

# How To Fly Thermals

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The problem of placing a glider in a thermal has concerned beginner and expert alike ever since Robert Kronfeld and Wolf Hirth pioneered the technique in the early 1930's. It has been said that thermal soaring is an art that must be learned intuitively and that the ability to fly thermals perfectly is not the most important factor in championship flying. Champion pilots have often said that making the right decisions such as when to leave thermals, which ones to fly through, and where to go next is most crucial in fast flying. When discussing this they often assume, however, that you can already fly any thermal you meet before contest flying or going for long flights and records. What about the beginning or intermediate soaring pilot who is having trouble staying up or is totally confused by a particular thermal in which he must climb in or land?

After many years teaching students how to soar, I have reached the conclusion that the best way for beginners to stay up is to stop working so hard to "center" thermals and just fly smooth "quiet" circles. But let me qualify this.

There appear to be three distinct levels of thermalling skill. The beginner is long on theory and short on technique. He may feel a thermal on tow and release in the right place but doesn't circle immediately. He skids around awhile in the sink and goes looking for lift, even flying through a few thermals before deciding to fly one. His circles are flown at continually varying angles of bank and speed. He has heard of the many methods of centering thermals so he tries varying his circle to work into the lift with no particular conception of the shape or area of the thermal until 500 feet have slipped away and he suddenly notices he had better get in position for landing.

The intermediate level soarer is one who can usually stay up if there is good lift and other sailplanes around to show him where



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Precise control of a sailplane, timing and intuition, spell ability to get the most out of lift.

to circle. He uses any number of mechanical methods of working his way into the lift such as slowing up and widening his circle in the "up" part of the turn and steepening the bank in the sink, or vice-versa. Thermals have a way of being dissimilar, however, and too specialized method of working them often put you down in confusing ways.

The highest level of soaring is the very intuitive development of most competition pilots. This actually consists of a very fine orientation in space along with precision pilotage. The pilot can mentally picture the streaming lift, place his glider in it and keep it there at all times. He can constantly vary his turn because he is always conscious of exactly what is happening to the position of the glider, in time and space. A good pilot makes very "quiet" turns. That is, he flies as slowly as possible within controllability and does not slide or slip so the sound inside the cockpit is actually quieter than the noise made by a poor pilot.

The rank beginner can best improve his soaring by working on plain circles. It is remarkable how a model towline glider will stay up in lift by simply circling. I would be almost willing to bet that if the tyro pilots towed to 2,000 feet over the field and put the ship into

a good turn after release they would stay up three times out of five times, providing thermals exist.

To make perfect circles the angle of bank and speed should not vary. If the speed and bank varies, the path of the glider will not be round but oblong, irregular, and worst of all, will shift the glider hundreds of feet per turn. The beginning soarer does not seem to be particularly benefited by a good variometer but a string for slip and skid indication is a must. A string is not only far more sensitive to sideways motion than the ball in the bent tube type but keeps the pilot's head up where it belongs.

The simplest, yet most effective, of all aircraft instruments, the string yaw indicator, is merely a piece of bright colored yarn fastened to the center of the windshield with masking tape.

The best way to lose a thermal or run into someone is by looking out the side at the ground while soaring. Watch the string, the variometer over the nose. Of course, look around, but quickly and with purpose. Check the blind spots and areas in which you are flying first, then the airport to see which ships are on the ground, or who is towing off to join you. Sit in the middle of the seat. If you lean to one side it is very conducive to skidding to make