INSIDE THIS ISSUE

Two inserts are included in this issue. The first, by **Esteban Draganovic**, entitled **"How Fast Can I Really Go?"** is an examination of the concept of 'cruising speed' on a cross country task. Note: A color version of Esteban's paper can be downloaded from the Documents link on the website. The second, by **Bill Kenyon**, entitled **"Things instructors say (or should say): The unanticipated student landout"** examines how to prevent recently soloed (and seasoned pilots) from finding themselves in the position of having to land out.

CALENDAR

November 11 - Membership Meeting The final membership meeting of 2006 will be held at Freehold Airport on take apart day - time to be determined.

November 11: Take Apart Day - yes, that sad annual event is approaching but there are still many chances to fly before then so come on out to the airport!

NOTICE!

Coming on October 28th

First Ever Freehold Fajita and Chili Fest

Don't miss Winnie Kenyon's Fabulous Fajita Fixins'

Chow down on Bruce Stein's Chili

Details on the website in early October and in the next Nutmeg News.

Nutmeg News is the official publication of the Nutmeg Soaring Association, Inc. Edited by Jim Sidway, 211 Lum Lot Road, Southbury, CT 06488-1960 203.264.6170 jsidway@earthlink.net

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Nutmeg News

Volume 47, Number 8 September 2006 Editor: Jim Sidway

PRESIDENT'S MESSAGE

By Bruce Stein

The soaring season only has two months left before we put the gliders and tow planes away for the winter. But there will still be many opportunities for everyone to get some good flights. This season has been successful in many ways and if the weather cooperates we will be able to finish up 2006 ahead of expectations. I encourage everyone to make the most of the remainder of this season. Come out to the airport, take a flight or two and enjoy the last flying weekends of 2006.

The number of new members this year has exceeded our estimate. This is a great accomplishment for every member as it shows that the dedication and hard work we put into the club is paying off. The attraction of learning to fly motivates new members to take a look at our club but it is the great enthusiasm and quality of our members that really gets them to join. Due to the number of new members and students we have had to curtail the Trial Membership program temporarily. Once our current students get to the point of solo we will look at restarting the Trial Membership program.

The Husky is now performing full time towing duties. Bob Ward has worked very hard at providing the club with a very capable tow plane. His few comments to me about his Husky idea at a General Meeting a little over a year ago has surprisingly turned into reality. Now that the Husky is on the flight line we need to remember that we are only leasing the aircraft and must take care of it as if it were our own. On second thought, make that better than if it were our own.

The Super Cub has a very serious potential buyer at this time. Do not be surprised if on your next visit to the airport the long time tow plane is no longer on the field. The Super Cub worked very hard for a long time providing thousands of tows for the club. Many of us flew the Super Cub and all of us have been towed by the venerable tow plane. Once off of tow most of us do not give the tow plane a second thought but many great flights were the result of good ol' 05Z getting us to our first thermal of the day.

The Lexmark mower and our dedicated mowing staff are working very hard this year keeping the airport from looking like a hay field. The weather this year seemed perfect for grass growing without the normal hot and dry days to give us a little reprieve. Keeping ahead of it was a major task but accomplished without notice by many of us I bet. The mower is now sporting two rotating yellow lights on the roll bar. Thanks to Tom Albrecht and Esteban for installing these lights. This will help make the mower more noticeable to everyone on the ground and in the air. Anyone who would like to get checked out on the mower can do so easily. Just see Mac, Rudi, Frank, Lee or Tom and in no time at all you will be sharing in the enjoyment of maintaining our runways.

The annual trip to Mifflin will be from Sept. 23 to Septa 30. The Grob will be taken to Mifflin for ridge checkouts and general club use. As of now we still need a volunteer to take the Blanik assuming there is interest in from any members in flying it on the ridge. If anyone can bring it down please let me know ASAP.

See you at the airport.

