

Thermal Duration Competition

A guide for beginners

A good review for the rest of us

Editor's note: As Levels II through V of the LSF achievement program have a contest component, a guide to contest flying was deemed by the LSF leadership to be a good addition to the LSF web site. A few years ago, **Jon Stone, LSF# 7245**, made several posts to the **RC Groups** forum. The posts were intended to provide good advice to pilots considering entering a thermal duration contest. These posts, combined and mildly edited, are now presented on as a valuable guide and reference. The LSF thanks Jon for his gracious permission to present his posts here on the LSF web site. The hyperlinks therein should still be usable. Jim Deck LSF Secretary

Introduction

Who am I? No one special, but I have competed in contests for 8 years, and have earned many trophies. I've learned from some of the best competitors in the Southeast US, and beyond. I have completed almost all of the tasks for LSF level 5. **(Editor's note: Jon is now a Level V)** I take contests seriously and actually *practice* for them. I orient much of my weekend flying towards that goal. There are many others who's contest experience and skills vastly outshine my own. I hope to draw some of them out of the closet, so we may all learn something from each other.

What is a contest?

Let's start trying to answer one question. *What is a contest?*

First, a TD contest is simply a set of *tasks* that you as a pilot must perform. These tasks were designed to be measured objectively by a stopwatch and a measuring tape. Almost always, you are assigned to fly a specific time each flight and land the plane according to some landing task. Usually, you score the highest if you fly exactly the time specified and land your plane as close as possible to some markings on the ground. The times and landing tasks vary, of course. You get measured against the other pilots that fly on that day, so absolute perfection is not required. Like golf, you only have to do better than everyone else, to win. 😊

Second, and important to me, a TD contest is a chance to socialize, meet new soaring folks, and see friends from neighboring states you only get to see a few times each year. Socializing is about 1/2 the reason I attend contests. If you go to a contest, fly, sit in your chair, and don't at least say hello to others, you're missing out on half of the fun. IMHO, of course. 🍷

My next topic will attempt to answer this question: How can I fly at my own field, and help me prepare for a contest?

How can I fly at my own field, and help me prepare for a contest?

Here is the big picture. At a contest, You will be asked to fly a certain time, and land on some spot. It's a good bet that the time will be more than 2 minutes. Where I compete, the time is almost always 8-10 minutes per round.

A local contest usually consists of 4-6 rounds per day. Each round is one flight followed by one mandatory 😊 landing. Scoring varies by contest, but the basics are:

- fly exactly the time specified to maximize your score
- land so that the nose of your plane is as close as possible to the landing target to maximize your score.

In a nutshell, that's it. The rest are just details. 🏠

I'd like to echo a piece of advice I got many years ago from Don Vickers (An LSF Level V) - he said:

Quote:

If you want to do well at contests, then you fly every single flight as if you were in a contest. Try to make 10 minutes on every flight. If you're low at 2 minutes, don't give up and land. Find a way to make those 10 minutes. **Try**. Also, land every flight on a target, and use a stopwatch to land every flight on a clock.

Let's take these steps in order.

Time every flight

You don't have to write the results down. Just know what time you flew. Some days you'll do great, some days not so great. How consistent are you at making your times? Weather has a great deal to do with this. Set goals for yourself that take some work to achieve. A good starting point is 5-6 minutes for every flight.

Obviously, being able to locate and fly in lift is required. I'm not going to cover all the ways to read the air. **Editors Note: This topic is addressed later in this document.** One good resource I know of is Dave Thornburg's "**Old Buzzard's Soaring Book**", if you can find it.

Before you launch, take a look around. This is not elementary school. It's ok to copy from others. Are there other planes in the air going up (that you can reach from a launch)? Hmm. Maybe everyone on the left side of the field is in sink. That should tell you something too. All of this presumes you are looking at the sky for at 30-60 seconds before you need to launch.

Try landing on a spot every flight

Some guys at my club bring a carpet scrap to the field on weekends and throw it on the ground. It is a light color with a bright red spot painted in the middle of it. We use that for landings. If you're in a pinch, throw your hat on the ground and try to land near it. If you want to truly measure yourself, make a landing tape. I have one made from 3" wide "lawn chair" tape available at the garden department at Wal-Mart. (Hint: this stuff is seasonal).

Use a sharpie and make a mark every foot. My good friend Brian Smith made one for me. He glued the high-point end to a 3x3 piece of plywood and drilled a hole in it. I take it to the field and nail it into the ground. If you're new to spot landings, make a 25' tape. If you're very experienced, make a 5' tape. 🎯

The Thornburg book has some good comments on landing practice. Also a few excellent Torrey Pines articles are below. Focus on the landing portion of the articles, for now.

