R/C Soaring DIGEST

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A Publication for the R/C Sailplane Enthusiast!

R/C SOARING DIGEST

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Gary Brokaw's BAe Hawk at Los Banos, 1996. Computer image rendering by Jason Nemec, of Photo Images in Glenville, New York, from slides taken at Los Banos event, May 1996, by Dave Garwood, Scotia, New York. The Hawk was built from a Doug Buchannan kit.

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We'll keep you posted!!
...Judy

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The Soaring Site

An Early Note of Apology

We're late going to press this month, so we wanted to apologize, now. We are also moving the printing of *RCSD* from Tennessee to Texas. The folks in Memphis have done a great job, but we're trying to shave a few travel days off the turnaround time for *RCSD*; hence, the reason for the move. And, as with any move, complications can follow right behind, particularly where computers are concerned. When you receive this issue, we hope that you won't notice a difference in the quality; if you do, rest assured that we will be working to correct any incompatibilities as quickly as we can.

About the June Cover...

Several of you have commented about the cover of the June issue. Yes, there are two photos on the cover; the caption says there are two photos, as well, but I did not expand on just why that is so. The first photo is of Steve Savoie flying The Birdworks Zipper. The plane is so far off in the distance that it is barely visible. So, I took a second photograph, cut it out electronically, and placed it on the top. Having little time to make adjustments to the smaller photograph, the cover obviously did not come out as well as I would have hoped. I apologize to Steve and Jim for the poor graphics work on my part, and to those who felt that I should have taken the time to explain in more detail. And, for those of you that think I should not have done it at all, please note the excellent work done by a professional graphic artist on this month's cover. (And, if the printing quality is not up to standard this issue, I'm really gonna shoot myself in the foot on this one...)

Tangerine

The 22nd Annual Tangerine Soaring Championships will be held in Central Florida on November 29th - December 1st. If you wrote down the date from the article on page 16 in the April issue, please change it now. John Masiello called to let us know that the date in

the article is incorrect; the date on the schedule is correct. Our apology to those of you who have to go in search of a pencil, now!!

Thermal Thing & Fling Thing

We received a note from Rollin Klingberg, Future Flight, who has asked that we clarify the brief mention of two of his planes in the July issue of *RCSD*. For those of you not familiar with his products, Thermal Thing (not Klingberg Thermal Thing) and Fling Thing (not Thermal Fling) are but two; if you wish additional information, the address for Future Flight is 1256 Prescott Ave., Sunnyvale, CA 94089; (408) 735-8260.

Credit Due!

In the July issue, on the bottom of page 9, is a photograph of a mid-air that was taken at the Los Banos '96 event. The photography credit belongs to Shelby Sanders, a new up and coming sailplane photographer extraordinaire, as the captured photo clearly shows. She and Dave do, indeed, make an "awesome" team! We apologize for the omission.

Happy Flying!
Judy Slates

Aerotow Dolly, Or

How to Get a Head Start on Thermals

...by John Derstine
Gillett, Pennsylvania

I was planning on writing an article about the dolly we use to launch scale sailplanes before we held the aerotow event in Elmira. Time kind of got the best of my intentions, and it never came to pass. Now that our fly-in is history, I've gotten several requests from participants on how exactly to build one. So, here goes. Better late than not at all.

It doesn't matter what materials are used, as long as it is durable and reasonably light. There are a few things to use as guidelines so that it gives satisfactory performance.

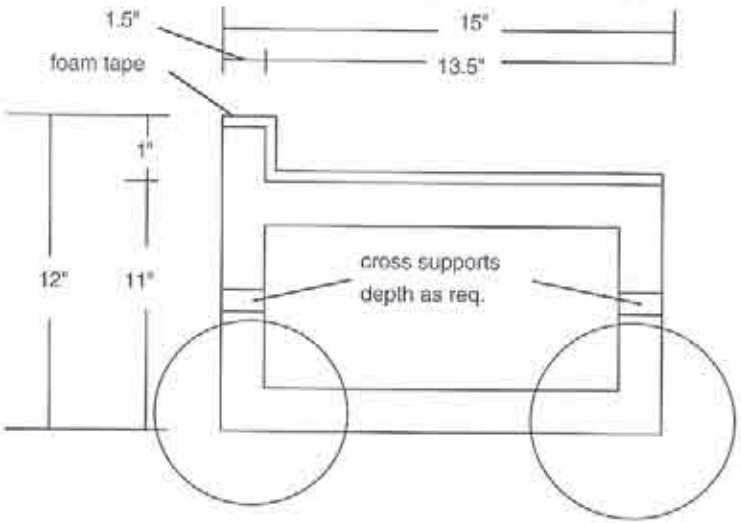
1. Use large wheels to make it roll easily (6", or thereabouts).
2. Make it high enough to keep the wing tips of a 4 meter glider off the ground when the dolly is rolling across the ground.
3. Make the saddle wide enough to accommodate the widest fuselage you will use.

Aside from that, have a ball and give it your own flair; but remember, simple is better.

The one you see pictured here, I built; it was used at our aerotow. This dolly took incredible abuse and kept on ticking. Repeated launches and many cartwheels (after the glider lifts off), but it still looks like new.

We have found that the dolly is good for beginners, works well for large gliders without wheels, and can even be used for winch launching large sailplanes.

Materials used here are 3/4" veneer plywood, pattern routed to shape with two cross supports, fastened in with 2" particle board screws. This example is 9" wide. Larger gliders will require longer cross members, possibly set lower on frame. ■



THE FIRST ANNUAL NORTHEAST AEROTOWING FLY-IN ELMIRA, NEW YORK

...by John Derstine, Gillett, Pennsylvania
& Steve Savoie, Gorham, Maine
...photos by David Garwood, Steve Savoie, and Robin Lehman

The force behind the event, John Derstine started working on this last September. It all paid off on June 1, with a beautiful, sunny, windless day, and over 30 registered pilots; many more arrived, just to see how it was done! Robin Lehman photo.

David Garwood photo.

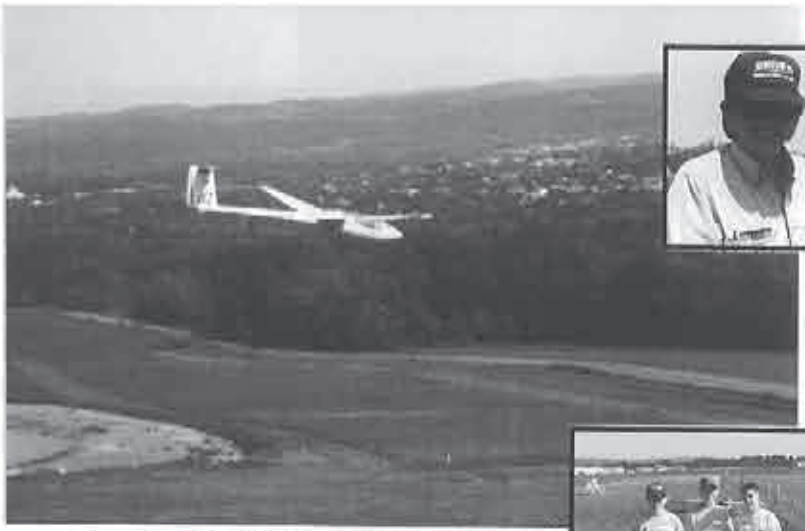
Gerry Knight's Olympia on tow. David Garwood photo.

(Above) Steve Romsdell was busy making a video of Elmira '96! Robin Lehman photo.

Jim Armstrong (R) is explaining R/C controls of his ASK-21 to Paul Schweitzer. Robin Lehman photo.

On the Scene with John Derstine

May 31, June 1, & 2 were three days of fantastic weather, great flying, and camaraderie that will not soon be forgotten here in Elmira, New York. Hosted by the Harris Hill L/D R/C Club, and scheduled as a two day event, participants started



Steve Savoie (R) grinning after his first aerotow flight; Robin Lehman (L). David Garwood photo.

Robin Lehman's ASW 24. Steve Savoie photo.

Our crew: David and Michael Derstine and Jos Fin. They helped us start motors, fuel up, and do battery checks. Robin Lehman photo.

Tow pilots and towplanes a plenty! They towed flawlessly all day long! Robin Lehman photo.

Which dolly would you like for your first airtow? Robin Lehman photo.

arriving as early as Thursday afternoon. Ed Lightcap & Rich Border were the first to arrive; Rich, sporting a half completed ASK-21 kit, and a hobby shop on wheels, promised he would have his plane ready by Saturday. Ready it was, not by Saturday, but Friday afternoon!

We had been concerned about the weather for weeks, as there had been but a handful of flying days all spring here in the northeast. We were encouraging participants, if they called, to come Friday and fly as a hedge against bad weather. As it turned out, we were truly blessed with perfect days on Friday & Saturday, and a windy but sunny day Sunday, when many of the guys took to the local slopes.

Mow a field and they will come. We mowed & mowed. We mowed until the lawn mower broke. Twice! Auxiliary landing fields, extended runways, pit areas, etc. And come they did, from all over the country! While still mostly a regional event, pilots came from as far as Nevada, Texas, Missouri, and North Carolina. There was also a healthy contingent from Canada headed up by Gerry Knight and Phillip Landray, with members of the G.N.A.T.S. & S.O.G.G. clubs.

By Saturday afternoon, we had 38 registered pilots, over 50 sailplanes, and 8 towplanes lined up on the field! The gliders ranged from a Spirit 100 to

Doing a pull test. This towplane didn't have a powerful enough motor. It weighed 22 lbs., and only pulled 16 lbs. of thrust! We didn't tow with this one! Robin Lehman photo.

Jim Blum Sr. preparing to launch. David Garwood photo.

Steve Savoie with his brand new ASW 24. Robin Lehman photo.

a 1/3 scale ASW-20, with most being 4 meter scale types. Some pilots came without planes to aerotow, but were given an opportunity to fly if they expressed an interest. The incredible thing was that 90 percent of the flyers in attendance had not aerotowed before, and most showed up with brand new scale gliders recently completed. More amazing than that, there were no mishaps on tow. Everyone succeeded on their first tow, and were soon lining up to be launched, again. The excitement and enthusiasm of all the participants had to be seen to be appreciated. The mood was by and large ecstatic, as everyone eagerly lined up for another tow, or visited with another flyer to compare notes. Robin Lehman and Tony Napoleon did most of the towing, with help from Jim Blum. It is a credit to their expertise that things went so well. Aerotowing has been demonstrated as the safest and one of the most efficient ways to launch large scale sailplanes to altitude for thermal flying. While we had many tow planes on standby, mostly we towed with two, and only briefly were the two flying simultaneously. We could have comfortably handled many more flyers without substantial delays.

