SOARING SAFETY FOUNDATION

2004 SAFETY REPORT

SOARING SAFETY FOUNDATION
ANNUAL SAFETY REPORT
2004

In 1980, the Soaring Society of America (SSA) mandated the Flight Training and Safety Board to conduct a review of soaring safety in the United States. The information obtained would be used to develop methods and techniques to promote safety in soaring through pilot education, program development, information dissemination, and participation in areas of general aviation safety pertinent to soaring. A Safety Task Force was formed to collect all available information and to report those findings to the SSA Board of Directors and the soaring community. In 1985, this mandate was assumed by the newly created Soaring Safety Foundation (SSF). This 2004 SSF Safety Report is a product of that mandate.

The compilation and dissemination of accident data have become one of the Soaring Safety Foundation's most important functions. Analysis of this information is crucial because it allows the SSF to identify and evaluate emerging accident trends within the soaring community. It also focuses accident prevention resources on specific problem areas that have a negative impact on the safety of our sport.

Accident data included in this report was obtained from two primary sources: the National Transportation Safety Board (NTSB) accident reports and the Federal Aviation Administration (FAA) daily reporting system. These sources were selected because of the specific reporting requirements specified in the Code of Federal Regulations NTSB Part 830. Although it would be ideal to include all accident and incident reports involving gliders, it becomes extremely difficult to confirm accurate reporting from the various entities involved. Consequently, the SSF elected to take advantage of the standardized reporting requirements of NTSB Part 830 to develop its data base of soaring accident information. This data base is then used to develop accident prevention strategies and to continuously improve training methods to reduce the number of soaring accidents.

The information contained in this report represents data compiled by the SSF and reported in **Soaring** Magazine, **Sailplane Safety** newsletter, Flight Instructor Refresher Clinics, at pilot safety seminars, and on the **SSF web site**.

The Trustees of the Soaring Safety Foundation sincerely hope that this report and the publication of accident data are beneficial in assisting members of the soaring community in developing a greater awareness of current issues and emerging trends in soaring safety.

Additional copies of this report may be obtained from the Soaring Safety Foundation web site http://www.soaringsafety.org. Select the "Accident Prevention – SSF Reports" tab or write to:

Soaring Safety Foundation
26260 W. Airport Rd.
Minooka, IL 60447
grauchyhusband@cs.com

THE SOARING SAFETY FOUNDATION

The Soaring Safety Foundation (SSF) was founded in 1986 for the purpose of promoting soaring safety through pilot education, program development, information dissemination, and participation in areas of general aviation safety pertinent to soaring. The stated goals of the SSF are to reduce the accident rate in soaring and to make soaring as safe as a sport can be.

The scope of the SSF includes all activities of the Soaring Society of America relating to the subjects of flight training and safety. The SSF is responsible for the development and maintenance of the ABC Training Program, appointment of SSA Instructors, review of soaring flight training manuals, development of procedures, accomplishment of specific programs, data compilation and review, and dissemination of information relating to flight training and the promotion of soaring safety.

One of the most important functions of the SSF is the dissemination of safety information to the soaring community. To meet this responsibility, the SSF obtains accident data from the National Transportation Safety Board and the Federal Aviation Administration. The SSF distributes that information through various means including Sailplane Safety and the SSF web site. Information of a time critical nature may be disseminated through the issuance of a *Safety Alert* to inform pilots of potential aircraft or operational safety issues.

Funding for the SSF is obtained through donations from individuals and organizations interested in the promotion of soaring safety. These funds are then used to develop and promote programs such as soaring safety seminars, flight instructor refresher clinics, posters, safety-related articles in *Soaring* Magazine, the SSF web site, and the newsletter of the SSF, *Sailplane Safety*.

SOARING SAFETY FOUNDATION TRUSTEES

Richard Carlson - Chairman

Burt Compton

Gene Hammond

Bernald Smith

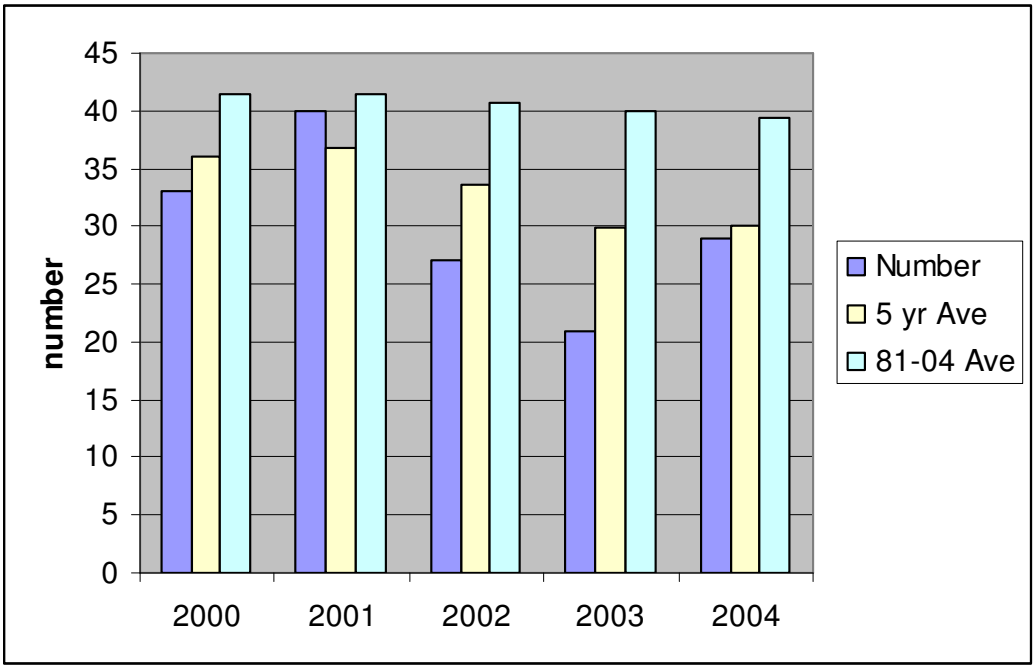
Robert Wander

TABLE OF CONTENTS

2004 ACCIDENT SUMMARY

NUMBER OF ACCIDENTS

For the twelve month period ending December 31, 2004, 29 glider accidents meeting the reporting requirements of Part 830 of the Code of Federal Regulations were reported to the National Transportation Safety Board. The number of accidents reported during 2004 represents a decrease of 6.5% from the 31 accidents reported for the previous year. The five-year average for the 2000 – 2004 reporting period is 30.0 accidents per year. This represents a slight increase from the 29.8 accidents per year average for the previous five-year reporting period.

