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Radio controlled

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SOARING DIGEST

THE JOURNAL FOR R/C SOARING ENTHUSIASTS



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About *RCSD*

R/C Soaring Digest (RCSD) is a reader-written monthly publication for the R/C sailplane enthusiast and has been published since January, 1984. It is dedicated to sharing technical and educational information. All material contributed must be exclusive and original and not infringe upon the copyrights of others. It is the policy of *RCSD* to provide accurate information. Please let us know of any error that significantly affects the meaning of a story. Because we encourage new ideas, the content of all articles are the opinion of the author and may not necessarily reflect those of *RCSD*. We encourage anyone who wishes to obtain additional information to contact the author.

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RCSD Staff & Feature Columnists

B ² Kuhlman:	Managing Editors, Publishers, Internet Support "On the 'Wing..." Columnists
Dave Garwood:	Photographer, Writer
Lee Murray:	Historian - Keeper of the Index "The Natural Side of Thermal Soaring" Columnist
Tom Nagel:	Travel Saga Correspondent "Have Sailplane Will Travel!" Columnist
Mark Nankivil:	"Electric Connection" Columnist
Dave Register:	Video Coordination, Technical Editor "Tech Topics" Columnist
Jerry Slates:	Technical Editor "Jer's Workbench" Columnist
Greg Smith:	"The Sloper's Resource" Columnist
Gordy Stahl:	Advertising Coordinator, Roving Correspondent "Gordy's Travels" Columnist
Gregory Vasgerdsian	Contributing Editor "Soaring High" Columnist

In the Air!

Another transition for RCSD

Jim Gray started *RC Soaring Digest* magazine in January 1984 as a vehicle for dispersing what he felt were articles of note in the various club newsletters available at the time. Jim's High Start began each issue with notes about content and direction, or some special announcement. Jim did not have to glean material from outside sources for very long, as there was a near immediate influx of articles sufficient to fill the available pages. *RCSD* was produced on a photocopier in those early years, and color paper was used for the cover to add a bit of brightness and separate the monthly issues.

Charter subscribers Jerry and Judy Slates began assisting Jim in producing *RCSD* in 1988. Judy was familiar with the Macintosh OS and software and began doing layout and typesetting, then arranging for professional printing and bulk mailing while Jerry became *RCSD* technical editor. The February 1990 issue marked the introduction of "The Soaring Site," written by Judy, *RCSD* editor and publisher.

Over several years, what started out as a 12 page photocopied in-house publication evolved into a professionally printed magazine sometimes 80 pages thick. Although a handy size to carry around, the small five and a half by eight and a half inch size did not lend itself to easy reading or artistic design when it came to page layout. The November 1997 issue surprised a number of subscribers, as it boasted a standard eight and a half by eleven format.

RC Soaring Digest made the major transition from print to digital in March of this year — March 2004 was the last of the "printed and mailed" issues and the first of the PDF issues. The move to digital publication was not a spur of the moment decision, but rather a well thought out process. The results of going digital have been astounding. No advertising and no paid subscriptions; publication of each issue has been reduced from days to hours, the number of pages is no longer necessarily a multiple of four, and readers love the color photos and diagrams. Since the March issue, the number of readers has grown by a factor greater than five.

This editorial marks another transition for *RC Soaring Digest*, as the post of Managing Editor will change hands once more. For health related reasons, Judy has asked us to take over the duties of Managing Editor on a permanent basis. This is a request we just can not decline to fulfill, and we will be enthusiastically devoting our energies toward maintaining *RCSD*'s lead as "The Journal for R/C Soaring Enthusiasts."

Bunny and I will now be composing this editorial each month, along with our "On the 'Wing..." column (Oops, not this month!), but

all other content will be coming from you, the readers of *RCSD*.

In that light, we're pleased to welcome Gregory Vasgerdsian to the pages of *RC Soaring Digest*. Gregory is eager to contribute to *RCSD* and already has a large number and wide range of potential articles in mind. He's a graphic artist by trade, so you're sure to see page layout changes in the near future, too.

As we've said before, if you have an idea, project, or topic which you think other readers would enjoy knowing about, please let us know! The e-mail address we provided last month <RCSDigest@themacisp.net> is now a permanent location for submissions and correspondence. We look forward to hearing from you!



Gordy Stahl and his Pike after a second place showing at the Cincinnati Annual Memorial Contest, held May 23rd 2004 in Cincinnati Ohio. Contest Director was Mark Gellart.

Gordy's Pike has Volz Micro-Maxx XP digital servos throughout, hence the Volz logo spread across the left wing.
<Volz-servos.com>

The banner with its American flag motif was unique enough for Gordy to pose in front of it for this photo. Photo image courtesy of Ken Marks of the Louisville Soaring Society.

P.S.: Our thanks to granddaughter Alyssa for coming up with the descriptive title "In the Air!"

<RCSDigest@themacisp.net>
<<http://www.b2streamlines.com/RCSD.html>>

Have Sailplane, Will Travel

by Tom Nagel
904 Neil Avenue
Columbus, OH 43215
<tomnagel@iwaynet.net>



Slope Scouting on the Internet — or — Why I Like Cows

In Ohio we have three major challenges in finding a place to slope fly.

1. Finding a hill in the first place. We had a glacier come through here about 20,000 years ago, you see...
2. Finding a hill that is not heavily forested.
3. Getting owner permission to fly.

Well, recently I stumbled across this odd little website called Americasroof.com which lists the 50 or so highest “peaks” in each state. If you happen to live in Florida, you might find this an interesting website to check out. There are internet links from each “peak” to the topographic mapping website Topozone.com.

Americasroof.com is apparently run by a bunch of Monk-like mountaineers with the obsessive compulsive need to bag the highest summits in each state. There are photos and stirring accounts of assaults on major summits like Ohio’s Mount Miserable. Ownership and access issues are also discussed for the various sites.

I reported on Topozone.com in an article published in early 2000. Topozone.com is a free, fast and friendly topographical mapping facility. Don’t leave home without (at least first checking) it.

I am always on the lookout for new slopes to fly, so I decided to have a look at each of the 50 highest “peaks” in Ohio, at least on topozone, to see if they offered any sloping opportunities. Then if they looked good---steep enough, right orientation, open to prevailing winds and not forested---I’d go have a look in person.

The two highest spots in Ohio were familiar. Campbell Hill is an old Nike missile site near Bellefontaine, Ohio, and I have friends that live nearby. Campbell Hill is high but not steep, plus I didn’t need any run ins with Homeland Security. Mount Miserable is now a ski slope, and its un-forested slopes face into more hills, not open winds. Going down the list of “peaks” I began to develop a smaller list of places I wanted to visit in person:

Rich Hill, what looked to be a glacial moraine or esker set amid the flatlands of Central Ohio.

Bald Knob in Logan County, not too far from Mount Miserable.

Schweitzer Hill in Bellville, Ohio, up in the Mohican River canoe area.