[The Art of Landing](#)

[Improving Your Contest Performance](#)

[Flaps](#)

At contests, realize that there may be a lot of people launching, flying, and landing at the same time. Contest organizers realize this can be a potential safety hazard. One important part of your landing practice is to be sure you do not overshoot your landing spot by very much. Some contests have a safety line drawn on the ground, several feet beyond the landing zone. If your plane lands beyond this line, you can earn a zero for the entire flight. Safety of other pilots is the reason, so you might as well expect it.

Land to a clock

If you can't land on that tape, then don't bother with this step yet. You should be able to land within a 25' radius about 1/3 the time.

After you are reasonably able to make the landing zone (even once in a while), go buy yourself a tape recorder, digital pen recorder, or a Talking Timer. The Talking Timer is available all over the web for about \$20.

I use one, and clip it to my shirt, so I can hear it. Other friends clip one to their transmitter. What I like to do is set the clock for 2 minutes, and then turn on the clock when I get low. At first, just turn the clock on, and make your landing approach. Use it over and over. I suggest you develop a consistent landing pattern, before using the clock. Even when I was first learning to land for contests, if I used my own pre-determined pattern, I was always +/- 4 seconds from the target time. The Thornburg book talks about setting up a landing pattern. **Editor's note: This topic is covered later in the document.**

Set reasonable goals for yourself

Don't expect too much out of yourself when practicing, and at contests. If you been to few or no contests, don't expect to finish better than the bottom 1/3. Yes, I said the bottom 1/3rd. On my first contest, the only goal I set for myself was to not finish last. I barely achieved that goal by outscoring a 9 year old boy. 😊

Reasonable goals for a beginner are:

- get *any* landing points at all on 2 out of 5 landings.
- Earn close to the max flight score on 2 of 5 flights. Flying within 30 seconds of the specified flight time is fine.

Here's an article on the subject. [Sage Advice - Setting Goals](#)

Conclusion

Parting thought: "***Never try something new at a contest.***" I see a lot of planes break on launch this way.

What to expect at your first contest.

Continuing from my last post's closing comment. "*Never try something new at a contest.*" I see a lot of planes break on launch this way.

I know, for those fairly new to contests, nerves and expectations are something big to deal with. Well, there's just no way around it. I still get nervous at contests; especially during the first round. After I've got one flight done, I get a little more relaxed.

Mental Expectations

First of all, get your expectations in line right now. Face it. Unless you've been secretly been practicing contest tasks for years in a private field somewhere, where no one can watch, you are not going to win a trophy. There I said it. You are not going to earn a trophy your first time out. If you face that one little fact, you've taken a tremendous amount of pressure off of yourself. No sense worrying about it.

Second, when you show up to a contest, you will see a lot of people you do not know. Most of them will know each other, because they've been at it several years. (1) Don't be intimidated. Go introduce yourself to a few folks. Even if you see someone whose name you recognize. Go say hello. No, you won't make lifelong friends the first day. But since you read these kinds of articles in cyberspace, you've probably seen a lot of names. Now's a great time to meet these people and see what they're like. (2) Guess what. These people don't know you either. That means they will not all stop what they are doing when you launch, to see how you do. So don't be too self conscious about your flying. If you do well or not so well, it's no big deal. My point of this whole paragraph is: **relax**. We're all doing this for fun. Yes, some folks take this stuff very seriously. You'll figure out who these guys are soon enough.

What's happening here:

When you drive up to a contest field, you will see lots of cars parked in a line or two, and some tents being set up. All the pilots will be catching up with each other, and putting their planes together. You'll also notice the local club members setting up several winches on the field.

What you should probably do first is find the contest director and register for the contest and pay your entry fees. In case you have not figured this out, almost all TD contests in the USA require AMA membership. You must show your AMA card during registration, so expect it.

If you're alone, you need to meet people and meet them now. Why? Every pilot needs a timer. A timer is a person who runs a stopwatch on your flight. He also gives you advice on

where to fly, where other planes are climbing in lift, where others are sinking. He also reminds you every so often what your time remaining is. If you want it, a *skilled* timer can also critique your flying. A good timer is hard to find. As a beginner or intermediate pilot, you want the best pilot you can find to be your timer. Note. You do not need to have the same person time for you the whole day. I'll get more into timer's duties in another post.