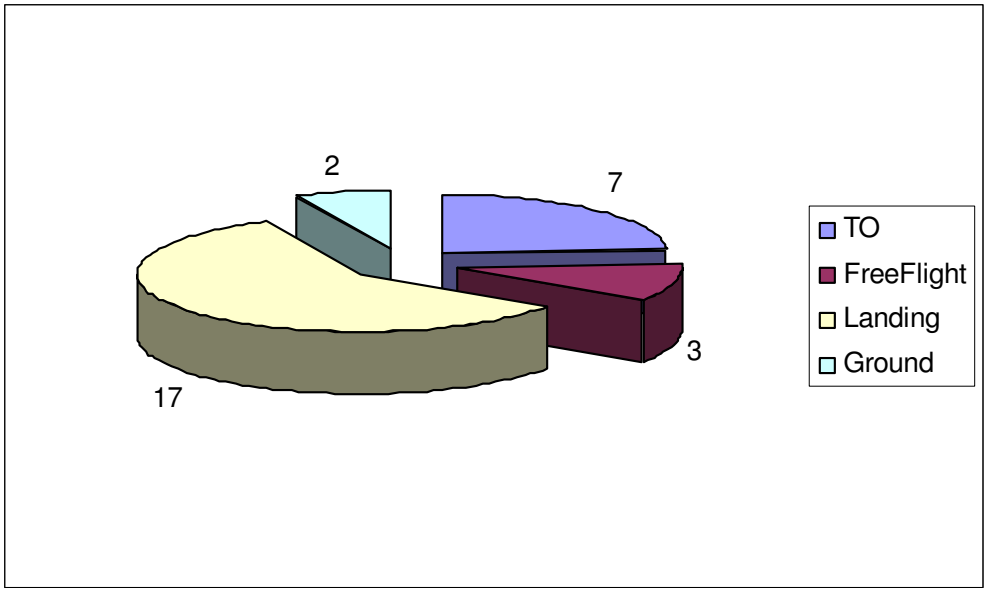


Summary of Soaring Accidents
2000 – 2004

Since 1981, the first year in which the Soaring Society of America mandated the Flight Training and Safety Board to review the safety record of gliding in the United States, the average number of accidents per year has continued an overall decrease. For example, 52 glider accidents were reported in 1981, the first year glider accident data was compiled for comparative purposes. Since that time, the average number of yearly accidents has continued to decrease to the present rate of 38.1 accidents per year.

While the average number of accidents has shown a steady decline since 1981, the number of fatal accidents continues at an unacceptably high level. The average has remained just over 6 fatalities per year since the mid 1990's. In the 2004 reporting period 8 accidents resulted in fatal injuries to the pilot. All aircraft used in glider operations, e.g., gliders, motor gliders, and tow planes were involved in these accidents. In addition to the eight fatalities, Four pilots received serious injuries and eighteen pilots received minor or no injuries during the 2004 reporting period.

PHASE OF FLIGHT



Number of accidents that occur in various Phase's of Flight

The number of accidents that occur during the approach and landing phase of flight again far surpass those recorded during any other phase of flight. For the year, approach and landing accidents attributed to approximately 59% of the total number of accidents reported for the year. This percentage represents a slight increase from the 55% recorded during the 2003 reporting period. Takeoff accidents account for just over 24% of the number of accidents, meaning that over 83% of the number of accidents occur in the takeoff and landing phase of flight.

It should come as no surprise that a majority of accidents occur during takeoff and landing, where the tolerance for error is greatly diminished and opportunities for pilots to overcome errors in judgment and decision-making become increasingly limited. This trend coincides with a 1985 National Transportation Safety Board study initiated to determine the phases of flight in which aircraft accidents are most likely to occur. The study concluded that approximately 60% of all aircraft accidents occur during the first two minutes or the last four minutes of the average flight, even though these flight phases typically account for less than 16% of actual flight time.

In the 2004 reporting period, three accidents were reported during the in-flight phase.

The first accident occurred when the pilot of a DG-400 collided with a Libelle H-201 while ridge flying along Mount Wheeler. The two gliders had been flying single file along the ridge, with the pilots in radio contact, when the lead glider (the DG) performed a 360 deg turn. The Libelle pilot was distracted and lost sight of the DG until just before the collision occurred. The DG pilot received fatal injuries while the Libelle pilot received minor injuries after exiting the glider and deploying his parachute. *NTSB SEA04LA063A and SEA04LA063B*

The pilot of a Scimitar was fatally injured when the glider impacted trees on a ridge line. The pilot flew into a canyon formed by two ridgelines and the glider apparently spun into the trees. No mechanical malfunctions were reported with the aircraft prior to the accident. *NTSB IAD04LA022.*

The pilot of a Carat A motor glider was fatally injured after the aircraft suffered an in-flight breakup while flying in IFR conditions. Witnesses reported hearing a loud bang and looked up to see pieces of the glider falling out of the base of the clouds. The pilot held an ATP rating, but the glider was not equipped with gyro instruments. *NTSB LAX05LA014.*

TAKEOFF ACCIDENTS

Premature termination of the tow (PT3) again accounted for the all of the glider takeoff accidents that occurred during the 2004 reporting period. No common factors link any of these accidents.