EDITOR'S APOLOGY

As publisher and editor of the Nutmeg News I would like to apologize for the tardiness of this edition. It seems that I allowed myself to become obsessed with the two written exams and the practical test required to obtain my CFI-G rating. My wife wondered if I would ever stop studying. Well I passed the written exams in late August and then passed the practical (administered by Wally Moran) this past weekend and I began instructing on Sunday. I want to thank everyone who assisted me in this endeavor especially Jeff Driscoll who encouraged me to do it and worked with me over the summer both in the air and on the ground. And thanks to Esteban Draganovic for his patience in explaining the lift equation in general and the coefficient of lift in particular. - Jim Sidway

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MINUTES SEPTEMBER MEMBERSHIP MEETING

The meeting was called to order at 6:10 PM at the DeMarco /Ramsdell residence in Medusa, NY.

The first item discussed was the Internet wireless service now availability at Freehold. The users are currently paying for this service. Should Nutmeg pick up the expense or is there little advantage to the club in general? The motion was made to table this item for further consideration. Input on this matter from club members is welcome. Anyone wishing to get on this service should contact Dave Page.

The second discussion concerned the sale of the Super Cub. It was believed to have been sold, but the prospective purchaser just melted away. There have been several inquiries since.

The third discussion pertained to a safety issue. Radios in all aircraft should be used to announce the pilot's intentions. Radios should be checked and used, as this is a safety issue. Nutmeg's base can be used by any member to respond to aircraft asking about activity on and around the field. If it is noticed that aircraft, ours or visitors, have landed without announcing their arrival they should be POLITELY requested to use 122.85 and announce their pattern entry and intentions. It would be useful to have a hand held radio for the duty pilot. If an aircraft is flying without a radio this fact should be announced to the ground crew before takeoff.

The Mifflin trip is scheduled for September 23, 2006. All members are encouraged to go to Mifflin. There is still a need for someone to tow the Grob.

Our president had a brief discussion with a banker about the possibility of getting a loan once our mortgage is paid in order to build a large hangar to store all of Nutmeg's ships (rigged). He was assured that this was possible.

The Husky has successfully pulled the Grob with two passengers and seems to be capable of meeting our needs.

Normally the September meeting brings about the establishment of a nomination committee to find candidates to serve as Nutmeg's president for the next 2 years. Our current leader stated that he would be willing to serve another term. To date no other member has expressed a desire to serve.

We had an unfortunate incident where diesel fuel was pumped into our gas tank. This could have had serious consequences. Luckily it was caught and we believe it has been resolved. This incident also brought about another reoccurring question as to whether Nutmeg should be selling fuel to visitors or just having it for our use. No decision was made.

Again it has been mentioned that Nutmeg Soaring members should not charge items at Greenville Saw (John Benson's). There is too much confusion over billing and becomes a nightmare for Bob Cox. Use your own credit card or cash and present your receipt to Bob. He will reimburse you very quickly.

Carelessness in crossing the runway has again become an issue. Members should know how to do this safely as it has been brought up again and again. If you have guests or you see unfamiliar faces at the field make certain that they are informed on how to safely cross the field. Our Operations Chief has put together a manual that addresses this and other safety issues. Please get and read a copy and review it with any guest that you bring to the airport. An accident such as this would have dire results on the operations at Freehold airport.

Respectfully submitted,

Donald K. McKinlay
Secretary, Treasurer

MY FATHER ALWAYS SAID
Submitted by Don 'Mac' McKinlay

It's funny how your parent's wisdom eventually sinks in. Our airport and its many extras planes, mowers, golf carts, tractors and buildings all serve a necessary function. They also require care, service and maintenance. We are all aware of the jobs that the long term members have performed so in spite of their continued efforts I'll skip them for now. What I've noticed of late is how several of our newer members have started to pick up on the workload.

Tom Albrecht has been putting in a lot of time on the golf carts. A "grease monkey supreme" which they sorely needed. Can you imagine the uproar if they all stopped running? Spark plugs, air filters, a change in the type of oil, new drive belts and a good cleaning are just some of Tom's efforts.

Grass mowing is a never ending task and honestly the three older, more senior men were wearing out. Along comes The Stobbe Team. Thank Heaven! Debbie and Bruce have started riding the fields at a pretty fast pace. Backing up the Stobbe Team is Anthony Loux one of our youngest members who is showing a lot of willingness to help wherever he can beyond just mowing.