Soon after you get there, someone will yell out that a pilot's meeting will start soon. Get your brain in gear, and gather around. If this is your first contest, you might want a notepad. You'll hear a lot of things that might be new to you. Things the contest director (CD) will go over include:

- Flight tasks for the day.
- Landing tasks, and location of the landing zones
- Field boundaries. If you land off-field, you get a zero for the flight. Generally, if you land off field, you have to go search for your plane in a forest somewhere, so this is not a big issue.
- How the flights and landings will be scored.
- Any special notes about the field. Like no flying at all over the apartment building on that side of the field.
- Frequency conflicts. Pay careful attention here to see if anyone else is on your channel. If so, find out who that person is, and make sure he knows who you are. You two (or more) will be sharing the channel for the day.

A safety note here: I realize some of you fly alone and not in clubs. At a contest, or a club field you **never** turn on your transmitter without having a clip called a "frequency pin" attached to your transmitter. This pin is a sign that you "own that frequency". Great care is required here. The general rule is: **if you cause someone else's plane to crash, you just bought him a new one.** 🙄

- How long each round will be.
 - When the first flight will start.
 - What the flight group assignments (if any) are.
 - Pop offs. This is when you get a "sub-optimal launch" by your plane coming off of the winch line too early. Some CD's allow a re-launch after a pop-off, some don't. Some allow a limited number of re-launch attempts for beginners, and some don't.
 - And a lot of other useless stuff, like whether everyone is supposed to round or truncate the times to the nearest second. Someone will always ask. 😏
- These are the basic rules for the day. In a few minutes, it will be time for the first round. If you don't have someone to time for you by now, ask the CD after the pilot's meeting to help you find one. Be polite. *It is not the CD's job to find you a timer.*

Finding a timer might be harder than you think. Most of the expert pilots already have their favorite people, and they time for each other. Can you blame them. They know exactly what to expect of each other, and know each other's abilities, flying styles, and limitations. Just be aware of that, and not too upset when your favorite pilot says no to you. Think about it this way. If a pilot agrees to time for you (and he already has a timer/partner), he is doing that other person a disservice. Don't expect too much, and when you get to be the hot shot, don't forget those growing in the sport too. As you don't know many or any folks, and you are a beginner; frankly, anyone friendly will do. A timer does not even have to know how to fly planes, although it helps.

I could say more, but someone else already has. Fred Sage wrote a 3-part article titled [When to Launch](#). I wish I wrote it. It is a long read, but well worth it. Read it at least twice.

The article covers many things - among them: choosing a timer, timer's duties, etc. I'll try to summarize some of that material and add my own observations in my next installment.

Who is This Timer Person?

What are the basic duties of a timer:

The most basic duties of a timer are: Start the stopwatch as soon as the plane comes off of the launch line. Stop the stopwatch as soon as your plane touches the ground.

(Technicalities covered later in this article) The official timer's job is to time your flight, and report it on a scorecard. That said, if you get a timer, who only does this and no more, go look for someone else.

But what about all that other stuff?

Here are what I consider the duties of a good Timer.

- Start & stop the stopwatch.
 - Before the launch, give your commentary on who's in lift, and where they are.
 - Report signs of lift, wind changes, etc.
 - As soon as the launch is complete, the timer should guide the pilot to walk away from the launch area to a place where he can stand and fly. If you are new to contests, be prepared for a timer to grab your arm, belt buckle, or shirt sleeve and gently guide you across the field.
 - During the flight, tell the pilot of others going up (that your pilot's plane can reach).
 - Provide commentary on the pilot's own flying, if it's wanted. For example: "your plane is climbing better on the left side of the circle", or "smooth it out a little". Note: I am not saying the timer should be critical; just offer gentle critique of minute-by-minute action. But only, if this commentary is actually desired by the pilot. More skilled pilots don't want this kind of talk.
 - I always try to talk in a calm and reassuring voice. If someone crashes, don't upset the pilot.
 - Keep an eye on the landing zone. If someone's plane zooms beyond the landing zone, I take it as my duty to get in front of the pilot and protect him from a collision, if necessary. Remember, the timer is not flying and should be aware of what's going on on the ground.
 - When about 2-3 minutes remain in the flight (or the plane is getting low), walk the pilot towards a landing zone. There will be several.
 - If there are others in the landing zone (and there will be), the timer should work it out with other timers, who is going to land where and when. Usually a 1-minute separation is required in landing times for one pilot to land, measure the landing, and get out.
 - As the landing time approaches, the timer should straighten out the landing tape, and report to the pilot any last minute changes in the wind direction, etc.
 - Provide a countdown, exactly as the pilot wants it.
- I know that's a lot. As you can see, the timer has plenty to do and think about.

Ideally a timer should know you, your abilities, and limitations.