My first on-site visit was Rich Hill, which turned out to be located near the little town of Rich Hill. Is that a coincidence or what? I did a drive by

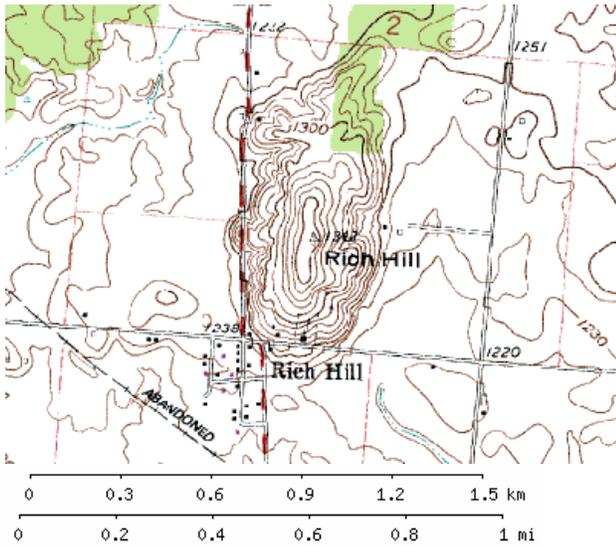
on the way home from a deer hunting trip. Despite what topozone’s maps showed, Rich Hill’s long ridgeback was wooded almost everywhere. No place to fly there.

A few weeks later I was up near Bellefontaine and made a side trip to Bald Knob. It proved harder to find than Rich Hill. Maybe that was because it was not bald and not a knob. Again, almost the entire hill was wooded.

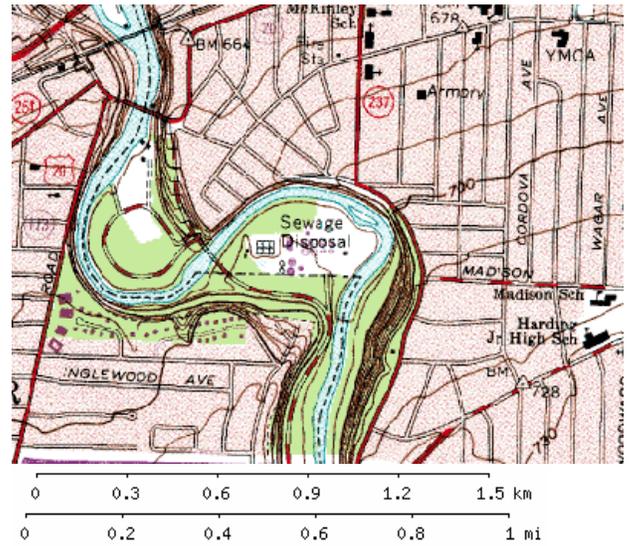
Finally, in mid-May I had to drive up to Cleveland for a divorce case. I decided to hit Schweitzer Hill on the way back. Hey, with a name like Schweitzer, it had to be a good sailplane hill, right? I tossed the transmitter and Boomerang into the car next to my briefcase, and took off. The domestic case went well, and I decided to add a couple of more stops on my way home.

First Stop: Cleveland’s lakefront Edgewater Park. This is where Jim Carlton and his band of Buckeye Flyers slope the northeast winds off Lake Erie. I found the park easily enough, but the slope was all torn up and covered with backhoes and bulldozers. The photo here is Jim flying in pre-bulldozer days.

On my way back to the freeway from Edgewater Park, I made a



Rich Hill topographic map — USGS needs a map symbol for “impenetrable briars.”



Topographic map for the “sewage treatment plant” site on Ohio Rt. 237 and south of Lake Erie.

serendipitous discovery: there is an absolutely amazing two hundred foot bowl shaped slope with steep concrete walls and an unobstructed upwind channel located on Ohio Rt. 237, just south of the Lake Erie shoreline. It would appear to be perfect for south winds and perhaps southwest winds as well. The site has a few minor problems, however. There is no place to stand at the top—a city street lines the concrete wall at the top. There is no place to land your plane at the top, and there is no way to get to the bottom if you land out. Oh yes, I almost

forgot---the bottom of the slope is a Cleveland sewage treatment plant.

The place reminds me of the Lexington Kentucky slope, Trumbo Bottom, except it has big sludge beds at the bottom. I am going to call this site the Cleveland Sewer Bowl. I plan to fly this site the very next time I am in Cleveland with a sailplane that I never want to see again.

Second Stop: Hinckley Ohio. Every March 15th the buzzards return to Hinckley and allegedly slope on the 350 foot Whippys Ledges that

overlook scenic Hinckley Lake. I am not making this up, as Dave Barry would say. It sounded like a natural: “divorce lawyer slopes with feathered kinfolk.”

Whippys Ledges and Hinckley Lake are the main attractions at the Hinckley Reservation, which is a part of Cleveland Metro Parks. The ledges showed up on the park map, and I followed a park road back to the area, but once I got there all I saw was picnic benches and trees and a barrier marked “road closed.” A familiar pattern was re-emerging. I drove around to the “Top of the Ledges” picnic area. No ledges there, either.

I did get a nice picture of a giant buzzard, dressed up as a pirate for some reason, at Buzzard Cove Miniature Golf Course. (Question: Why do they call it “golf”? Answer: Because all of the other four letter words were taken.) I drove on.

Third Stop: The last stop for the day was Schweitzer Hill in Bellville, Ohio, just off I-71 at Route 97. Bellville is a pretty little town, but Schweitzer Hill proved to be completely covered by forest, contrary to the representations of those lying scoundrels at USGS.



Edgewater State Park in pre-bulldozer days.



Hinckley Reservation

And, just to complete the theme of the day, Durbin Road, the route in behind the hill, was closed by barriers and backhoes.

My current theory about the discrepancy between USGS topographic maps and truth on the ground is that in the Midwest scrub growth, and in particular pine woods, grow up faster than USGS revises its maps.

I mulled over the slope frustrations of the day as I drove the rest of the way home. Suddenly it came to me: I really love cows.



Scenic Road Barrier at Whipp's Ledge Hinckley Reservation

OK, it's not what you think. No lustful thoughts, no desires for inter-species romantic interludes with Elsie the Cow. It was just the sudden realization that of all the Ohio slope sites I have visited, the best ones are all cow farms. How weird is that?

The first place I ever went sloping was Linnville, Ohio, a cow farm in Licking County where Chuck Rumele taught me about spot landings. Linnville is not a great slope site, but it is good enough to attract a half dozen fliers whenever the wind is out of the south.



Statue of Colleague at Buzzard's Cove

Then there is Malvern, the great right-angled bowl of a hillside in Carroll County, where the lift band is so deep that you can't fly a Zagi out of it. Dean's place is not only a cow farm, but an organic cow farm, so the lift is pure and clean.

The local hang glider dudes gave us leads on two slopes down where Pickaway, Ross and Hocking Counties converge in a rural part of Ohio southeast of Columbus.

When we checked them out, the hills were very flyable, the landing zones were generous and soft, and the owners were cordial. Both were, of course, cow farms.