Everyone or nearly all try to keep the shower and rest rooms clean but it's Robin McNamara who gives them sparkle. A job much appreciated.

Beth Albrecht has been tending the gardens keeping up Nutmeg's appearance. Another of those chores that are done without fanfare but that everyone admires.

I'm sure that I have missed jobs being done quietly by other new members and I apologize if anyone was overlooked. If you are aware of a member who is putting in a considerable effort, please let me know.

It's so easy to miss a job that is being done. An example is early 6:30 am Doug Laitinen was working on the pump for the big poop truck. How many of us would be up to see that? The only reason I'm aware of his efforts is because I was putting new wheel lugs on the little honey wagon. Why so early? Neither one of us wanted to be seen elbows deep in stink. How's that for camaraderie? In the past Doug has replaced plumbing fixtures on the water wagon and in the buildings. Although Doug is one of the old timers, we probably take for granted his efforts.

The only reason a club like ours survives is because so many do so much to keep it going.

POTENTIAL HAZARD REMOVED

Submitted by Don 'Mac' McKinlay

On the east side of the administration building stood a 250-year-old Basswood tree. Once stately and elegant it now suffered from the riggers of time. According to Clem at one time this was the tallest tree in the area but had been losing limbs over many years. It was now divided down the middle and one side had become a home for ants and other insects as the other side struggled to live on. Until now it had dropped some limbs but had caused no damage or injury but the possibility was obvious.

As a crew of Nutmeggers gathered and watched a day of rain they made the decision that had been put off for a couple of years. This poor old tree should come down.

John (big saw) Benson, Tom (second saw) Albrecht, Bruce (the thinker) Stobbe, Peter (muscles and jokes) Veldkamp, Debbie (rake swinger and photographer) Stobbe and
myself (dubbed by all the instigator) went to work and removed the tree. Only a stump remains.

A brass plaque that had given a brief history of the tree was saved for the great grandson of the man who had recorded said history.

In the void left by this tree perhaps Nutmeg Soaring should plant a 50th Anniversary tree. A plaque might also be appropriate for history's sake.

A NUGGET FROM THE PAST

Submitted by John Boyce

From the meeting notes of June 1972 (yes, 1972) : "The Duty Pilots are asked to make their logs more legible. By the time the Treasurer receives them, they're quite often difficult, sometimes impossible to read." As the French would say: "Plus ca change, plus c'est la meme chose."

***** ET CETERA *****

Welcome new members **Kim McLean** from Athens, NY, **Ben White** from Tolland, CT, and **Bob Pett** and son **Alex Pett** from Slingerlands, NY. Also welcome to new tow pilot **Neil Osborn** from Hunter, NY.

Congratulations to **Sean Neal** who soloed a glider for the first time on Friday 9/9.

Final Glide: Nutmeg alumnus **Wally Roze**, 77, formerly of Washington, CT, died August 21, 2006, at his residence in Olive Branch, Miss. A member in the '70s Wally was a Nutmeg tow pilot and instructor.

HOW FAST CAN I REALLY GO?

By K. E. Draganovic

Have you ever wondered on a good soaring day how far could you travel with your glider? To answer that question the two pieces of information that you need are: How many flyable hours will I have? And, what speed can I make good today, i.e. what will my "cruising speed" be? The latter depends on how strong the thermals are. Another key variable in the equation is how well your glider performs. The fact is that on a day when the thermals are stronger you can go faster, but how much faster?

How many flyable hours will there be for a given day is not the focus of this writing, but providing an answer to estimating the best speed achievable for a given average thermal is. Then simply multiplying the flyable hours by the achievable speed made good (cruising speed) provides the greatest possible distance you can fly. This, however, requires perfect piloting technique.

I present here a simple estimation method, assuming zero wind, and also assuming that the air is still between thermals. For a more elaborate calculation, which includes the effect of wind and the sink or lift between thermals, please see Helmut Reichmann's book Streckensegelflug or "Cross-Country Soaring" published in English by the SSA.