The pilot of an ASW-20 was fatally injured following a rope break at 300 ft. The glider entered a steep dive and impacted the terrain while attempting to return to the runway. *NTSB LAX04LA203*.

The pilot of another ASW-20 was uninjured, but the glider was substantially damaged following the loss of pitch control due to a disconnected elevator. The pilot claimed he completed a positive control check, despite the fact that a second person was not available to help with this check. *NTSB CHI04CA090.*

A SGS 2-33 was substantially damaged after the glider struck a fence during a simulated rope break. The private pilot and Designated Pilot Examiner were not injured in this accident. *NTSB CHI04CA200.*

The Soaring Safety Foundation has long stressed the importance of proper use of checklists and the need to minimize distractions to ensure that critical safety of flight items are accomplished prior to takeoff. Additionally, the SSF strongly encourages every pilot to develop and review an emergency plan prior to every takeoff. Finally, but most importantly, it is critical for pilots to understand that a pilot's most basic responsibility is control of the aircraft. Regardless of the circumstances, FLY THE AIRCRAFT!

LANDING ACCIDENTS

Accidents occurring during the landing phase of flight again accounted for a majority of injuries to pilots and damaged or destroyed gliders. For the 2004 reporting period, gliders hitting objects on final or during the landing roll accounted for the majority of these landing accidents. This was followed closely by stall/spin, land short, and hard landing accidents. The majority of the reported land short accidents occurred at the completion of local flights at the pilot's home airport.

The pilot of an SZD Jantar was not injured following a collision with trees while attempting to reach a safe landing area. The pilot intentionally flew over un-landable terrain to reach a small airport. Upon reaching 300 ft the pilot realized that he would not reach his destination. The glider was substantially damaged in the ensuing off-airport landing. *NTSB SEA04LA079*.

The pilot of a Caproni A-21 was uninjured following a collision with tree stumps during an off-airport landing. The commercial pilot was conducting an early morning test flight when clouds formed at 1,100 ft AGL. The pilot maintained VFR cloud separation and descended to cloud base approximately 1 mile from the airport. At 700 ft the pilot determined that he could not make the airport and began looking for an alternate landing site. The glider rolled about 40 ft before striking tree stumps in the selected field. *NTSB MIA04CA090.*

The pilot and passenger of a SZD-50-3 were uninjured following an in-flight collision with a tree while on final approach to the local runway. The pilot allowed the glider to drift to the right of the runway centerline and the right wing struck a tree while approximately 15 ft above the ground. The glider was substantially damaged in this accident. *NTSB LAX04CA270.*

Accidents during the Approach and Landing Phase of Flight

The pilot of a SGS 1-26E was seriously injured follow a collision with a tree while executing an off-airport landing. The pilot elected to land in a new housing construction area. The glider was substantially damaged after it bounced over a street curb and struck a tree during the landing roll. *NTSB DFW05CA004***.**

The instructor and student pilot were uninjured following an off-airport landing on a local instructional flight. The glider was towed to a height of 1000 ft AGL and 2 – 3 miles east of the airport. The glider was unable to return to the airport and the instructor elected to execute an off-airport landing. Strong sink was encountered on the downwind side of some trees causing the glider to land hard. The SGS2-33A was substantially damaged when the right wing struck the ground during the landing sequence. Winds were reported to be from 330 at 11 kts with gusts to 18 kts. *NTSB CHI04CA102.*

The pilot of a Salto was seriously injured following a collision with tall grass while attempting to perform a 180 deg turn. The pilot was on a local flight and determined that she could not return to the departure airport. While on final for an off-airport landing site the pilot determined that she was landing with a 10 kt tailwind. The pilot attempted to reverse direction and the left wing caught the tall grass causing the glider to cartwheel into the ground. *NTSB SEA04LA092*.

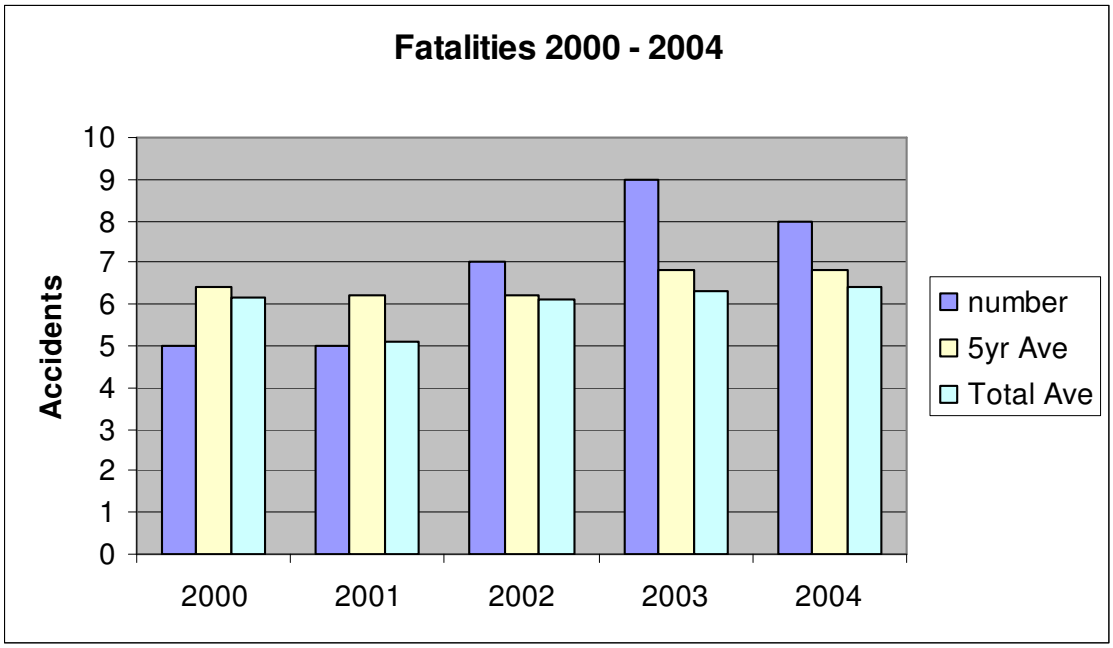
The commercial pilot received serious injuries while his passenger received minor injuries when the right wing of their Blanik L-13 contacted the ground while attempting to perform a 180 deg

turn. The pilot elected to perform a low approach over the field and gained only 100 ft following a pull up at the approach end of the runway. The glider cartwheeled when the right wing struck the ground while attempting to turn around to land on the runway. *NTSB DEN04CA085.*

The remaining landing accidents include problems associated with stall/spin, hard landings, under-shoots, and over-shoots.

