	Comm	No
13/08/2006	BE-100B	Landed short, rt. main gear collapsed, acft. went into grass	NA	Landing	Comm	No
16/08/2006	CE-208B	Could not get Vr, late abort due snow on runway, overshoot	NA	Takeoff	Comm	No
17/08/2006	SA-227AC	Main gear struck fence during approach, gear collapsed ldg.	NA	Landing	Comm	No
22/08/2006	BE-99	Parachutist hit the aircraft's stabilizer during jump	NA	Maneuver	Pvt/Bus	Yes
25/08/2006	MU-2B-40	In-flight breakup, possible thunderstorm encounter, FL 280	NA	Maneuver	Pvt/Bus	Yes
01/09/2006	MU-2B-35	Crashed during descent, day, VMC, heavy T storms in area	NA	Descent	Corp	No
13/09/2006	PA-46TPC	Aircraft landed hard behind taking off MD-80	NA	Landing	Pvt/Bus	No
14/09/2006	PA-42	Aircraft landed with nose wheel retracted	SA	Landing	Comm	No
10/10/2006	BE-200	Aircraft damaged during hard landing	Europe	Landing	Comm	No
10/10/2006	CE-208B	Power loss in cruise, nose gear collapsed on landing, fire followed	Africa	Cruise	Comm	No
12/10/2006	BE-200	Rt. main gear collapsed during landing, fire followed	NA	Landing	Comm	No
13/10/2006	BE-200	Main landing gear failed, aircraft went off rwy side, mtnce .test	NA	Landing	Corp	No
15/10/2006	AC-690	Crashed during flight through severe weather, T storm activity	NA	Cruise	Pvt/Bus	Yes
18/10/2006	PA-42	Mid-air during formation photo flight	NA	Maneuver	Pvt/Bus	Yes
18/10/2006	BE-C90A	Aircraft hit trees and fence during night takeoff and crashed	Europe	Takeoff	Comm	Yes
19/10/2006	BE-200	One main landing gear collapsed during landing roll	SA	Landing	Military	No
23/10/2006	CE-208B	Engine failure enroute, damaged during forced landing	Africa	Cruise	Comm	No
25/10/2006	CE-425	Aircraft lost engine on takeoff and pilot lost control	Africa	Takeoff	Comm	Yes
28/10/2006	CE-208B	Landed long, aborted and hit trees during go-around	CA	Landing	Comm	No
06/11/2006	PA-31T	Crashed unroute in VMC, no other information	Europe	Cruise	Pvt/Bus	?
09/11/2006	BE-E90	Right main wheel fell off on takeoff following mtnce prior day	SA	Takeoff	Public	No
22/11/2006	CE-208	CFIT on approach in marginal IMC	SA	Approach	Comm	?
24/11/2006	PA-46TP	Aircraft crashed after takeoff, dark night, no other information	Europe	Climb	Pvt/Bus	No
30/11/2006	PA-46TP	Control lost during takeoff roll,aircraft hit a snow bank	NA	Takeoff	Pvt/Bus	No
05/12/2006	CE-425	Aircraft impacted the terminal building during taxi to park	NA	Taxi	Pvt/Bus	No
08/12/2006	SA-227BG	Aircraft landed hard resulting in substantial damage	NA	Landing	Comm	No
13/12/2006	PA-31T-1	Aircraft landed hard, night, VMC	NA	Landing	Pvt/Bus	No
17/12/2006	BE-90B	Pilot failed to extend landing gear prior landing	Africa	Landing	Corp	No
23/12/2006	BE-99	Landing gear collapsed during landing	NA	Landing	Pvt/Bus	No
29/12/2006	BE-99	Wingtip hit ground during initiation of missed approach at dec.ht.	NA	Approach	Pvt/Bus	No

Appendix C

Erratum

Business Aviation Safety Brief
Issue No. 3, January 17, 2005

Page 11, Table 4.3c
The Accident Rate Total should be corrected to read “1.63”.

Business Aviation Safety Brief
Issue No. 5, September 26, 2006

Page 11, Table 4.3c
The number shown for Fatal Accidents should be corrected to read “160”.
The Accident Rate Fatal should be corrected to read “0.56”.