

# How Can We Reduce Glider Accidents?

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# Glider Accidents 2014

- Ground damage insurance claims
- NTSB glider accident reports
  - PT<sub>3</sub> events on takeoff
  - Landing accidents



# Ground Damage Claims

- Canopy damage
- Wingtip damage
- Tow vehicle incidents
- Wind damage



## PT3 Accidents - are you *really* prepared?

SGS 1-34, ATP & Comm. Glider, 26000 Hr TT

The pilot reported that during initial climb out, while under tow, the glider's canopy became loose. Despite his attempts he was unable to lock the canopy. As a result of trying to lock the canopy, he lost sight of the tow airplane so he elected to disconnect the tow rope about 300 feet above ground level. The pilot stated that he had to use his left hand to hold the canopy closed during flight and was unable to deploy the spoilers. Without use of the spoilers and a tailwind, the pilot aborted the approach due to the glider traveling too fast for landing so he turned right in an attempt to land on a perpendicular runway. During the landing, the glider encountered additional lift and bounced upon touchdown. The pilot elected to land off-field to the right of the runway. During the landing sequence, the right wing struck a tree and the glider landed hard, which resulted in substantial damage to the wings and fuselage. The pilot reported no preaccident mechanical malfunctions or failures with the glider that would have precluded normal operation. The pilot further reported that he failed to ensure the canopy was locked during the pre-takeoff inspection.

# PT3 Accidents – Do you think about all the scenarios?

Nimbus3, Comm. ASEL & Glider, 2782 Hr. TT

The glider pilot reported that he was to be towed by a tow plane and make a "no assist launch." (This was a Nimbus 3 with a CG hook) The glider's wings were loosely supported by wing stands and the tow rope was attached from the tow plane to the glider. When the slack was out of the tow rope, the glider pilot made a radio call "Go, go, go" to the tow pilot. The glider began to lift off from the grass runway when pilot noticed that the tow plane moved left laterally from what he assumed was a gust of wind. The tow pilot corrected back to the right and the glider pilot readied to do the same. When the glider entered the area of suspected wind gust, it suddenly ascended about 8 feet and the left wing lifted. The pilot applied full left aileron and left rudder and forward pressure on the control stick in order to descend and regain the correct flight path. The left wing continued to lift so the glider pilot released the tow rope as the glider made a 30 degree right turn. The glider exited the area of suspected wind gust and the glider pilot was unable to maintain directional control and the glider impacted the runway.



# Inadequate pre-takeoff check?

K-7, Private Glider, 132 Hr TT

The pilot reported that just prior to departing on the glider flight, an unsecured seat cushion was provided to his passenger in order to elevate his seating position and improve his view. After releasing from the tow plane, performing a 30-degree bank turn, and leveling the glider, the pilot was unable to move the control stick fully aft in the pitch axis. He attempted to troubleshoot the blocked flight control, and asked the passenger if he noted any obstructions, which he did not. During the subsequent forced landing, the pilot was unable to safely maneuver to the departure gliderport, and landed in an adjacent field where the glider struck a fence, which resulted in substantial damage to the fuselage. The pilot reported that his examination of the aft cockpit following the accident revealed the seat cushion had shifted during flight, blocked the control stick, and that the cushion's internal metal frame and the aft control stick displayed witness marks consistent with contact during flight.

# Yet another PT3 with additional causes?

Zuni, no other pilot information available

The tow pilot reported that takeoff was normal and shortly after beginning the climb, the pilot noticed a lightening of the control forces. Subsequently, the pilot determined that the glider had separated from the tow line about 100 feet, above ground level.

Examination of the accident site by National Transportation Safety Board (NTSB) investigators revealed that the glider impacted terrain about 350 feet east of the airport.

This was a fatal accident.





# Winch Launch PT3 - Stall/Spin

This was a winch launch which resulted in 2 fatalities.

For the accident flight, the glider was towed back to the launch position at the east end of runway 25, and connected to the towline. Due to the light wind and minimal lift conditions, the pilot's intention was to perform a flight within the immediate confines of the airport.

Multiple witnesses observed the launch sequence, reporting that the ground roll, rotation, and initial climb were uneventful. At an altitude of between 150 and 300 feet agl, the towline released from the glider; it then banked to the right, the nose dropped, and the glider began a right spin followed by a nose-down collision with the ground.

The glider came to rest about 1,200 feet beyond the initial launch position, on the adjacent apron, just north of the runway. The entire cabin area was fragmented through to the wing leading edges. Both wings remained attached at the aft fuselage, with the right wing sustaining upward bending damage at the tip.



# Landing accident - Glider on runway

Blanik L-23, CFG's doing training

According to the flight instructor of N400AZ, he and the student pilot landed the glider and came to rest on the centerline about 1000 feet past the threshold of the landing runway. As they were waiting for ground personnel to help remove the glider from the runway, they were struck from behind by the second glider. Both occupants of the glider exited without incident. N400AZ sustained substantial damage to the right wing, fuselage, and empennage. According to the flight instructor of N342BA, he and the student pilot landed just beyond the displaced threshold markers at the approach end of the runway. Both the flight instructor and the student applied "maximum braking" but were unable to stop the glider prior to impacting N400AZ. Following the impact, N342BA came to rest on the paved portion of the runway and both occupants egressed without incident. N342BA incurred substantial damage to left wing and fuselage. According to both flight instructors, they had performed numerous landings that day in their respective gliders, as part of the training requirements for the students. One of the flight instructors reported that prior to the accident the wind direction had changed from a quartering headwind to a quartering tailwind.