Before presenting the formula that permits the estimation of the average cruising speed let's review some considerations regarding the influence of the glider performance on that cruising speed. The most important aspects of the glider's performance are captured in the so called "Polar Curve" of the glider. This curve relates the sink rate of the glider with the forward speed or "CAS" (for "Calibrated Air Speed"). See Fig 1.

To fly a task we need to select the best speed to fly from one thermal to the next. We can use the Polar to determine the sink rate at that selected speed. The best speed to fly and the average thermal lift value are what we need to estimate the average cruising speed.

What is the best speed to fly? In flight we set the McCready ring pointer on the variometer to the expected climb rate in the next thermal, e.g. 2 kt. The ring has speed values engraved below the pointer mark. As a result the variometer needle points to the required speed to fly, as marked on the ring. Alternatively some electronic flight directors accept a setting for the expected next thermal, and they guide us by means of a "Push" or "Pull" readout, that results in achieving the correct "Speed To Fly".

The question now becomes, can we estimate the correct "McCready speed to fly" before we take to the air? The answer is yes, and again we need to use the Polar Curve shown in Fig 1. If we have an idea of what the average rate of climb in thermals will be we can draw a tangent to the Polar from that climb rate - 2 kt in the example as indicated by the point of the blue arrow. Reading the CAS on the horizontal axis directly above the point where the line touches the Polar we find the McCready speed to be approximately 56 kt. Drawing a line horizontally from this same point we see that the rate of sink is approximately 1.9 kt.

Once we obtain the correct "speed to fly", the following formula can be used to calculate the cruising speed:

$$Vcr = Vmac\left(\frac{Vcl}{|Vsink| + Vcl}\right)$$ formula [1]

Where:

Vcr = Cruising Speed
Vmac = Speed to fly (McCready speed for the average expected thermal)
Vcl = Thermal Value *Vsink* = Sink rate at the selected Vmac (absolute value)