Then last year at a local RC swap shop a fellow came up to our club's table and started asking questions about sailplanes. Pretty soon he was inviting us out to his place to check out the ridge top where he'd just built his house. He was another cow farmer.

What is it about Midwest cow farms that makes them such great places to fly? Most of the flat land around here becomes corn or bean field or subdivisions or Wal-Marts. The cow farmers get the hill country. And cow farmers clear the hill country. Un-farmed land in Ohio quickly reverts to briars, then scrub and then woodlands. But not on cow farms. Cows eat the good stuff and trample the rest. They create grasslands, fertilizing as they go. Even the briars get beaten down.

And I think there must be something about working with cows that makes cow farmers friendly. What was the last time you heard of somebody being "mean as a cow"? The cow farmers I have met on my flying trips seem to genuinely enjoy having someone flying models or hang gliders on their land.

So, here is my new plan. Somewhere on the internet there has to be a list of cow farms. Maybe it even has links to topozone.com....



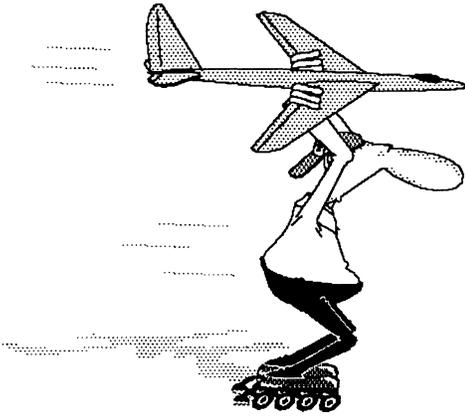
Sloping at the DeLong cow farm.



Sloping at the Bowsier cow farm

Gordy's Travels

Gordy Stahl
Louisville Kentucky
GordySoar@aol.com



Tip Stalls — Fixing What Ain't Broke

Too often we over think things in our hobby, partly because we have sooo many engineers involved... For instance, recently on the RC Soaring Exchange a fairly experienced RC sailplaner asked this question:

"When I slow my high tech molded RC sailplane down in a thermal turn, one wing tip stalls, drops and the sailplane spins. What can I do to fix my sailplane's wing to stop it from 'tip stalling'?"

The responses included well meant, highly scientific and very educated, long dissertations on washout, tip design, planform of the wing, airfoils and their characteristics, CG recommendations, the effects of camber and drag, the use of mixed or added rudder control to aileron movement... on and on and on.

In the end none of it applied. Why? Firstly because today's RC sailplanes are the result of years of experience and technology. What that boils down to is that they aren't designed "wrong."

What the modeler was experiencing had nothing to do with the tips of the models we fly. They are the result of years of guys making and flying models of control and no control. They don't "tip stall" IF they are flying at "flight" speed.

In fact it's my opinion that our sailplanes don't "tip stall," but we do make them **snap roll** by flying them to an airspeed where the sailplane stops flying. A snap roll is a function of the loss of the benefit of the tail sections through the direction of your thumbs.

Certainly if the wing doesn't have enough airspeed to do its job, it's likely

some part of it will stop flying and after all, a stall in our context is when our sailplane's wing, fuselage, canopy, rudder, elevator, tow hook... has stopped "flying." It's likely that when that condition exists, one wing or the other is going to be pulled toward Earth first!

However, instead of "thinking" about minimum airspeed, we look at whose (or what) is closest to the victim (one wing tip in this case) and yell out "guilty."

Too often we look at our models (or their design) as the source of some performance quirk (... "the stabs are too small, not enough camber, CG is too far back..." etc.) when in fact what we do is called radio "control"... as in we are supposed to be in control of every action of our sailplanes.

It's why we spend big bucks on a high tech, computer transmitter that allows us to be "in" control. As we progress up the skill level our ability to control with precision increases... that is unless we get caught up in the blame game. Instead of accepting that it's critical to keep our sailplanes flying... and at **one** speed through its entire flight as opposed to fast and slow (a graph of our flight looking like a roller coaster of speed humps and stop valleys).

Flying at the "One Perfect Speed"

It's impossible for our model to communicate truthfully about air conditions and impossible for it to fly at all if we slow it below its normal glide speed and above that "level flight" speed. Identifying that perfect speed is easy. Simply get your model trimmed

hands off in level flight... then let it fly. If you have the model balanced (versus having the "CG" set) and if you have your elevator set properly for level flight speed, the model should just continue across the sky without nosing up into a stall and then dropping into a dive, etc.

That level flight speed **is** the speed that your model should fly at **all** times, whether in a thermal turn or... well at all times. Then there is no tip stall.

Your idea about camber is correct because if you have a bunch of camber without "energy" (your engine turned on... thermals) your sailplane will slow to below its perfect speed and "tip stall" or in fact, just stop flying as a sailplane, becoming just so much wood, 'glass and metal being pulled toward Earth by gravity in a less than graceful attitude!

The difference between identifying what's going on between a tip stall and a snap roll is this... one happens to you and the other **you** allow to happen. One implies you have no control and the other makes you use the transmitter you paid for and the thumb your mom paid for. :-)

If you find your sailplane is flying fast on the downwind side of a thermal turn and slow into the wind, that it sometimes puts its nose up, stalls and falls, likely you aren't in control of your sailplane, rather you are only reacting to what happens to it.

Pilots who look for reasons other than their own skills for sailplane flying behavior will likely never progress their skills. Instead, they will be distracted from that progress.

If you haven't read my past columns on balance and the pitfalls of fixed stabilizers, it's pretty likely that getting your sailplane to fly uniformly in pitch, regardless of airspeed changes, is nearly impossible. And the likelihood that your sailplane will keep you reacting instead of being in control is unfortunately high.

It all starts with having a sailplane that is balanced and straight, and that can only be diagnosed and achieved in the air.

In any case our sailplanes were designed to be controlled, not left to let "things happen."

Don't fix what ain't broke. Instead take a look back at the recent two years columns if you are interested in learning more about getting your sailplane set up, balanced and in control, or contact me at GordySoar@aol.com. I'll be happy to answer questions!

See you on our next "trip"!

Gordy

Saving plastic servo gears

by Mark Drela

If this is a plastic-gear servo, I suggest using a buckling-pushrod setup to protect it against stripping. I have this on my 2m Aegea's JR241 aileron servos, and it has probably saved them already.

The basic idea is to use a top horn with a relatively thin piano-wire pushrod sized to buckle if loaded just above the servo's stall torque, which is surely well below the servo's stripping torque. If the pushrod does buckle, you can just straighten it.

This approach also gives the smallest possible pushrod for minimal drag. Using a bottom servo horn with the top aileron horn will also put the pushrod exit hole as far back as possible on the top surface, and should give good clearance for the clevis inside the wing. The aileron horn end of the pushrod can just be a Z-bend with a joggle in the wire just ahead of the horn, so that the wire is in the plane of the horn. This is important to prevent an eccentric load on the pushrod which will considerably reduce its expected buckling load.

