

View From the Instructor's Seat

A collection of Articles written by Henry (Hank) Nixon on the Practical aspects of Soaring, Soaring Safety, and getting the most out of the sport. Originally written between 1987- 1991. Some of these articles have been published in Soaring magazine and in soaring club newsletters.



View From the Instructor's Seat



Hank Nixon **UH**

"This Is Serious"

This thought will jump into each pilot's mind once in a while as a difficult situation becomes critical. Each of us has a different threshold of alarm. What we're talking about is fine tuning this alarm system so we're prepared to use it. The level this article is about is where we're looking to minimize probable damage to the sailplane or choosing to increase the risk to the sailplane in order to prevent injury or death. Virtually all of the situations that apply to this category are related to the launch or landing phase. We'll examine some general guidelines and a few examples.

Point 1: Where the sailplane lands is much less important than it landing at minimal speed under control.

A) A slow speed (near stall), wings level impact virtually anywhere is survivable provided you don't run the nose into something. It is much better to land in trees at minimum speed than be out of control going into a small field.

B) If the towplane dies (rope break, etc.) a straight ahead landing into anything but a wall is survivable at minimum speed.

Straight ahead into tall corn, bushes, whatever, may damage the sailplane. A big old cartwheel or ground loop while turning definitely will, and may break your back or kill you.

C) In an off field landing, the approach that lets you land slowly is much more important than the surface. With a good approach, almost any field has an area good enough for minimal damage. Again, we're talking of making the best of an already bad situation we should have avoided. In any case the low energy landing, wings level, will reduce injury probability to a minimum, and fatality probability to almost none. This does not mean a slow pattern, but slow touchdown. Practice this till it is a habit.

Point 2: Fly the sailplane first.

A) If the canopy comes open, fly the sailplane first and deal with the canopy later. Canopy effects won't make the sailplane unflyable, but pilot distraction will.

B) If a bee, snake, mouse, spider, whatever, shows up, fly the sailplane first. Getting bitten or stung is much less likely to be fatal than a crash.

Point 3: If things seem to be getting out of hand, maybe they are.

A) If the elevator doesn't seem to be working on takeoff, release now! It only gets worse as speed and altitude build up.

B) If an aileron or divebrake is disconnected, you should still have enough control to maintain a normal attitude. If it is a dive brake, you may need to partially or fully open the other one to compensate for the rolling moment. Don't jump the gun on releasing from tow , if you can maintain position.

C) If you get severe pitch up on tow (read Dick Johnson's article in May 1987 Soaring for the physics), don't yell at the tow pilot, release before you're totally out of control.

D) Practice bailout procedures till you can

do them blind in the sailplane you're flying. There has been much talk recently about crashworthiness of sailplanes. The important thing to remember is that virtually all accidents are survivable if you don't bash the nose into the ground by stalling, diving, or cartwheeling. Each pilot must decide beforehand to release when the tow is getting out of hand, while you can still retain control. It may sound like I think all accidents are OK to have. I don't. It is, however, important to remember that many fatal accidents could have been prevented by accepting the possibility of sailplane damage in order to have a low energy, survivable accident.

Point 4 : It's better to have a low energy crash under control than a fatal almost save. **-UH**



View From The Instructor's Seat

Hank Nixon UH

This time we'll talk a bit about how to stay out of the way of others, or at least get in the way properly. This has two levels of importance. First, of course, is safety, and second is courtesy. The rules of right-of-way define some of the legal considerations, but they don't resolve the practical problems. The two areas of most concern are landing patterns, and thermaling.

In the pattern you must plan ahead and fly your own glider. Planning first. Look to determine who you may be affecting.

Your local operator will appreciate it if you don't barge in and stop the launch that could have gone if you waited another 30 seconds. Getting him out of the way may also leave you more room. If a trainer is about to get in the pattern, give 'm a break and hold if you can so the student gets his best shot.

If two ships get into the pattern at the same time, you should take the initiative to make it obvious whether you'll go first, or second. The proper procedure is that the first guy goes sooner, flies a faster, steeper approach, and rolls off clear to leave room for the guy behind. The second guy does one extra circle and flies a bigger, slower (slightly) pattern. A "normal" pattern takes about 1:30 minutes. The variations described will have the first ship out of the way as the

second ship turns into final.

Generally, with mixed power traffic flying the "standard FAA" type pattern, you'll have enough time to expedite your pattern and eliminate the conflict by going first and being visible. As I said before, fly your own ship first, thus getting on the ground safely instead of landing in the trees being a nice guy or having a scary direct conflict. Always assume that the airplane you're dealing with doesn't see you. Frequently they're too busy with checklists and pattern announcements to look around.

On to thermaling. As you enter, assume the other guy is centered (it does occasionally happen) and pull up so as to enter at the tangent point to his circle, at thermaling speed, and opposite the other glider in the circle.