Some highlights of the weekend included a visit from Paul Schweitzer, who delighted in talking to the R/C pilots and admiring the sophistication of the model sailplanes. There were glider rides at Harris Hill, and ten or more took rides in ASK-21 high performance, two place gliders. And finally, during breaks in the action, Joe Enhuci demonstrating his substantial fleet of large electric sailplanes, the flagship of which was a 6.5 meter Nimbus 4 with an Ultra 2000 motor. This high aspect ratio glider was magnificent with its scale-like wing flex and screaming high speed, low passes. Anyone who thinks gliders are slow flyers should see these large electrics. Joe says that at his local club he can overtake gas powered pylon racers!

It's hard to express in words the mood of the people at " Aerotow 96", as we now call it, but I guess it is epitomized by the two representatives of the DownEast Soaring Club in Maine, Jim Armstrong & Steve Savoie, who showed up with signs pinned to their van window, "ELMIRA OR BUST". The same two fellows were the last to leave on Sunday evening. They stayed at one of our slopes until 7 P.M. on Sunday, eking out the last bit of good times from an amazing weekend.

We have already started thinking about next year's event and have plans to make it even more exciting and fun. If the enthusiasm of the pilots who attended this year's event is any indication, we should be on our way to establishing aerotowing as the standard way of launching large scale

Tony Napoleon with 1/4 Piper Pawnee, which is modeled after one of the Harris Hill towplanes. With a Quadra 100 for power, it was way too powerful for the mostly 1/4 sized sailplanes in Elmira, so it wasn't flown. Robin Lehman photo.

The cockpit of Tony Napoleon's 1/4 Piper Pawnee. Robin Lehman photo.

ASK 21. Steve Savoie photo.

sailplanes for thermal flying.

The organizers of the First Annual Northeast Aerotow will be making available a video, professionally produced and edited, of the event. It will feature interviews with Paul Schweitzer, Robin Lehman and others, as well as all the excitement of the largest Aerotow event in the U.S. to date. Some local slope footage will also be included. Keep an eye out in the pages of *RCSD* for further information.

■

On the Scene with Steve Savoie

I was one of the participants who flew scale aerotow, at Elmira, for the first time. Throughout the Spring of '96, I built a 1/4 scale Krause ASW 24 that I purchased from Robin Lehman of Sailplanes Unlimited, Ltd. In fact, I think I purchased Robin's last Krause ASW 24, as Robin has since changed to another manufacturer. As with most of my building projects, I budgeted my time to have the plane built well in advance of this event. The last servo was wired at 12:30 a.m., the van was packed at 1:30 a.m. and I was off to catch a few winks. Boy, 3:30 a.m. came quick; a shower and a cup of coffee later, and I was on the road to Elmira (4:00 a.m.) with my flying buddy, Jim Armstrong.

We arrived 10 hours later on Friday, May 31st, just as many other participants did, arriving one day early to get some guidance from Robin. I was still programming my Infinity 600 when Jim took to the air for the first time with his Sailplanes Unlimited, Ltd. ASK 21. Other than a few trimming adjustments, Jim's flight was uneventful. Programming and servo centering problems kept me grounded the remainder of Friday; maybe it was for the better due to the fact that I had 5 hours sleep between Wednesday and Friday. The remainder of the afternoon was spent discussing aerotow procedures with some of the local experts and taking a closer look at the many scale planes that made it to the field Friday.

Ka6E. Steve Savoie photo.

A full size ASK 21 sitting in the Elmira Hangar! Steve Savoie photo.

Jim Armstrong. Steve Savoie photo.

(Top) Steve Savoie (L) with Jim Armstrong (R) are from the DownEast Soaring Club in Portland, Maine. They are a driving force behind the New England R/C Soaring Convention, which is in the process of being scheduled for 1997. David Garwood photo.

Saturday began with a hearty breakfast and we were off to the field. I can't say enough about how well this event was organized. Pilots were identified by name tags and a special pass that allowed them into the pit area. The Harris Hill L/D R/C organizers (led by John Derstine) and helpers wore special hats to let the pilots know who they were. Pilots new to scale (most of us made our virgin flights Saturday) were teamed up with seasoned mentors; all pilots flew with the assistance of a spotter. A great idea! Drink, food and the necessary support facilities were at the field and there was no need to leave the field once you arrived. I counted 6 tow planes and 3 dollies to facilitate towing activities.

Robin Lehman, John Derstine and several other experienced aerotow pilots spoke to the group as a whole during the pilot's meeting to discuss the towing procedures, as well as equipment prior to flying. All planes were given a safety inspection and the transmitter impound was up and running. The weather was absolutely perfect, and the wind was a gentle 5 mph right down the runway. John Derstine was helping me fine tune control surface adjustments when Dave Garwood, another DownEast Soaring Club member, came by to say, "Hello." Dave later flew his Falcon 880 on tow several times during the day. Several ASK 21's made fairly clean aerotows by the time my ASW 24 was finally ready for flight.

I was quite concerned that this 11 pound monster was going to be a tip stalling, high speed monster. The ASK 21's seem to have a 15% wing, and all of them flew quite well; though not floaters, they did travel at a respectable airspeed. My 24 has an HQ 2.5, 12% wing, with only about 2/3 the wing area of the 21's. While building the plane, I discussed several methods of lightening up the plane with Robin, and he shot them all down, saying that the plane should be built to design weight. Heck, just the wing rod alone weighed 16 oz. Anyway, I found myself with Robin flying the tug, and Jim Blum mentoring me, for my first aerotow flight on my first scale plane that had not yet been flown. (Most of the pilots there on Saturday were facing the same situation.) The first flight was an all or nothing proposition; no hand tossing this sucker.

Robin kicked in the power and we were rolling. When I was 100 feet down the runway, Jim told me to pull up a little on the elevator and we were off. I felt a little awkward with an uncoupled rudder on the right stick, but it's essential for towing. At about 400 feet altitude Robin said he would begin a left hand turn, so I swung out to the right to get myself lined up to be on the outside of the turn. When we completed the turn and began our downwind leg, I began to creep up on the tug a little, so Jim suggested several clicks of up to put a little more drag on the tug and to help get us to our ultimate goal, UP! At about 1800 feet, I snapped the tow release on the Infinity and I was off.

I can only describe the 24 as responsive, but not twitchy. As one may guess, I did not make 60 degree thermal turns on the first flight, but I did not note any bad tendencies. After what seemed an eternity (Don't all first flights?), the 24 was on final and came in, right on the money. Jim gave me a pat on the back, and I thanked him for his assistance. Surprisingly enough, the spoilers have no pitching influence on this particular plane. Later that

day, I made several other flights and began to settle in with the 24.

During one of the flights, I purposely tried to force a tip stall to see which wing would drop first; neither did. The 24 just got mushy and began to hobble. This was not what I had expected from a scale plane. Another surprise was how sensitive these long slender wings are when you fly into the outer boundary of a thermal. You don't need to read these wings to tell you which way to turn; they shout out at you and say, "Hey stupid, the thermal's over here." The day ended at about 5 p.m. after over 100 successful tows were made by the group of pilots. Most of the planes were 1/4 scale, though a very clean, 1/3 scale ASW 20 drew everybody's attention when in the air. I noted what I believe were two 1/4 scale Nimbus 4's; one was electric and the other belonged to John Derstine who was just too busy to fly.

Joe Enhuei brought this 6.5 meter EMS Nimbus 4. Powered by an Ultra 2000 motor, he gave us a lunchtime demonstration with this 15 lb. sailplane. There a 4 servos in each wing panel! Robin Lehman photo.

Joe Enhuei's 1/3 ASW 20 was the largest ship there. It was his first airtow and first pure (unpowered) sailplane experience. He loved it! Robin Lehman photo.

In summarizing the day, I have to say that this was one of the most enjoyable flying events that I have ever attended; and was the best organized, too. Scale flying is relaxing (after the first flights), and the non-competitive nature of the flying lends itself to socializing much more than a standard thermal duration contest. By the time the day was over and the planes were dismantled, we were all spent. The day finished off with a large contingent of the day's fliers meeting for dinner at a local eatery and reminiscing the day's events. It was a great experience that I'll be certain to repeat in 1997.

Great job, guys! ■

So, You Want to Hold An Aerotow Event

...by John Derstine
Gillett, Pennsylvania

I don't feel like an expert on the subject of contest or fly-in organizing, but I will gladly share my experiences with you. Perhaps it will be of some value, when putting together an aerotow event.

The first thing is to start early. Here in the U.S., if you want to sanction the event with the AMA, the earlier the better. We started the ball rolling in the fall, before the fly-in at Elmira. If you plan to use the modeling press to publicize your event, there is about a 3 month lead time, if you're lucky (except for *RCSD*). Once you have that stuff out of the way, you can relax for a nano second.

Having the support of the group with which you are working is of the utmost importance. In the beginning, having the help and guidance of a few key people is probably the way to go; then, gradually, bring in the larger group as the event gets closer. The hardest part of all this for me was judging how many people might come. Having a handle on this is important, so that you can plan motel accommodations, food requirements, parking, name tags, and almost everything else. The reality is that you probably won't know until the first day of your event. People, in general, don't always send in registration forms in a timely manner, if at all.

Peter George checks to see if he has enough nose weight before his first flight and first airtow. He took his ASK-18 to Fayetteville the following week-end where he flew, thermalled, and won "Best Vintage". Robin Lehman photo.

Rich Border built his ASK-21 in but 20 hours. He flew the pants off it! Robin Lehman photo.

Getting hooked up for the first flight, and first airtow, on the Roke ASK-18. After a few tows, Pete George decided he didn't need the training wheels, anymore! Robin Lehman photo.

One could get around this by demanding pre-registration with advanced payment, but in our case we did not want to do that. This is probably more important if you are having a contest as opposed to a fun-fly. As our event got closer (within 3 or 4 weeks), we had as it turns out, a pretty good idea of how many would show up.

Next, find a good, reasonably priced motel with a restaurant that is close to your field. Sounds easy, huh? In our case it was, but talking them into holding 15 rooms for us was another story! Make sure, if possible, to have alternate lodging for any overflow. Plan your mailing package and get your publicity in to Judy @ *RCSD* and, if applicable, the AMA, ASAP. I think we started about March for a June event. We also advertised on the Internet on a few key pages and services.