Here's the buckling load formula in case you're not familiar with it:

$$P = E \cdot I \cdot (\pi/L)^2$$

P = buckling load

E = material modulus

I = bending inertia = $(\pi/64) \cdot \text{diameter}^4$ for round rod L = rod length

$\pi = 3.14159$

Here's the calculation for the Aegea:

T = maximum permissible torque = 20 in-oz = 1.25 in-lb

R = servo horn radius = 0.315 in (8mm)

P = T/R = 4.0 lb

E = 30e6 psi

L = 1.70 in

I = (P/E) * (L/π)² = 3.9e-08 in⁴

diameter = (I*64/π)^{0.25} = 0.030 in

I actually used two 0.025" wires in parallel soldered together. Each 0.025" wire has $(0.025/0.030)^4 = 48\%$ as much bending stiffness, so the two 0.025" wires give me 96% of the buckling load of the single 0.030" wire. Close enough. Using two wires allows precise adjustment of the length before soldering, so the clevis can be eliminated. I joined the wires with superfine copper wire before soldering so they stay together while the length is adjusted.

CVRC Bent Wing Contest 2004

by Fred Hoover, CD

with photos by Don Thompson

The contest held at the CVRC club field on May 1st and 2nd of 2004 was a great success. We had 48 paid entry contestants, with 45 flying.

The weather was outstanding and we put in all scheduled rounds. The weather was so good the pilots had trouble getting down, so we had many that went over their target times. There was lots of good air and many good landings were made.

All assist equipment worked well with very few winch problems and no one injured, although we had a few close calls.

The contest had several areas that kept interest high. I think the one thing that kept me and most every one else's interest was a young Junior contestant who led the contest for most of the two days of flying. This young flyer just didn't make a mistake. Robin McGowan, a young lady, led the entire field of flyers for all day Saturday and most of Sunday. The last flight and landing dropped her out of the top five places, but Robin took first in the JR /SR category.

Club attendance left something to be desired but lots of help from the contestants made this into one of the best ever Bent Wing Contests yet. I want to thank all the CVRC members that came out and helped out and a big thank you to all the help from the contestants who gave us a hand.

Those attending felt we had a great contest and are looking forward to next year.



The sailplane holding area



Robin McGowan on the awards stand

A few launching and landing shots! →



Soaring High

by Gregory Vasgerdsian

Wow! It feels great to be hammering the key board again about one of my great passions, r/c soaring! And, I am really excited to be contributing to *R/C Soaring Digest* once again! Judy and Jer asked that I write a little introduction on myself for those readers who don't know me — I'll keep it plain and simple.

An Introduction

I started soaring with Jetco Thermic gliders in 6th grade — models like the Thermic-b, Thermic-36 and Thermic-50 to mention a few. As a High School student in 1978, I built my first r/c glider (a Windfree first, then a Wanderer) and I joined a newly formed club in the San Francisco Bay Area known as the Diablo Valley Soaring Society. In this club were a slew of personalities, one

such being Jerry Slates who you know through this very publication.

I learned to soar on the slopes in Northern California, and today enjoy both slope and flat field thermal soaring when the opportunity presents itself.

Over the years my enthusiasm for one facet of r/c soaring or another has waxed and waned, but vintage scale gliders have been a long running favorite.

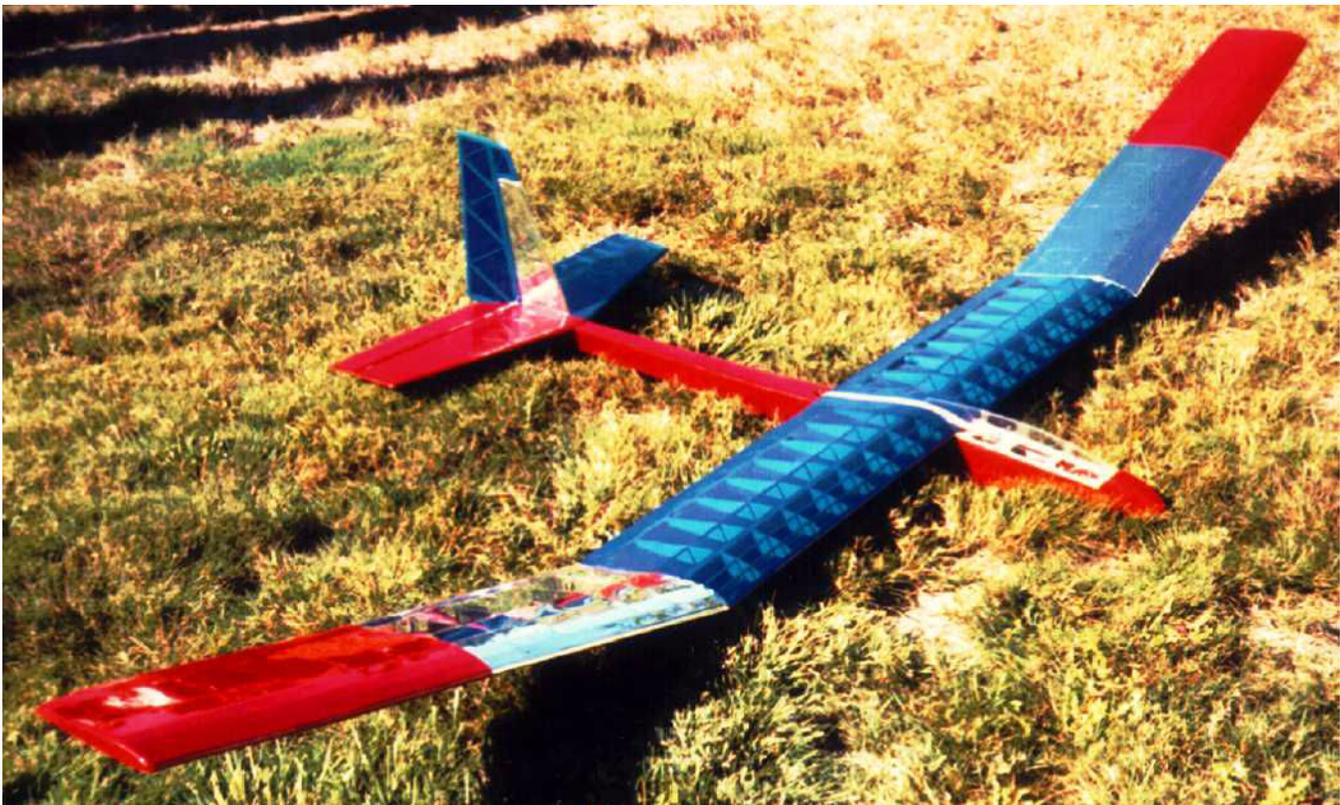
I've held every possible position in an AMA chartered club, and somewhere around 1989 began contributing to *RCSD*. I also wrote and photographed on soaring for the now no-longer *Model Builder* magazine in the early 90's.

My passion for r/c soaring, writing, and graphic design lead me to co-found *Sailplane Modeler/S&E* magazine in

1995 — acting as art director, co-editor, writer, and production manager to mention just a few of the many hats worn. I departed *S&E* in 2001, and due to a non-competition agreement have not written or reported on any facet of the hobby since... until now.