Personality:

You must realize that personality plays a big part in selecting a timer. In a pinch, most anyone will do. If you're a beginner, any pilot is fine. If possible, always try to get a timer who's a better pilot than you. Of course, if everyone followed this line of thinking, that ace pilot would not want you as his timer. 🤖

If you are the pilot, you must communicate with your timer a few minutes before the flight on what you want. Specifically:

- How do you want to hear the watch countdown? Count-up, count-down, how often? For example: "I want a count up time (just read the clock), starting in the last 2 minutes. After 2 minutes, give me the time every 15 seconds. In the last minute, give me the time every 5 seconds". Whatever the pilot wants, he should let the timer know before the launch.
- Commentary on flight (see above). Some pilots want it. Some don't. Some timers just don't give any. Some talk too much. The pilot and timer need to work that out.

Note, if you do not have a consistent landing pattern, then hearing the time every 5 seconds is probably going to frazzle your nerves more than help. If you are new at contests, just try to land within 20-30 seconds of the specified time.

Technicalities:

There are a few technicalities in the AMA rules that you should be aware of, regarding timers. *Rules. What rules?* Yes, there are rules, and they are worth reading. [AMA Sailplane Rules](#)

Related to timing, some rules of note.

1. The clock should stop when the model touches the ground; not after a 2 second slide in the grass. (section 10.2.2b)
2. All times should be rounded to the nearest second. (section 10.2.2b) Note: do whatever the CD specifies during the pilots meeting.
3. The official timer is not supposed to give out the time during the last 10 seconds of flight (section (section 10.2.2b). Note: This rule is very often ignored.

Count up or down?

One important thing to think about - do you want count up (5, 10, 15, 20) in the last minute, or count down (55, 50, 45, 40)? If you practice with a Talking Timer, then you probably want count down. But some people do not have countdown stopwatches, and are unable to "translate" on the fly. They have to read 9:05 and say "55". Then read 9:10, and say "50". It can be confusing for the timer, if he's not used to it. If you are the pilot, be prepared for anything. At a nearby club, they have all standardized on "count-up, just read the clock". Once the pilot has learned that, anyone can time for him.

Philosophy

My personal philosophy when I am the timer. I try to be a coach, assistant, guide, tactician, and gopher. Anything the pilot needs; I try to take care of. As a timer, I consider myself a consultant. The pilot is in control, and I try to be his assistant, and make as many things as possible smooth for him. Do what the pilot cannot do himself. Be his eyes - looking around the field while he is flying.

I give advice, but do not get the least bit angry if it is ignored. Some timers get insistent if they tell you there is lift over so and so, and you don't go. Not me. The pilot might like the weak lift he's in, and not want to go where you told him a boomer exists. That's fine. It's his flight, not mine. I try to not tell the pilot what to do, but to give him information and advice that are useful. He has to decide what to do with it.

Be pretty sure of the advice you give. It's a sinking feeling (no pun intended) when I tell a pilot to go somewhere. He follows my advice and finds nothing but sink. Ugh.

I also try to only give information to the pilot that he can actually use. If the pilot is struggling to make his time and is at 100' of altitude, I do not tell him of the 5 guys climbing in lift at 1500' altitude on the opposite side of the field. He cannot reach them, so no sense bothering him with that. If the pilot is looking for lift and someone else in his area or at lower altitude has found some, I will report that.

For a 10-minute flight, I don't even bother reporting the time to the pilot until he's flown at least 5 minutes. What's the use? If he's high, it's useless to tell him there are 8 minutes left. If he's scratching for lift at 100', he does not need that added pressure, either. Of course, if the pilot requests time, then let him know.

Windy Day Contests: Upwind or Downwind after launch.

For the beginner or intermediate pilot, it is counter-intuitive to fly downwind immediately after launch. In short, this strategy appears much more risky.

- If I fly downwind and don't find lift, I won't make it back to the landing zone.
- I've never flown with ballast.
- If I'm downwind, and low, I'm stuck.
- If I go upwind, and find nothing, I can still get back home and get a landing
- If I go upwind and hook a thermal, I can ride it longer
- If I go way downwind, I may not get my plane back.

It took me several years of competing, and constantly pushing myself to realize that there is actually a bit of wisdom of going downwind after launch. Even if you do not know where any sign of lift is.

Advantages of going downwind after launch:

1. If you are observant of changes in wind speed/direction, you KNOW what changes just went by you. Your plane is downwind just waiting for the lift to arrive.
2. Biggest help is if there is a tree line downwind. You can often hang out in a little "slope lift" from the trees for several minutes until a thermal blows through.
3. The field you are flying in is likely the biggest thermal generator in the area. Thermals often get "tripped" off the ground from the tree line.
4. Once you've hooked a thermal, you can ride it for as long as your eyesight holds out. Come back upwind, and wait for another one. Repeat.
5. If the lift is good, you get back upwind with much more altitude than you started with.