In addition, we did a lot of local promotion with the chamber of commerce, TV & newspapers, local flying clubs, and hobby shops. Our area has a lot of aviation and sailplane history, so we opted to make the fly-in a community event, also. This, by the way, opens up another job description, so get some help if you decide to do this. If you want to do hats and/or T-shirts, it needs some thought in advance as, in our area, for example, these guys need about 3 weeks to do their thing. In our case, I generated some artwork on my computer to save a healthy charge for design. Also, many times, screen printers will have surplus hats or shirts, which you can negotiate a good price on. As long as you're not fussy about color, this can save some money.

GET IT FOR FREE! Before I bought anything for our fly-in, I asked local merchants if they would donate something, and become a community sponsor of our event. In this way, we were able to get caution tape, wooden stakes, tents, a discount on dayglo plastic name tags, and hot dogs & hamburgers at wholesale prices. It doesn't hurt to ask!

Logistics and field set -up were something I was concerned about. This kind of event is new to the U.S., and trying to get a set-up whereby power planes and gliders interact, without interfering with each other, was a challenge. It was decided to have a separate landing area away from, but parallel to, the towing area. In retrospect, this is a must. We launched our glider guys from the main field, and the tow planes landed on the same field after the tow. If two tow planes are operating, one simply circles until it's clear to land. After launch, the glider pilot is guided by a volunteer to the glider landing area, where he stands in a flight line and flies his sailplane, landing in front of himself when he is done. While on the subject of volunteers, it is crucial to have 4 eyes on each glider at all times. We have found that, at high altitudes, it is easy to momentarily lose your sailplane; or worse, completely lose

orientation or sight of the glider. Also, appoint a chief spotter to oversee the whole flight pattern, and keep track of tow planes and their pilots. Because of this plan, I believe, we had not one single mishap on tow, or any mid-air collisions. Of course, standard contest procedures such as safety inspections, impound, and pit access need to be addressed, as well as crowd control, if necessary.

We are not a rich club, so we did this first annual event on a budget. Our expenses were: one portable toilet - $75.00, food & misc. - $175.00, phone bills - $90.00, administrative - $50.00, and hats - $135.00.

We took in around $625.00; the balance went into our treasury. This included a small profit on the hats and food. We only charged $5.00 for a registration fee this year, but as the event grows, so will the fee; but we also plan on a more sophisticated event with more perks for the attendees.

I hope this helps any of you that might be planning a fly-in. It's a lot of work, but the rewards of a smooth running event are well worth it! ■

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on the Wing

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Sections with Near Zero Pitching Moments — Good Choices for Plank Planforms?

While looking over our tailless aircraft plans collection, we were struck by the tremendous changes in airfoils through the decades and the increased performance which has been the result of this evolution. The airfoil characteristic which has changed the most during this process, particularly for plank planforms, is airfoil pitching moment. This month's column is devoted to exploring the reasons for this overall design tendency.

It is sometimes helpful to examine tailed aircraft before looking at tailless configurations, and this is particularly true in this case. A conventional tailed aircraft will always tend to fly at that speed where the force produced by the horizontal stabilizer exactly counterbalances the combination of the wing pitching moment and the downforce produced by center of gravity being ahead of the neutral point. These forces and their interactions are depicted in Figure 1.

The wing pitching moment in most cases is negative (nose down) due to camber. A center of gravity ahead of the aircraft neutral point also produces a nose down force. The more negative the wing pitching moment and/or the more forward the CG, the more downforce must be produced by the horizontal stabilizer. Note the horizontal stabilizer downforce is produced through a combination of angular difference between the wing and tail, and the downwash of the wing upon the tail.

A tailless planform is subject to the same aerodynamic laws as a conventional tailed aircraft. An advantage of tailless configurations, however, is that there is no downwash effect to calculate during the design process. The wing section will incorporate camber so as to achieve a higher maximum coefficient of lift, but since there is no horizontal stabilizer, the wing itself must also provide the down force required to achieve aerodynamic balance. For swept back wings, the down force is generated by the wing tips, while for plank planforms the rear portion of the airfoil is curved upward by a reversing (reflexing) of the camber line, as shown in Figure 2. This reflexing of the camber line must be carefully tailored to provide sufficient down force without unnecessary drag.

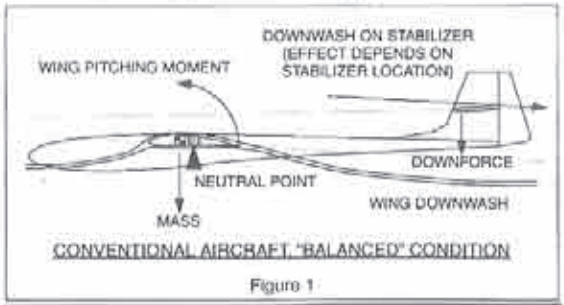

Figure 1

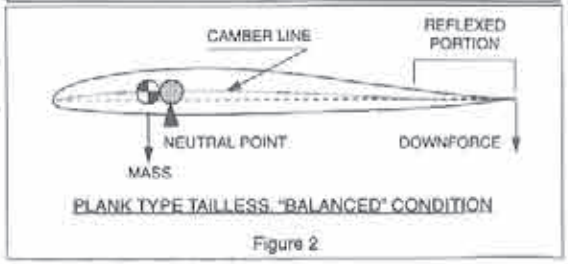

Figure 2

For a plank planform, section reflex directly determines speed. Imagine the actions of the aircraft at various velocities with the reflex remaining constant. If the aircraft is flying too slow, the CG ahead of the neutral point tends to pull the nose down, thus increasing speed. If, on the other hand, the velocity is too high, the reflexed area of the section produces a downforce which is greater than that of the effect of the CG. In this case the nose of the aircraft is forced up and the speed drops. These two cases are illustrated in Figure 3. For a given amount of reflex and a specific CG location there is one flying speed where the two forces are in balance.

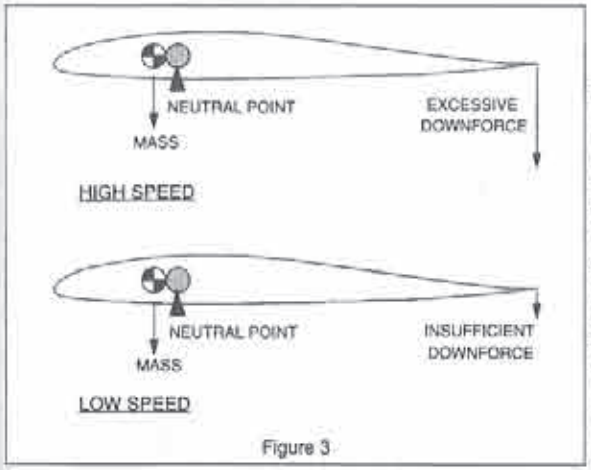

Figure 3

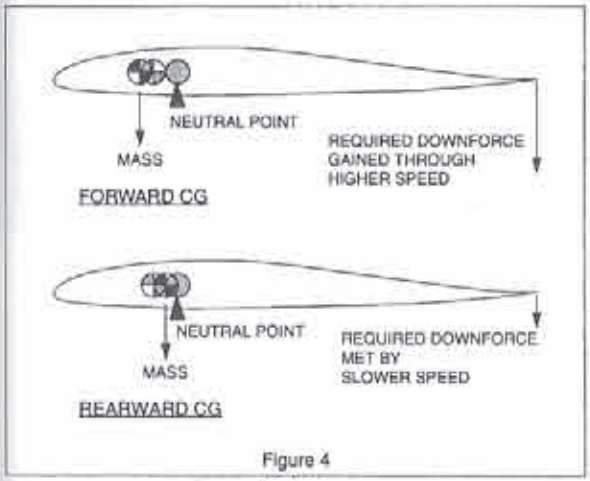

Figure 4

For radio controlled and manned planks, a moveable CG may provide some speed latitude. The CG is moved forward for higher speeds and back for lower speeds. See Figure 4 for an explanation of how this works.

Free flight planks, which require large amounts of stability, have fixed forward CG locations and large amounts of reflex. For power models, the thrust line must be adjusted so any looping tendency due to higher speed while under power is counteracted by engine thrust.

In the early days of tailless aircraft design, there was a trend to incorporate a large amount of reflex in the wing section, just as for free flight models. This dictated a forward CG position which made for very stable aircraft, but performance suffered due to high drag. In addition, excessive downforce robbed the aircraft of generated lift as some of the lift generated by the forward portion of the wing was counteracted by the down force generated by the rear portion.

Over time, the amount of reflex designed into airfoil sections for plank planforms, for both full size and model aircraft, has gradually decreased. Along with this reduction in reflex has come a reduction in section drag. The accompanying Table gives an overall idea of the evolution of sections deemed appropriate for plank planforms. Due to lack of published data, moment coefficients for this Table were frequently obtained through use of the cited Lounsbery code.

Speed can be controlled over a wide range by means of full span reflex trim. There is no need to resort to a moveable CG in this case. In addition, overall performance is improved because of lower drag during nearly all flight regimes when compared to identical planforms without such full span camber changing capability. The Bird Works (Kindrick) Zipper uses a full span camber changing system to excellent effect. The wing has a moderately positive pitching moment at low speeds due to up trim, but the pitching moment is near zero at very high speed when neutral trim is employed. See Figure 5.

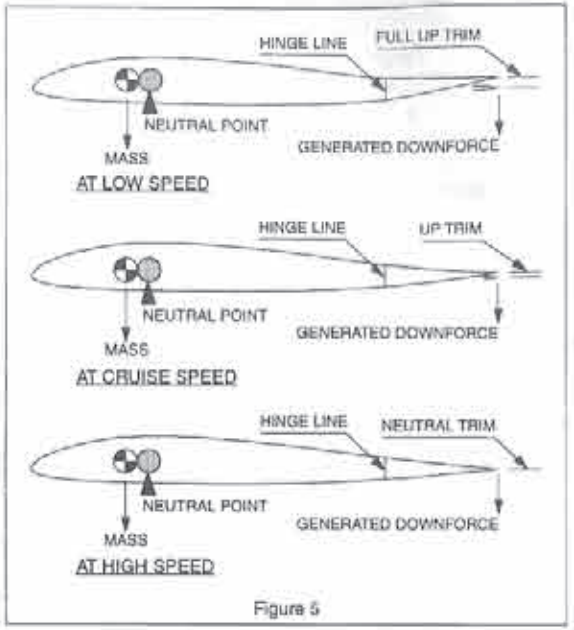

Figure 5

As can be seen from the Table referenced earlier, the pitching moment of sections designed for use on plank planforms has decreased markedly over the years. Parallel performance improvements have resulted. If you are considering design and construction of a plank planform, perhaps this month's column will entice you to consider using a section with a low pitching moment and appropriate control surfaces.