# Landing - Stall/Spin

Blanik L-23, Student Pilot, 33 Hr. TT

The student pilot was maneuvering the glider to land at the conclusion of a local solo flight. While turning to allow for spacing with another glider in the airport traffic pattern, the pilot “vaguely” recalled the glider entering an aerodynamic stall. The glider subsequently impacted a tree, resulting in serious injury to the student pilot and substantial damage to the glider. Two witnesses observed the accident glider in the traffic pattern, and both recounted that it entered a right spin before descending to ground impact. The pilot stated that the preflight inspection of the glider revealed no anomalies and that the glider performed normally throughout the flight. The pilot further stated that they felt nauseated the morning of the accident, had taken an over-the-counter decongestant medication, and was not properly hydrated before or during the flight.



# Slips to Landing and Attitude Control

SGS 1-26, Private ASEL, Solo Glider, 530 Hr TT

The pilot was conducting his second solo flight in the glider.

Witnesses reported that the glider appeared fast while maneuvering in the traffic pattern for landing. The pilot stated that the glider was high on final approach and he lowered the nose and attempted a slip maneuver; however, the glider touched down hard, beyond the mid-point of the 2,260 foot-long runway. It then bounced, became airborne, and was still flying too fast to land on the remaining runway. In an attempt to avoid obstacles that were located beyond the end and right side of the runway, the pilot maneuvered to the left and the glider subsequently impacted trees. The right wing separated and the left wing was substantially damaged.



# Sudden wind shift from a thermal?

JS-1, Private ASEL & Glider, 5000 Hr TT

The pilot reported that following an uneventful flight, he checked the weather at his destination airport, noting wind was from 220 degrees at 7 knots, gusting to 16 knots. The pilot initiated an approach to landing on runway 20, however, while on final approach, the glider began to descend rapidly and roll to the left. The pilot applied opposite control inputs and noted that the glider began to turn to the right prior to impacting terrain slightly downslope from the runway. Recorded weather observations at the airport about 23 minutes after the accident revealed that the wind was from 250 degrees at 11 knots, gusting to 18 knots.





# Landing – Inadequate supervision?

SGS 2-33, Private Glider Pilot, 1929 hours TT

During the local training flight, the flight instructor simulated a spoiler and altimeter failure while landing. The glider was high and fast and the pilot attempted to lose altitude by performing both side slips and S-turns while on final. The glider overran the runway and impacted trees at the departure end of runway 27 (2,800 feet by 150 feet, turf).



# Flight Review - Landing Accident

SGS 2-33A, Comm. Glider & CFGI, 1166 Hr. TT

The pilot and flight instructor planned on conducting a flight review in a glider, which was expected to take three flights. The first flight was the accident flight. After departure, the pilot performed several maneuvers behind the tow plane, to include 90-degree steep turns, before releasing from the tow plane. The pilot performed some additional maneuvers before descending to 1,500 ft agl in preparation to land. The flight instructor reported that he gave no specific instructions to the pilot for the landing. As the glider approached the runway, the pilot performed a forward slip with full rudder and full spoilers deployed. The pilot stopped the slip in order to clear trees at the end of the runway. After clearing the trees, the pilot resumed the slip with the spoilers still deployed. As the glider neared the ground, the pilot discontinued the slip. The flight instructor said that as the pilot came out of the slip, the glider's descent rate increased. The pilot made no attempt to flare the glider, which resulted in a hard landing. The instructor said that he was overly confident in the pilot's ability and let his guard down.





# Landing accident – Wind gradient?

ASH 26E, Private ASEL & Glider, 1177 Hr TT

According to the pilot, he was on a one mile final approach to runway 36 at 800 feet with the glider engine stowed. He noted that the wind was changing and extended the flaps. The airspeed was between 55 and 60 knots when the airbrakes were extended to start a descent. The altitude was high and the glider began to descend at a rapid rate. The pilot closed the airbrakes to arrest the descent rate but realized he was too low and unable to land on the intended runway. The glider collided with a tree, and a post-accident examination revealed that the left wing was substantially damaged.

# Misplaced Landing Priorities?

Grobe Twin II, Student Pilot, 5 Hr TT

The student pilot reported that during landing the glider touched down slightly left of the runway centerline.

He engaged the brakes and steered the glider towards the right side of the runway to prepare for a turn.

When he approached the taxiway entrance, he released the brakes and started to turn to the left.

During the turn the left wing struck a runway sign; the airplane made a sharp left turn, exited the runway surface and came to rest on the grass. During the accident sequence, the left wing sustained substantial damage.



# Conclusions

- PT<sub>3</sub> accidents
  - Do you conduct an adequate passenger briefing?
  - Do you use a pre take-off checklist?
  - Do you truly think about all the possibilities?
- Landing accidents
  - Are you proficient with slips?
  - Do you know fly the correct approach speed?
  - Do you get an adequate checkout in a new glider?
  - Do you understand how wind gradients effect glide angle on final?
  - Are you serious about your Flight Review?