

## Towing and the Simulated or Actual Rope Break

A rope break is one of those things that must always be in the back of our mind on each tow, both from the tow pilot's viewpoint and the glider pilot's viewpoint. From a glider pilot's point of view, while on tow, he should be asking himself the questions: "Where do I go from here if the rope breaks now?" "What do I have available, a field ahead, a clearing to my right?" "Which way is best to turn?" ***The objective is to be close enough to land right back at the glider field.*** I choose the words "right back" because we use the initials RB to indicate Rope Break on our day sheet or flight log. One person decided it should signify "Right Back" – because the glider turns around and comes right back. And yes, that is the objective of the tow pilot: to have the glider in a position where he can return to the field in the unfortunate circumstance of an actual rope break.

Once a rope break has occurred the glider pilot's questions might be: "Should I land downwind, or do I have enough altitude to make a pattern, or maybe even a non-standard opposite pattern?" As a tow pilot, your decisions directly affect the options available to the glider pilot and therefore influence the answers to these questions.

While towing, ask yourself the same sort of questions. "Where would the glider most likely go, right at this moment, if the rope were to break?" "What is my altitude at this position directly off the end of the runway?" "Do I have the glider close enough to the field where he could return to the field without worry?" "Would it be an easy return?" "Am I towing upwind?" Mentally put yourself in the glider behind you and ask yourself if you could make the field if the rope were to break or the glider's release were to fail. You can certainly take into consideration that a high performance fiberglass will be able to return to the field easier from a distance than a 2-33 or 1-26. The glide ratio is much better! Also keep in mind your return to the field in your own short-wing, no-gliding, falling-like-a-rock, will-be-landing-right-in-front-of-your-nose-should-the-engine-quit, tow plane. (Yes, this has happened to at least three of our tow pilots and to me as well). On two occasions the air vent to the gas tank was clogged which created a vacuum inside the gas tank and the engine simply quit due to fuel starvation. Staying close to the field at low altitude is beneficial to both you and to the glider pilot.

Glide ratio doesn't amount to a hill of beans in a rope break situation occurring at low altitude. There are several towing patterns that allow for a safe return. An excellent option is to make a turn back towards the field or make a complete turn over the field. Often times an "S" turn upwind of the field is a good option for staying within gliding distance. If you have a generous headwind straight down the runway, or lift is strong, and you are climbing well, you may have the occasion to tow straight out or nearly straight out depending on wind direction.

One of the most important decisions is which direction to turn out on departure. A student's very first reaction to the rope breaking is often to reach for the release and try to push it in, thinking, "Maybe that will reconnect the rope." No chance: the rope is waving in the wind in front of the glider. This sudden shocking occurrence may lead the student (or any pilot, for that matter), to turn back and not realize where he is in relation to the field. He may fail to take into account what the wind is doing. He may

actually turn away from the field. Add to that a crosswind scenario, which could blow him away from the field. He may be too far downwind, and too low to make it back to the field having to fight a headwind. It is best to give the glider all the options possible by having him in an upwind position. When there is a crosswind, tow out **into the wind**. If we have the glider in an **upwind** position on departure and a rope break occurs, then the wind will actually help him return to the field.