FATALITIES

Eight individuals were fatally injured participating in glider operations during the 2004 reporting period. This represents a slight decrease from the nine fatalities reported for the previous year. Six of the individuals fatally injured in accidents in 2004 were piloting a glider. Two pilots received fatal injuries while operating motor gliders for a 100% fatality rate. The final two fatalities of 2004 occurred when tow-planes crashed during aero-tow launch operations.



Summary of Fatalities
2000 – 2004

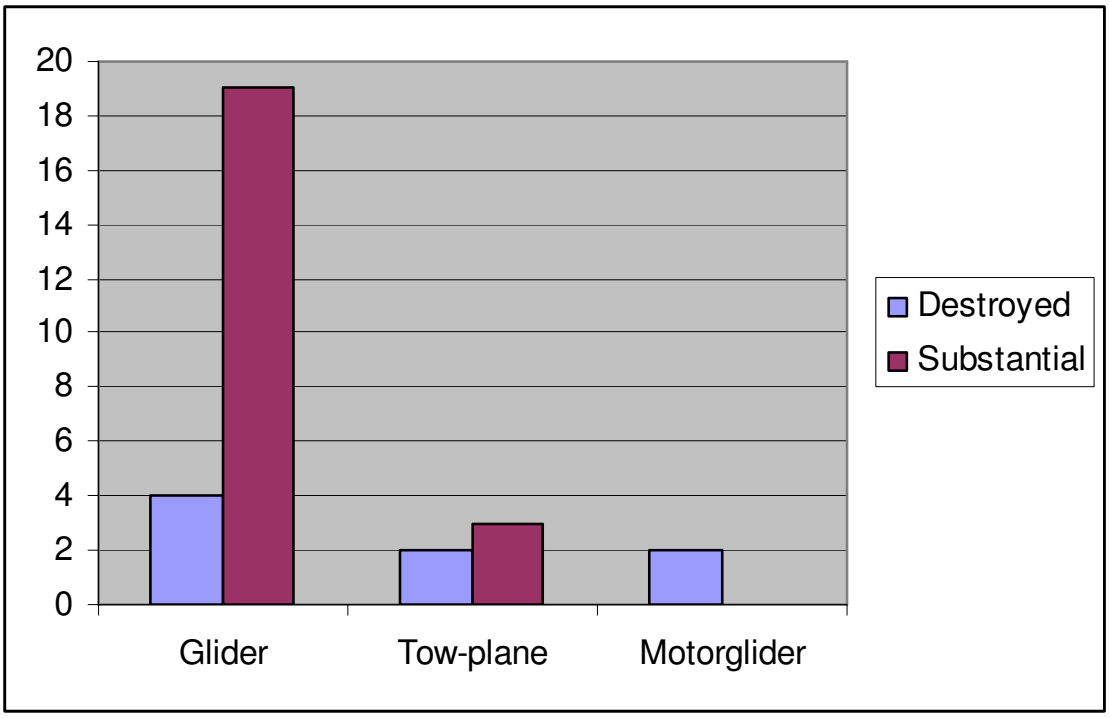
Serious injuries to individuals participating in glider operations increased slightly from the previous reporting period. Minor injuries to individuals involved in accidents did decrease significantly.

For the five-year period 2000 – 2004, 31 fatalities have been recorded. This equates to a five year average of 6.8 fatalities per year. Thus the number of fatalities per year remains constant from the previous five-year period that ended last year. While the 5 year average is down from the initial rate of 7.2 fatalities per year recorded in 1991, the long term trend is not encouraging. In addition, while the number of accidents is decreasing, the number of fatalities is remaining constant.

An analysis of the accident data in the 2004 reporting period shows that stalls and stall/spin events were a causal factor in 75% (6 of 8) of the fatal accidents. One motor glider with an ATP rated pilot, two tow planes with Commercial rated pilots, and three gliders with Private rated pilots were involved in these accidents. Every glider and tow plane pilot must evaluate their operation to help reduce the number of fatalities. Remember the old adage - aviate, navigate, communicate.

DAMAGE TO AIRCRAFT

Four gliders were reported destroyed and nineteen gliders received substantial damage as a result of accidents in the 2004 reporting period. Two tow planes were reported destroyed and three tow planes received substantial damage and two motor gliders were reported as destroyed.



Damage to Aircraft

AUXILIARY-POWERED SAILPLANES

For the twelve month period ending December 31, 2004, two accidents involving auxiliary powered sailplanes were reported to the National Transportation Safety Board. Both pilots received fatal injuries and both aircraft were destroyed during these accidents. This represents a decrease in the number of accidents when compared to the previous year, but an increase in the number of fatalities.

The pilot of a Carat A motor glider was fatally injured after the aircraft suffered an in-flight breakup while flying in IFR conditions. Witnesses reported hearing a loud bang and looked up to see pieces of the glider falling out of the base of the clouds. The pilot held an ATP rating, but the glider was not equipped with gyro instruments. *NTSB LAX05LA014.*

The pilot of a TST-10 M motor glider was fatally injured when the aircraft struck the ground in a nose down attitude. The pilot had received a field check in a Blanik L-13 and then flew his Czech build TST-10 for approximately 3 hours and 10 minutes before attempting his 2nd landing at this gliderport. Witnesses reported that the private pilot turned downwind / base early. The glider pitched up and the spoilers were retracted when the glider crossed over the landing threshold. The glider started a right turn, and then began a left turn when it pitched down and impacted the terrain. NTSB SEA04FA111.

