

Loss of Control as a factor of Aerotow Takeoff Accidents
By Ron Ridenour, Soaring Safety Foundation Trustee

Over the last several years, a few of my friends have had takeoff accidents in a glider that have involved the "Loss of Control". The pilot of the first accident was tragically killed after releasing at a very low altitude. The pilot of the second accident suffered minor injuries and the pilot of the third accident had severe injuries from which he is recovering. I was not an observer of any of these accidents; however I did personally speak to the pilots of the second and third accidents. They have agreed to let me discuss their recall of the facts and what other witness pilots observed. I will only review the two most recent accidents in this article.

The second accident occurred during takeoff after the glider was airborne and the towplane was still on the ground. A SGS 2-33A had just landed and was reported to be just barely clear of the runway. However, some observers reported the wingtip the 2-33A may have been encroaching on the runway and that wingtip was in the air, not on the ground. The takeoff commenced, the accident glider lifted off and was airborne when it drifted to the left due to a gusty crosswind from the right and the left wing of the airborne glider struck the wingtip of the parked 2-33A. The airborne glider then spun to the left and impacted the ground nose down. At some point the towrope became disconnected and the glider continued down the runway in an uncontrolled spinning motion, shearing off one wing at the root and the glider fuselage ended up inverted. The towplane was not involved further in the accident. Fortunately, the pilot had only minor injuries; however the glider was totally destroyed. This accident occurred during a normal club operation, with only a few outside distractions.

The third accident occurred during a glider contest. Glider contest tows are unique in that the towplane does not stop after the towline becomes taut; it immediately starts its takeoff roll. This technique demands that the glider pilot be fully ready to launch when the towline is hooked up. During the initial part of the tow, the pilot reported that the wing runner may have held back on the left wing of the glider to better align it with the runway, however when the wingtip was released it dropped to the ground and the glider veered toward the left side of the runway. Another factor, which was made by an observer from behind the glider taking off, was that the wake of the towplane was angled toward the right wing of the glider during the initial takeoff roll. This could have caused more lift on the right wing from the propwash of the towplane and lifted the right wing. The glider had a CG hook. The pilot reported that when he noticed the glider veering to the left and off the runway that he tried to release from the tow, but his hand, which was sweaty, slipped off the release handle and it took an extra second or two to find the handle and make the release. After releasing the tow, the pilot's attempt to stop before hitting a truck parked next to the runway was unsuccessful. The glider was pointed at about a 30 degree angle away from the centerline of the runway and was traveling at a significant rate of speed, partially due to the increased angular velocity. The glider was totally destroyed and the pilot had severe injuries. I can't fault the glider pilot for not seeing the truck beforehand. I was in the same contest where this accident occurred and the truck was in the same position when I accepted my tow just a few minutes before the accident tow, and to be quite honest I don't remember even considering it a threat but I think I should have.

"Loss of Control" is one of the threats the FAA has identified as a major cause of aircraft accidents. In both of these accidents the pilot had a loss of control of the glider that directly led to the accident. The second accident loss of control was caused by a gusty crosswind and a delay in correcting for that wind. This caused the glider, once airborne, to drift downwind and strike the parked glider. The third accident loss of control was caused by the wingtip dragging on the ground and the fact that the CG hook does not help the pilot straighten out the takeoff roll. The pilot tried to immediately release but that was delayed due to the fact that his hand slipped off the release handle. I paced out the total distance from the start

of the takeoff to the impact and it was only 375 feet, less than two lengths of the tow rope. The entire event happened in a matter of a few seconds! The pilot was able to slightly raise the dragging left wing about 100 feet before the impact as evidenced by the fact that the drag mark in the grass disappeared about that time. The loss of control combined with the proximity of the obstacles to the runway was the direct cause of these accidents. The truck was parked about 25-30 feet off the edge of the runway and was not incurring on the runway.

For many years now, scenario based training has been encouraged by the FAA and the Soaring Safety Foundation as an effective teaching tool. The “What If” scenarios are an important way to train pilots to consider all contingencies. In the second accident, the “What If” would be what if the crosswind is stronger than I anticipate and I drift downwind into that parked glider? The easy answer is to delay the takeoff until the glider is fully clear of the runway. That’s not an easy decision to make when you, the tow pilot and the wing runner have a group of club members wanting you to expedite the takeoff so that other waiting gliders can fly. In the third accident the “What If” might be similar if the truck is identified as a threat. Also, the external pressure is even greater with all the other contestants wanting you to expedite your takeoff so that others behind you can get launched and the competition director can open the start gate for the start of the daily contest race. This places great amount of pressure on the contest management, the launch ground crew, the tow pilots and the glider pilot for timely launches.

Here are some personal observations as a glider instructor, pilot examiner (DPE) and pilot.

Taking off with a crosswind, carefully observe if there are any obstacles on the downwind of the runway that a glider can drift into if the proper crosswind correction is not applied. Also, observe the upwind side of the runway that the glider might weathervane into during the launch. The proper position of the glider, when the towplane is still on the ground is either directly behind the towplane or slightly upwind of the towplane.

If your glider has a CG hook, be ready to make an immediate release before the glider begins to accelerate from being out of lateral position to the side of the tow. The pilot of the accident glider in this article was ready to release but was not able to execute a timely release. Those of us who have water-skied or have observed a water skier know that this lateral acceleration factor can be very extreme. Because of a similar acceleration factor, only in the vertical plane, kiting during the initial part of the tow is another maneuver that must not be allowed to get to an extreme position during the aerotow for the safety of both the tow pilot and the glider pilot.

Wing runners must try and release the wing without pulling back on the wing before they release it, unless the pilot has given you other instructions. They must also try and release the wing in a balanced condition, which is not necessarily a wings level condition.

Towpilots must actively participate in making decisions that include risk management ideals. Towpilots, if you think something is not right, delay your next aerotow until the unnecessary risk is eliminated.

The point of this article is not to place blame on either pilot or any of the supporting crew, but to raise our awareness of how quickly a ‘loss of control’ accident can occur.

Remember, after you have a “loss of control” of your aircraft it will be difficult and may be impossible to regain control before an accident occurs. The key elements are early recognition of the loss of control or to recognize the potential loss of control and mitigate that risk beforehand. For these reasons, the

glider pilot must devote all his or her concentration to the launch and initial tow and not allow any distractions during this critical phase of the flight.