Suggested topics for future columns are always welcome. Feel free to contact us by regular mail at P.O. Box 975, Olalla WA 98359-0975, by e-mail at <bsquared@halcyon.com>, or through our web page at <http://www.halcyon.com/bsquared/>.

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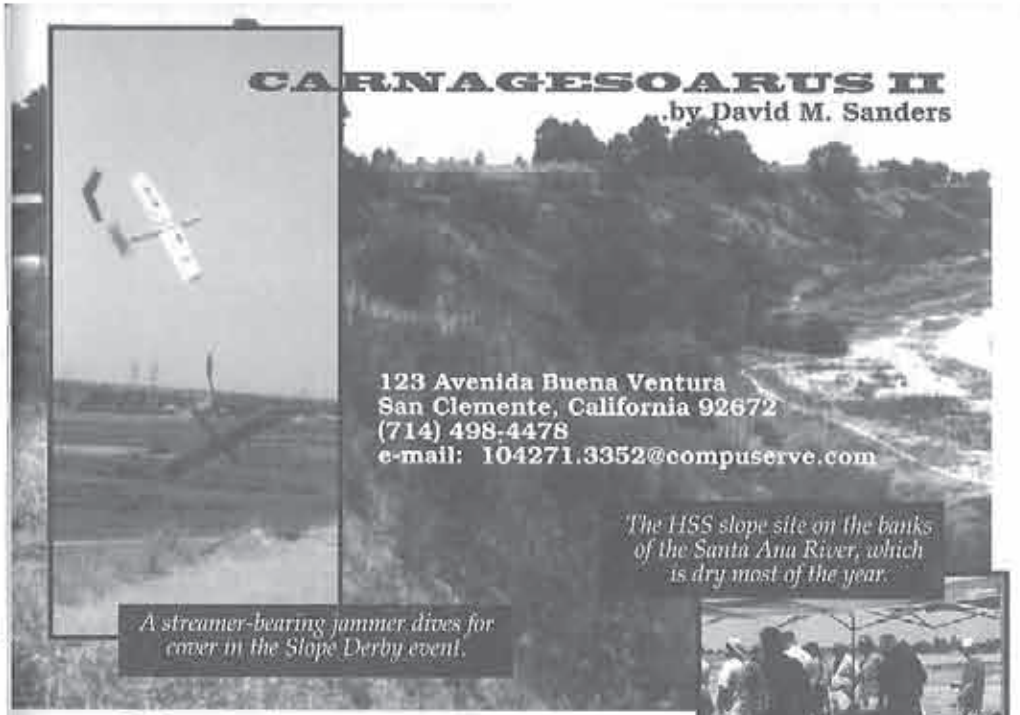
Designer/Builder: A/C Designation	Section (Year)	c_m
FULL SIZE		
Fauvel AV.361	Fauvel F2 17% (1960)	0.0885*
Marske Pioneer II-D	NACA 43012Ax.833-75 (root) NACA 43012A-75 (tip) (~1985)	0.0185* 0.0212*
Marske & Roncz Genesis 1	Genesis, proprietary (root) (1994)	0.0174*
MODEL		
Jones Raven and Blackbird 2M	CJ 3309 (1984)	0.0323*
Jones Blackbird 2M	CJ 25^2-09 (1993)	0.0249*
Jones/Kuhlman: Blackbird 2.3M.mod	S 5020 (1994)	0.000597
Kindrick: Zipper*	EH 1.0/9.0	0.000189

* calculated using Lounsbery code



CARNAGESOARUS II

by David M. Sanders

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The HSS slope site on the banks of the Santa Ana River, which is dry most of the year.

A streamer-bearing jammer dives for cover in the Slope Derby event.

Now that "foamie" slope combat has begun to take on a life of its own, it was only a matter of time before organized competitions would be conducted. One of the leaders in this new format

Larry Tuohino mans the hibachi to feed the dog-fighting throng. Larry cooks a mean Kilbasa style dog! Drinks are also provided by the organizers - comfort is king! Also notice the civilizing touch of a frequency board.

(Below) Jerry Bridgeman scores a solid hit on the mannequin's noggin. You could only score a point if the plane continued flying after the hit, which appeared very challenging.

Try and guess who flew this text-book hit on the bleach bottle. Joe was even kind enough to make it smile for the camera!

Four Aces... A good hand! These were the four finalists in the Sergio Vendetta shoot-out; (L-R) Jerry Bridgeman, Joel Johansen, Joe Wurts & Pat Bowman. Tough customers, indeed!

is Orange County, California's Harbor Soaring Society (HSS). For the second time now, CD Lynn Johansen and assistant Larry Tuohino put together a competitive, yet entertaining and relaxed event that attracts all sorts of different people; there were young, old, famous and unknown fliers at this contest. Since the movement is in its infancy, and there aren't any real legends yet, almost anyone or any airframe you see, at such a meet, could be the "Top Gun" or "Choice Ride" of the future.

The event was held at Fairview Regional Park in Costa Mesa, the HSS's club field. The HSS runs TD contests monthly in the morning hours on Sundays, but in the afternoon, as the winds kick up, a short walk takes you to their slope site on the east bank of the Santa Ana River. The slope is not huge or anything, but it is conveniently located and rewards the savvy "engineer/pilot" with good, light lift conditions most days. The day of the event was typical for the site, and the lightest loaded planes saw a distinct advantage. There were 23 fliers registered, and they were broken down into four and five man teams by drawing numbers out of a hat! You have no idea who you're flying with until the day of the contest! That makes for some interesting combinations. Most of the ad-hoc teams derived an immediate brotherhood among members; after all, this is a battle to the death, friends! After a barbecue lunch and the pilot's meeting, the action began...

The first task of the day was the "Slope Derby". This is roughly analogous to roller derby. Each team designates a "jammer" and the remaining members act as "blockers". Two teams fly per round in elimination heats. The idea is for each of the jammers to complete as many laps as possible on a pylon course while his teammates clear the path AND attempt to take out the opposing team's jammer. The team who's jammer makes the most laps wins the round. The jammers are identified by a colored crepe paper streamer. The rounds last only two minutes, so having one fast guy on your team with pylon racing experi-

Bob Lenard and Jerry Teisan winding up to go after the other team's "jammer" in the Slope Derby. After some practice, launching a plane with no fuselage becomes second nature, as indicated by their consistent styles.

A slightly modified "Carnagesoarus". Notice the fins have been moved into the fuselage. Also, notice the use of a flaperon setup. Camber changing can be very useful in combat flying, allowing you to stretch a given plane's envelope considerably.

Consummate gunfighter, Joel Johansen, with his "Carnagesoarus" designed by his Dad, Lyndon. Note slick camouflage scheme sprayed over the vinyl tape skin. This straight-forward conventional design is a delight to fly, and is very durable. It's sure nice to see some young guys out there again, isn't it? Combat is exciting, and really captures young people's imaginations.

(Below) John Roe flying by with my Foam-51. Kits are available for this plane; for details, write or call Dave's Aircraft Works at 123 Avenida Buena Ventura, San Clemente, CA 92672, phone (714) 498-4478, e-mail 104271.3352@compuserve.com .

Here's three pilots running out of altitude REAL quick. If you look carefully, you can see a jammer's streamer in this pile-up. This kill by the other team's blockers cost him the round. Team flying can be very enjoyable, and leads to interesting strategies.

Jerry Teisan holding his hard-to-hit wonder, the "Zagi". I can attest from personal experience that this is a formidable craft in the hands of skilled pilots. I found it to be one of the better flying wings I've tried, and it's very difficult to damage mortally. Many are flown at my home field, and they are nice to have, particularly in light lift.

Brian Buaas' scratch built "Carnagesoarus" derivative. This model has a tapered wing planform for just a touch more efficiency and some extra roll rate. Notice that there's no radio gear hanging out of the plane, which can greatly increase survivability.

Combat planes can be pretty! Here's a smartly finished "Zagi".

Another young hot-shot, Kevin Elliot, accepting a trophy from Lyndon Johansen for Team 1 during the awards ceremony. These young men have good eyesight and fast reflexes, and are consequently tough opponents.

An unusual home-brew makes a very clean pass through the "Window of Opportunity", a very unforgiving piece of field equipment! This plane had a flexible foam tube obtained at a floral shop over a pod and boom type fuselage. Yielded very respectable performance.

(Below) Joe Wurts showing off his combat birds, a pair of Pat Bowman's "Roughnecks". Made from very resilient material, they are capable of surviving many hours of severe, full-contact fighting, while remaining aerodynamically as clean as new. The one in Joe's left hand is about a year old! Still flew great.

One of about 5 or 6 delta-type flying wing designs I saw present. They did pretty darn well in the light lift, though the fin could prove vulnerable.

ence is very helpful, only now he's having the additional management problems of jinking out of the path of aircraft that could be coming in at him from any heading or altitude. I was the jammer for our team in the first contest a couple of months ago, and believe me, it requires maximum frostiness to even finish the round without getting waxed! This day was even tougher due to the lift being spotty. Most of the planes flown hand-launched pretty well, so the more prudent blockers stood ready on the edge of the slope. As the opposition's jammer would fly by on the first lap, you'd see a barrage of aircraft suddenly spring on the hapless racer. I'd say this was pretty much an anti-aircraft gunner's approach, but it did work a couple of times. As lift improved, the later rounds became a more traditional air battle, and it did get thick. If your blockers can keep the other team busy enough, you can sneak around pretty well when you're running the pylons. Team #4 walked with the first place trophy in this event. (See results at the end of this article.)

The next event was the "Window of Opportunity". Heh, heh, heh... When you first see the apparatus for this little affair, you think, "Man, this'll be SO easy!!" The contest personnel erect a rectangular wooden frame about 12 feet wide and 6 feet high on the edge of, and perpendicular to, the slope. Two teams per round attempt to fly through the frame as many times as possible inside the two minutes, trying all the while to stop the bad guys from doing the same. This is VERY difficult. After your plane is flying, the huge frame suddenly becomes a tiny little aperture that is very unforgiving of any erroneous control inputs! It takes lots of guys three or four passes to make it the first time they try it, but after a while you can get a little bit of a knack for it. Since everyone is attempting to make the shortest circuits possible, the peripheral battles can get pretty wicked. Planes are pulling their turns right after they pass around or through the frame, just as you're coming into it. This makes it real easy to end up finding a few square feet of airplane right in your path, just as you come down from the concentration rush you developed passing through the frame; assuming you didn't wrap your plane around it, of course. If you find a guy on your wing inviting himself along on your pass, you've just got to hold your line and hope for the best, because chances are one of you is going for a frantic hike to recover and re-launch! Remember, there's eight to ten planes shootin' for that little opening in each round. Team #3 took the gold in that event, by a large margin. This task rewarded smooth flying and guts.