ACCIDENTS BY SSA REGION

A comparison of the geographic locations of accidents in relation to SSA Regions tends to reflect the geographic distribution of the SSA membership. In general, those regions having the greatest populations of SSA members and soaring activity tend to record the highest numbers of accidents.

SSA REGIONS

Region 1 Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont.

Region 2 New Jersey, New York (south of 42nd parallel), Pennsylvania (east of 78th meridian).

Region 3 New York (north of 42nd parallel), Pennsylvania (west of 78th meridian).

Region 4 Delaware, District of Columbia, Maryland, Virginia, West Virginia.

Region 5 Alabama, Florida, Georgia, Mississippi, North & South Carolina, Tennessee, Puerto Rico, The Virgin Islands.

Region 6 Indiana, Kentucky, Michigan, Ohio.

Region 7 Illinois, Iowa, Minnesota, Missouri (east of 92nd meridian), North & South Dakota, Wisconsin.

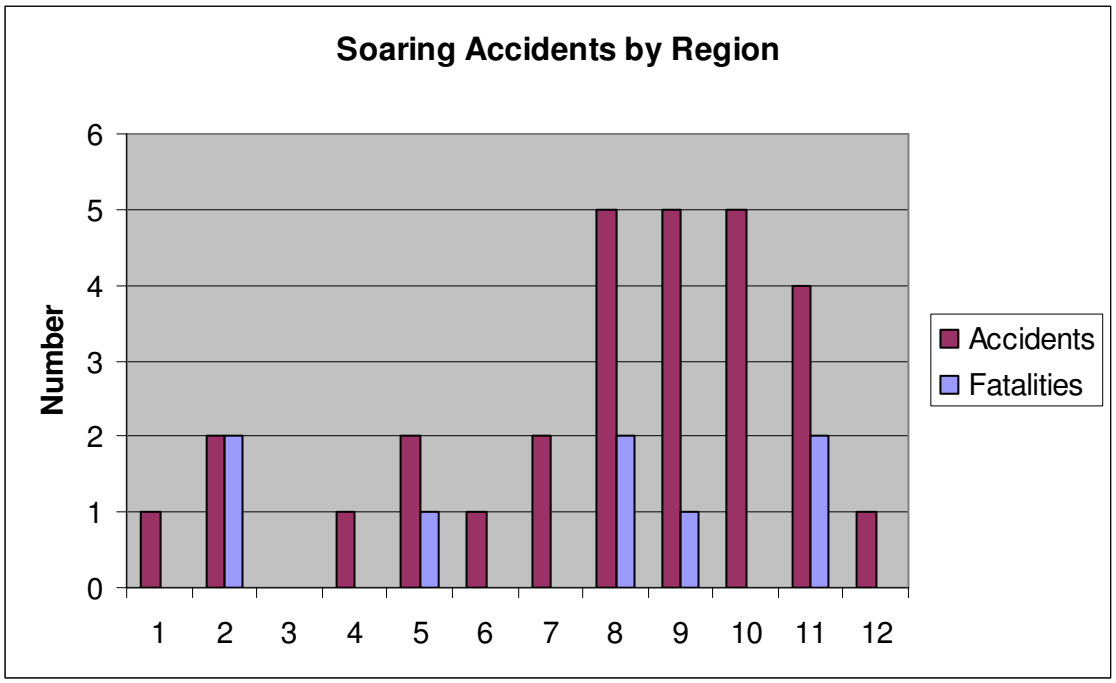
Region 8 Alaska, Idaho, Montana, Oregon, Washington.

Region 9 Arizona, Colorado, New Mexico, Utah, Wyoming.

Region 10 Arkansas, Kansas, Louisiana, Missouri (west of 92nd meridian), Nebraska Oklahoma, Texas.

Region 11 California (north of 36th parallel), Guam, Hawaii, Nevada.

Region 12 California (south of 36th parallel).



Accidents by SSA Region

ACCIDENTS INVOLVING TOW AIRCRAFT

During 2004, five accidents involving tow aircraft occurred during the take-off phase of flight. As a result of these accidents, two pilots were fatally injured, two pilots received no injuries, and one pilot and one passenger received minor injuries. Additionally, two tow aircraft were destroyed and three were substantially damaged during these events.

A Piper Pawnee (PA-25-235) was substantially damaged and the commercially rated pilot received fatal injures when the aircraft stalled and spun during the initial portion of a tow operation. The glider pilot reported that shortly after lift-off the tow plane pitched to a nose high attitude. The glider attempted to follow the tow plane, but released a short time later when it became difficult. Witness on the ground reported seen the tow plane enter a multi-turn right hand spin before impacting the terrain. The glider successfully landed back at the glider port. *NTSB LAX04LA240.*

A Cessna 182C was destroyed and the commercially rated pilot received fatal injuries when the aircraft impacted a quarry during an aborted aerotow operation. The student glider pilot reported that the rope went slack at an altitude of 30 ft and again between 150 and 200 ft. The glider pilot then release and returned to the gliderport for a successful landing. The glider pilot reported seeing the left wing drop slightly after he released. The tow plane struck 50 ft trees and impacted in a quarry about ½ miles from the departure end of the runway. *NTSB NYC04FA137.*

A Cessna 305A (L-19) was destroyed by a post crash fire following an aborted glider launch. The glider released after traveling approximately 350 ft, the L-19 continued on and exited the left side of the runway, traveled another 100 ft through tall grass before becoming airborne. The L-19 was unable to clear trees located another 250 ft along the flight path. *NTSB CHI04CA218.*