With all that in my back pocket I am once again on the prowl for great soaring material to bring to readers. In the mean time I've put the "hobby" back into the hobby (although that may be against the laws of physics!) and today work as an art director in San Francisco.

I love reporting on cool things in the hobby and bringing tips, techniques and event news to readers. I've been an LSF Level 2 for something like 15 years, and have had more gliders than I care to imagine — of course I've also crashed



A photo of the author's Mirage built in the 1980's. The red and blue transparent color scheme really looked great on the ground and was highly visible in the air. The chrome MonoKote® was soon replaced (with red) as it reflected the sky back and caused that part of the wing to virtually disappear.



The Mirage as built from the Isthmus laser-cut partial kit. Covered in another high visibility color scheme, notice the addition of spoilers. Nice looking model



This photo gives you an idea of the size of the Mirage and shows the basic structure well. It's an easy build and nice handling floater.

more than I care to imagine! To this day, one of the most beautiful sites to me is a long winged sailplane in flight, and my tag-line is, "Yes, as a matter of fact I am going to go and throw it off a cliff!"

So, enough already, let's get on with it!

Isthmus Model Company

Molded, built-up or what have you, sailplanes are an instant attraction for all of us. In recent years there are a few who are bringing back many of the designs of yesteryear in laser-cut kits. One such manufacturer is the Isthmus Model Company run by Mark Miller of Madison, Wisconsin. The website address is:

<http://www.isthmusmodels.com>.

Now Mark actually has a range of offerings on his website but the built-up laser-cut kits are particularly interesting to me. One such soon-to-release model is a 1.5-meter HLG known as the Zephyr 2. This model interests me because it was the first HLG I built. The plans were published in *Model Aviation* in 1981, and it was a nice flying model that I remember specking out numerous times. The design, like Dave Thornburg's SunBird, was well ahead of the handlaunch craze that would later sweep through the soaring hobby. Today, the Zephyr 2 is still a sound design that will deliver many hours of soaring pleasure.

Just as exciting as the soon-to-release news of the Zephyr 2 is that Mark is looking to produce larger versions of this model at two meters (with 650 in² of wing area), standard class (with 1100 in² of wing area), and an even larger version at three meters!

My long time soaring friend Phil Bauer has for a number of years fielded a model he called the Blue Bunny. If you've been to Visalia in the past you may well have noticed this ship with it's massive wing area, and bright blue finish. Phil's Blue Bunny was a 2x larger Zephyr 2 with a few modifications here and there (like a bit of carbon in the wing to take full-on winch launches).

Though not the Blue Bunny, the thought that Mark Miller is planning to release

the Zephyr 2 in the larger sizes is just super!

The other model that really caught my attention on Mark's site was the Mirage. An old personal favorite, he offers the Mirage as a short kit for \$60 (or \$35 for the wing short-kit and \$35 for the fuselage short-kit). The model was designed by Blaine Rawdon in the 70's and was designed for thermal duration competition. My experience with this model is that it is an easy-to-build, built-up that uses a thick, low-camber airfoil on a wing built with turbulator spars. In transparent covering the looks of the Mirage are superb (check out the photos!). And, at 112.5 inches of span it carries 915 in² of wing area while flying with a wing loading of just 5.8 oz/ft² — all-up weight is about 35 ounces.

So that's the hard numbers - how does it fly and why is it special? Well, to begin with the fin/rudder is offset and only one side of the elevator moves up and down for elevator! This makes it easier to build and helps keep the tail feathers light.

The Mirage is a great light-air ship that is easy-to-fly and take high. When climbing in thermals you can put it into the tightest cork-screw turns you've ever seen — real fun!

My favorite flights with the Mirage have been from slopes in light wind conditions while flying it with Turkey Vultures.

It is certainly a Nostalgia/RES ship worth looking at due to its ease of construction and nice flying characteristics.

Mark advises strengthening the stock spar for winch launching by using a full-width shear web and a composite wrap on the main spar. An alternate route might be to simply put a carbon tube spar in. I would consider a strengthened spar as a must for winch launching especially since the model will penetrate higher winds quite well if ballasted.

Here are a few comments from Mark, "The Mirage is currently a short kit but I will be making a full kit this winter. It will have new CAD drawn plans, an updated wing mounting system and updated rudder. Other than that it will be true to the original design. The Zephyr 2 is almost ready for release. I'm working on the final details of the manual and materials list. And, by-the-way, I just completed the CAD plans for the Zephyr 1000 which is the standard class version of the Zephyr family. On top of that I currently have the 2-meter and

3-meter plans in the works as well — I hope to have them available soon!" You can check out the Isthmus Models website for updates on the availability of these and other models.

I Need a...

Okay, are you looking for that secret website where you can get anything from steel wing blades to case hardened drill rods? Well I was looking for just such a thing when I asked my often notorious soaring friend/mold maker/foam cutter equipment guy, George Hollidge, the question. I was in need of a wing blade that I lost for my Olympia 2b scale ship and George came through big time by saying, "Did you check out McMaster-Carr[®]?" I did, and Man-oh-man what a site! The web address is:

<http://www.mcmaster.com/>.

If you're looking for it they have it, large quantities or small. The beauty of their website is that you can search for the material you want by any number of ways - by the type of material, by the thickness, by the length, or by the width (to mention just a few). Their site is packed with technical information on the materials (such as what the different steel hardness ratings mean) and, the



The Zephyr 2 is soon to be released as a full laser-cut kit. At 1.5 meter span it's a fun build and great for hooking thermals over a black-top parking lot!

categories are widespread from Pipe, Tubing Hose and Fittings; Composites; Process Control and Instrumentation; Fabricating, Cutting and Sawing; Machining and Clamping; Fastening and Sealing... I mean, the list just goes on!

I found my wing blade material in the Raw Materials section under Metals. Yet, the easiest way to search is to just type in what you are looking for and hit the return key on your computer's keyboard. Their search engine is fast and I was able to get the material I needed in the "just right" 18-inch length that I needed. Total cost for two 1/8-in. x 5/8-in. x 18-in. steel blades was about \$15 with shipping. To top that off I received my order in one day by standard shipping!

Kudos George, I owe you!

CG and MAC Calculators

If you're looking to find that sweetspot on your latest model (or at least a

starting point) there are a few websites I know of that can help you nail it down.

One is the excellent site of John Derstine who operates Endless Mountain Models. The website is at:

<http://www.scalesoaring.net>.

John has been a soaring pilot for many years and you are probably already familiar with his support of scale soaring with past Elmira Aerotow events and his new Scale Soaring Medal program. Well, besides all the cool scale models that John offers through his business, he also has a lot of really useful information in his website. Some of this information you'll find in his tips category, with techniques and how-to's that cover retract installations, making scale instrument panels and covering with Ultracote®.

There are really too many tips to list here, but for me the gems were the Center of Gravity (CG) and the Mean Aerodynamic Chord (MAC) calculators. Type your numbers in (John has nice

diagrams so you won't get confused) and press the button!

