COLLISION AVIODANCE

A DIFFERENT PRESPECTIVE

from the Chairman . . .

As I write this column, I have just receive word of a collision involving a glider and towplane that claimed the lives of three of our fellow pilots. Reading the initial report, I was overwhelmed with a sense of dread because I knew only too well that airborne collisions of aircraft are seldom survivable. Tragically, my worst fears were soon realized.

I am very troubled by this accident, as I am very troubled by a number of other accidents that have occurred during the past two years. During 1998, we noted a disturbing increase in the number of accidents that involved airplanes conducting glider tow operations. In the past year we saw the inadvertent opening of a glider canopy during initial tow result in the loss of a life and the destruction of both a glider and tow aircraft. Shortly thereafter, another tragedy occurred when a pilot was fatally injured after the towplane he was flying suffered a power loss shortly after takeoff. Unfortunately, these were not the only accidents that involved tow aircraft during the past year.

I believe, however, that it is the threat of mid-air collisions between gliders and powered aircraft that will be one of the most significant issues affecting soaring safety in the future. One of the last National Transportation Safety Board reports that came across my desk in 1998 involved a mid-air collision between an airplane and glider. The accident occurred as both aircraft attempted to turn onto the final approach of a general aviation airport. Thankfully, neither pilot was injured in the accident. Now, one of the first accidents of 1999 is again a mid-air collision between a powered aircraft, and a glider. In my view, these accidents illustrate a sobering aspect of our sport as we approach the next century of soaring; the potential for mid-air collisions will become an ever increasing threat as the complexity and the number of users of our airspace system continues to increase.

Ironically, I had just completed writing the first of a series of collision avoidance articles for Sailplane Safety when I received news of this latest mid-air accident. It is my sincere hope that the leadership of every club, chapter, and commercial operator will review the difficult lessons learned from past mid-air collisions and devote the resources necessary to develop and encourage collision avoidance awareness and procedures at every soaring operation.

Having lost friends in aircraft accidents over the years, I understand very well the conflicting emotions and overwhelming sense of loss suffered by those who lost family or friends in this accident. I offer our deepest heartfelt sympathy and wish each of you Godspeed as only time can begin to heal the pain of your loss.

Our thoughts and prayers are with you.

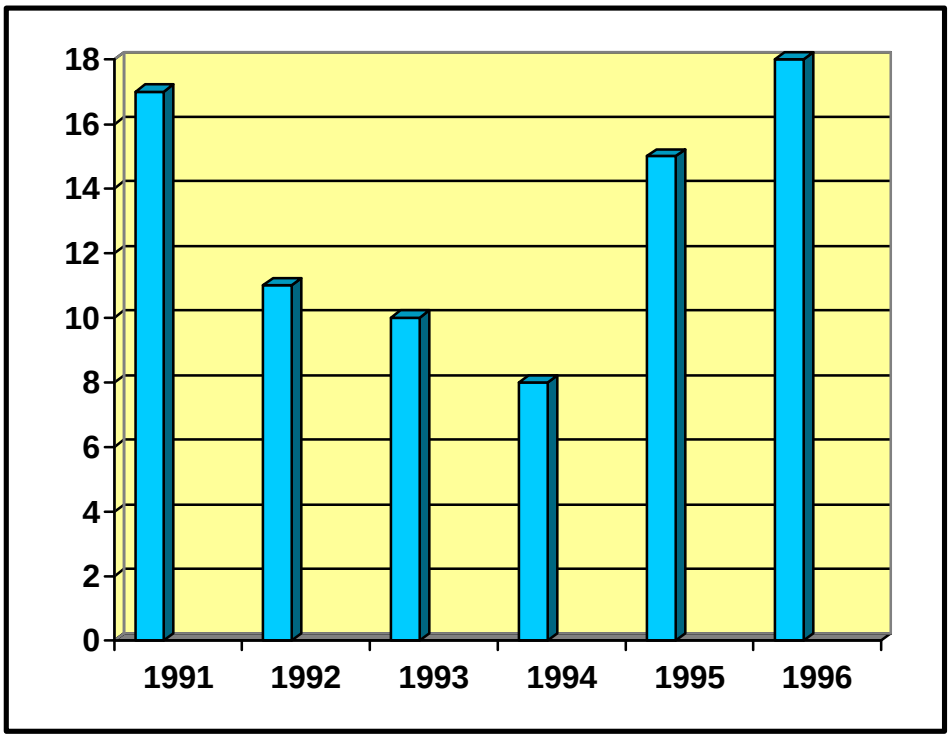
Billy Singleton

Editor's Note: This is the first of a series of articles on collision avoidance. The remaining articles of this series will be included in future issues of Sailplane Safety.

