



## Finding “Near-Miss” Thermals

Eric Carden ([ericcarden72@gmail.com](mailto:ericcarden72@gmail.com))

If your vario is silent while “cruising” and you don’t turn for a thermal unless it makes your vario beep, this lesson can help you find twice as many thermals! Learning this lesson is the easiest way to increase the number of thermals you find. This lesson presents a simple but effective approach to finding thermals you encounter but don’t fly directly enough into to make your vario beep.

### Key Points

1. If you lose 1/3 or more of the decent thermals you find, then your time is probably better spent working on staying in thermals. For help with this, see the “Thermaling 101 (How to Stay in a Thermal)” lecture at the course website (<http://sites.google.com/site/thermalxc>).
2. Configure your vario to make sound at all vertical speeds. If you use a speed-to-fly vario, configure it so that you hear “climb mode” audio while “cruising” (flying straight).
3. To help detect a lifted wing more easily, (1) make sure your glider flies straight when off the controls (in still air), (2) use a light (or no) grip when on glide (especially when possibly in the edge of a thermal), and (3) use pitch trim while gliding (to hold the desired airspeed).
4. Especially if you’re relatively new to thermaling, don’t count on your seat-of-the-pants feel for much when dealing with the subtleties of the outer extents of thermals. Use the pattern strictly, and over time, you’ll learn (from what the pattern finds) how to better interpret what you feel.
5. 1/2 to 2/3 of the times that your flight path on a straight glide takes you through part of a decent thermal, it will take you on a line that doesn’t pass close enough to the best lift to make your vario beep. (This statement considers the sink at a thermal’s edge to be part of the thermal.)
6. Passing through the edge of a very good thermal can sound (from the vario) exactly like flying directly through the center of a too-weak, too-narrow thermal.
7. Fly the search pattern relative to the airmass, not the ground. This proves preferable, because most decent thermals are roughly-vertical columns drifting with the airmass.
8. Use distant points (or straight lines near or far) as visual references for the pattern’s turns.
9. Fly the pattern at about circling airspeed and with about the same turn radii as used for circling.
10. The cross-track part of the pattern should be about 2/3 the duration of the initial 180° turn.
11. Use the S-pattern option, if the lift is better on the backtrack leg than on the initial flight path.

### Other Notes

1. The course mentioned in item 1 above is a free online thermaling and XC course (with lectures, flight exercises using the Condor soaring simulator, and support from “coaches”). This course includes a 60-90 minute “Finding ‘Near-Miss’ Thermals” lecture.
2. The Condor soaring simulator ([www.condorsoaring.com](http://www.condorsoaring.com)) is a great tool for developing (and maintaining) near-miss thermal-finding skill. Some exercises in the above course are focused on finding near-miss thermals.
3. Some touchscreen device (PNA, PDA, smart phone, etc.) flight computers, including LK8000 ([www.lk8000.it](http://www.lk8000.it)) and XCSOar ([www.xcsoar.org](http://www.xcsoar.org)), can draw your flight path relative to the airmass, which is very helpful for seeing whether you’re flying the search pattern well.
4. After mastering the basics, concentrate on differentiating better between normal turbulence and the edge of a thermal, and experiment with things like pattern airspeed and size.
5. I’d love to hear from you after you’ve tried this method and to work with you via phone, e-mail, or online (Condor) simulation to improve your thermaling. And if you don’t need any help, please refer to me any pilots who do need it. I enjoy helping pilots learn to thermal.