Of course you'll still need to check your wing and stabilizer incidence, and test fly your ship to really nail that special spot down! Thanks for the great calculator John, I appreciate it!

Wrap Up

Well, that's my first step back into the pages of *RCSD*. I plan to contribute regularly on a wide variety of soaring topics. I can't promise I'll have an article in every issue (goes back to that, "this is a hobby" item) but that is the goal.

If you're reading these pages and love soaring I encourage you to contribute to *RCSD*. Tips, tricks, soaring adventures and photos are always welcome and add to it's 21-year history as, "The reader written r/c soaring journal".

Also, if you have a photo of your latest soarer please e-mail it over with a description so it can be shared with our readers!



A beautiful full size Schweizer TG-2 in U.S. Army Air Corps markings. This one's hanging in the U.S. Air Force Museum in Dayton Ohio. Photo by Mark Nankivil

Soaring Alaska

Text by Tom Nagel, photos by Doug Franklin

Douglas R. Franklin is President of the Alaska RC Society, located in the Anchorage/Palmer area.

Doug says: “We mostly fly electric and hand launch gliders.”

The ARCS club has a surprisingly long roster — around 150 members. Maybe that is because the guys apparently sign up their kids when they join. More clubs ought to do that! The ARCS have a great website at <http://www.alaskarc.org>.

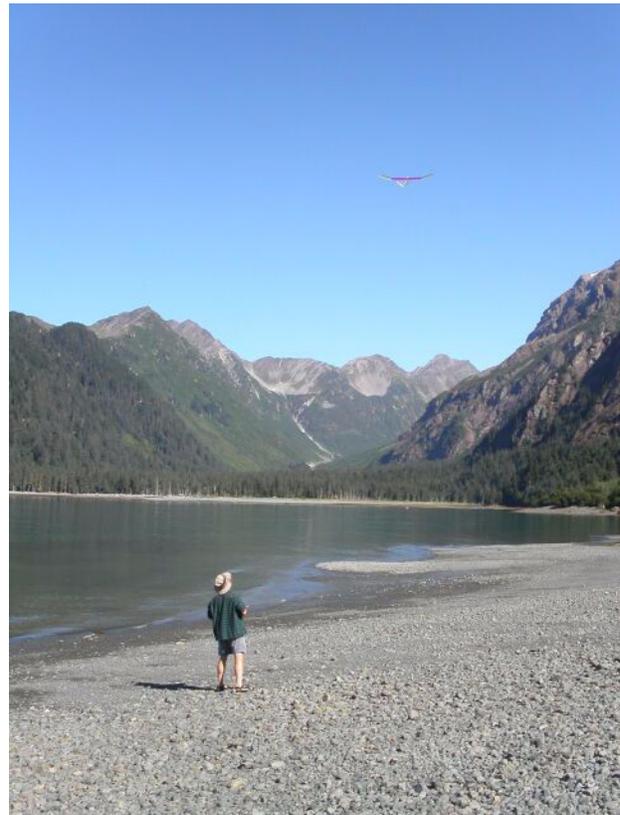
The web site picture of the ARCS field at Moffit looks like an Alaskan travel poster. The panoramic view of the field, however, includes the caption that the temperature was minus 29 degrees when the picture was taken. The website doesn't specify if that was Fahrenheit or

Centigrade, but the good news is that when it gets just a little colder, at minus 40 degrees, it doesn't matter, because the two scales are the same at that temperature.

I have asked Doug to write up and send *RC Soaring Digest* some tales of his travel and flying adventures in Alaska. This article is just a teaser.

Doug wrote:

“I just got back from 5 days on a rock beach in South Central Alaska. In addition to the usual fishing and hiking gear, I brought along a Carbon D-Lite HLG, a Bug micro HLG, and a Zagi 400. I flew them all, but couldn't find any lift to speak of! The eagles weren't having any problems, but they started quite a bit higher.

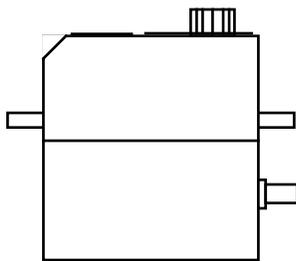


Doug Franklin flying his Carbon-D-Lite on a South Central Alaska.

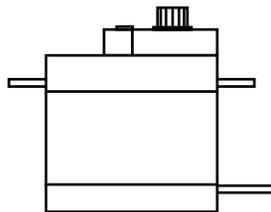
Perfect planes for the trip would have been an Alula for the beach (it was kind of rough on the Carbon D-Lite), and a Wind Dancer for getting up to where the thermals were. Both of mine are on the bench... I swear they'll be ready next year. I have enclosed a few small pix of the Carbon D-Lite.

“Hope to have the Alula and Wind Dancer planes together in time to take a bush plane out to the family cabin in the mountains, so that might be the next installment from Alaska.”

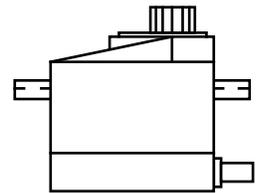
Nice pictures Doug!



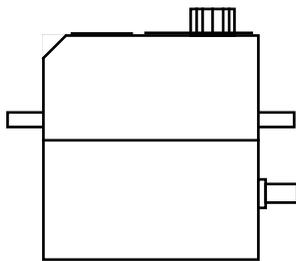
JR NES-341



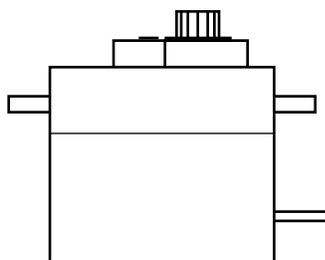
HITEC HS-55



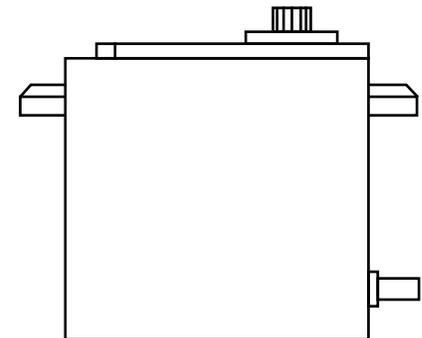
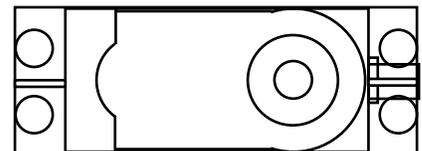
JR NES-241



JR NES-341



HITEC HS-81



HITEC HS-605BB

Full size drawings of some popular servos. Photocopy and use as mounting templates or whatever!

Waco CG-4A "Hadrian"

A photostudy by Mark Nankivil

Despite its rather ungainly appearance, the CG-4A was the best handling glider produced during WW II. In addition to its great handling qualities, it could carry more cargo than its weight and could be safely piloted by pilots with only basic flight training.