COLLISION AVOIDANCE – A DIFFERENT PRESPECTIVE

Last year, the Federal Aviation Administration announced a new program developed to increase safety in all areas of aviation operations. The mandate of this program, called *Safer Skies*, is to significantly reduce the most common types of aviation accidents. To achieve this goal, the FAA will establish new pilot education programs, implement additional pilot certification requirements, and enhance many of the services available to pilots.

While the Safer Skies initiative focuses on several different areas of aviation safety, one of the most compelling is the problem of collision avoidance. Following a steady decline since the beginning of the decade, the number of mid-air collisions involving general aviation aircraft have begin to increase again in recent years. During 1996, for example, 31 general aviation aircraft were involved in 18 mid-air collisions. These accidents resulted in 18 fatalities. For comparison, 8 mid-air collisions were recorded in 1994, six of which resulted in 18 fatalities.



The number of gliders involved in mid-air collisions is equally sobering. According to the *Soaring Safety Foundation Accident Study 1981 – 1996*, 28 mid-air collisions involving gliders occurred during this 16-year period. Two additional mid-air collisions have been reported since the study was concluded. While this statistic alone represents a very

disturbing aspect of the safety of our sport, it is difficult to fully appreciate the magnitude of the problem until the number of fatalities resulting from these accidents is considered. Although mid-air collisions represented less than six percent of the total number of accidents during the period, the resultant loss of life constituted approximately 10 % of the total number of fatalities.

At first glance, it would be tempting to attribute the number of mid-air collisions involving gliders to the fact that gliders routinely fly in close proximity to each other while thermalling. Although this has been a factor in the past, it is important to understand that in recent years a new trend has begun to emerge. In the last decade, the number of collisions and near mid-air collisions involving gliders and powered aircraft has continued to increase. In fact, one of the first soaring accidents of 1999 was the result of a collision of a tow plane and a glider. Tragically, three lives were lost in this collision. This accident occurred less than six months after a powered aircraft and a glider collided on the final approach to a general aviation airport in another state. Remarkably, no one was injured in the accident.

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Without question, collision avoidance will be one of the most compelling safety issues for the future of our sport. As the national airspace system becomes more complex and the amount of airspace available for recreational aviation continues to decline, more and more aircraft will be squeezed into an increasingly limited area, further increasing the potential for mid-air collisions to occur.

Many articles and presentations relating to collision avoidance direct the attention of the audience to topics such as how the limitations of the human eye contribute to the potential for mid-air collisions and the importance of proper scanning and clearing techniques. While each of these subjects is very relevant to the discussion of collision avoidance, another equally important topic is often overlooked. The knowledge of when a mid-air collision is most likely to occur is one of the most important components of a collision avoidance strategy.

While few pilots will deny that the possibility of a mid-air collision is real, the challenge is to understand that this type of accident can occur on any given flight. Think for a moment about the typical soaring flight. Because soaring is generally a recreational activity, a majority of our soaring activity occurs on weekends and in weather which allows the pilot to comply with the regulations pertaining to visual flight rules. It should also come as no surprise that a large percentage of soaring operations are conducted within a close proximity of the departure airport.