In this example we see that Vcr = 56(2/3.9) = 28.7 or 29 kt

A simple graphical method to determine the “Speed to Fly” or McCready speed

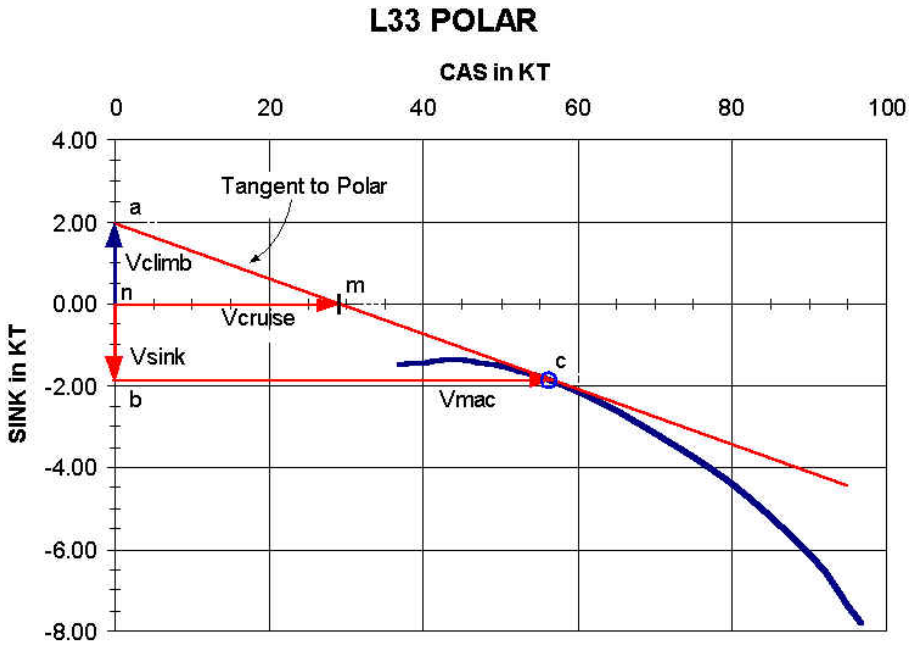


Fig. 1

The blue trace in Fig. 1 represents the performance of the Blanik L33. Each point on the blue trace is determined by the value of the sink rate and the calibrated air speed for that sink rate. Please note that the graph is constructed so that it starts at zero air speed and zero sink. That point is the origin. In some Flight Manuals the polar is displayed with the horizontal axis (speed axis) starting at some non zero value for convenience. In that case the graph needs to be re-plotted and the (0, 0) origin has to be included. The only thing needed to estimate the “Speed to Fly” is to mark the point “a” on the vertical axis, which is the expected lift value, and to trace a tangent line from that point to the polar curve (Point “c”). The point “c” determines the “Speed To Fly” or Vmac, and the numeric value can be read on the horizontal axis. Please note that the blue arrow pointing up from the origin to “a” on the vertical axis represents the expected lift, and the red arrow pointing down between the origin and point “b” on the vertical axis represents the sailplane’s sink at Vmac. In addition, the point “m” on the red tangent line, located where the tangent crosses the airspeed axis, represents the “Cruising Speed” or Vcr, which is the subject of this discussion. In short, we have two ways of estimating the speed we can make good, or “Cruising Speed”, by either applying Formula [1], or creating the graphical construction of Fig. 1.

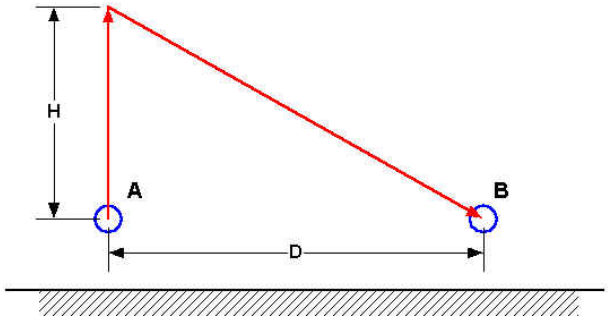
The real importance of this geometric construction is that it shows the cruising speed at point m. That allows us now to create multiple constructions for different selected thermals and read directly the cruising speed at the point where the tangent crosses the horizontal axis. This construction also solves the cruising speed for the case of wind, but we will leave that for the reader, by consulting Helmut Reichmann’s book.

For the L33, a 2 Kt thermal average leads to a cruising speed of 29 Kt.
4 Kt thermal average leads to a cruising speed of 39 Kt.

For the readers that would find it difficult to trust formula [1] without some overview of its derivation, we include appendix 1.

APPENDIX 1

For those interested in understanding how formula [1] was derived, we offer the following:



Assume a glider travels from “A” to “B” in time T. In that time T it climbs an altitude H at a thermal rate of Vcl, and following that it glides a distance D at Vmac. Also during the descent it has a rate of descent Vsk corresponding to Vmac. We desire to calculate Vcruise (Vcr) from the aforementioned assumptions.

The speed to travel the distance D is determined by the time t1 needed to climb H plus the time needed to glide from the top of H to the destination B. The total distance D divided by the total time t1+t2=T is the desired cruising speed Vcr.

$t_1 = \frac{H}{Vcl}$ climb time, and $t_2 = \frac{D}{Vmc}$ glide time, and also $T = t_1 + t_2$ and $Vcr = \frac{D}{T}$

$$T = \frac{D}{Vmc} + \frac{H}{Vcl} = \frac{D}{Vcr} \rightarrow \frac{H}{Vcl} = \frac{D}{Vcr} - \frac{D}{Vmc} = D\left(\frac{1}{Vcr} - \frac{1}{Vmc}\right)$$

$$\frac{H}{D} = Vcl\left(\frac{1}{Vcr} - \frac{1}{Vmc}\right) = \frac{Vcl}{Vcr} - \frac{Vcl}{Vmc}$$