A system of cables allowed cargo vehicles to automatically open the hinged nose once the glider was on the ground. The front wheels of the vehicle pushed the loading ramps down. Unloading 1/4 ton trucks and other cargo vehicles could be accomplished quite rapidly in combat conditions.

Mark found this CG-4A at the U.S. Air Force Museum in Dayton Ohio.

Lighting at the museum is not very good at all in the area where the CG-4A is located. Bright ceiling lights cause a lot of flare unless the camera is positioned just right, and metering is complicated. The aircraft is mounted to the ceiling by cables, so ever part is over the observer's head and there is no elevated walkway available. Still, Mark managed to get some excellent photographs with his digital camera mounted on a tripod.

If there is sufficient interest, we can put these and other photos of the CG-4A on the *RCSD* web site.

CG-4A Technical Data

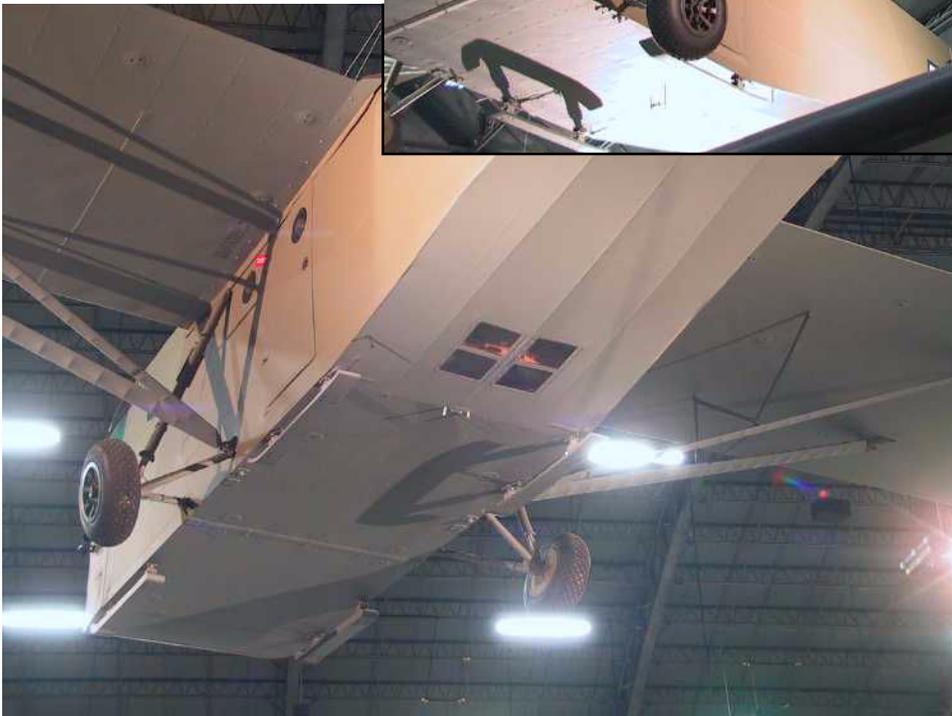
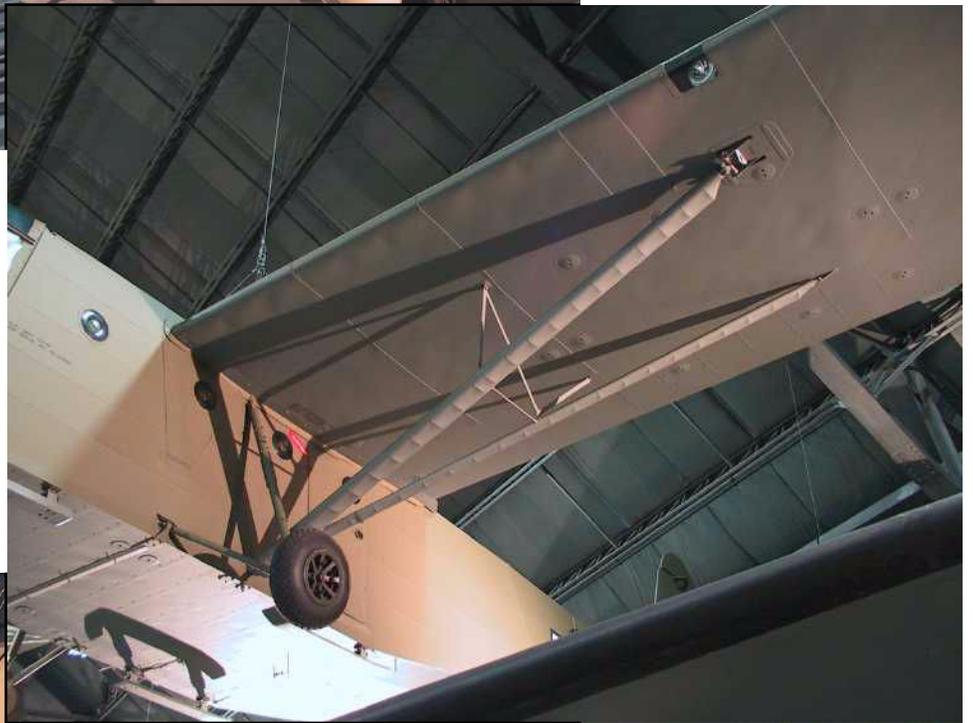
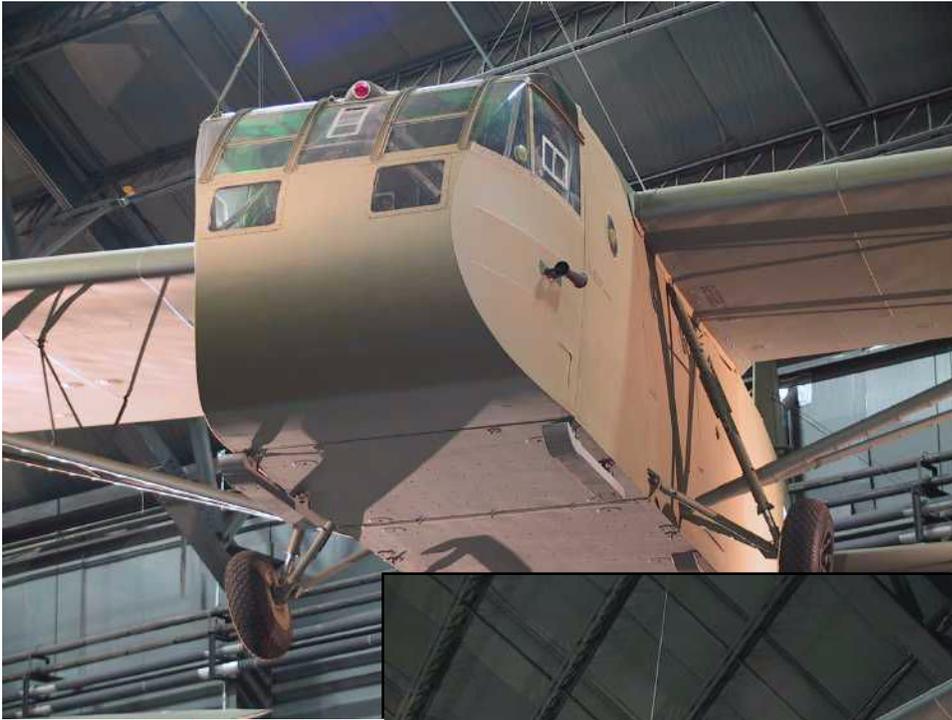
Wing span: 83.6 ft.
Wing area: 852 sq. ft.
Aspect ratio: 8.21