A second Cessna 305A (L-19) received substantial damage when it collided with a Grob G-103A. The Grob was being prepared for flight while the L-19 landed on the runway. During the landing roll the left main landing strut fractured due to fatigue. The L-19 veered off the runway and hit the parked Grob. *NTSB FTW04LA190.*

A PZL Wilga 80 was substantially damaged and the pilot and passenger received minor injuries when the tow plane nosed over during an aerotow launch. Witness reports indicate the glider may have kited on tow, raising the tow plane's tail and forcing it back onto the ground. *NTSB SEA04LA187.*

FLIGHT TRAINING AND SAFETY REPORT

As the 2004 statistics show, the majority of soaring accidents occur in the approach and landing phase of flight. For one reason or another, the pilot fails to make it the landing area. One long standing problem is the pilot's fixation on the need to reach the Initial Point (IP) to begin the approach. While making stable approaches is our goal, it is important to recognize that getting to the intended touchdown point is more important than reaching the IP. Flight instructors should promote a 'goal oriented' technique for teaching approach and landing patterns.

This 'goal oriented' technique requires the pilot, student or otherwise, to continuously evaluate the gliders altitude, position, speed, and direction to determine if it can successfully reach the intended landing spot. If that goal is in doubt, the pilot should change the glider's path or configuration to reacquire the goal. If it becomes impossible to reach the goal, a new landing spot should be selected and the process begun again.

Takeoff accidents, though rare, are particularly frustrating because they usually avoidable. Both glider and launch vehicle are sitting on the ground before the launch begins. Pilots can mentally prepare for an emergency and develop a specific set of action plans to deal with several contingencies. The task is then to execute the proper plan at the proper time. Flight instructors should continue to emphasize launch emergencies during flight reviews, club check rides and flight training.

Adding the letter "E" to the pre-takeoff checklist is a helpful reminder to concentrate on the emergency plan of action. Treating the wing runner as a member of the launch crew and using good Crew Resource Management (CRM) techniques can reduce the pilot's pre-launch workload. The wing runner can remind the pilot of the possibility of a launch emergency ("Are you ready for an emergency?") and be observant for various discrepancies such as: dive brakes left open, canopy unlatched, tail dolly left on, or positive control check not accomplished. Fixing any problem before beginning a launch will help reduce the take-off type of accident.

The tow pilot also needs special training to be alert for signs of potential trouble. Is the glider pilot being hurried? Are conditions too gusty; is there fuel in the tow plane? Is the takeoff area clear of people and other obstructions? Has the tow pilot added the letter "E" to the pre-takeoff checklist and is he/she prepared for an emergency? Tow planes need a good rear view mirror, one that is located close to the tow pilot. Radios are highly recommended. The 2004 statistics show an alarming number of tow plane accidents have occurred.

Flight instructors play an important safety role during everyday glider operations. They need to supervise flying activities and serve as critics to any operation that is potentially unsafe. Other

pilots and people involved with the flying activity also need to be trained to be alert to any safety issues during the daily activity.

The FAA has making an effort to include judgment training in flight training as well as flight testing. The FARs require that all flight instructors provide some kind of aeronautical judgment training during pilot training flights (student, private, commercial, and flight instructor). FAR 61.56 flight reviews offer the flight instructor an opportunity to reach the all of the glider pilot population on a continuing basis. Stressing judgment skills, as well as piloting skills, can help reduce the accident rate in the United States.

INTERNATIONAL SAFETY AND OPERATIONS

In 1983, the Soaring Safety Foundation hosted a meeting of the OSTIV Training and Safety Panel (TSP), then known as "the Coach's Clinic", during the SSA convention in Reno Nevada. This was the first time the SSF had been invited to attend the meeting of mostly European Chief Flight Instructors.

Since that time, a delegate from the SSF has represented the interests of the United States soaring community in several European cities including Belgium, Germany, Norway, and Sweden.

These meetings allow the SSF to listen to representatives from the member countries describe their operational data, accident data, and teaching techniques used to instill skills and safety in flying both pure gliders – winch or aerotow launched – or self-launched motor gliders.

Comparing standard U.S. and European teaching techniques and accident statistics gives SSF the opportunity to bring these data back to the instructors and students in the U.S. It also gives us some idea of how we are doing in the international theater. Over the years, the U.S. has suffered from a lack of reporting data (e.g., the number of operations per year) making it difficult to make a direct comparison with our European counterparts. Historically the SSF has used 500,000 launches per year as an estimate, which puts the U.S. about in the middle of the pack in accidents per flights statistics.

The SSF is currently developing a questionnaire, with the goal of obtaining more detailed operational data to improve our ability to compare the U.S. statistics with our European counterparts. This questionnaire will be posted on the SSF web site, look for it in the near future.

The next meeting TSP meeting will be held in August in Germany. SSF trustees Bernald Smith and Gene Hammond plan on attending. The results of this meeting will be posted in Soaring and on the SSF web site when it becomes available. We will also analyze and use this information in SSF clinics and safety seminars, and other SSF publications.

