

Overview of 2004 Crash Stats and Recommendations

Basic Data: This year, the data tracked 1208 pilots logging an estimated 7950 flights. As with 2003, the presented data relied heavily on the reports received from the CDs or the Airbosses that covered some of the events. More time was spent getting details this year, and it is believed that the 2004 data has better information than did the 2003 data. That stated, the data is not perfect. There is a certain amount of subjectivity in the reports, and when reviewing the details, others may have different perspectives.

Because there was a significantly higher percentage of “unknown” crashes last year, and this year’s data had more categories, comparisons of cause of loss from year to year aren't particularly valid.

Attendance: A comparison of attendance for events where data was available in both 2003 and 2004 showed participation off about 8 percent. It looked like many of the smaller events grew somewhat, but some of the larger events reported fewer registrations. Florida Jets, Michigan, Florida International, Greater Southwest and Mississippi all reported fewer pilots. Superman held ground. Heartland and Liberty were two of the larger meets that grew. The escalating cost of automotive fuel, and therefore the increased cost to attend an event, may have contributed to the reduction.

Frequency of Loss: Overall, the frequency of loss was very similar from year to year. In 2004, there was one loss per 132 flights. The comparative figure for 2003 was one incident per 120 flights, though this number was driven somewhat by 5 overrun losses at Dixie due to a shortened runway. If these losses were removed, the frequency would have been virtually static. This consistency year over year would suggest that the data has a fair amount of credibility.

Cause of Loss: As might be guessed, just over 50% of all losses were related to pilot error. Just over half of these losses were botched landings. While there were several accidents caused by planes stalling on approach, the majority of landing incidents appear to be related to failure to slow the aircraft sufficiently for landing. This was the leading cause of all accidents this year, representing 11 of 66 losses.

Next to landing problems, disorientation represented seven different accidents listed as pilot error. This is the category of loss that was dominated by new pilots. Five new pilots were involved in crashes, and four of these five succumbed to disorientation. Flying at dusk or with the sun in the eyes was also a contributing factor in several of the disorientation losses. CG problems and incorrect radio settings rounded out the pilot error category.

Battery/radio problems represented about 25% of losses this year. Unfortunately, the cause of most of these incidents will never be known. Nine of the fourteen losses in this category are characterized by engine shutdown in flight with some initial Loss Of Control (LOC). In some cases, control was regained but the aircraft was not recovered successfully. In other cases, the

LOC was total. Of the remaining electrical problems, several batteries were confirmed defective, a transmitter failed and there was one report of a switch failure.

Interestingly enough, thirteen of the fourteen radio incidents occurred at different events.

Structural problems represented the next most frequent cause of loss at 16%. There really was no consistent pattern here. Wings folded, booms cracked, struts and hatches departed airframes, flaps failed. No particular aircraft kit was immune, and none were really repetitive. All in all, to have only nine structural problems in almost 8000 flights is pretty amazing, and a testament to the structural integrity of the kits and the building skills in the jet community. .

Engine failures without any reported LOC represented 12% of losses. In most of these reports, pilots were unable to reach the runway, or damaged the airplane if they did during the unanticipated landing. Bearing failure was an obvious cause in some instances, while the remainder were likely related to air bubbles or other transient problems.

There were two mid-air and a number of unknown events that rounded out the remainder of the data.

There was absolutely no hint of a speed related incident in any of the statistics.

Fires: There were six reported fires this year, though one occurred on the set-up day and not during the sanctioned event

One of the fires reported involved an engine seizure/LOC. The actual fire was very brief, and as soon as the ECU detected the failure it shut off the fuel which appears to have extinguished the fire immediately. There was no post crash fire, and the signs of a pre-crash fire damage could only be detected by inspection of the airframe.

All remaining fires involved planes hitting the ground at high speed or some catastrophic event. All of these fires either self extinguished or were reported to be pilot controlled.

Pilot Experience: As mentioned earlier, new pilots were not involved in many crashes. The comments received from CDs this year were also absent any concerns about newer pilots, which was quite different than in '03, where this dominated safety concerns. It is believed that buddy boxing has had a significant positive impact and deserves some of the credit for the success of newer waiver holders. This is reinforced by the fact that four out of the five incidents involving newer pilots were caused by disorientation.

Aircraft Durability: As can be deduced from the cause of loss statistics, the age of the airframe really had no strong correlation to losses. A roughly even number of crashes involved new, intermediate and experienced airframes.

Conclusions:

- 1) Slow flight and landing practice would benefit the turbine community safety record, particularly for those folks flying at home fields with very long runways.
- 2) More diligence is required in the maintenance of batteries and radio equipment. Batteries should be cycled regularly to keep an eye on capacity. Crystals and modules do fatigue with age. With the forward compatibility that radio systems offer for these parts, it does make sense to encourage frequent range checks as a preventative measure.
- 3) Newer pilots should be encouraged to avoid disorientation by keeping their aircraft closer in, controlling speed and avoiding flight in adverse lighting conditions.
- 4) Pilots should keep an eye on fuel systems, engine temps and pump voltages after every flight to look for abnormalities that would suggest air leaks, impending bearing failure or clogged filters.
- 5) Fires remain relatively uncommon, but still result primarily from high speed ground impact with the engine running. At the beginning of every flight, repetitive thought should be given to pulling the trim in the event of a catastrophic event. Data also shows that fires can be successfully controlled with water based fire equipment. It is not certain how often the regulations are followed in this area at home fields, but it is important.
- 6) Some aircraft do recover from transient failsafe events. Don't stop flying the aircraft, even if it seems non-responsive.
- 7) Failsafe programming remains important in preventing fires. There were 14 incidents recorded where the pilot reported total LOC due to radio or battery problems. In most cases, the incident report confirmed that the engine shut down. None of these crashes resulted in a fire.

To view more information on the JPO's risk management initiative, including actual statistics, click [here](#).