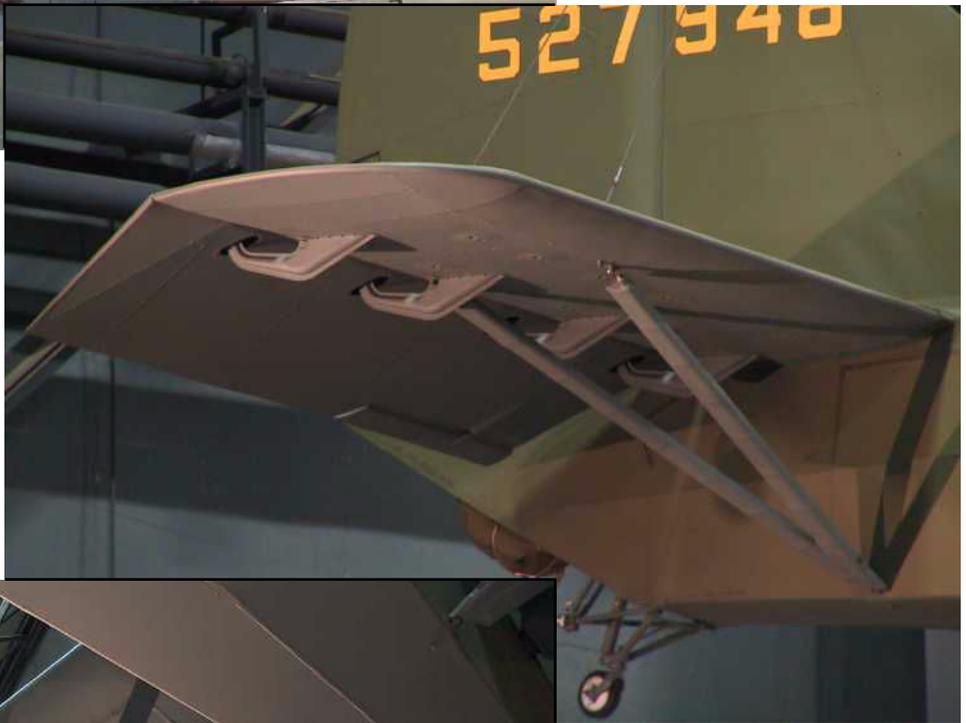
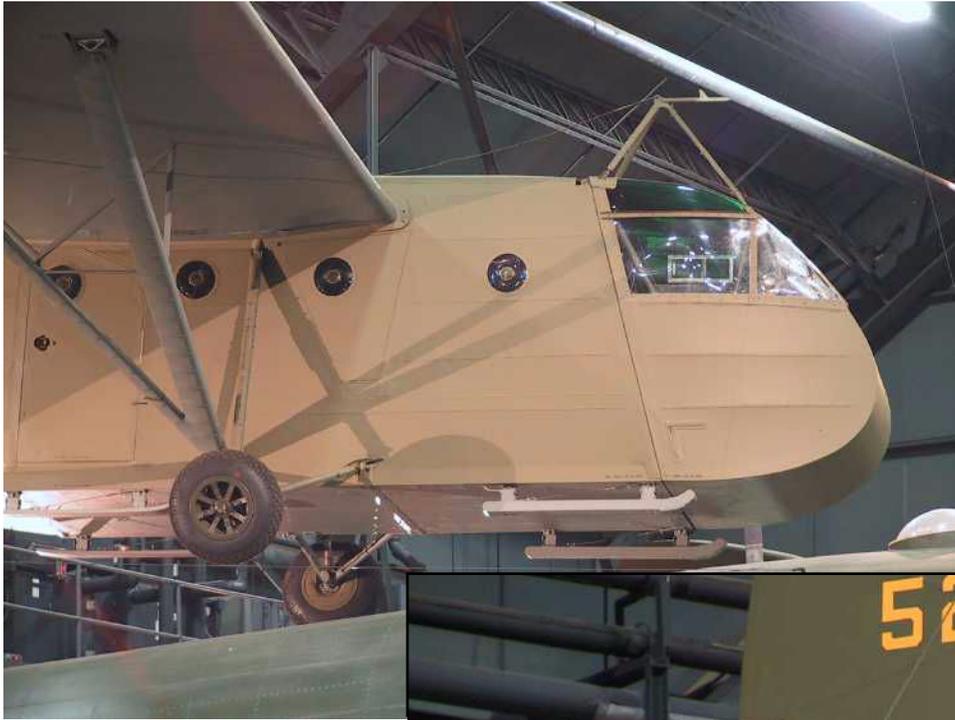
Fuselage length: 48 ft.
Fuselage height: 7.3 ft.

Weight empty: 3,440 lbs.
Cargo: 4,060 lbs.

Maximum towing speed: 150 m.p.h.
Stalling speed: 50 m.p.h.









Golden State X.C. Race

Sept. 18 & 19, 2004

California Valley, CA

SPECIAL ANNOUNCEMENT

With the cooperation of C.V. Lodge owner Ken Tab, we have moved the start finish line and launch area next to the C.V. Lodge. This will allow pilots to setup and launch within walking distance to the lodge and restaurant. In addition, the course has been expanded to a 50K or 31mile course and most of the course is on pavement. The course still offers an unobstructed flight path as far as trees and other vehicle traffic. The new course has all the features which can develop the world famous lift that California Valley is known for.

We are excited to announce that the South Bay Soaring Society is sponsoring the Golden State X.C. Race, Sept. 18th & 19th 2004. This race is the ultimate challenge in cross country soaring. It is 3 days of fun and competition for all levels of X.C. Soaring. April 30, Friday, will be a course practice day. We will also offer LSF levels 3, 4, and 5 task goal and return markers set on course. Level 2 witnesses will be available to sign off your completed tasks.

California Valley is located at the northern tip of the Carrizo Plain Natural Area Preserve. The preserve is predominately shrub and grassland which provides an arid basin allowing wide open spaces for the best thermal activity. It is bordered by the Tremblor Mountains to the east and the Caliente Mountains to the west. The central feature is Soda Lake. One of the largest undisturbed alkali wetlands in the state. In May, the lake may have evaporated leaving behind a glistening expanse of white salts which illuminates your sailplane as it is crossing.

The South Bay Soaring Society would like to welcome any and all pilots to participate in this fun and challenging event. If you have any questions or want additional information, please feel free to call me. (408)683-4140 or email Gervais@garlic.com

Thank you for your interest and hope to see you there.

C. D. Mike Gervais