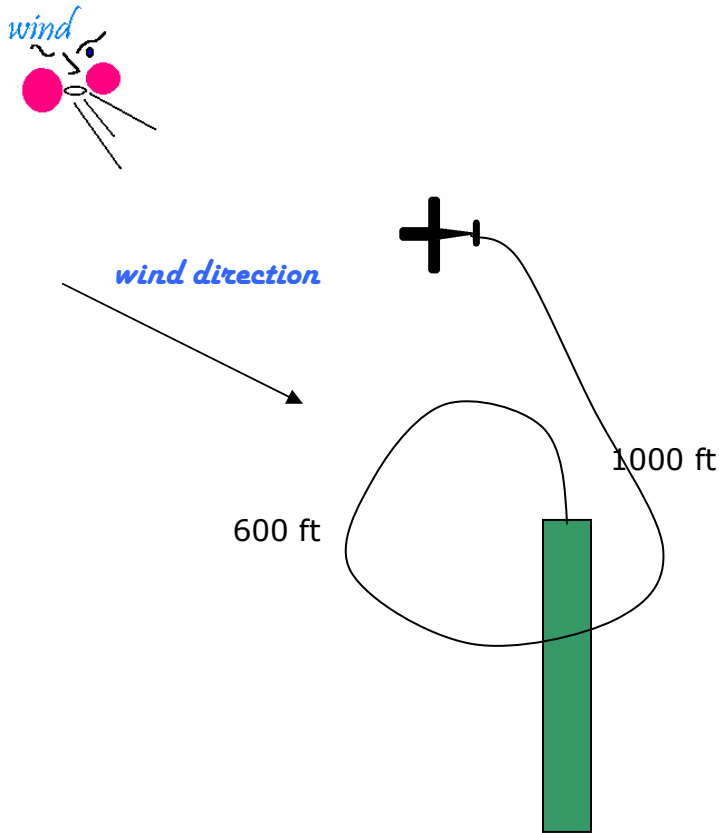
When to expect these simulated rope break drills? As a tow pilot, expect the simulated rope break during specific training situations. Our instructors like to give a simulated rope break at an altitude of 200 to 300 feet. This is the "right back" scenario. The glider can turn around and land back at the field given an altitude of approximately 200 feet. If you don't have at least 200 of altitude at the end of your runway, then perhaps it's time to make some changes. Another preferred altitude for a practice rope break is at approximately 600 feet. If the rope break happens with a little bit of altitude, then the glider pilot has many options. A rope break at 600 or 700 feet gives the instructor an opportunity to assess the student's decision-making skills. This is a great time for the glider pilot to improvise a pattern, even an opposite pattern, so stay out of his way. You may even want to fly around for a minute to be sure you have the glider in sight and can determine which way he is landing. A simulated rope break is a must before a student's first solo. The Designated Examiner will give a simulated rope break during a flight test. During a BFR or an FAA Flight Review is another time to expect rope break practice. Watch for a possible rope break when an instructor is checking out a visiting or guest pilot.

Watch for your signals on the ground from the instructor or line boy prior to hooking up to the glider. The instructor or line boy will give a signal that indicates a rope break. The objective is to surprise the glider pilot with an unexpected rope break. The line boy may signal a 1500 foot tow, just as the instructor is giving you a "two fisted break signal" which looks as if one is breaking a stick in two. The instructor will give the signal behind the student's back, so the student never sees this "break signal." The student will be able to see the 1500 signal the line boy is giving, thus expecting to practice a pattern. The fact that the instructor gives you the signal allows you to be sure you have the glider close to the field and gives you a forewarning of a sudden release.

As tow pilots, we are so used to turning left and descending just after release; that this is the tendency even at 200 feet. Mistake! Not a good idea at 200 feet agl. When you feel the release, just continue climbing and fly straight ahead. The objective is to stay well out of the way of the glider. It is the glider that has the emergency, not you. Continuing to climb is exactly what you will do if the rope does actually break. It will be unexpected and you will be climbing. Watch your airspeed, if you are towing a 2-33, you will be in a nose up attitude and it will pitch up just a bit due to the release of the glider. After you have climbed straight ahead for a few hundred feet, gently pull the power back and turn back to land downwind giving the glider plenty of room, or execute a normal pattern.

It may happen that the rope will break on the initial pull as you are rolling down the runway. If this happens and you both have momentum, just keep going! Climb out and just fly a pattern. In this way you will be out of the way of the glider. If you were to

stop on the runway, chances are you would be in the path of the glider and he could conceivably plow right into the back of your plane. If the rope breaks just as you add power, why then there is plenty of time and room to stop and taxi back to assess the situation and get a new rope if need be.



Turning into the wind in a crosswind situation positions the glider up wind of the field for an easy return.

