HOW TO CATCH THE TOW PLANE

By William Bentley

Aerotow can be difficult for students to learn. An experienced instructor presents two rules that have proved helpful.

In an article entitled "Different Angles through Time" in the SSA instructor's manual, Bob Davis describes how glider pilots over the years have alternately used the position of the tow plane relative to the horizon or the alignment of various parts of the tow plane to recognize when the glider is in the proper aerotow position. But giving students tools to recognize when they are in proper position is only half the battle. They need rules that will lead them back into position when displaced, and that work for maintaining position when flying in turbulence. I offer two rules that seem to help students learn to fly the tow.

For horizontal position I use the well-known rule: "Keep your wings parallel to the tow plane's wings at all times." With the exception of when the tow plane is still on the ground during a crosswind takeoff, the glider's wings should not be allowed to stray from being parallel with the tow plane's wings ("line joining the wingtips" covers tow planes with dihedral like the Pawnee). When students get off to one side, they instinctively put a wing down to fly back, usually shooting across to the opposite side. When this happens, I will take the controls and lock the wings parallel to the tow plane's, then have the student watch the towrope swing us slowly back to the centerline. If the tow pilot doesn't exhibit buns of steel using his rudder, we may end on a slightly different course, but the lesson for the student is the same: In straight flight, if the glider's wings are kept parallel to the tow plane's, the glider in tow will seek the centerline. In turns, of course, we still need to keep the glider's nose pointed outside the tow plane's wingtip to avoid sliding to the inside of the turn ("taking the shortcut").

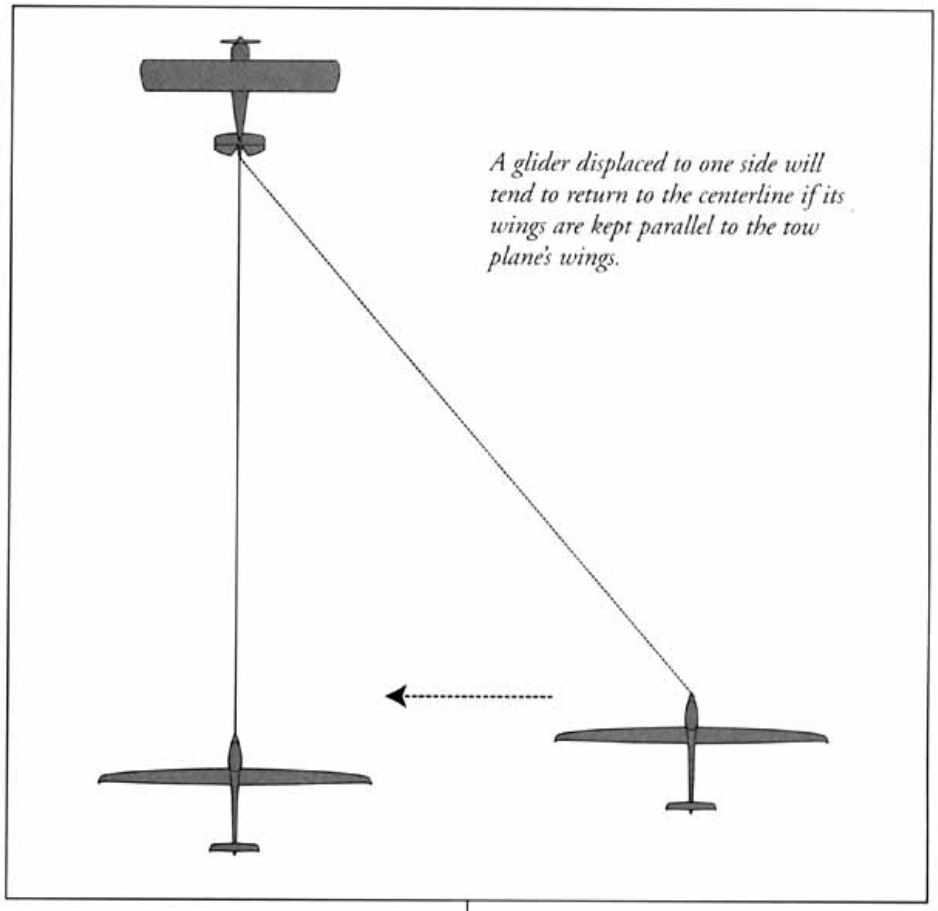
This works because a glider on tow that is displaced to the side is forward of its position if on the centerline and thus at a higher energy level. The biggest problem for beginning students is a lack of flat surfaces on the top of glare shields in our training gliders that can give a visual clue of the glider's wings. Usually, a little practice gives a student the sense of this.

For vertical position I use a "sweet spot" rule. While in proper tow position I tell the student to take special note of the tow plane's location in the windscreen. This is the "sweet spot" — the tow plane should be kept in this location on the windscreen (or beside it for a turn). If we get high on tow, we should put the tow plane back in the "sweet spot" and keep it there. By doing this we will descend and gradually round out into the proper position. The same is true for climbing back from a low position. Students should learn that when the tow plane is not viewed in the "sweet spot" we will soon drift out of position.

In turbulence the use of the "sweet spot" plus keeping "wings parallel" make the student's job of staying in position much easier. When the tow plane first moves up or down, an immediate adjustment in the glider's attitude dictated by the "sweet spot" greatly smoothes the bumps.

In their simplest form the two rules are:

1) Keep your wings parallel to the tow plane's.
2) Keep your nose pointed at the tow plane.



A glider displaced to one side will tend to return to the centerline if its wings are kept parallel to the tow plane's wings.

About the author: William Bentley learned to fly formation at Pensacola, Florida in 1955, which made learning the aerotow in a glider much easier twenty-five years later. While at Nutmeg Soaring Club (CT), in 1983, he observed the improvements of his 13-year-old son in flying the aerotow from the club's tow plane. After retiring from the airlines in 1994, he instructed at (the late) Bay Soaring in Woodbine and Ridgely, Maryland for several years. He is currently an instructor and tow pilot with the Skyline Soaring Club (VA).