DO NOT

- 1) Circle directly under another ship**
- 2) Circle directly behind**
- 3) Continue circling without the other ship in sight**

DO

- 1) Keep the other ship(s) in sight**
- 2) Make yourself visible**
- 3) Give a wave so they know they've been seen**

If you constantly are overtaking and are flying at the optimum speed, fly a larger circle to match your turn rate to the other glider. The other option is a quick, tight circle, but only if you can turn much tighter and there are only two of you. This is standard passing technique but only if you fly excellent, efficient circles. If you lose the other ship, level wings, move out, and re-enter. Do not trust the other guy you can't see. Radios do help here but keep it short.

Two ships together will climb as well or better than one if the poorer climbing glider adjusts to match the better one. If not, they both lose. Try to cooperate. If you thrash around in another ship's thermal, you will soon get a bad reputation. If you can't out climb the other ship, try to leave a little sooner when the

thermal weakens, and you'll be ahead at the next climb anyway. It takes practice to learn the planning needed to reduce conflicts, but the basics aren't too tough to

-UH

View from the

Instructor's seat

Hank Nixon UH

This time we'll talk about some things which we can all do to improve our chances in difficult situations. Some of these will seem like common sense and some you probably have never considered.

Parachutes

Know how to set up and use your parachute. Make sure the harness and pads are correct for you and properly adjusted. Practice and make second nature the procedures for getting out of the ship. Eliminate things installed in the cockpit that would make egress more difficult. Make sure the canopy jettison mechanism works to release properly and that it returns all the way to its home position on reassembly. **You** do it, your mechanic didn't.

Strongly consider the use of a static line to assure that the chute will open if you get hit on the way out. A lot of racing pilots are doing this now. It takes a little adapting to get accustomed to hooking it up and unhooking it when getting in and out, but I'm convinced it's worth it (my wife really thinks so). One fatality in '84 would almost certainly have been prevented by a static line.

Loose objects

Before you put something in the "baggage compartment" behind your head, ask the following question: "Would I want this thrown at my head by a very strong man?" If the answer is "no", either bolt it down (no bungee cords) or leave it out. Shot bags and batteries loosely secured become lethal weapons in an accident. One fatality

in '86 related to this.

Belts

Make sure they can be and are properly fastened and adjusted. The only negative aspect of tight belts is comfort. The tighter you're in the less bouncing around you do in an impact and thus the lower your probability of injury. Those of you with European belts that have the tongue that slides into a slot to secure the belts instead of a latch should try the following test: Sit in the glider with the belts tight. Put as much tension on the belt as you can and try to free the tongue. After did this at John Seymour's suggestion, I bought an aerobatic harness with a latch. In an inverted high G situation such as after a structural failure, I don't think it is likely that you could release these tongue type belts. If replacing also consider that wider belts spread loads better.

ELT's

If you fly cross country, particularly over bad terrain or sparse population, this isn't a bad idea. Also consider that one of the new inexpensive portable radios might be more likely to be working after an accident than your normal system.

Communication

If you're close to landing out, radio with a simple "This is uniform hotel low near _____. If you don't hear from me in 10 minutes, go to the phone". If you're still in the air a little later, simply update. This can speed up your retrieve a lot at times and significantly improve your chances of getting help quickly in the event of an accident.

You should also keep in the glider at all times phone money, credit card info, phone numbers you'll need, and personal emergency information. This is especially important if you have special medical needs such as allergies or sensitivities to particular drugs.

A View from the Instructor's seat

Hank Nixon UH

Our accident record is attracting a lot of attention lately. Most of us think we're doing all we can to prevent accidents now. Besides that, "it won't happen to me". I strongly believe that we don't need big changes in training methods, textbooks, etc. but rather to use and exercise what we have now. I will illustrate.

The two biggest mistakes the average pilot makes are:

Not doing a review/improve flight with an instructor often enough.

Not flying regularly enough to stay in practice.

Regular flights with your instructor promote continued improvement of skills (and the confidence that comes with improvement). First, by preventing any poor techniques from becoming habits. Second, By allowing the instructor to give advanced instruction, challenging the pilot to improve his or here skills. Areas most pilots can use work on based on those pilots coming to our site for field checks are:

Tow: When was the last time you boxed the wake?

Circling: Do you fly extra fast in order to cover up poor stall technique?

Stalls: Most pilots don't use proper technique in circling, particularly in gusty conditions. Do you practice turn stalls?

Spins: Done any lately? If your instructor says you can't spin a 2-

33, get a new instructor. You don't have to like them, but if you can't do a ¼ or ½ turn spin entry, under control, with consistent, correct, automatic recovery response, you could use some work.

Pattern and Landing: Altimeter covered, right had pattern, downwind pattern, all together? If you can land with all of these and stop within a 100 by 250 foot long area, you're excused. Every flight is an opportunity to practice precision even if you don't have unusual conditions.

Rough Conditions: Get your instructor to fly with you on the rough day you might not otherwise try. This will expand your experience and sometimes offers good soaring.

Cross Country: It's easier to start out on your first cross country flight if you've learned some of the skills from someone who knows. Most cross country in this country is self taught. Airplane or motorglider time is useful here.

New Sites: Test yourself away from the familiar landmarks etc. This also allows exposure to other instructors which can be valuable. All of this can be a good reason to go to the gliderport on a day that might not have lift and yet have a rewarding day's flying. It will also improve your ability to stay up on marginal days, thus providing more soaring days.

