

Getting Started in Competition  
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So you're hooked on soaring, have a glider available, and want to stretch the envelope a bit. What better way to do it than enter a contest? You will meet lots of great, friendly and helpful people and find-out very quickly how your new-won skills stack up against others. Intimidating? Sure, but almost everything new and worthwhile is. Remember that first solo? All of flying is a process of stretching and learning. Man's reach must exceed his grasp.

How much experience do you need before you are contest-ready? Speaking for myself, I had about 250 hours, but constraints of money and time made me a late starter. I would say 100-150 hours is usually enough with maybe 500 miles of cross-country experience (don't count flights of less than 50 miles). If possible, start out in one of the smaller Regionals with 25 gliders or less. If you don't have the latest glass by way of a glider, you can get a pretty good idea of your abilities by applying the Sports Class handicaps to your results.

How about crew? Less is more. There is no need to have more than one crew for a 15-meter glider. More get in each other's way. The primary crew attributes are that he/she be competitive and interested. Spouses are ideal if they have these qualities. Enthusiasm is what counts, the other stuff can be learned.

Needless to say, having a Ventus 2, Discus or ASW-27 would be nice, but economic concerns prevent all but fortunate few from going to early contests so equipped. Not to worry, older Libelles, Standard Cirruses, and the like have 90% of the performance for a quarter the price. A further advantage of older gliders is that they will almost always bring what you paid for them on resale day. Older sailplanes will provide plenty of performance with which to practice and build your skills. There is no point in taking a 1-26 to a contest since the performance is so far below the other gliders that you will have no idea whether dismal results are due to you or the glider.

As to instruments, the only really vital thing is a good total energy system. Fancy computer/varios like the SN-10 and Cambridge L-NAV with GPS data loggers are nice but come in at \$4,000 and up. An older electric like the Cambridge M-NAV can often be found cheaply and does most of what the newer instruments do. A \$100 Wal-Mart GPS works fine for navigation.

In general, don't get involved in big spending for equipment until you have flown a few contests, found out whether it's your thing or not, and talked to other contest pilots about what they use and how they like it. Most of the top varios are good, but there are no standouts that will magically transport you to first place.

Let's say you are planning to enter a Regionals in the late spring, what should you be doing before you go? Practice, that's what. Contest practice has little or nothing to do with racking up hours flying around the airport. Here, in outline form are things to work on:

1. Fly pre-selected tasks; triangles, not out and returns. In weak or uncertain weather do short ones twice around. Fly on weak days, these are the conditions under which contests are won or lost. Get other pilots to join up for competition if possible.
2. Seek out gaggles to thermal in and get used to the proximity of other gliders. This is a good thing to practice on days that are too weak for cross-country.
3. Practice thermal entry from high speed -90 knots or more. Be sure to pull up without banking until down to five knots over thermaling speed. Banking too soon will end you up well to one side of where you planned to be.
4. Be aware of operating bands -the altitudes where you will cruise fastest. Typically, if bases are at 5,500' the best band will be between 5,000' and 3,000'. Higher, the lift falls off; lower, getting a good thermal becomes too chancy. Keep in mind that the pilot who uses the fewest thermals -the best ones, of course - will go the fastest.
5. Practice final glides from 15-20 miles out, planning to finish exactly 1,000' above the airport. This is a great confidence builder. Climb back up to 2,000', pull the brakes and repeat as often as possible. Great low save practice.
6. If you don't land out occasionally you aren't pushing hard enough. If you land out frequently, you're pushing too hard. Finding the happy medium is what it's all about.

Okay, it's contest time! If possible try to arrive at the site four or five days early to get a feel for the area, its geography and weather. Plan on flying 3-4 hours a day, not more, and getting a feel for the lift patterns as related to

terrain. Fly at about 80% effort; there's no use getting burned out before the contest begins. Flying at 80% means cruising maybe ten knots slower and being conservative about the operating band. Be especially interested in when the thermals start and when they begin to die out. If you have a data logger, download the turnpoint info, likewise for a handheld GPS. If you are using cameras for TP identification, shoot a role of film to make sure they are lined up accurately and for practice. Getting good TP photos is harder than you might think. Find out from the old hands at the site which tasks and turnpoints are frequently called and give them special attention. Finish each day's practice with a final glide to the airport, planning to finish at 2-300 feet.