Challenges to this method are:

1. The pilot has to know how to stay in a thermal in windy conditions. *Hint: drift with the wind. The thermal is.*
2. Is that puff of lift my plane just saw a thermal, or just a gust from "sloping the trees"? In other words, should I start turning, or just keep hanging out on a tree line?
3. My plane is climbing, but blowing downwind fast. Can I get back home given the climb rate and wind speed?
4. The pilot must decide quickly if the lift is good enough to commit to. Take one turn, and decide on one more turn. Two turns at the most, and you should decide if you're climbing enough for the distance the plane is blowing downwind.
5. This strategy requires a plane with the ability to penetrate back upwind without excessive loss of altitude. A Paragon with no ballast is simply not going to do it
6. The pilot must *know* himself and his plane. Flying downwind is a series of calculated risks.
7. The plane is presumed to be properly ballasted for the conditions. Adding ballast to any plane greatly increases its ability to penetrate upwind. It does increase the sink-rate a little, but the trade off is worth it IMHO.

8. To be really good at this, the pilot needs to be paying serious attention to the air, lift/sink cycles, and changes in the air before he launches.

If your vision is less than 20/20, flying a long ways downwind might be your personal determining factor not to follow my suggestions, regardless of what Joe Wurts does.

Given all that, on windy days, I often head right downwind *while I still have some altitude* to spare. Especially, if there is a tree line I can get back home from. Hint: a tree line 1/2 mile downwind is too "advanced" for me.

I have won two contests that I can remember on days the wind was 12 mph (5.3 m/s) or more. Few pilots were willing to venture downwind. This may be due to physical limitations (eyesight), experience in the wind, or they were just flying a slower plane and knew it. Whatever the reasons, I have the following observations from contests the past few years:

- Most pilots are simply not prepared for the wind. They have not practiced in the wind, and have no idea when to use ballast, or how much for what conditions. This requires experimentation on windy days.
- Most pilots do not use enough ballast. See comments below.
- Most pilots go upwind and see what they can find. Sometimes they find lift, sometimes not.
- About 1/2 of the pilots never leave the field in search of lift. My perception is that they fear not being able to get back.

How much ballast?

Don't think in terms of total weight of the plane; think in terms of added wing loading. Who cares what the weight of the plane is. Adding 4 oz. to a 70 oz. 3 meter plane is not going to do much to the wing loading. Take for example the following typical 3-meter plane: 70 oz. and 950 square inches of wing area. That means a 10.6 oz / ft² wing loading. If you add 4 oz, what do you have? You have increased the wing loading to 11.2. Tell me, how many of us can tell a change of wing loading of 1/2 oz. in wing loading on a 3-meter plane?

My recommendation for a typical 3-meter span plane is to add ballast in increments of 8-10 oz. each time. 8, 16, 24 oz should be good enough for all but blowout conditions, when no one wants to fly. In my example above, this would give wing loadings of 11.8, 13, and 14.2 oz / sq. ft.

Conclusions

For the pilot new to competing at contests, I would recommend going upwind. This pilot is not prepared to take the risks of downwind flying. He is also likely not honed his observation skills enough of the rapid changes in conditions (while flying his plane) to take advantage of them. The beginner/intermediate pilot is also more likely to be flying a slower plane, which has disadvantages when flying in the wind.

For the expert type pilot, I suggest exploring some of the suggestions above and see if the strategy is viable for you.

Purpose Driven Practice

One-man Contest

In order to get used to the idea of contest flying - how about holding your own contest - even if you fly alone? Sound weird? Sure! All I am talking about is having a countdown timer (i.e. Talking Timer), a piece of paper, and a pencil. Oh, and you need a landing target too.

Here's the idea. Use your hi-start, winch, whatever. Fly 5 times in a row, and see if you can make 6 minutes every time you fly. Write down your times on the card. Write down the landing results, too. Just guess how far you are from the spot, and write down the number of feet from the spot. You don't have to compute a "score", just write down the results on the card.

Just the self-induced pressure to land on a clock (if you make your 6 minutes), and trying to force yourself to make a landing will improve your contest skills.

You only get 5 launches. If you get a time of 1:33, write that down. Consider that a sub-optimal round. 🤔

If you fly with a group, and don't want to embarrass yourself, don't bother telling anyone what you're up to. It's no big deal. I want to get you to thinking about doing the tasks, similar to what will be asked of you at a contest.

Here are some other ideas, to make your practice time more helpful to improving your contest skills.

Fly a lot. This can never hurt.

Fly the same plane.