Also consider that during the descent over H we simultaneously move forward the distance D, so:

$$\left.\begin{array}{l} H = |Vsk| \times t \\ D = Vmc \times t \end{array}\right\} \rightarrow \frac{H}{D} = \frac{|Vsk|}{Vmc}$$

$$\frac{|Vsk|}{Vmc} = \frac{Vcl}{Vcr} - \frac{Vcl}{Vmc} \rightarrow \frac{Vcl}{Vcr} = \frac{|Vsk|}{Vmc} + \frac{Vcl}{Vmc} \rightarrow \frac{Vcl}{Vcr} = \frac{|Vsk| + Vcl}{Vmc}$$

$$Vcr = \frac{Vcl \times Vmc}{|Vsk| + Vcl} = Vmc\left(\frac{Vcl}{|Vsk| + Vcl}\right)$$

$$\boxed{Vcr = Vmc\left(\frac{Vcl}{|Vsk| + Vcl}\right)}$$

Things instructors say (or should say): The unanticipated student landout

By Bill Kenyon

Two recently soloed students in our club landed out in the last year. The landouts were successful -- no injuries, no damage. However, a club always prefers to have its gliders land back at the airport, not in a farm field.

What should an instructor tell/ask students that either helps them to avoid a farm-field landing, or to make it successful? From our cadre of half-a-dozen active instructors, and a reservoir of inactive experienced instructors, we should have some suggestions. Here is my list:

1. (a) Don't get off tow unless you know where you are relative to the airport AND are happy with where you are. (b) (Just after releasing from tow) Turn toward the airport and tell me where you will enter the pattern from – that's a good way to start every flight.

(a). When you are on tow, you have more alternatives then when you are off tow; in particular, if you don't like where you are, you can probably steer the tow plane to a better place.

Anecdote 1.1. Flying a rented 1-26 with no radio, I had told the towpilot I wanted a tow to 3,000 agl, to the far side of the ridge 3-4 miles away, where I could see the one big remaining cu of the late afternoon, with a few of my fellow gliders circling happily beneath. On tow, as I reached 3000 agl, I had been under the cloud for about 15 seconds, and had felt a surge of lift. I released, and circled. Naturally, half a turn later I was in serious sink, made the big decision, and headed back for the ridge in big sink, with the nose down to make headway. I cleared the ridge by a few hundred feet, and then had a suspenseful 3 miles of low-over-the-trees down slope back to the airport. Moral: just because you said you wanted 3000 agl, doesn't mean you have to release at 3000 agl.

Anecdote 1.2. The 15-year-old student pilot returned from a solo flight and reported to his instructor with great self-satisfaction "The tow pilot took me over to the mountain, but I didn't want to be there, so I DIDN'T GET OFF."

(b) Occasionally, a student just off tow won't know which way to turn to see the airport – suggesting that he didn't know where it was before he made the decision to release – so I say, **"just keep turning until you see the airport."**

2. (a) (While on tow) Without looking, which way is the airport? (b) (Off tow, while maneuvering) Turn towards the airport.

a).You can't make a reasonable decision on whether to release from tow unless you know where you are. Therefore, a student should develop the ability to know where the airport is while he is on tow. In his early student stages, he can do this by dead reckoning ("we've been making a big circle to the right, so it should be behind to the right ..."); in later stages, when it takes less than 110% of his attention to follow the towplane, he can look around for landmarks. Interestingly, even after hearing, "without looking …" most students look.

b) Requesting "turn towards the airport" rather than saying "Turn 90 degrees to the right" gives the student practice at knowing where the airport is. It also begins to put onto the student the responsibility for staying in airport range. It likewise keeps the instructor sensitive to airport range; maybe if I do this more, it will keep me from making the mistake I make a few times a year -- while concentrating on giving instruction on, say, turns, I get the glider out of position/altitude to make a book pattern.

3. (a) The big white factory is 3.2 miles northwest from the airport on the south side of Route 145. (b) The big white factory stands out like a sore thumb for miles in every direction; but you can't see the airport from the north.

Student pilots need to know what the good landmarks are. The first use they should make of a good landmark is to judge how far they are from the airport. Later, or in worse circumstances, they should be able to use the landmarks to navigate back to the airport. The big white factory is a particularly important landmark because many instructional flights release near it – it's upwindish of the airport but not in the mountains.

By discussing landmarks, the instructor also gets the student to participate in big-picture planning (where the airport is, and how we get back there) in addition to the details of stick-and-rudder work ("Now do a slip with the right wing down").

