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Fatal Fraps for Helicopter Pilots

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Everybody who has been in the business for a while has probably experienced a close encounter with some kind of incident that could have resulted in an accident. When accidents do occur the people who lives to tell their stories have their extensive emergency training to thank for their lives. Greg Whyte has written a book on this subject called "Fatal Traps for Helicopter Pilots".



Published in mid-August 2003 "Fatal Traps for Helicopter Pilots" is a comprehensive book that covers the most imaginable aspects of helicopter accidents. It starts off with an educational introduction chapter in which the basic principles of helicopter flight are explained. After 16 pages of flight school the reader is thrown right into a chapter about the vortex ring state. You get introduced to the problem, its characteristics and how it affects your helicopter. The introduction is followed by a few case studies from actual helicopter accidents. It continues with an explanation of the main rotor vortex ring state, how to avoid the problem and how to recover from it. The book then goes on with 20 other accident categories (everything from wire strikes to center of gravity issues), presented in the same structure as in the chapter about the vortex ring state.

The author, Greg Whyte, has had a career in the New Zealand Police as well as over 1'000 hours of flight logged and has been in or around rotary-wing operations for many years. His consulting editor, Steve Bone, has more than 30 years of flying experience as he has spent his career in senior military (RNZAF) and civilian roles. He is currently senior pilot and safety officer in the offshore industry. Except for their own experience and knowledge they have received helping hands from more than 20 pilots, investigators and enthusiasts from various parts of the world.

The book covers a wide range of detailed explanations: everything from engineering to meteorology and human factors. The moment I opened the book I got impressed by its good structure, its pedagogic explanations and its interesting case studies. This is the kind of book that you can't stop reading once you've opened it. After each case study you'll tell yourself "just one more", and finally you detect that you've finished reading half of the book. Well, it goes without saying that this book will certainly be read over and over again.



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Photo from New Zealand Transport Accident Investigation Commission.

Among all the tragic (but educational) case studies the author has found a couple of stories with glimpses of humour. One in particular is the pilot Jim Wilson's recount of when he ditched a Hughes 500. "With the helicopter lying on its starboard side, trying to get a foothold over the width of the cockpit to get leverage to open the (now) top-side door and battling with all the debris while shoulder deep in cold water is not, I can assure you, a fun way to spend an afternoon."

The majority of the 70 accidents mentioned in the book have occurred within the last 20 years, mostly with ordinary every-day-helicopters like the Bell 206 and the Ecureuil. The case studies are carefully selected so that even the most experienced person could learn something from them. In fact most of the examples involve pilots with a high number of flying hours. Every single pilot, crewman, and engineer should study

"Fatal Traps for Helicopter Pilots". Weather you've read it or not might become a question of surviving. No matter if you're a business professional, a student pilot or an amateur enthusiast this book will certainly catch your attention. It sure caught mine! 🙏



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Photo from The Bureau of Air Safety Investigation.

The different categories of accidents presented in the book are:

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|---------------------------|-------------------------|--------------------|---------------------------------|
| 1. Vortex ring state | 7. Main rotor strikes | 13. Fuel | 19. Crew and pre-flight hazards |
| 2. Recirculation | 8. Mid-air collisions | 14. Fire | 20. Human factors |
| 3. Ground resonance | 9. Mast bumping | 15. Ditching | 21. Training mishaps |
| 4. Retreating blade stall | 10. Engine failure | 16. Loading issues | |
| 5. Dynamic rollover | 11. Tail rotor failure | 17. Winching | |
| 6. Overpitching | 12. Mechanical failures | 18. Weather | |

+ "Mid-air collisions" includes:

Other aircraft, Wire strikes and Bird strikes.

+ "Mechanical failures" includes:

Maintenance reliability, Pilot inspections, Thermal runaway, Hydraulic jack stall and Bogus operational parts.

+ "Fuel" includes:

Contamination, Starvation (including Carburetor icing) and Exhaustion.

+ "Loading issues" includes:

Sling loading, Inadvertent cargo hook releases, Overloading, Center of gravity and Loose objects in the cockpit.

+ "Weather" includes:

Wind, Visibility, Turbulence, Wake turbulence, Cumulonimbus, Lightning, Hail/heavy rain and Winter dangers (snow & ice).

+ "Crew and pre-flight hazards" includes:

Inadequately briefed personnel, Tail rotor dangers, Main rotor dangers, Blade sailing, Damage by foreign objects, Exiting aircraft in-flight, Failure to engage control locks, Protective covers and Failure to remove covers/tie-downs.

+ "Human factors" includes:

Medical matters, Noise and vibration, Colds, Intoxication, Fatigue, Stress, Hyperventilation, Hypoxia, Hypoglycemia, Dehydration, Transporting patients, Diving and flying, Head injuries, Spatial disorientation, Flicker vertigo and Crew resource management.