Don't bother getting "the bug" for the latest plane, radio, servos, whatever. If you are fairly new to contests, don't worry about it. If you fly the same plane a lot, you get to *know* that plane. You know what you can get away with, how to land, how fast it can go, how to launch, etc. Knowing (and I mean really knowing your plane) is a big advantage at a contest.

There are lots of pilots that change planes every 6 months or so. You don't have to be one of them. I believe your skills will improve faster flying the same old plane, rather than changing to a new one. Intermediate pilots sometimes tend begin changing planes, after they have attained some measure of skill. If you are observant, you will see some pilots with lots of money to spend, but maybe not the skills to go with it. That's ok. That's their choice. No problem with that. As a contest newbie, I suggest you stick with one plane for quite a while.

Yeah, I know. I'm starting to sound like your mother - Boring.

Don't just fly around

Fly with a purpose. For example, what if you get in a big thermal and are skied out at 2 minutes into your flight. You can float around for 8 more minutes to a 10 minute task. (Actually, at a contest, I suggest doing exactly that). But for practice, try this. Put the spoilers out, or otherwise *safely* bring your plane back down to launch height. Now, make yourself go find more lift and see if you can climb out again. The mental work of finding lift, coring it, and climbing out are the real skills you want to build.

Did you see that?

Maybe you've found a thermal and are twice launch height. Did you just feel the wind shift? Or maybe you noticed a tree in your area start blowing around, while none others are doing so. Assume there is lift caused by this event, fly over there, and see if you can find that thermal. Learn to notice changes around you while you are flying. Again, fly with a purpose. I often do exactly this. During play time on the weekends, I may notice a wind shift. I might even be in good lift. Sometimes, I will leave it and run across the field, just to see what's there. Sometimes yes, sometimes no.

Of course, at the real contest, don't throw away any altitude. Keep the altitude (or weak lift) you have, and be bored. Let that clock keep ticking...

Weather

Guess what? On contest day, you get what you get: Wind, rain, clouds, sunshine, whatever. Sometimes, an afternoon shower pops up. The contest will be stopped for an hour. Guess what? They start right up after the rain stops. Have you ever tried to find lift after a local shower?

Go out and fly when you have the time - even if the weather is not perfect. Maybe there is a complete cloud cover and overcast. Go fly anyway. Some days I have flown like this, there was plenty of lift to go around. On cloudy days, the lift is more subtle. Try it out and see how smooth you can fly under these conditions.

The biggest variable many of us see is the wind. Many people are afraid to fly in the wind. Try flying on a windy day. If the wind is gusty, I'd say save your plane for another day. Gusty days can be dangerous landing. The plane can get slammed into the ground with no warning, when on landing approach. If it's not too gusty, go fly. Find out how your launch changes with the wind. How about the landings? A lot of folks land short in the wind. Try more landings. Learn to adjust your technique to compensate for the wind.

How about finding and staying in thermals in the wind. Thermals are harder to find, smaller, and they move with the wind. Imagine a thermal to be a slowly rising large balloon. It will drift with the wind. When you circle, let your plane drift with the wind. The best advice I can

give, is to try to maintain a constant bank angle as you turn.

Don't be afraid to fly in the wind. If you never fly in the wind, don't count on winning a trophy if the wind happens to be blowing on contest days.

Flying style

Think about how you might adjust your flying style to accommodate different weather conditions: Things like landing with more airspeed in the wind. Fly smooth with minimal control inputs in very light lift conditions.

Summary

In summary, put a **purpose** to your flying time. Your skills will improve. Does all this *practice* sound like drudgery and work to you? That's ok. 🤗 Maybe contests are not your idea of fun. 😊

The Landing Pattern

I have given a lot of thought to my landing pattern. This is the area of my contest flying I continue to evaluate, critique, and work on the most. In other words, it's the area I think I struggle with the most. Last weekend, I did almost no thermal flying. Almost all of my launches were very low, and I immediately set a 1-minute clock to practice landings.

I started with what was described in Dave Thornburg's "Old Buzzard" book. That technique describes standing upwind of the landing spot. Going over your shoulder heading downwind at 30 seconds and at about "telephone pole" height. Sometime later, start a crosswind leg, then an upwind leg for final losing some altitude as you go.

I flew that pattern for a few years. Several years ago, I decided that 30 seconds was too long. The plane can cover a lot of ground in that time, and some of the fields I compete on are not wide open. So I changed to a 20 second pattern. I don't have much of a cross-wind leg anymore, either - just kind of a wide turn from downwind to upwind.

I figure it this way. If I have the plane approximately at the right height and right place at 20 seconds, how far off on the clock can I be?

