

When And How To Leave Lift

First, a note about safety. ALWAYS LOOK BEFORE YOU EXECUTE ANY TURN OR MANEUVER. Be sure to clear each turn, and continue to scan the sky as you turn. Don't become mesmerized by the variometer.

1. Knowing when to leave the lift is important to your progress during a cross country flight
 - A. Pilots have a natural tendency to stay too long in lift
 - B. Based on your knowledge of the conditions for that day, you can determine how fast to fly between thermals and how long to stay in a thermal
 - a. When the conditions are strong, you can fly faster than best L/D and leave thermals more quickly
 - b. When the conditions are weak, you will need to fly at best L/D and stay a little longer in the thermals to maintain sufficient altitude
 - c. Near the end of the soaring day you should try to get as high as possible
2. The strength of lift is usually reduced as you get closer to the top of the thermal, therefore it's more efficient to thermal in the altitude band with the strongest lift
3. As a general rule, some pilots leave lift when the climb rate has dropped to about 75% of the best climb rate achieved in the thermal
4. Optimize your thermaling technique
 - A. Fly with the least amount of control input necessary to remain in the lift
 - B. Fly with the least amount of bank necessary to remain in the core of the thermal
 - a. This might be anywhere from 20° to more than 60° of bank!
 - b. As bank angle is increased, load factor, airspeed and sink rate is also increased
 1. Usually bank angles of 30° to 45° produce the smallest diameter circle with the smallest increase in load factor/sink rate
 - C. Fly at minimum sink speed for the angle of bank being flown
 - D. "Stick thermals" can fool you. They give a false indication of lift when you pull back on the stick
 - a. A total energy compensator will factor out climb indications due to "stick thermals"
5. Always turn the same direction as other gliders in the same thermal
 - A. The first glider in a thermal determines the direction of turn

6. Leaving the thermal— here's one way to do it
 - A. When you're ready to exit a thermal, continue your circle to the opposite side of the thermal from the direction you intend to go
 - B. Turn 90° and fly directly into and across the core of the thermal, speeding up as you go
 - C. You will be diving and accelerating while still in lift, which will give you the additional airspeed necessary as you penetrate and fly through the surrounding sinking air more efficiently

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Homework for Cross Country Ground School and Bronze Badge Clinic

For your homework on when to leave lift, please answer the questions on the following pages:

P. 25 Q. 1004

P. 34 Q. 1059

 Q. 1060

 Q. 1061

 Q. 1062

 Q. 1063

P. 35 Q. 1064

P. 40 Q. 1097

 Q. 1098