

**SINGLE TURBOPROP POWERED AIRCRAFT ACCIDENT ANALYSIS**

**U.S. and Canadian Fleet**

**Aircraft Certification through 2012**

**for**

**PILATUS BUSINESS AIRCRAFT LTD.**

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**by**

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Robert E. Breiling Associates, Inc. has been analyzing business turbine powered (jet, turboprop and turbine helicopter) accidents since 1962 and publishes an annual analysis of all business turbine aircraft accidents, accident rates and causal factors. Special unbiased studies including individual aircraft performance from an accident involvement point of view and operator (corporate, business, fractional, commercial/air taxi) performance are compiled periodically for the leading aviation underwriters, National Business Aviation Association (NBAA), airframe manufacturers and others. A former Naval Aviator, Pan American pilot and director of a large aviation insurance company flight and engineering department, a former director of NBAA and type-rated pilot, Robert E. Breiling has presented a review of business aviation safety performance for over 25 years at the Flight Safety Foundation's Corporate Aviation Seminar and was awarded the Foundation's Business Aviation Meritorious Service Award. He has also recently received the International Business Aviation Council, IBAC, award presented on behalf of "Members of the Business Aviation Associations Worldwide" and the NBAA's prestigious John P. Doswell Award in recognition for lifetime contributions and dedication to world business aviation safety."

## INTRODUCTION

The following information contains a summary of all reported single turboprop powered aircraft accidents. Accident rates have been developed for each aircraft for the U.S. and Canadian registered fleets as accident information was more readily available for that segment. Flight hours and fleet sizes were obtained from the individual manufacturers.

As there has been a concern for the reliability of single turboprop powered aircraft, accidents involving powerplant malfunction failure have been identified and an accident rate for power loss accidents was calculated.

Single Turboprop Powered Aircraft Accident Summary

The following pages summarize all reported accidents involving U.S. and non-U.S. registered single turboprop powered aircraft since their introduction through 2012.

Accident data prior to 1990 was not readily available for non-U.S. registered aircraft and more information on each accident is available if requested.

CE-208/ TBM-700/ PC-12/ PA-46-500TP Accident Involvement Comparative Data

U.S. and Canadian Registered Fleets - Aircraft Introduction through 2012

	<u>CE-208</u>	<u>TBM-700/ TBM-850*</u>	<u>PC-12</u>	<u>PA-46-500TP</u>
Fleet Size (Year end 2012)**	878	422	794	363
Hours Flown	8,445,005	734,072	2,958,834	575,456
Accidents	141	30	22	29
Fatal Accidents	56	12	9	11
Accidents due Power Loss/ Mechanical Malfunction/Failure	20	2	4	2
Accidents per 100,000 hrs.	1.67	4.04	0.74	5.04
Fatal Accidents per 100,000 hrs.	0.65	1.63	0.30	1.91
Power Loss Accident Rate per 100,000 flight hours	0.24	0.27	0.14	0.35
Power Loss Fatal Accident Rate per 100,000 flight hours	0.012	0	0	0

\*\* Active fleet size data supplied by AvData, Inc.

The following pages summarize accident involvement of each aircraft.

The PA-46 TP conversion is excluded in this study.

U.S. and Canada Business Turboprop Fleet - Flight Hours - Accidents - Accident Rates

Aircraft Certification through 2012

Accident Rates (Accidents per 100,000 flight hours)

<u>Aircraft</u>	<u>Accidents</u>	<u>Fatal Accidents</u>	<u>Cumulative Flight Hours</u>	<u>Accident Rate</u>	<u>Fatal Accident Rate</u>
BE-90 King Air	241	73	12,590,430	1.95	0.58
BE-100 King Air	53	18	2,795,310	1.90	0.64
BE-200 King Air	101	31	11,096,188	0.91	0.28
BE-300/350 King Air	10	2	3,200,284	0.31	0.06
BE-2000	1	0	144,374	0.69	0
CE-425 Conquest I	26	9	1,780,589	1.46	0.51
CE-441 Conquest II	41	20	2,154,454	1.90	0.93
CE-208 Caravan	141	56	8,445,005	1.67	0.65
PA-31T/42 Cheyenne I/II	99	38	5,314,836	1.86	0.71
PA-46TP-500	29	11	575,456	5.04	1.91
PA-46TP Conversion	17	4	257,670	6.60	1.55
P-180 Avanti	8	0	358,750	2.23	0
Turbo Cdr. Series	144	55	4,175,498	3.45	1.32
Gulfstream I (G-159)	16	4*	2,138,645	0.75	0.19
Mitsubishi MU-2	201	86	5,482,968	3.69	1.58
Merlin II/III/IV	130	31	3,722,905	3.49	0.83
Socata TBM-700/850	30	12	734,072	4.04	1.63
Pilatus PC-12	22	9*	2,958,834	0.74	0.30
EMB-110	4	2	52,375	7.64	3.82
Twin TP Fleet Average	1,075	369	55,145,997	1.95	0.67
Single TP Average	239	92	12,721,705	1.88	0.72

Accident rates are predicated on all operational accidents regardless of the aircraft use and/or exposure

\* Fatal incident included