The last event was a target shoot called the "Sergio Vendetta". Those of you who follow the Radio Control Soaring Exchange on the Internet can rightly assume this event was inspired by the now legendary "Sergio Incident". Those of you who aren't plugged into the computer stuff, I'll just say that a fellow did something sort of rude, and garnered a pretty poor reputation among slope fliers who frequent the exchange. I'm still not 100% sure what happened or how, or if he's even real; but the name was quickly adopted as a symbol of poor conduct. As a safe way of blowing off steam and letting everyone get their sense of humor back, a Sergio the Scarecrow was erected on the hill. His noggin was an old bleach bottle with some rocks in the bottom to stabilize it. This sat on a pie plate at the base of the mannequin's neck. The object of the game was to knock over the bleach bottle and continue flying. This, too, proved a little tougher than appearances might lead one to believe. Usually, you'd dump your bird if you hit the bottle real square, and if you glanced it, it might not fall down at all (and you might anyway). Since the target was erected on the "Window" frame, you also stood the risk of getting "Douglas Fir Deja Vu" of the previous task. This was run as a mano-a-mano competition, with 8 to 10 fliers in two minute, elimination rounds. Joe Wurts took first, but not before enduring a fly-off to break a tie in the final round with Jerry Bridgeman.

Most of the aircraft flown were ordinary styrene and blue foam foamies, though new materials are

beginning to make the scene. Here's some of the products I saw....

A strong contender was the "Roughneck" by Pat Bowman of Santa Clarita, California. This 48" span plane is made out of an incredible polypropylene foam that is practically indestructible. Another notable feature is its short coupled geometry - it has many of the attributes of a control line stunter. The leading edge of the stabilizer sits directly behind the wing trailing edge, and it has large control surfaces. The fuselage is also easy to grip for good launches. A short kit (wings, spar, fuse and tail feathers) goes for $45.00. A complete kit, to be available soon, is $60.00. Add $5.00 for shipping to these prices. You can reach Pat at 21069 Susan Carole Drive, Saugus, CA 91350 or call at (805) 296-2952.

Flying wings made a strong showing, too; a good number of them being Trick R/C's "Zagi". This is a 48" span, traditional swept flying wing, polystyrene foam design. Jerry Teisan of Trick R/C informed me that his latest design, the "Super Zagi", will incorporate polyethylene foam on the leading edges for better durability, and he had some examples on hand which he flew very successfully during the contest. He will also be offering a plastic nose piece to aid in the plane's longevity under hard use. The standard "Zagi" kit sells for $30, the "Super Zagi" for $45.00, and the optional nose guard is an additional $5.00. Check with Jerry on shipping costs. He can be contacted at Trick R/C, 938 Victoria Avenue, Venice, CA 90291. His phone number is (310) 301-1614 or E-mail to jteisan@aol.com.

Also present in large numbers were the HSS's own club plane, the "Carnagesoarus". Designed by Lyndon Johansen, it's a more conventional styrene foam and tape design. Although it has similar geometry to the old Anabat, it has a cambered airfoil which gives it better light lift capability (the 'bat's is symmetrical), and the rugged "Corplast" corrugated plastic tail feathers. Lyndon's son, Joel, is a particularly tough adversary flying this design. The "Carnagesoarus" kit sells for $34.95 + shipping. Write to Lyndon at 654 West Wilson St., Costa Mesa, CA 92672. Phone is (714) 645-6291.

I was also very pleased to see lots of scratch built planes. These all stuck with what is now becoming the standard format of 48" wingspan and foam wing leading edges. As people start flying combat more often, the planes are beginning to become a little more efficient aerodynamically with tapered wings and more attention paid to streamlining of the fuselage to enable them to fly in a wider range of conditions. The new, more resilient foam materials being used are also making it more practical to create sophisticated designs that won't be destroyed in the first few sorties. It's going to be fun to see the design directions taken in this new form of competition.

Trophies were awarded for the top three spots in each task. Here's how the results finally shook out:

SLOPE DERBY:

1st place:	Team 4
2nd place:	Team 2
3rd place:	Team 3

WINDOW OF OPPORTUNITY:

1st place:	Team 3
2nd place:	Team 4
3rd place:	Team 1

SERGIO VENDETTA:

1st place:	Joe Wurts
	(by fly-off round with Jerry Bridgeman)
2nd place:	Jerry Bridgeman
3rd place:	Joel Johansen
4th place:	Pat Bowman

■

THE WONDERFUL WORLD OF AIRTOWING
- FAYETTEVILLE, 1996

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Can you guess which was the best, scale sailplane, there? The beautiful ASW 24 (with winglets) flew in to pay us a visit. We just had to get a group photo!

Just three years ago I don't think there were ten people in all of the United States who were actively airtowing scale sailplanes to height. In the past two years, there has been a remarkable growth in airtowing, and now there are perhaps 50 to 100 groups enjoying this wonderful, safe, efficient, and most enjoyable aspect of soaring!

Some of these enthusiasts are beginning to arrange airtow fun-fly's. I had the privilege and pleasure of attending the Piedmont Aeromodeler's second such event. Created by Sam Smith, John McCullough, Bernie Coleman and Wayne Parrish, this event drew some thirty or so seasoned pilots from up and down the East Coast, and as far west as Cincinnati. Although there were one or two who had not airtowed very much before, most pilots were experienced; the airtowing by Wayne Parrish, Bernie Coleman, Tony Napoleon, Rusty Rood and others went flawlessly, as sailplane after sailplane was towed to height. There were two Robin 99's (powered by a G 62 and a Saks 5.8), three Telemasters (ST 3000, 3.2 Saks), a 1/3 sized Cub (3.7 Twin), and one or two other towplanes.

Everyone flew as much as they wanted from Friday to Sunday (June 7 - 9), when thunderstorms sent everyone scrambling to disassemble before the mid-day rain and wind blasted us. Friday, and especially Saturday, proved to be super thermal days! Even an empty trash bag got sucked up! It was really harder to come down than it was to stay up!

The scale aircraft were mainly 1/3 size with a few smaller and one monster 1/2.5 LS 4, which floated around and out-thermaled everything else there. Flown by skilled (full-sized aerobatic pilot!) Wayne Parrish, we were treated to an increasingly complex aerobatic routing (three consecutive rolls, stall turns and loops just twenty feet up). When he gets used to flying this bird, watch out! Wayne is really going to ring it out!

Amongst others there were: a 1/5 Graupner Ventus, a 1/4 Pik 20 D (John Gresfy), a 1/3 - 5 meter at 20 lb., ASW 20 (Gunnar Stumpe), a 1/2.5 ASW 20 - 6 meters and 28 lb. (Mike Watson), 2 - 1/4 sized ASK 18's (Douglas Barry and Peter George), a Roke DG 202, 1/4 Pilatus B 4, Multiplex 1/4 Ka6E, Roke SB 10 (Bernie Coleman), 2 - 1/5 TG 3/s (Lauren Taylor), and a 1/3 DG 600 and 1/3 Libelle (Asher Carmichael). Quite a few others came and went for the three flying days.

Pilots' choice awards went to Asher Carmichael's superb scratch built 1/3 DG

Is there enough room inside that fuselage?

Expert Flier, Wayne Parrish, just loves his 1/2.5 LS4! It was the best thermal ship there. People were amazed at how this 43 lb. bird floated around. And, it does great aerobatics, too!

Wayne also flew his Robin 99. I noted that, while on tow, his fingers are always on the release switch, just in case!

Bernie Coleman loves his Roke DG 202. An interesting and inventive use for pajamas!

Part of Asher Carmichael's DG-600 cockpit.

(Above) Asher Carmichael with his 1/3 DG-600. It won the Pilot's Choice award for Best Modern. It is scratch built, weighs 21 lb., 18 1/2' span, HQ3.14. Beautiful!!

Bernie Coleman ready to start his ST 3000 powered, Senior Telemaster.

(Below) Gunnar Stumpe with his beautiful 1/3 ASW 20.

(Above) John Gresty with his 1/4 Pik 20 D. At 3.75 span, it was the smallest scale sailplane, there.

Lauren Taylor & scratch built 1/5 TG-3, 132" span - very stable on tow.

Pete George flew his new Roke ASK-18 in both Elmira and Fayetteville. He won Pilot's Choice, Best Vintage, with this beautifully finished ship!

Asher waits his turn with his 1/3 Libelle, while Wayne Parrish tows Gunnar Stumpe. Note that Asher doesn't carry his Libelle; he hooks a "walking line" to it, and just pulls it wherever he wants to go.

This is a good idea. The badminton bird keeps the tail end of the tow line from tangling.

600 (modern) and Peter George's beautifully finished Roke ASK 18 (vintage). Peter had his first airtow experience just one week before at Elmira, New York, and flew the pants off his ASK 18 in Fayetteville! Tony Napoleon, our trusty Long Island tow pilot, drove down and had the distinction of airtowing in both events!

Last, but not least, and certainly the highlight of the event came late on Saturday afternoon; a few of us noticed that there was one too many scale sailplanes in the sky. A 1/1 scale ship was thermaling overhead. Wayne Parrish had just towed Gunnar Stumpe's ASW 20 to height and released below this mystery bird. I remember commenting on how scale-like Gunnar's sailplane performed. After watching these two circle for awhile I went to get a drink. The next thing I heard was, "It's landing! It's landing!" And sure enough, our mystery bird was growing larger and larger ; soon, its fifteen meter span filled our landing strip, as it came gracefully to a halt at the end. My first thought was that this guy must be one lousy pilot to have landed here! Even a garbage bag managed to thermal in those growing mushrooms above!

As it turned out, Wayne Parrish had secretly arranged this surprise visit for us! And his friend, Herbert Killian very kindly agreed to land his spotless ASW 24, complete with winglets for us to admire and drool over! Needless to say, all flying stopped and a large crowd gathered around this beautiful standard class bird! (No fingerprints or drool on the canopy please!) I can safely say that this was the most photographed scale bird at the event!

I have never seen a real ASW 24 (With winglets no less!), and what a pleasure it was to be able to get close to this bird! Thanks, Wayne! Thanks, Herbert! Wonderful treat!