Not flying enough is obvious. If we fly more we don't get rusty and , in fact, improve skills. Most people find that they enjoy soaring much more when they stay sharp enough to feel a mastery of the sport. How much is enough? For most pilots, not less than 3-4 flights per month all year round in order to maintain skills, more if you intend to improve. Some pilots will feel that they can't afford to fly this much,

or invest in this much instruction. I don't believe we can afford not to. Besides, maybe a little extra activity on the poorer days may help your site to avoid a rate increase through better utilization of people, equipment, etc.

-UH

point where he or she thinks that it would be nice to own a sailplane. The motivations are:

The ability to have greater access for longer periods of time during the day than is usually possible in club or commercial operation environments.

Reduction in cost to fly if you fly a lot of hours renting.

The type of sailplane you want to fly isn't available at the place where you fly.

There are other considerations such as being able to go cross country when you want, visiting other sites, customizing equipment, etc. The purpose of this article is to suggest a bit about how to go about getting into ownership, and is primarily aimed at the new pilot.

At our operation we have a standard suggested first sailplane. Buy a schweizer 1-26 and stick with it at least until you have your silver badge, a bunch of cross countries and outlandings, and a couple of hundred hours of experience. I'm talking about an old fashioned approach that has a number of advantages. The 1-26 is easy and safe to fly and, especially important, land in a field. It is strong, easy to store and maintain (read cheap!), and easy to repair locally if you do damage it. There are lots around to choose from and most are in the range of \$6000-\$9000 depending upon equipment, condition etc. Since virtually

anyone can fly it, the number of potential partners to share costs is

View from the Instructor's seat

Hank Nixon UH

higher than any other glider. Many pilots stick to the 1-26 for their entire career. I still fly 1-26's regularly (we have 4 in the family) when I don't feel like flying my '20. I realize some people won't understand, but it's a lot of fun and no hassle.

Stay away from homebuilts unless you would rather tinker than fly. There is a reason why they're cheap.

After gaining experience (and building some equity in ownership) you can plan to "move up". The next step is a tough one due to a relatively small number of suitable intermediate sailplanes available. Good sailplanes in this category include the 1-34, 1-36, Pilatus B4, Ka-6, and Ka-8. These all fly nicely but have varying other factors such as wood construction (Ka-6 and Ka-8). All have earned a

good reputation as club sailplanes on the intermediate level. New pilots can make the step to any one of these fairly easily and safely but at greater cost (\$9000-\$15000 for the first four) or cost to store and maintain (last two). The Ka-6 and Ka-8 are obviously not as durable as the metal ships but fly very nicely. It's really a shame that there aren't that many of these kinds of ships available, because the next step is a pretty big jump.

I strongly suggest that new pilots (200 hours or less) not buy sailplanes beyond the first two categories for their first sailplane.

There are those that may say that our instructors were doing a good job, it would be possible to go into a "modern" high performance sailplane with no compromise in safety. ***WRONG!*** Higher wing loading and trickier stall characteristics mean more critical landing situations, especially early in the career when less experience leads to poor field selection and stress related mistakes.

In any case it is important to get a good checkout and more so in the higher performance ships. It is best to get an experienced pilot *in type* who is a flight instructor, and ideally one familiar with your skills. If your instructor isn't familiar with advanced ships, talk to one who is.

The next level, based on cost to buy, are the first generation glass sailplanes such as the Standard Cirrus, Libelles, ASW-15, LS-1,

and others. There is a wide disparity in this group with respect to handling and landing characteristics. All of the sailplanes named have comparatively small wheels and brakes, and not especially strong landing gears. The Standard Cirrus and Libelles (301's with tail chutes excepted) all land fairly hot due to smallish dive brakes. A very thorough inspection is a must before buying due to age (some are over 20 years old).

Previous damage and gelcoat condition are areas that need extra attention. Expect to spend \$12000-\$16000 for this group. The more modern ships generally are better overall, if you can afford them, than the first generation glass ships, even for relatively low time pilots. This is due to the fact that they are stronger, though heavier, and most have much better glide path control and handling characteristics. Most have better wheel brakes and better cockpits. They are, however, quite a bit more expensive and therefore are usually beyond financial reach for most pilots. Minimum cost to get into this category is \$18000-\$20000, with most being more expensive.

The wrong impression that you need to own one of the modern fiberglass ships to belong to the group and reap the full rewards of the sport is what stops many pilots from staying with the sport long term. This will become more acute as a greater percentage of pilots are

trained at the high profile sites using the newer glass "trainers". It will be (is) very difficult to get someone trained in a Grob Twin or similar to "step down" to the only sailplane he or she can afford as a first time owner. Lots of people drop out because the steps seem all too big. We need to emphasize more people achieving modest objectives successfully if the sport is to flourish.

Ownership isn't for everyone, but it is possible to get much more flying for the time and money invested if you own your own ship, large clubs with excess equipment excepted. It is important to remember though, that a modest sailplane with a partner is a very inexpensive way to try ownership and can lead to even more enjoyment of the sport.