(b). Imagine the consternation of an inexperienced solo pilot who is low to the north, from where the airport is hidden by a hill, and knows no helpful landmarks.

4. (a). While on tow). You are nearly 3 miles from the airport. Can you make it back to the airport if the tow rope breaks now? If in any doubt, get on the radio to the tow-pilot and ask him to turn around. (b) (While maneuvering): Can you make it back to the airport from here?

(a) Student pilots tend to believe that the towplane is a black box that will take them to the right place via the right route. The truth is that tow pilots are not perfect; as a simple example, the tow pilot may misunderstand who the glider pilot is, and how much experience he has. Students need to form their own judgment about the tow route as it progresses, and to act on it.

Anecdote 4.1. The tow pilot, afterwards on the ground, said "It was so hazy, I had trouble finding the airport after that last tow". I had been in the glider with the 15-year-old student pilot, and I had said to him, shortly after release, trying to sound confident and instructor-like, "That's 'The School' down there, so you know you're going in the right direction to reach the airport." (The School is about 2 miles from the airport). What if the 15-year-old had been flying solo? See also the discussion above about "don't release unless you're happy with where you are."

5. (Before flying) The tow pilot is standing over there. What do you want to say to him about your upcoming tow?

Student pilots, particularly teenagers, tend to be startled by this request – but they benefit from direct interaction with towpilots. See 4a above ("the towplane is not a black box ..")

A lot of glider pilots say to the tow pilot, on the radio, "3000 upwind." Some tow pilots take this to mean "tow directly upwind without turning." (This might have been the case with Anecdote X.2.) Arithmetic says that if you climb at 500 feet per minute on tow, and descend at 200 feet per minute off tow, towing directly upwind doesn't put you beyond airport range. But if you spend a few minutes doing maneuvers before worrying about the airport (or if you don't know which direction to fly), then you may soon be beyond airport range.

A strong wind aloft means that a standard circle-the-airport-and-release-over-it tow route will put you farther downwind at 1000 feet agl than you like. This is a good time and place to say to a student, "Could you make it back to the airport from here?" Occasionally I have called, as an afterthought from the back of a 2-33, to a nearby student I had just flown with, "**Please walk over to the tow pilot and ask him not to fly further downwind than the mid-point of the runway.**"

6. When you fly solo, don't be afraid to get on the radio and say "I've lost the airport, I'm at 1800 msl."

Instructors don't usually say this to students, because the circumstance usually doesn't arise during instructional flights. But an instructor could say, *"***Where's the airport? What would you do if you were flying solo and couldn't spot the airport?***"*

Anecdote 6.1 A senior instructor, not long off tow, noticed the 2-33 with the 16-year-old recently-soloed student pilot 1000 feet below him; the 2-33 was clearly beyond range of the airport. On the radio, the instructor guided the student pilot to find the good field (from the instructor's altitude, at least, the choice was obvious) and to land successfully on it.

Anecdote 6.2. A mature student, on his 5th solo flight, said on the radio "I can't find the airport, I'm at 1400 msl." A few additional radio calls established that he was "near The School", revealed that he had a plan ("If I can't find the airport soon, I'm going to set this baby down.") and encouraged him to execute it ("That's a good plan, just pick a nice big field.") "The School" turned out to be a second school 5 miles northwest of the correct school near pattern entry point, but this information allowed us to find him quickly from the air.

Anecdote 6.3 . Eight years, ago, on a soaring safari, flying for the first time ever from an airport almost invisible from the air, one of our pilots said " I can't find the airport" and was successfully guided by a radio transmission or two.

Anecdote 6.4. The day following anecdote 5.3, my glider partner – a man with 1500 power hours in 50 years of flying – flying for his first time at that location, called in "I can't find the airport" after an hour of flying. He subsequently stalled in from circling at 200 agl over a field 5 miles downwind, and was killed.

Anecdote 6.5. The day before Anecdote 5.3, I was flying for the first time ever at a different site, and had lost the airport. I was surprised at how hard it was to concentrate on simple tasks (specifically, remembering what the field elevation was, and subsequently computing my altitude agl) with fear and adrenaline controlling my mind.