2004 NON-FLIGHT INSURANCE LOSSES

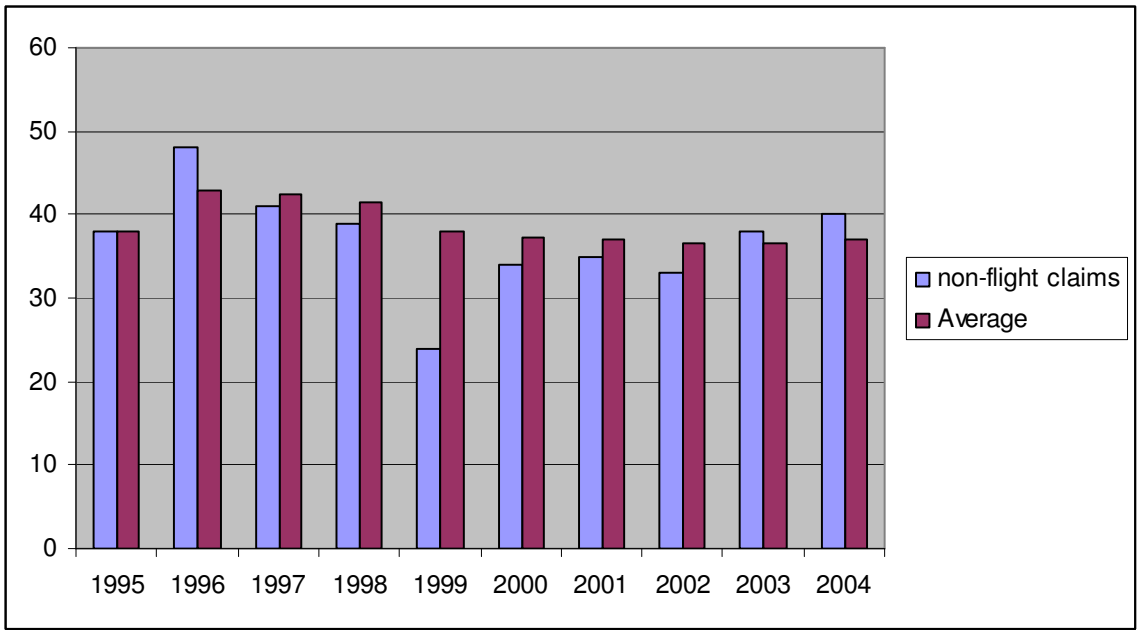
From information supplied to the Soaring Safety Foundation, we take note of non-flight claims (losses) in the SSA Insurance Program for 2004. These losses have been categorized to define the areas in which they occur. This data enables the SSF to focus efforts to address the safety factors involved, which could concomitantly reduce losses.

Non-flight is defined as *any glider activity not directly involving a phase of flight.* Non-flight losses include taxiing, towing by trailer, moving the glider by hand or towing by car / tractor from

one spot to another, regardless of whether the movement is in preparation for flight. Additionally, non-flight losses include ground damage to gliders due to weather (hail, etc.) while the aircraft is on the ground, theft / vandalism, or wind damage to canopies or aircraft structures regardless of whether is aircraft is tied down or not. Non-flight losses do not include the takeoff or landing roll.

Over the past five years, non-flight claims have averaged 36% (37% over the last 10 years) of the total amount of insurance claims Maybe you think non-flight losses are a not a major dollar loss. In 2004 the lowest non-flight loss was under $1000, the highest was over $50,000! The average non-flight loss was $8500. The 2004 non-flight dollar losses were 30% of the total dollar losses.

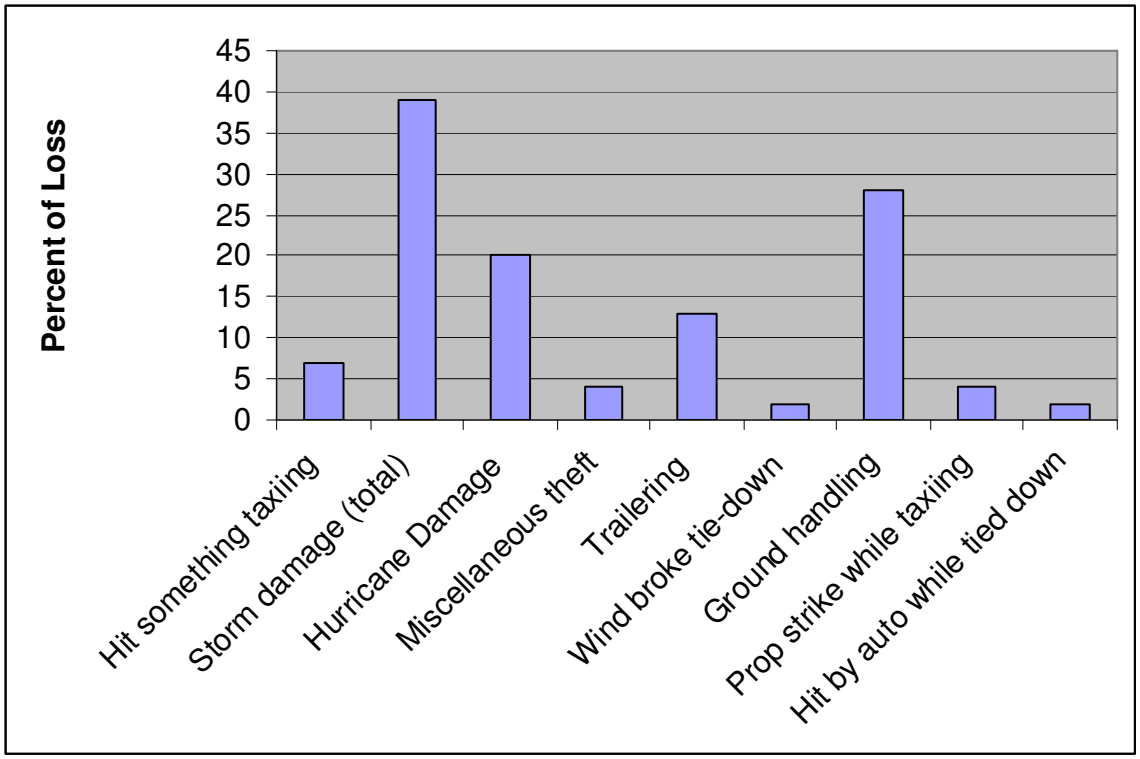
The most troubling aspect of non-flight losses is that damage due to carelessness during ground operations can result in gliders remaining out of service for long periods of time as required repairs are made. One point that should be emphasized is that contests are **not** a leading, nor even a major, source of insurance hull losses.



Percentage of non-flight to flight claims
1995 - 2004

One might surmise that storm damage is unpreventable. Why then were not all the aircraft destroyed and or damaged when the hurricane, thunderstorm or tornado came thru? One answer might be where the aircraft were stored when the storm hit. If possible, planning can help ensure that secure alternate locations can be found and aircraft moved to these locations before the storm hits.

