THE KILLING ZONE

How and Why Pilots Die

Second Edition

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Contents

Acknowledgments

Much of the data used to identify the Killing Zone came from the Air Safety Foundation, the Nall Report, the Federal Aviation Administration (FAA), the National Aeronautics and Space Administration (NASA), the U.S. Department of Transportation, the Research and Innovative Technology Administration, and the Bureau of Transportation Statistics.

I have been working with a talented group of people on several projects related to flight training and air safety. Through the SATS Aviation Flight Education Research (SAFER) project and later the Flight Operations Center Unified Simulation (FOCUS) project, these dedicated individuals have played a great role in eliminating the Killing Zone.

All my inspirations begin with Dr. Dorothy Valcarcel Craig—my wife and confidant for over 30 years.

Special thanks to these dedicated pros: Tom Cheatham, Andrea Georgiou, Jerry Hill, Rick Moffett, Mike Hein, Glenn Littlepage, John Bertrand, Tom Connolly, Charley Robertson, Michelle Summers, Tom Glista, Bob Wright, Franks Ayers, and James Burley.

Special thanks to the young innovators from the SAFER project: Kimberly Thorsby, Robby Anderson, Ryan DePew, David Robinson, Greg Slagle, Jason Seator, Elliot Fisher, and James Barker.

Thanks to the team of FOCUS lab creators and researchers: Paul Carlson, Durant Bridges, Jeff Tipton, Joe Cooper, Justice Amankwah, Jenni Henslee, Nora Cole, Jaye Murray, Alan Waid, Amanda Rice, Atyom Ivakh, Cody Corbett, Cody

Evans, Emily Sanders, Leland Waite, Shanna Jinkerson, Ryan Lillard, Andrew Willoughby, and Rebecca Ramirez. Additional thanks to Amanda Rice for manuscript evaluation and advice.

And thanks to my mentors and colleagues: Tom Carney, Bill Kohlruss, Wendy Beckman, Terry Dorris, Gary Kiteley, Alan Stolzer, Ron Ferrara, Greg Robbins, and Jeremy Brown.

Trust me. The Killing Zone would have been much worse if it were not for the efforts of these flight instructors, educators, and researchers.

Introduction

The style of this book is meant to be conversational. Not like a textbook. This is just you and me talking about how to be better pilots, just like flight instructors and students do. Let me take up where your flight instructor left off, and we will become safer pilots together.

This book is about aircraft accidents, particularly accidents involving low-time, inexperienced pilots. It was a hard book to write because it involved fellow pilots in trouble. In the last 10 years, I have eulogized a fallen pilot at his memorial service, testified on another's behalf in court, and been the first to call a loved one after an accident. To me, accident data are personal—not just numbers. The accidents used for examples throughout this book are used only with the greatest respect for the victims. When an accident is evaluated in this book, the analysis is done in the hope that other pilots may be safer from the knowledge. Many of the accidents used as examples were fatal accidents. By using the fatal accidents of fellow pilots as a learning tool, it is as if they have signed an "organ donor card" back to us. Their tragedy may be of value by saving the life of another pilot.

The accidents that are cited here were drawn from the National Transportation Safety Board's public investigation files. The accidents were selected at random. Each was selected for its educational value alone. Accidents from all areas of the country were selected—any disproportionate number in any one area of the country is coincidental. Accidents from different aircraft manufacturers also were used as illustrations. No attempt was made to single out any manufacturer, and any disproportionate number from any one aircraft manufacturer is coincidental.

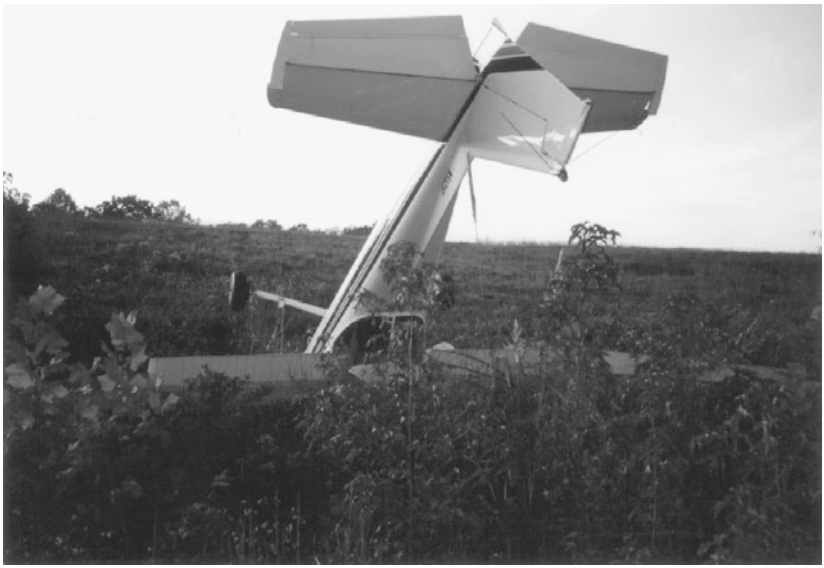

Figure 6.2A After departing the left side of the runway, the airplane rolled down a hill and into the ravine.

Figure 6.2B The airplane rolled down the hill from right to left in this photo.

it came to rest. The runway is off to the right of the photograph. The airplane came from the right, down the embankment, and finally the nose wheel dropped into the ravine and the momentum took the tail on over. It's amazing how much trouble you can get into when you don't do things right.

Look carefully at Figure 6.2C. This photograph was taken back up on the runway. You can see the skid marks left by the right main wheel. The report said, "there was evidence of side loading on the outboard side of the right main tire." The skid marks show the angle at which the airplane departed the left side of the runway. The embankment that the airplane ultimately rolled down is beyond the grass and short of the far trees. Notice that the skid marks cross the taxiway exit lines.

Figure 6.2C The bold white strip that crosses left to right in the photo is the edge of the runway. The right main tire's skid marks show where the airplane went out of control just past a taxiway intersection.

Figure 6.2D The airplane had been landing from left to right. The taxiway intersection where the airplane left the runway and the airplane itself can be seen in this aerial view of the accident.

Figure 6.2D is an aerial photograph of the crash scene. The pilot was making the touch-and-go landing from left to right in the photograph. You can see the airplane (center) off to the left side of the runway. You can also see the taxiway exit lines. Picture the pilot's path from the runway just beyond the taxiway, across the field, and down the hill.

The NTSB report also said that, "After touchdown, the flaps were retracted…" but you can see in Figures 6.2A and 6.2B that the flaps are still partially down. The pilot had said that power was cut before the airplane went down the hill, and when the nose wheel dropped and the tail came over that, the engine had stopped. The mixture control was found in the aft, idle cutoff position, and the damage to the propeller was consistent with a stationary impact.

What really happened here? Why did the engine hesitate and then regain normal power? Did the power hesitation distract the pilot and contribute to the loss of control? A power hesitation from a carbureted engine is normal on touch-and-go landings as well as stall recoveries and go-arounds when the throttle is pushed forward too quickly. Figures 6.3A and 6.3B illustrate what happened. Figure 6.3A