A useful conclusion from these anecdotes is that students should be taught that "Cockpit Resource Management" includes the resources available via radio calls, and that calling on those resources is a good way to prevent the cognitive freeze up that fear so easily causes.

7. (a) As you go around the pattern, ask yourself "Am I high? Am I low?" and make the appropriate adjustment. There are 6-8 things you can do to correct "too high", only 2-3 to correct "too low".

(b) We teach you to fly the pattern by eye, because this method works for off-field landings.

(c) If you can't make it back to the airport, then you will have to land somewhere else.

(d) The day is likely to come when you will have to land out, in spite of all precautions; but land-outs are not inherently highly dangerous; and you are learning skills that will enable you to land out successfully.

(e) Look at that field down there. Would it be a good field to land on?

The adult student of Anecdote 6.2 gratifyingly commented on how his good training allowed him to make the landout successfully. This method, in which the high-low assessment is made visually, is taught by most glider instructors, and most of we instructors are very used to saying it. For most power pilots, it is something that they must learn from scratch, as they tend to learn "Turn base at 600 agl..."

Anecdote 7.1. Half a dozen years ago, at the airport we used then on a lease basis, a teenage student pilot was downwind over the house thermal, started back for the airport, and went into the trees about 200 yards short of it. He sustained bruises on his shoulders where the harness rides, scraped knees, and had headaches for a week. This occurred on a Saturday

in April; on Tuesday, when the airport owner got into town, he informed us we would be off the airport at the end of the season.

This student (like most) had never considered any alternative but landing back at the airport. If you present the landing pattern as something deliberately designed to handle off-field landings, you will have opened the student's mind to a circumstance that he eventually might need to handle.

8. (Before flying) Do you know what the wind aloft is?

The wind aloft has an enormous effect on whether a glider can make it back to the airport. It is therefore the most significant aspect of the weather that you can't see standing at the launch line.

Students should be taught that it is their responsibility – and important – for them to know the wind aloft. You should show students how readily available this information is, and how to get it from a weather briefer or recording. You also can point out that a lot can be learned about the wind by observing cloud movement.

9.(a) Are you upwind of the airport, or downwind? Are you heading in an upwind direction, or a downwind direction? If you turn left, are you turning to an upwind direction, or a downwind direction? Turn 90 degrees upwind.

(b) Before you enter the pattern, and on downwind: "What is the wind doing to you? Which way are your circles drifting? On downwind, is the wind pushing you towards/away from the runway? Is it pushing you over the ground lot faster than usual?

Anecdote 9.1. A club instructor was flying a 2-33 with an adult student. This instructor was by experience a power pilot, but enjoyed instructing gliders. The wind had come up during the afternoon, so that the book entry point for the pattern was on the downwind side of the runway, with a crosswind estimated at 20 mph at altitude. On his entry to downwind, the instructor realized he would not make the runway, looked for alternatives, and landed in the trees between two houses (with no injuries). In the debriefing, the instructor said that if he had entered the pattern 100 feet higher, it would have worked.

In our distant club history (6 years ago or so), we had a rash of incidents that all involved being downwind of the airport. (two gliders totaled; a third, that of Anecdote 9.1, was retrieved by the then-president using a buddy's crane truck and subsequently repaired) Our operating rules now state "Pilots flying club gliders shall not fly downwind of the airport." This only works if students know "upwind" from "downwind". Take the opportunity when the wind is strong to develop the student's wind sensitivity, using questions like the ones above.

Sometimes one rule contradicts another. In Anecdote 9.1, the rule "The book says pattern entry is made from *here*" contradicts "**Don't get downwind of the airport**." Point out to students that in a very strong crosswind, one might better enter the pattern with a crosswind leg (i.e. from the upwind side of the airport) rather than from the standard place. The point is not that a crosswind entry is an important tool in their toolbox: the point is that glider pilots need to think about what they are doing and adapt to circumstances, particularly when the wind is strong.

(b) The pre-pattern, pattern entry, and the downwind stages of the pattern are a very important time to assess the wind direction and speed, and to plan an appropriate pattern (pattern entry altitude, pattern speed, pattern size).