Unfortunately, you can't have a contest without rules, and soaring is no exception. To get a copy, download off the SSA web page or call Cyndi Stephenson at the SSA office (505-392-1177). The latest version is usually available by mid April of the current year. Don't despair when you see the bulk, most of it is organizational stuff. Do read carefully Section 10 (about 9 pages) which has to do with the actual flying. Also worthwhile is The Competition Pilot's Guide to the Rules with its useful explanations and clarifications. See especially section 11.4 and 11.5 on strategic considerations for flying the two types of tasks.

It's race day! What do you do? First, have the glider rigged and ready to go before the pilots' meeting, which will normally be around 9:30 or 10:00. Everything vital about rigging, control connections, etc., should be done by the pilot. If something goes wrong you don't want the crew going around blaming themselves for the rest of their lives. Immediately following rigging, do your post assembly checklist, covering all pins, connections, and a positive control check. Head for the pilots' meeting where you will get photo copied weather info and a list of three or four tasks. Keep notes on the accuracy (or lack thereof) of the weather briefing. It will be useful on days to come, especially for PST tasks. Immediately after the meeting get the glider out to your assigned position on the grid. You should now have nearly an hour to double check electronics, instruments and make sure all the vital things like maps and landing cards are in the cockpit. If using cameras be sure to get start board pictures when the photo board person comes by.

Now is a good time to be thinking about the task. The odds are good that the first day will be an Assigned Speed Task (AST). Let's assume a 200 mile task and that the lift is supposed to be 4 knots. In an average 15-meter glider this should result in a speed of just over 50 mph (no ballast condition) or about four hours needed. If the thermals are supposed to peak between 2 and 5 o'clock, fairly typical, then you should start around 1:30 to use the best part of the day. Being a little conservative in case the day isn't up to expectations, I would plan a 1:10-1:15 start. But let's suppose that after launch you find six knots lift all over the place (which would yield a 63 mph speed or 3:00 flying time) then you might want to start just before 2:00 p.m.

If the task is a PST - all tasks will be if you are flying in the Sports Class -an outstanding short essay on the strategic considerations for flying this task may be found in section 11.5 of the Rules Appendix called The Competition Pilot's Guide to the Rules. Two additional bits of advice. It never pays to finish under the allotted time, even by a few minutes. Avoid going to the edges of the task areas with few turnpoints. If your chosen TP is weathered out it can cost big points if there are no other options nearby.

The speed figures are derived from applying the MacCready formula to the glider's rate of sink curve. The table below shows typical figures for a 15-meter glider (assuming no ballast).

Lift (knots)	Speed to fly	Speed made good
2. 62	knots	36 mph
3. 70-80	40	
4. 87	50	
5. 87	58	
6. 90	63	
7. 95	68	

Keep in mind that lift is measured by taking the time from the moment you leave level flight to the moment of resuming it. The result will usually be about half of the best observed vario reading.

Meanwhile, back on the grid... As grid time approaches pilots will begin pushing their gliders from the side of the runway onto their assigned spots. At grid time there will usually be a final pilots' meeting at the head of the grid where the CD (Contest Director) will assign a task and usually give a last minute weather briefing. Launch will normally begin 20 minutes after the grid meeting, but may be delayed at the CD's discretion.

Unless you happen to be near the start of the grid, you will have half an hour or more before launch. If you have one, enter the task in your data logger, although many just like to enter the next TP as they go along. Be sure to eat something, preferably protein, even if you don't feel much like it. Stay away from cookies, candy bars and the like as they will spike blood sugar, leaving your energy depleted half an hour later. Energy bars are good. Be sure to keep up fluid intake.