Here are the 2004 percentages of different types of non-flight claims, compared to the total number of non-flight claims for 2004:



Specific reasons for Non-Flight Claims

APPENDIX A

NTSB PART 830

The responsibility for investigation of aircraft accidents in the United States was mandated by Congress to the National Transportation Safety Board (NTSB) through The Department of Transportation Act of 1966. This act tasked the NTSB with determining the probable cause of all civil aviation accidents in the United States.

From 1991 - 94, the general aviation community alone accounted for approximately 1,800 aircraft accidents per year. Due to this high level of investigative workload and limited available resources, the NTSB often delegates to the Federal Aviation Administration (FAA) the authority to investigate accidents involving aircraft weighing less than 12,500 pounds maximum certified gross weight. Consequently, many glider accidents meeting the NTSB reporting criteria are investigated by representatives of the FAA.

All aircraft accidents involving injury to passengers or crewmembers or substantial damage to the aircraft must be reported to the NTSB.

The terms used in this report to define injury to occupants and damage to aircraft are included in NTSB Part 830 of the Code of Federal Regulations.

Definitions

Aircraft - a device that is used or intended to be used for flight in the air.

Operator - Any person who causes or authorizes the operation of an aircraft.

Aircraft Accident - An occurrence associated with the operation of an aircraft which takes place between the time any person boards the aircraft with the intention of flight and all such persons have disembarked, and in which any person suffers death or serious injury, or, in which the aircraft receives substantial damage.

Fatal Injury - Any injury which results in death within 30 days of the accident.

Serious Injury - Any injury which:

1) Requires hospitalization for more than 48 hours, commencing within 7 days from the date the injury was received;
2) Results in the fracture of any bone except simple fractures of fingers, toes, or nose;
3) Causes severe hemorrhages, nerve, muscle, or tendon damage;
4) Involves any internal organ; or
5) Involves second- or third-degree burns, or any burns affecting more than 5 percent of the body surface.

Minor Injury - Injury not meeting the definition of fatal or serious injury.

Substantial Damage - Damage or failure which adversely affects the structural strength, performance, or Flight characteristics of the aircraft, and which would normally require major repair or replacement of the affected component. Engine failure or damage limited to an engine if only one engine fails or is damaged, bent fairings or cowling, dented skin, small punctured holes

in the skin or fabric, ground damage to rotor or propeller blades, and damage to landing gear, wheels, tires, flaps, engine accessories, brakes, or wingtips are not considered substantial damage for the purpose of this part.

Destroyed - Damage to an aircraft which makes it impractical to repair and return it to an airworthy condition. This definition includes those aircraft which could have been repaired, but were not repaired for economic reasons.

Minor Damage - Damage to an aircraft that does not meet the definition of Substantial or Destroyed.

APPENDIX B

PHASE Of OPERATION

Ground Movement - Repositioning of the glider while on the ground. To meet the definition of an accident, occupants must be onboard the glider and movement must be conducted immediately preceding or subsequent to a flight operation that demonstrates the intention of flight. This includes taxi operations of auxiliary-powered sailplanes.

Takeoff - Begins at initiation of the launch operation, including aero-tow, ground launch, and self-launch, and is concluded at the point the glider reaches the VFR traffic pattern altitude. For ground launch operations, the takeoff phase continues until release of the towline.

Assisted Climb - Begins at the conclusion of the takeoff phase or point at which an auxiliary powered sailplane or a sailplane using an aero-tow launch climbs above traffic pattern altitude. This phase of operation is not included in ground launch operations.

In-flight - Begins at the point of release of the towline for all launch types and concludes at the point of entry into the traffic pattern or landing approach pattern for an off-airport landing.

Approach/Landing - Begins at the point of entry into the traffic or landing approach pattern and concludes as the glider is brought to a stop at the completion of the ground roll.

APPENDIX C

ACCIDENT CATEGORY DEFINITIONS

Hit Obstruction - Accident occurring during a ground or flight phase as a result of the glider colliding with a fixed object. This classification does not include bird strikes or ground / in-flight collisions with other aircraft.

Ground Collision - Collision of two or more aircraft while being repositioned or taxied while on the ground.

Loss of Directional Control - Accident which occurs as a result of a loss of directional control of the glider during takeoff or landing operations while the glider is on the ground.

Premature Termination of the Tow (PT3) - Any event, pilot, mechanical, or otherwise induced, which results in a premature termination of the launch process. This classification includes ground, aero-tow, and self-launch.

Mechanical - An event that involves a failure of any mechanical component of the glider. This classification includes accidents that result from faulty maintenance or a failure to properly install or inspect primary flight controls. In-flight structural failures caused by fatigue of structural components or pilot induced overstress of the airframe are included in this classification category.

Loss of Aircraft Control - An accident which occurs as a result of the loss of control of the glider for any reason during takeoff, assisted climb, in-flight, or approach / landing. This classification includes failure to maintain proper tow position during assisted climb.

Mid-air Collision - A collision of two or more aircraft which occurs during the takeoff, assisted climb, in-flight, or approach / landing phase of flight. This classification includes collisions involving gliders and other categories of aircraft (airplane, rotorcraft, etc.).

Land Short - Any accident which occurs as a result of the glider being landed short of the physical boundaries of the intended runway or landing area. This classification includes off airport landing operations.

Land Long - Any accident which occurs as a result of the glider being landed beyond the physical boundaries of the intended runway or landing area. This classification includes off airport landing operations.

Stall / Spin - Any accident which results from the inadvertent stall and/or spin of the glider during takeoff, assisted climb, in-flight, or approach / landing phases of flight.

Hard Landing - Any accident caused by a hard landing during the approach / landing phase of flight.

Other – Any accident caused by factors not defined within the previous categories.