Fred Sage put it very well in one of his articles on landing. The landing task is a series of "windows" you must fly through. As time remaining approaches zero, the smaller each window gets. This "window" means a place, a time, and a particular speed. If you're flying 50 mph at 5 seconds left, there's not much chance of you burning off all of that speed and make a high point landing at zero on the clock. For example, at 4 minutes remaining, you can be at any height, and almost anyplace in the sky. Assuming I am not scratching for lift, at 3 minutes, I like to be over the field or fairly near it. At 2 minutes, I like to be at launch height or 1/3 less. At 1 minute, I want to be maybe 200' high and not have too high of an airspeed. At 45 seconds, I want to be upwind of myself and getting close to 100' high. I also start planning my passes, so that I can go over my shoulder at 20 seconds. At this time, I am watching my altitude and airspeed very close. At 20 seconds, I "enter the pattern" by

passing over a line crossing the landing tape.

I start my final turn at approximately the same time, but I do adjust that final turn point depending on the plane and the winds. If I enter my pattern correctly, and plan my final turn correct, I am almost always within 2 seconds of the target time on landing. This is not good enough on times to win a national or world contest, but good enough to win at most others.

I line myself up with the spot and drive the plane right towards myself. I have heard of others standing off to the side slightly. Some say the perspective is better. I have never tried that.

Glide slope? For me, that all depends on the plane. A faster heavier plane (to me) requires a longer flatter approach. With a steep approach, you cannot burn off the extra energy and get the plane slowed down. The slower the plane is on approach, the more time you have to make final adjustments to get the nose on the spot. (Note: windy days dictate a faster airspeed to overcome turbulence) With a very light plane and/or one with very large flaps, a "less disciplined" final approach can be tolerated. In other words, you can get away with more because the plane will stop. I can make higher approaches, and the flaps can slow the plane down in an instant.

I flew in a contest a few weeks ago. Winds were over 10 mph all day. I saw a lot of very short landings. Here's one area most contest pilots are lacking. They do not know how to compensate for the wind when landing. This includes getting to the spot on time, as well as not dropping full flaps when way downwind of the landing spot. All I can say here, is get out and do it. Pay attention to what's happening, and try something new. Practice.

As far as approach style, I've seen some fly the plane straight on a shallow slope directly into the pin using no down elevator at all. Just fly the plane into the spot. Others fly low and level over the pin and then drop the nose at the last second. For me, what technique I use depends on characteristics of the plane I was flying. My last plane, I had trouble landing consistently, partially due to the planes behavior when flying extremely slow. I finally figured out a landing technique that helped a lot.

Oh, and years ago, I used to perform a hard dork and slam the plane into the ground. I don't do that much anymore. I now think of a hard dork with the nose into the ground as a sign that the pilot (me included) did not manage his energy properly.

I have been flying an Ava all summer. That plane (spoilers only) requires a whole different landing technique. So I'm learning how to land all over again. 😊

Folks, What do you do? Why? I'm hoping to learn from others, too!

Thermal Hunting

I came across a useful article about Thermal Hunting, by Mark Howard.

<http://www.rmsadenver.com/lift.htm>

Reading the Air

Reading the air - part 1

I'm re-posting a few articles written by world-class RC glider pilots. The discussion topic is flying DLG contests in the wind. The techniques apply to all TD flying. Read carefully.

Quote:

From Phil Barnes to the SALglider group on June 10, 2005

----- Original Message -----

From: "Ben Wilson" <ben@thelocust.org>

- > As an aside - I do still wonder why no one tried to poke out front and
- > look for lift upwind. Were there no indications of lift, or was it just
- > that the headwinds were so great that your flying time wouldn't allow
- > you to search as much air? I was too busy making bad launches to notice 😊

The BASS (Baltimore Area Soaring Society) field has tall trees on a couple sides and is a relatively small piece of real estate. This is pretty typical of east coast fields. On such fields, the game is always played on the downwind tree line. The guys you see launching from the upwind or midfield area and staying away from the trees are usually the sportsmen level fliers or those who are more concerned with keeping their plane out of the trees than with winning the contest. It is possible, on some occasions, to pick up lift from the middle of the field but that is far more difficult to do and any lift that begins from the middle of the field will, very soon, hit the tree line and really take off. So why not just launch to the tree line and wait for it there? You can get in a little slope soaring while you wait :-). It is also easier to read wind vectors when flying downwind. Prior to launch you just look at the little wind streamer on your transmitter antenna (you have one don't you?) and launch to the part of the tree line being favored by the current wind direction. The wind is blowing in that direction because a thermal is lifting off the tree line over there.