With fifteen minutes to go, complete your pre-flight checklist. A good one looks something like this:

- Oxygen on
- Varios on
- Altimeter set
- Radio on frequency

- Clock
- GPS set
- Cameras loaded
- Pee-bag or catheter Towel for spills
- Hat
- Sunglasses
- Water Food Maps
- Photobook for TPs
- Task sheet
- Start time interval
- Start-finish directions
- Start board photographed
- Tail dolly off

Once launched, spend half an hour or so flying around as effortlessly as possible, getting the feel of the day. What seems to be the average thermal strength, effective ceiling, wind strength, direction, etc.? Try not to get involved in big gaggles, as they require a lot of attention. Don't let more than half the start time interval go by without making a start for identification. This is very important as being even one minute over means you have to land and re-launch. Assuming you do not have a data logger and are making a traditional gate start, get high near the IP ten or fifteen minutes before your planned start time. Ideally you want to start right at the top of the gate at redline, but often it won't be possible to get high enough to start this fast. If possible, start a minute or so behind two or three other gliders. They will be a big help in finding that vital first thermal.

One of the biggest differences between contest flying and sport flying is the presence of other gliders. Use them. Scientific types have been trying for years to invent varios, which can see thermals five or ten miles ahead. Other gliders are just such an invention and can provide invaluable aid. Watch for the telltale flash of wings down course. Train yourself to estimate the rate of climb of different types of gaggles. Steeply banked gliders show a good thermal, slightly banked gliders in a wide gaggle show poor lift or a broken thermal.

Don't join the large group that mills around at the top of a thermal waiting for some well-known pilot to leave. When the lift starts to drop off, go. Learn the contest numbers of the *four* or five best pilots; their techniques can be highly educational. Good pilots can be told even at a distance since their style is decisive and definite. They are often followed by a large minnow pack of wannabes.

For inter-thermal flying most good pilots set their MacCready or speed ring at a very conservative value, usually one half to two thirds of the best observed climb. Keep in mind that flying 10 knots slow of ideal MacCready costs less than two percent in speed but buys some four points (12-15%) better L/D or searching range. This can be especially helpful on blue days. Conversely, if you see a gaggle five miles ahead obviously going up like gang busters, get moving. You need to get there before the markers leave. Be very picky about using thermals in the top half of the operating band. About one out of five thermals are distinctly better than average. Wait for them. Obviously as you get lower you will be less greedy, but remember that every thermal you use costs a minute or two in getting centered (less if marked by a gaggle) and thus slows you up.

Course deviations of up to 15 degrees cost very little - about 4% more distance -and will definitely pay if the result is a juicy cloud. Greater deviations begin to be expensive and require a lot of persuasion. GPS is very helpful in letting you know what the deviation is and instantly giving you the new course to the TP from wherever you have gone.

Keep radio use to a minimum, as all the top pilots do. There are talkers and winners. They are never the same people. If in range let your crew know how you are doing every half hour or so. Codes speed things up. For instance, "fifteen short of two, red." This could mean fifteen miles short of the second turn, doing well. Color codes for excellent, good, fair, and poor are simple and can be changed from day to day. Keeping the crew informed and interested means he/she will likely come again next time.

Towards the end of every successful contest day comes the final glide. This used to be a sweaty process in pre-GPS days when you seldom knew exactly how far out you were or what the wind was up to. These days with fancy varios giving a continuous readout of distance and altitude required, it's pretty painless -if you have practice doing it. By the way, if you don't have a fancy vario, keep in mind that an old-fashioned circular calculator is a final glide computer. Set miles to go on the outer ring, altitude in feet on the inner, and read L/D required above 5,280 on the inner ring (6,100 if you are using nautical miles). Leave the setting on calculator and you will have a constant readout of whether you're gaining or losing as the GPS distance decreases. Ideal glide angle will be geared to the rate of climb in the last thermal but roughly use 35/1 for 2 knots lift, 28/1 for 4 knots and 23/1 for 6 knots (15-meter glider, no ballast). Plan to cross the finish line at 100 feet or whatever the local rules call for. Don't forget to call your approach at four miles.

