

TRAGEDY OF FLIGHT: A COMPREHENSIVE CRASH ANALYSIS LITERATURE SURVEY

Case Study	Survivability Consideration
Yeti airlines 691	High altitude environment
Delta Airlines Flight 1288	Failed turbine engine penetrated cabin
Southwest Airlines Flight 1380	Failed to restrain occupant inside cabin
Trans-Canada Airlines Flight 304	Failed propeller penetrated cabin British
Airtours Flight 28M	Extreme Temperatures due to fire
The Red Bull Stratos Project	High altitude environment
The Space Shuttle Columbia STS-107	Inflight restraint failure
	High altitude environment
	Hypersonic/supersonic environment
National Airlines Flight 102	Unrestrained cargo
United Airlines Flight 232	Unrestrained passengers (lap-held infants)

REPORTS:

- When both propellers were feathered, the investigation team observed that both engines of 9N-ANC were running flight idle condition during the event flight to prevent over torque,” states the preliminary report

- .“Human factor in the accident could not be disregarded. So it is an issue of investigation,” said the member on condition of anonymity.
- “When both propellers were feathered, the investigation team observed that both engines of 9N-ANC were running flight idle condition during the event flight to prevent over torque,” states the preliminary report.
- “As per the Flight Data Recorder (FDR) all the recorded parameters related to engines did not show any anomaly,” adds the report.
- “When Air Traffic Controller (ATC) gave the clearance for landing at 10:57:07, the Pilot Flying (PF) mentioned twice that there was no power coming from the engines,” the report further says..

LITERATURE REVIEW:

- ❖ DeHaven was a pilot, engineer, and he is considered by many to be the “father of aviation crashworthiness” (Hurley, 2002). Hugh DeHaven volunteered with the Canadian Royal Flying Corps after being rejected by the U.S. Army Air Corps during World War I. In 1917, during a training mission, DeHaven was involved in a midair collision with another aircraft which resulted in a crash. DeHaven was the only survivor from the two aircraft and sustained serious injuries which included fractured limbs, a ruptured liver, gall bladder, and pancreas (Gangloff, 2003) (Hurley, 2002).
- ❖ In 2012, the NTSB released a Safety Recommendation specifically addressing the hazards associated with investigating mishaps involving aircraft equipped with ejection seats. The safety recommendation specifically cites use in Aero Vodochody L39C aircraft registered to Fighter Town USA, LLC and operated under Part 91 regulations (Hersman, 2012).
- ❖ When considering the kinetic energy required to cause serious injury, a propeller blade with over 91,000 joules of energy exceeds established levels by multiple orders of magnitude. There is a 90% probability of death when being struck in the head with an object having just 150 joules of energy. There is a 90% probability of death when hit in the torso by an object having 500 joules of energy (Henderson, 2010).

REFERENCE:

- DeHaven, H., "Accident Survival – Airplane and Passenger Car," SAE 520016, Society of Automotive Engineers, Inc., Warrendale, PA, January 1952.
- Henderson, J., & MINISTRY OF DEFENCE LONDON (UNITED KINGDOM). (2010). Lethality criteria for debris generated from accidental explosion.
- Hersman, D. A.P.,. (2012) National Transportation Safety Board., Safety Recommendation A-12-64 through -67. Washington D.C. Washington D.C