On the day in question when I timed for Ben, the tree line was being very kind to anyone that dared to launch and quickly transition to a spot just above the first line of trees. The problem that Ben experienced was that he did not quickly and efficiently transition to the tree line. Instead he was doing a launch that took the plane away from the tree line and then he only flew a slow, indirect path towards the tree line. By the time he got close to the trees he was either below the tree tops or uncomfortably close to the tree tops. His launch was easily high enough to do tree line surfing but he needed to work on his ability to do directional launching and efficient transition to a particular downwind place in the sky.

There are times when the tree line is not working. Sometimes the sink just moves in and quashes the tree line action. An expert flyer will always look for signs that the tree line is working before launching that way. Wind shifts are usually a pretty reliable signal. A hard blow towards the tree line that does not change direction probably tells you no more than the fact that the wind is blowing. If you are waiting for the round to start and you see a sudden shift in what was a steady wind direction then you have some good information to work on. It is usually a thermal that has pulled the wind direction over to a new direction and you would launch to the tree line in that direction. The best signal of all would be if the wind slows down for a while and then suddenly picks up again. This is a sure sign that a thermal has formed upwind and has passed overhead or nearby. The direction of the new

wind after the thermal passes will indicate which side of the field the thermal is on. In some cases the thermal will be strong enough to completely stop the wind. When that happens you can look at thermal streamers or other wind direction indications to see which way the slight breeze gets pulled. When the thermal streamer lies down, the thermal is upwind. When the thermal streamer starts to get pulled sideways you then know which side of the field the thermal is approaching from. As the thermal approaches and passes the field, a new, strong breeze will blow in the direction that the thermal is passing.

Phil

Here's another post on the same topic.

Quote:

From Tom Kiesling to the SALglider group on June 10, 2005

--- In SALglider@yahoogroups.com, Charles Frey <charles@c...> wrote:

- > So then my question is, why is it so hard to pick up a thermal upwind? I
- > understand why you're saying about reading the wind, but I'll fly back and
- > forth across the entire width of the field and never do much good. Are
- > the thermals forming right there on the field, and so they actually never
- > existed way upwind? Or that any thermal upwind has probably already
- > broken away and will be too high to catch?
- >
- > -Charles

Charles,

Picking up upwind thermals depends on the field and the surrounding terrain. On the East Coast, the field you are flying on is usually the only one nearby. This I think is the case with the BASS field that Ben was talking about. In this case the field you are on is typically the best thermal generator. So, by default if there is wind, the thermal will be downwind of the field. If there is a prevailing wind and you feel no wind (or less wind) that means that the thermal is developing on the field and will be moving down wind shortly. If there is no prevailing wind, then the wind you feel will generally be pointing toward a thermal.

Flying on a small field can teach you a lot about the way thermals generate. On a calm day you can feel a thermal develop. It starts getting warm and stuffy. What is interesting about this is that you can launch and not go up. This is because the thermal has not developed enough energy to break free of the ground and rise. I don't know what the technical/meteorological term is for this, but it feels like a surface tension kind of thing. You may hear people say the thermal "breaks" and then say something like "there it goes". This happens when the thermal generates enough energy to break free of the ground and rise. This is when you want to launch. If you are already in the air and you are flying in that hot stagnant air of a developing thermal, you can expedite its release by manually tripping it. If your timer is any good, they will have a towel or something to wave in the air and run around in big circles. I have heard of this working (really!).

If there is a wind, as the thermal generates it gets blown down wind. If it doesn't have enough energy to rise it will slide along the ground until it hits something (like a tree line). The object it hits is enough to trip it and allow it to rise. You have probably seen someone slowly circle their model downwind maintaining altitude, and when they reach the tree line,

they start to climb. This isn't just a slope effect, it is the thermal being tripped.

So to answer your question, on a small isolated field, yes, the thermals are primarily generated there.

On a large field, like at the NATS or Poway, the thermals have enough time to generate the required energy to break free without a trip, even if it is a little bit windy. So in this case you can catch upwind thermals (note that these are still generated on the same field it is just that the field is big enough for the thermals to release upwind). This is where you really have to pay attention to what the air is doing over time. By making a mental note of how long it was since the last lull in the wind will give you an idea of whether or not you should chase the downwind thermal, or punch up wind looking for the next. This is something you have to practice and experiment with. You have to really focus and pay attention to detail. Remember on a large field there can be many thermals affecting the wind vectors. On a small field there are usually only one or two thermals at one time. With experience and focus, you can get good at estimating the location and strength of the thermals as well as how many are in the immediate area.

Of course this discussion is focused on HL. The same principals apply to winch launched stuff, you just have access to more fields and finding upwind thermals can be easier.

Hope this helps

Tom

Editors note: The entire original thread along with comments from others can be found at: <http://www.rcgroups.com/forums/showthread.php?t=265089>