Approach Speed Recalculated

By Ron Ridenour, SSF Trustee

I just finished reading Bill Gawthrop's account of his accident in the March Soaring entitled Oh !**!, I Crashed. I applaud Bill for writing this article in the hopes that it will help others to avoid a similar fate. His open dialogue and candor of the events provide some valuable insights into what happened that day and maybe how to fly differently while on approach.

The article reminded me of an accident that my father had some 46 years earlier, an accident that he also survived. I was 16 years old at the time and just getting started in soaring. Like Bill, my dad also broke his back and crushed his heel, but survived and is still flying gliders today at age 87.I remember his description of what happened. He was on approach into an off-airport field, turning final, and suddenly he felt the bottom drop out like the glider was in free-fall. He lowered the nose and deployed more flaps but he was at too low an altitude for a full recovery. The steel tubing framework and the thick aluminum nose skin of the HP-13 absorbed much of the impact, but the glider was totally destroyed. I remember when discussing the accident with Dad he said that maybe a few more knots of airspeed would have prevented the accident.

The day of my father s accident had light and variable winds and strong thermals. His theory of what may have happened was that a thermal formed at the far end of the landing area and caused a sudden tailwind in the area that he was flying, thus producing a sudden and drastic loss of lift and airspeed. This subsequently caused a stalled condition which was unrecoverable. Reading Bill s account hints at some of those traits including the eye witness account of Jon Driessen who recalled that a large gust of wind hit the trees all around us just as Bill crashed.

I also have had a similar experience while making an outlanding. I was approaching a small private grass field with an upslope leading to the end of the runway. The wind was blowing down the runway and down the downslope, causing an area of down air while on final. Fortunately, I had remembered what my father had said those many years before and had added some speed to my approach. I did encounter strong sink during final approach but the extra approach speed allowed me to fly thru this area on final and land without incident. I also had to retract my dive brakes to maintain my glide path to the runway.

I had an opportunity to speak before a group of soaring pilots this past February at a seminar that the Chicagoland Glider Council organizes. My topic was a review of some of the soaring accidents over the past 2 years. The bottom line is that it revealed many accidents by glider pilots flying an approach that resulted in landing short or stalling and spinning in.These scenarios are a result of flying at too slow an airspeed during the approach. I also noted that there are only a very few accidents caused by overflying the entire length of the runway, the vast majority are crashing short of the runway.

Bill mentioned in his article that he spoke with Rich Carlson, Chairman of the SSF. Rich had some insights into Bill s accident that he shared in the article. Bottom line is that Bill was flying too slow an airspeed during the approach. Rich is currently working on an article that explains some of the mechanics of what he thinks may have been what Bill encountered during his accident. The wind shear and wind gradient atmospheric anomalies that Rich

refers to in the article are conditions that the SSF Flight Instructor Course instructors have been emphasizing for many years. This is something that we want all instructors to emphasize during not only their regular course of instructing but also during flight reviews that they conduct. The SSF recommended approach speed formula is 1.5 Vso + the steady state wind speed + ALL of the gust factor. Bill indicates that would have added 10 knots to his approach speed which may have been enough to have prevented a stalled condition.

Don t be confused by the difference between approach speed and touchdown speed. The approach speed should be greater that the touchdown speed. Touchdown speed is a speed the pilot slows to over the fence once the field is made so that the landing roll is minimized.

As an examiner, I have witnessed that in general glider pilots don t plan a touchdown point far enough down the runway. This observation comes from comments I hear about either landing short enough to begin the next tow without pulling the glider back to the end of the runway or being able to make a convenient turn off point to facilitate the retrieve. This was mentioned in Bill s account, planning to land 200 feet beyond the end of the runway so as to make a convenient turnoff about 800 feet down the runway. Generally, I teach that a glider pilot should plan to touchdown in the middle of the first 1/3 of the runway, not 200 feet from the end which leaves little room for an undershoot error.

So what can we all learn from this accident and many of the others that have happened since the beginning of the last century? The message is simple.FLY THE PROPER APPROACH SPEED.A speed that takes into account the sailplane stall speed and the atmospheric anomalies that may be encountered. It may just save your life.