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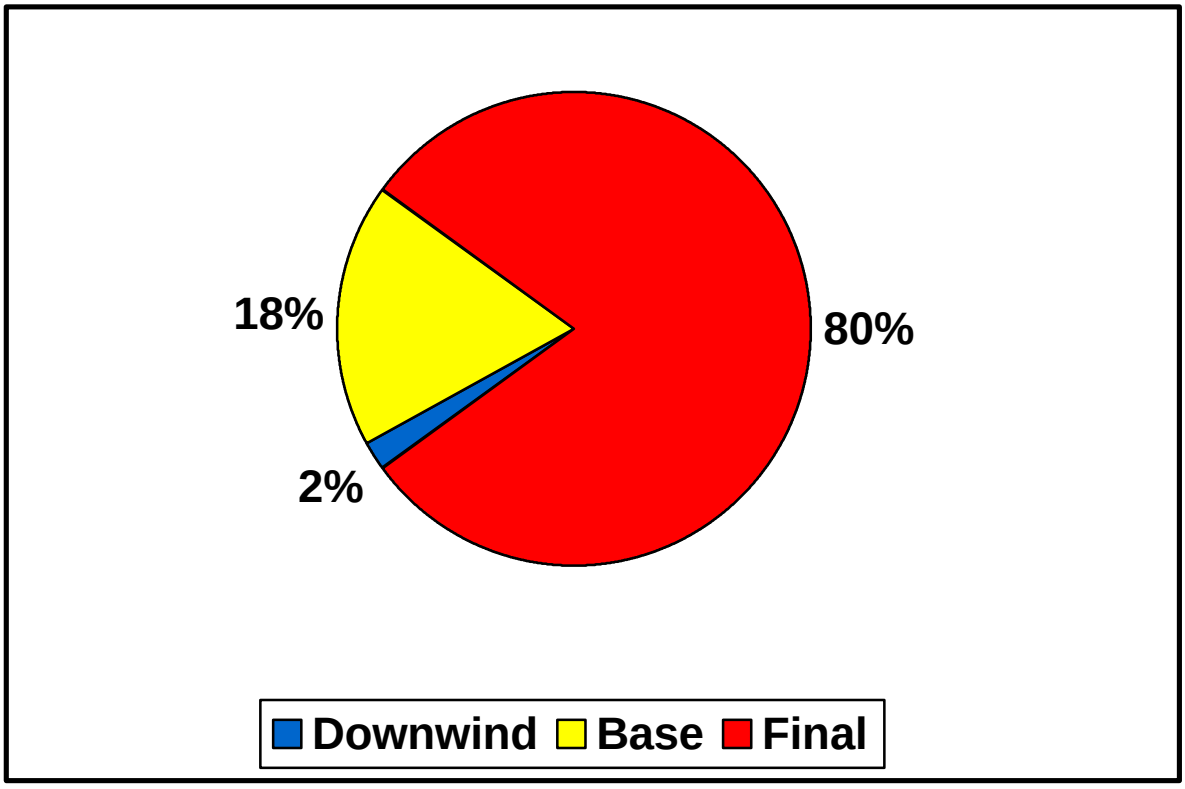
Would it be a surprise to learn that the conditions just described are also the most favorable for a mid-air collision? A recent study by the AOPA Air Safety Foundation revealed that mid-air collisions occur primarily on good VFR days, at low altitude, and close to airports. In fact, the study indicated that approximately 80 percent of the mid-air collisions studied occurred within 10 miles of an airport. Furthermore, almost one-half of all mid-air collisions occur in the traffic pattern or on approach to or departure from a non-tower airport. Perhaps the most important point relating to the risk of a mid-air collision is the fact that 80% of all collisions in the traffic pattern occur on the final approach to landing.



It is not difficult to understand why the number of collisions on the final approach segment of the traffic pattern is so disproportionate. First, consider the small parcel of airspace on the final approach that each aircraft must transition to land on a specific area. A second significant factor is the amount of attention that a pilot devotes to properly planning the turn to final approach and where that attention is directed. Without question, a majority of the pilot's visual attention is devoted to either the landing area or to the glider's flight instruments. Consequently, the more time a pilot devotes to concentrating on the landing area or the flight instruments, the less time there is available to scan for traffic, further increasing the potential for a mid-air collision.

For flight instructors, the risk of mid-air collision is even greater. First, the division of attention required in flight training reduces the opportunity for the flight instructor to adequately scan for conflicting traffic. Additionally, training flights typically spend more time in the traffic pattern, a second factor that increases the potential for a collision with another aircraft.

To review, the risk of being involved in a mid-air collision increases dramatically when a glider is operated at low altitude and in close proximity to a non-tower airport. *This is especially true in the traffic pattern and, most notably, on the final approach to landing.* While the potential for a mid-air collision is substantially greater when operating in the traffic pattern, it is important to stress that an element of risk exist anytime gliders are flown in close proximity to other aircraft, when thermalling for example.

The Threat of a Mid-air Collision Increases Dramatically

- ***During VFR Weather***
- ***Below 3,000 Feet AGL***
- ***Within 10 Miles of a Non-tower Airport***
- ***During Weekends***
- ***Transitioning To /From the Traffic Pattern***
- ***Primarily in the Traffic Pattern***

Identifying the periods of greatest risk is the only the first step in developing an effective collision avoidance strategy. In the next of this series of articles, some of the problems associated with the see and avoid concept of collision avoidance will be addressed. The final submission of this series will offer some suggestions as to how to make see and avoid a more effective way to reduce the likelihood of a mid-air collision.