Many, many flawless airtows were completed over the three day weekend. And there were no broken scale sailplanes! Just great tow pilots and great tow planes! And, wonderful hospitality! A great time was had by all!

Thanks, guys!
We can't wait till next year!

■

Fayetteville History Report

...by John McCullough
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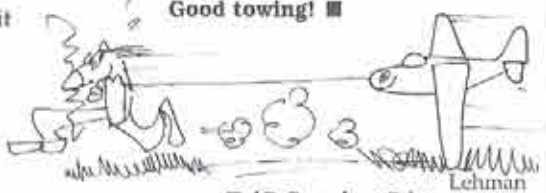
The 2nd Annual Southeast Aerotowing & Scale Fun Fly is now history, but plans are under way for next years get-together.

Special thanks have to go to Robin Lehman and Jim Tasma for helping make the meet not only a lot of fun, but painlessly educational. Robin flew in from New York, and Jim drove straight through from Michigan, helped folks with battery charging questions (Jim is the "T" in TRC Engineering, Inc.), flew too close to the sun, and melted the wings on his 16 foot electric sailplane, and then hopped in his truck and headed back to Michigan. Talk about Ironman Tasma.

A real big thank you to Herb Killian for giving up the best part of a great soaring day to bring his beautiful ASW-24 to the meet. A real nice ending to a super meet.

If you are having envy pangs, Asher Carmichael and Rusty Rood have promised to surpass our effort in October, way down in Pennsy Cola, Floriday. The field sounds out of sight: a 1/2 mile square trimmed like a Putt-Putt course. I highly recommend you make the trip, but just be sure you have your seat belt fastened when Rusty fires up that big Walker! Also, be sure to let him know you are going to get off, before you lose sight of your ship; 2000' foot tows are common and 3000' happens. The highest recorded flight was a little over 3300', that Herb verified in the ASW-24. The longest flight was a little over 1 hour; it would have been longer, but the guys wanted to get in line for the next tow.

Good towing! ■



BIGGEST & HOTTEST MSSC, YET!!
5TH ANNUAL MID-SOUTH SOARING CHAMPIONSHIPS
MEMPHIS, TENNESSEE

...by Fred Mallett
334 Haroldson Dr.
Corpus Christi, Texas 78412
(512) 991-3044 (Week Days)

Russ Behr photo.

Buzz Tokunaga from Tokyo, Japan launching his F3B ship. Russ Behr photo.

They say that you have to earn your fun, but along about Thursday night at 9:00 p.m. I was wishing it was not true. After checking my sailplane case as luggage for $50 at American Airlines (First time I have ever been charged...), and boarding the plane, we had to taxi back to the terminal twice for suspected problems. About then I felt like I was on that last slope flight of the day where you are not sure if your batteries are up to it. (Will it fly??) They were, and we landed in Dallas about an hour after the last flight of the day left for Memphis. After much finagling, a seat was found on another airlines' last flight of the day. I was beginning to wonder where my sailplanes would spend the weekend.

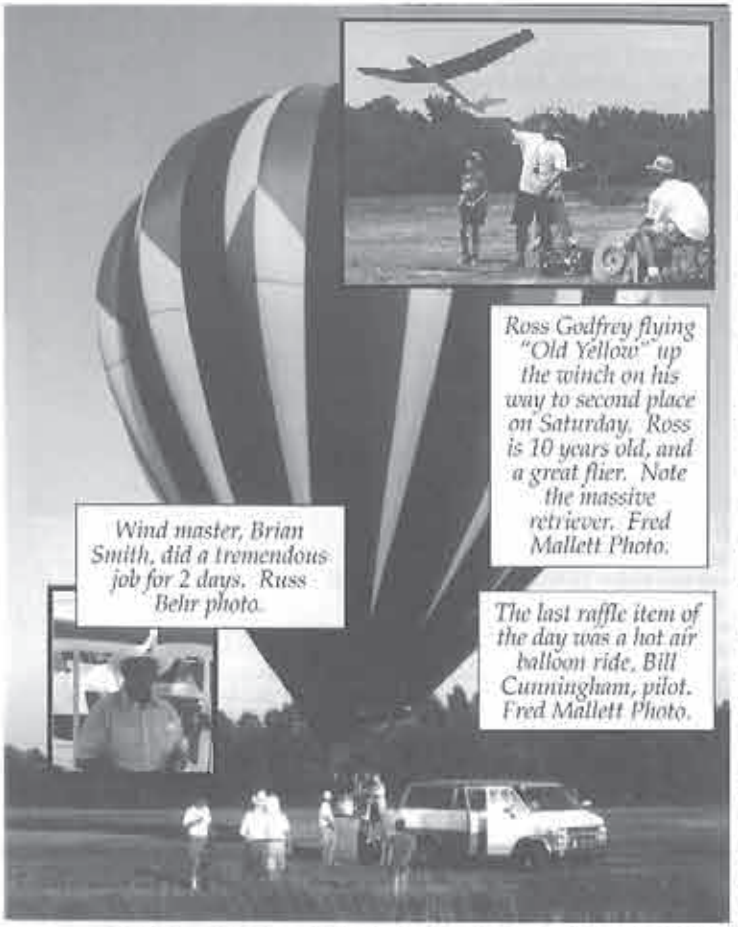
When the case actually did come out of the luggage chute, people looked at me rather strange, as I started hugging and kissing it a welcome. Thinking my problems were over, I hopped on the rental bus shuttle to get my reserved van, only to find out that the golfers took it. So much for

(Right) Tim Renaud, Airtronics, just 2 points off perfect, won Sunday's thermal duration contest. Tim was one of the guest speakers at the banquet, and we're pleased that he came all the way from California to join us at the event. Russ Behr photo.

(Above) Bob Champine telling enjoyable tales of the early days of transonic flight. Fred Mallett Photo.

(L - R) Mike Kelly, Jerry Slates, and Bob Sowder performing the drawing for the ASK 21. It was won by Joe Enhuei of Laurenceville, New Jersey. Proceeds went to Le Bonheur Children's Medical Center. Fred Mallett Photo.

RCSD Entry Level Design winner, Oliver Wilson (L) with "Tyro", and Jerry Slates, CD, (R). Russ Behr photo.



Ross Godfrey flying "Old Yellow" up the winch on his way to second place on Saturday. Ross is 10 years old, and a great flier. Note the massive retriever. Fred Mallett Photo.

Wind master, Brian Smith, did a tremendous job for 2 days. Russ Behr photo.

The last raffle item of the day was a hot air balloon ride, Bill Cunningham, pilot. Fred Mallett Photo.

paying in advance. I tried every car on the lot, and the box would not fit, 'til I finally figured out that if I rolled a back window down, and removed some of the trim around the opening into the trunk, the box would slide in after I exerted only 2 or 3 hundred pounds of pressure. Off to the hotel, I went; it was just after midnight.

I had come for the Handlaunch contest on Friday. Alarm clock in hand, and feeling rather bummed, I looked at the all encompassing 24 page program of events (Great job there!!), expecting to see a 7:00 a.m. start. You could not believe how relieved I was to see a 10:00 a.m. check in! I closed the curtains, turned off the alarm, and happily fled to dream land, where every throw finds a boomer.

While wandering to the car that morning, the first thing that hit me was the heat, and next, the humidity. Finally, I noticed the complete lack of wind. It turns out that Friday and Saturday had the worst heat ever experienced at the MSSC contest in 5 years. And, it had to be a Handlaunch contest day. The temperatures were bad enough, and well above average, but the lack of wind was a killer; I have since learned that there was a very good reason for the weather being as warm as it was, which I must remember to explain later... Anyway, I got lucky, and pulled in next to Tom Scully, who let me hide under his canopy for the weekend.

The Handlaunch contest was to be 5 rounds, with the fliers split into 6 flight groups, a-f. The unusual thing here was that 2 groups flew at once (a+b, then c+d, etc.). This was good, because it put almost a dozen fliers in the air at a time. HLG is best done with lots of fliers per heat. In my opinion, there is nothing like a dozen hlg's in a thermal. The unusual part was that you were not scored against everyone in your heat; you were man-on-man within your flight group, only (i.e., the a's were not scored with the b's). There were 39 entries, but only 33 actually flew; I know a few that ended up staying at the cross country event, instead.

The tasks were well thought out, and designed for thermalling skills; all were unlimited throws:

Round 1	3 2 minute flights
Round 2	3 longest flights, must have 3
Round 3	3 3 minute flights
Round 4	5 2 minute flights
Round 5	2 min, 3 min, & 5 min. flight, any order

There were no high starts allowed (Good decision, as this is handlaunch!!), but of course, you could have a designated thrower. Several people did just that, and I think that is very fair. The air varied greatly during the day, from soft air (that is, zero sink areas being the best you could find), to having multiple boomers on the field at once. I flew one 3 minute task below launch height. With the lack of wind, once a thermal was located, you could usually fly it for most of the heat. It was great fun, and lots of great fliers were out there. I remember timing for Buzz Tokunaga, of Japan (and I thought I traveled far) in round 4. We were both sweating so bad that neither one of us could

The second round of fly off for the Super-V 2M. Mike Fox is landing in the background. Fred Rettig is on final, but the plane is out the picture. Fred Mallett Photo.

Matt Gewain with free flight-style RCHLG. It flew great in the conditions. Fred Mallett Photo.

Cross Country
1 Rich Tiltman
2 Mark Barbee
3 Pat Flinn

HLG

Open Class	Junior
1 Rusty Shaw	Chuck Thomas
2 Mark Nankivil	Mike Broadway
3 Mike Fox	
4 Fred Mallett	
5 Buzz Tokunaga	

Thermal Duration - Expert Saturday	Sunday
1 Rusty Shaw	Tim Renaud
2 Ted Nickson	Mike Remus
3 Fred Mallett	Tim Foster
4 Robert Taylor	Dan Abma
5 Henry Bostick	Dale Nutter

Thermal Duration - Sportsman Saturday	Sunday
1 Pete Petrowske	Don Cleveland
2 Matt Gewain	Bill Gerth
3 Jerry Hethcoat	Ron Richardson
4 Terry Alexander	Pete Petrowske

Thermal Duration - Novice Saturday	Sunday
1 Frank Carson	Jon Owens
2 Lance Brill	Frank Carson
3 Jimmie Lawler	Lance Brill

Thermal Duration - Junior Saturday	Sunday
1 Daniel Banko	Daniel Banko
2 Ross Godfrey	Travis Larson
3 Travis Larson	Mike Broadway

High Point Grand Champion
Mike Fox

George Serfess and Dana Kelly on top of computer scoring. Note the fans! Russ Behr photo.