After you cross the line assume that there are five other gliders close behind, pull up slowly and watch the airspeed extra carefully. Land with the full awareness that other competitors may not have too many options left. You will already be on 123.3 for the finish gate, be sure to announce your landing intentions.

Contests are great fun and a great learning experience. Almost everyone comes away from the first contest claiming to have learned more than in all their flying up to that point. The key to success is surprisingly simple. A good glider, adequate instruments, consistency and concentration are all you need to start playing the game effectively. Experience and the resulting growth make each contest more enjoyable and usually more successful. One caution: it's easy to get hooked!

Some useful reading:

**Cross-Country Soaring**, Helmut Reichmann. \$39. Expensive but worth every penny. This book is by the three time World Champion is in a class by itself.

**Winning on the Wind**, George Moffat. \$8. This book, although only by a two time World Champion, contains some useful stuff in the techniques section.

**Off Field Landings**, Tom Knauff, \$7. A very useful book by a world record holder, and you don't get to be one without plenty of off field landing practice.

All these books can be found at Knauff and Grove or the SSA Merchandise office. 'W'''

***About the Author:** George Moffat has been flying in Nationals and World Champion- ships since 1962. He has won two Worlds in the Open Class and five Nationals -one of two pilots to have won in all three classes - together with the European Championships. A holder of the Lillienthal Medal, he has flown competitively in over eight different countries. He went with the U.S. Team as a coach this year.*

## Addendum –2002

The accompanying article was written in the fall of 1999, and a fair amount of water has flowed out of our tanks since then. Here is an update, covering the latest developments.

First of all, ignore all the comments on camera techniques and gate controlled starts--they are ancient history, together with start time intervals. All starts are GPS controlled these days, and the system works as follows: Near the field you will find anywhere up to five start cylinders, each with a normal radius of five statute miles, commonly designated Start A, B, C, etc. One of these will be assigned on the task sheet and all will be found on the **TP** download in the logger. Before the start you can fly in or out of these cylinders at choice. They will usually have an assigned maximum altitude, normally near expected cloudbase. You must be below the max altitude, either in or out of the circle, for a designated period, usually five minutes, before you make a start. This is to prevent Kamikazi redline+ dives across the line. It's usually wise to allow a 100-150 foot cushion below max altitude so as not to incur a penalty for a high start. Altimeters are seldom absolutely accurate.

Normal technique is to hang out near the edge of the start cylinder giving the shortest distance to the first turn and stay near the top of the cylinder from about five minutes before the start gate opens. Generally, don't start until the gate has been open at least ten minutes as you want a few markers out there to find the first thermals. Unless the task is very long for the weather twenty minutes is often better. Of course if the task is short and/or the weather improving you may want to wait for quite a while as one often did with the traditional start gate. Since the actual start is silent there is no way to latch onto a famous tail number as in the past. You are supposed to announce your start time some time within a set time of the start. Of course you can go back to restart at any time. Your start will be timed from when the logger shows you last crossed the line.

The other major development, starting this year, is the Assigned Area Task or AAT. This substitutes an area of assigned radius for the traditional turnpoint. The radius may be of any size, as indicated on the Task Sheet, and a turn is logged wherever the GPS trace shows the deepest penetration into the area. A minimum allowable task time is assigned, and finishing early is heavily penalized. There is no penalty for finishing late, but it is seldom a good idea unless a lot of speed can be picked up during the overtime. An example would be a fast run up and down a ridge at 120 knots for an additional fifty miles. So far we don't have enough experience with this task to really fine-tune techniques, but you obviously don't want to turn so early in the first areas that you run out of distance to use up the required time. So far the task has been very popular with those who have flown it, especially for its tendency to reduce gagging.