Mike Fox (L) and Mike Kelly (R). Mike Fox was winner of the Top 10 Fly-off and won the Super-V 2M Russ Behr photo.

C.D. Mike Kelly shows triangle landing task. Russ Behr photo.

Loyd Chandler of Houston, Texas setting down in the 100 point triangle! Mike Anderson timing. Fred Mallett Photo.

see the plane for the stinging eyes. He spent more time wiping the sweat than flying the plane, and still got a 1000 round. (Remind me to tell you why it was so hot...)

Everyone always asks what planes were there, and the answer is always the same. There were lots of different planes, from the common (Climmax, Monarch, Corndogger, Skeeter, Illusion, etc...), to some unusual home brew designs. There must be a large contingent of free flighters that have moved into RCHLG, as there were a few planes that would look right at home in free flight competitions. One such model at the event was flown by Matt Gewain of Composite Structures Technology in California; the craftsmanship was beautiful. I flew the Polyhedral version of the Epsilon, as I think poly is the best bet in light winds; they thermal without thinking, which allows intermediate pilots like me to still look around and read the air, without falling out of a thermal. In higher winds, I'll go to the aileron version. The winner in HLG Open Class was Rusty Shaw, with five 1000's. Way to go, Rusty. The winner in HLG Junior was Chuck Thomas; second was Mike Broadway. Great job, guys!!

After the HLG event, Trey Finney set up a catapult launcher, and started winging his new "Bullet Bird", at mach speed, up to winch height with aerobatics along the way. A bunch of us lined up to try this adrenaline rush. He is selling this plane complete with the launching system. Slope flying on a flat field, it is great fun. I heard someone on the network call this type of flying "slope on a rope".

By the end of the day everyone was more than happy to head back to the pool at the hotel, and attend the social gathering sponsored by the North Atlanta Soaring Association. I still want to know why that guy grabbed a head of broccoli and went in the bathroom. We never saw him again...

Saturday morning, I think every TV in the hotel was tuned to the weather station, as we were all wondering if there would be any relief from the weather. It was not to be; they really did a good job ordering up this heat. Arriving at the field at 7:30 a.m., the exceptionally, efficient crew had already set up the winches, and landing spots. Now, this field is huge; it is a sod farm, so it was real pleasant for me to be able to walk around barefoot.

There were 5 winches strung out parallel to, and in front of the pits; and 5 landing spots beyond that. The landing task was one I had never seen before. Take an equilateral triangle, then divide it into 4 equilateral triangles, and you have the landing area. The "center" spot was worth 100 points, and the others were worth 50 points. Note the photo of Mike Kelley, CD, holding up the diagram. The "lines" were 1/4" rope, held in with monster spikes. We were warned not to do carrier landings; these babies were in there! For the top finishers, this put real emphasis on the precision part of duration. That was quite refreshing, as most contests have the emphasis on the spot landing. In Expert class, the top five finishers both days had all 100 point landings, and the precision time was the deciding factor.

Another refreshing thing about this contest was how many 3 channel (or 2 channel) planes there were competing in every class. There were 5 rounds, with target times of 4, 6, 6, 8, and 8, in any order. The flight time was normalized to 900 points, with 100 points for the landings, with a possible max. of 5000. There were 7 finishers over 4900 points on Saturday. There were 129 entries for Saturday, and 117 actually flew. That made for quite a crowd, and begins to rival the size of the major, west coast contests. I think people are starting to find out that the large contests are so much fun, that they are worth traveling to.

First flights got under way around 10:00 a.m., after the 9:00 a.m. check in deadline and pilots meeting, complete with the enchanting, MASS mascot turkey, "Struts". All flights were completed by around 5:30 p.m.. Everything ran pretty smooth, and one great thing I saw here, that I had never seen at a contest before, was an 8x11" flip chart showing the current flight group being launched. The numbers were large, and mounted in a 3 ring binder on a pole. This was large enough to be seen all the way down in the pits; even if you could not hear the speakers, you could look up whenever you wanted to see if you were due to time, or fly. Every large contest should do this!! By 5:00 p.m., there was an occasional, thermal generated breeze, but when thermals were over the field (calm), it was cooler jogging than sitting still. Lift

was abundant, but light, with an occasional sink cycle to keep it interesting. I flew my Esteem, which loves these conditions, so getting times was easy. There were a few wing folds on launch, but with strong winches, dacron line, and the heavy feet of competition, that is to be expected.

On Saturday, a Mark Levoe, Levoe Designs, pre-built 2 meter sailplane, obtained by the Memphis Area Soaring Society, was presented to the winner of the fly-off of the top 10 fliers. The task was set at 5 minutes. There were 2 flight groups due to frequency conflicts. It was quite fun, with 2 people at a time being sent up the winches. Everyone had a spot to land on; as it turned out, Mike Fox and Fred Rettig both flew perfect tasks; so, they had another man-on-man fly off Sunday morning, a 7 minute task with a landing tape to prevent another tie. It was tough air early in the morning, and they both got their time; but Mike Fox took the win, and the Super-V 2M, with his landing.

The Entry Level Design contest was judged Saturday afternoon, and what with the strict requirements of documentation requirements, it turned out that only one plane made it to the final stage, which was flight testing. This plane flew very well, and is the only NEW open class, three channel plane that I know of. Jerry Slates will give you more details about the winner of the event, Oliver Wilson, with "Tyro". (Next month, folks. We plumb ran out of room! Judy)

Lots of great prizes went out in the raffle; the last one was a hot air balloon ride, launched right there from the field. Wish I had thought to have them drop a plane from the balloon!

Saturday evening was the banquet, with two more raffles: one was a Stylus radio from Airtronics, the other was an ASK 21, 4.2 meter sailplane, donated by Sailplanes Unlimited, Ltd., to the soaring community as a whole. The speakers were Tim Renaud on where the R/C sailplane hobby is heading, and Bob Champine talking of the early days of transonic flight. It was a very enjoyable evening. I felt like I was sitting at home in the living room, listening to my Dad tell tales of early modelling; it was very comfortable. But then, it might have been the air conditioning, and margaritas...

It was decided that only 3 rounds would be flown on Sunday, in order to let out of town folks hit the road early, and this was met with a round of cheers. As it turns out, the weather finally broke on Sunday, and with the breeze, temperatures were quite pleasant. (Guess a tribal ritual can only control the weather for so long.) The tasks were 7, 7, and 4, in any order. There was some lift, moving with the breeze; it was a beautiful day, lots of cumulus clouds around, and clear, blue sky in between; the humidity was down, so in all, it was a perfect soaring day. I flew very well in the first two rounds on Sunday, probably because I had an early flight, and had to blaze to the airport after my second flight, at 12:30 p.m.; I barely got there in time for my 2:00 p.m., last flight home.

Wish I could report on the award ceremony, but I was on an airplane, wondering if my planes would make it home with me, and whether I would make another "hugging and kissing" scene in the luggage area like I had before.

Oh yes, about the weather. You see, I heard that it was raining snakes and mice, with cold winds blowing from the north, for weeks before the contest. Everyone was worried that the contest would be rained out. So, rumor has it that a group of fliers went to the field, just a few days before the event, and stood around in the rain, faces lifted to the sky; they were wishing for sun, heat, and no wind, and hoped that someone would heed their pleas. Of course, after awhile, when the rain didn't stop, all this wishing turned into more of a mantra, and then a chant; then someone brought out drums, and feathers, made a bonfire, and sacrificed a few planes, radios, balsa bits, and stuff...

Well, there is something to be said for doing a weather dance, but come on guys! Next time, please be a bit more precise about exactly what kind of weather you are asking for! ■

On June 19 - 22, 1997 the 6th Annual MSSC will be held in Huntsville, Alabama. For those of you that want to start making plans to attend, questions should be directed to Ron Swinehart at (205) 883-7831. For those interested in detailed information, on-line, Ron suggests you access Sam Fara's web site at samfara@ro.com. ■

Paula Garwood, photo-pilot artist, with finished Icare ASK-21.

Photo Pilots

...by Paula Garwood
Scotia, New York

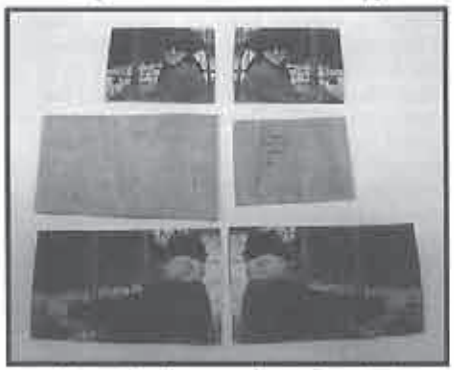
Years ago, when the college students were pre-schoolers one of them asked their dad, "What's his name?" (He was referring to the plastic pilot in the cockpit of the model plane.) Dad said, "The plastic pilot doesn't have a name," so the kids quickly decided to name him "STEWIE". Well, like I said, that was long ago, but the name stuck... Every model airplane, since that day, has had a pilot called STEWIE!

Personally, I have always found Stewies a little offensive, having been forced into eventual kamikaze service, but aesthetically they are important when building/flying scale models. This brings us to how to make a "better", or at least different, Stewie for all those builders out there who are tired of the "all the same" plastic guys and the Barbies. Besides, Barbie wouldn't be caught dead flying some of those planes!

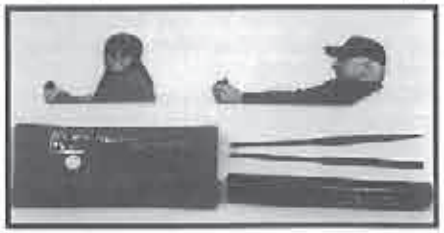
Construction Steps

1. Shoot suitable photos on print film and select suitable image.
2. Have two prints made, one with negative swapped left to right.
3. Align photos back to back and cut out figure with scissors.
4. Cut 1/32 inch plywood larger than figure images.
5. Glue photos on plywood with 3M spray 77 adhesive.
6. Cut out figure images with scroll saw or coping saw.
7. Final triming and finishing can be done with fine files.
8. Darken the visible edge of the plywood with felt tip marker.
9. Mount pilot figure to cockpit tray with epoxy.

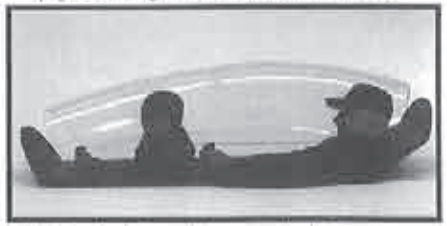
Since the ASK-21 is a two-place trainer sailplane, this project involved photos of two people, the normal and reversed negative prints shown here with the completed cockpit tray and the clear molded canopy.



Normal and reversed-negative photos, rough trimmed to fit plywood stiffener.



Photos glued to plywood, cut out with scroll saw, finished with fine files, and plywood edge darkened with marker.



Finished photo pilots mounted to canopy tray. Canopy shown in back.

Construction Steps for Photo Stewies

First, you need to shoot acceptable photographs of people "acting" like they are flying a plane. Shoot several so that you have a selection of poses from which to choose your prospective pilot image. Once you have selected your preferred shot, have two prints made, one with the negative swapped left to right.

Align the two photographs back to back, carefully, and cut out the figures with scissors. Cut 1/32 inch plywood larger than the cut-out figures from the two photo images, and then glue the photos (one on each side, once again carefully aligned) on the plywood with 3M spray 77 adhesive. Cut them out again, this time using a scroll saw or coping saw; take your time. Final trimming and finishing can be done with an assortment of fine files. Lastly, darken the visible plywood edges with a felt tip marker.

Your photo Stewie is now complete and ready to be mounted into the cockpit tray with epoxy. This construction idea is not complicated or time consuming, and the results are well worth the effort. ■

DG 800 by EMS

...from Sailplanes Unlimited, Ltd.

A shipment of DG 800's has just arrived from EMS. This beautiful, high performance, scale ship, is completely and immaculately finished, and only weighs 6+ pounds! It is suitable for slope, winch, or airtow!

The wings are styro-balsa, carbon fiber reinforced, covered in Oracover, and come with wing bags. The ailerons and flaps are tape-hinged. Spoilers are in and ready to go; stab and rudder are finished. The wings come with epoxy glass plug-in winglets, and extra, extended, beautifully shaped wing tips, which provide two wing spans (3.7 and 4.2 meters) to choose from. A retractable wheel is installed and ready to go; there is even a tail wheel!

With its HQ 2.5/14 airfoil, the DG 800 will penetrate well; with flaps down, it will float in the lightest of lift. Spot landings should be a cinch, using a combination of spoilers and flaps.

Roke DG 202

Also, now in stock, is the beautiful 1/3.5 Roke DG 202, 4.86 meter span (168"), wing profile E203/201/197, weight 12 lb. Model comes with a beautiful, white, epoxy-glass fuselage; obechi covered wings have the flaps and ailerons cut out, with spoilers and wing joiners in place. All flying surfaces are totally finished. Wings have cut outs for all servos.

With flaps up, the DG 202 will cover ground; with flaps deployed, its slow flight characteristics will make it most suitable for thermalling. At home on the winch, slope, or airtow, this is an extremely versatile, five meter class sailplane.

Roedelmodell Ka6E

Now in stock, this model is a 1/3.6, 4.2 meter span (165") sailplane, with an E392 wing profile, and a weight of 9 lb. The fuselage is seamless, and beautifully painted to a high, mirror, gloss finish. Wings are glass reinforced, obechi covered with ailerons cut and faced; there are cut outs for spoilers and servos. The rudder and elevator/stab are built up from balsa with ribs, as per the original, completely finished and ready for covering. It comes with a canopy, canopy frame, decal set, hardware package, and spoilers.

Suitable for winch, slope, or airtow, this is one of the nicest, moderately sized sailplanes. It will handle in good wind, and yet fly in the lightest lift; it's docile, yet responsive.

For additional information, contact Sailplanes Unlimited, Ltd., 63 E. 82nd St., NY, NY 10028; (212) 879-1634, fax (212) 535-5295. ■

GEEKS!!

...from The Birdworks

The GEEKS are here!!! Kits are $50 + $5 S&H. For additional information, please contact The Birdworks, P.O. Box 1302, Port Orford, OR 97465; (541) 332-0194. ■

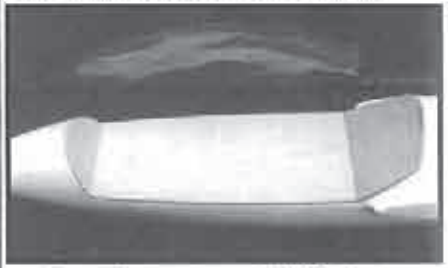
Kit Review

Icare Sailplanes ASK-21

...by Dave Garwood
Scotia, New York

Icare ASK-21 performs well in slope lift at 1996 Los Banos scale fly in. Photo by Joe Chovan.

Full scale ASK-21, one of 25 photos included in the Scale Model Research Foto-Paak #615. Photo by Bob Banka.



Canopy tray parts are trial fitted prior to final assembly. The clear molded canopy is shown behind the tray.

Servo and radio gear layout installed to balance at specified CG. Dave found he liked the way the plane flew balanced further forward than the factory specs called for.

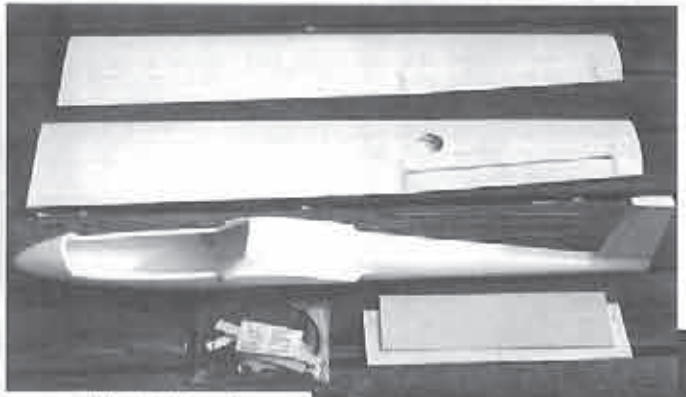
Introduction

There is something different about your first scale sailplane. There's again a little of the same excitement that surrounded your very first sailplane. You may be initially attracted to the clean and distinctive appearance of a scale sailplane, and you may wonder if anything that looks this good can fly as well as you hope.

I won the Icare Sailplanes ASK-21 in the raffle at the 1995 New England R/C Soaring Convention, or rather I participated in a three way trade among raffle winners to get the ASK-21; I liked the looks of the plane, and the fact that it was almost completely built at the factory. The Icare ASK-21 is my introduction to scale sailplanes.

The ASK-21 was designed in 1980 by Rudolf Kaiser to be a modern, high performance trainer, and thus it has two seats, two instrument panels and two sets of flight controls. It is rated for aerobatics, including loop upward, stall turn, split-S, Immelmann turn, slow roll, and inverted flight.

The sailplane is manufactured in Germany by the Alexander Schleicher GMBH, the world's oldest glider manufacturer. According to the exhibit at the National Soaring Museum at Elmira, New York, about 580 of these sailplanes have been manufactured, and this type is currently in production. Two ASK-21s are in service for training and glider rides at the historic and famous Harris Hill glider port in Elmira.



Kit contents: sheeted wings with ailerons cut out and faced and servo hole routed, gel-coat molded fiberglass fuselage, hardware and small wood parts kit, plus plywood and balsa stock with parts drawn for cutting by builder.

Completed Icare Sailplanes ASK-21. Markings from AMP Graphics.

Kit Contents and Instructions

The term "kit" does not accurately describe the Icare ASK-21; rather, it is a nearly complete model with much of the construction work done at the factory. The white gel-coat fuselage needs no further finishing, if you don't mind a small seam line. The wings are fully sheeted with obechi veneer with the ailerons cut out and faced off, and the aileron servo holes routed.

All needed balsa, plywood, most hardware, and the control cables are included in the kit. The builder need add only his choice of servo connector hardware, common adhesives, heat shrink covering, aileron tape, and a four channel radio.

The instructions are brief, only about a page and a half of text, but are accompanied by four of the clearest assembly and pattern making drawings that I've seen anywhere in the model industry. The kit is intended for experienced modelers; those who already know how to install control systems and make a canopy hold-down, because these items are not covered in the instructions.

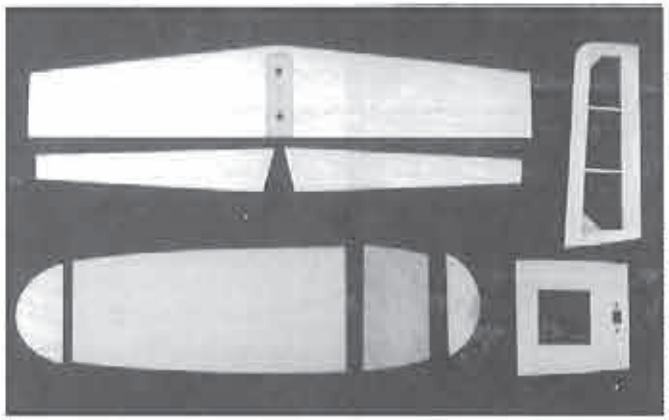
Construction

Again, the fuselage is finished, and wings are sheeted, with leading and trailing edges installed, fully sanded with ailerons cut out and faced off, and this work saves probably 25-30 hours of building time.

The rudder is built up from balsa sticks. The horizontal stabilizer and elevator are cut from balsa sheet, with the cutting pattern drawn on the sheet. After building the tail feathers, the remaining construction tasks are to install the fuselage servo tray and control cables to the rudder and elevator, and build the canopy assembly.

If you haven't installed wing joiner rod receiver tubes before, it may seem like a daunting task, and while some precision is needed, small mistakes are easily corrected; fear not if you do not have a machine shop to drill holes in your beautiful new epoxy glass fuselage.

My method for locating the wing rod holes was make a pattern of each wing root rib on See-Temp clear template



The builder constructs these four sub-assemblies: horizontal stabilizer and elevator, rudder, canopy tray, and servo tray.

material, cut out holes in the template, and mark the locations of the holes on the fuselage. Drill the holes with an ordinary hand drill, insert the brass tubes, and trial fit the assembly. If the wing roots do not line up to the fuselage molding accurately, make corrections with a small round file; epoxy the brass tubes in the fuselage in the correct position to align the wing root and the fuse molding.

NOTE: It's my understanding that future ASK-21 kits will come from the factory with the wing joiner rod receiver tubes already installed in the fuselage.

The most time consuming part of construction is the canopy assembly. Four parts are cut from plywood along pre-marked patterns and fitted together to form a canopy tray. Much careful cutting, sanding and fitting is needed to get this right, but when the plywood tray is completed the clear canopy fits cleanly onto the tray; the tray assembly fits very accurately into the fuselage. It's worth the work, and looks great when you're done.

What to put into a scale glider for pilot figures is a matter of personal taste, but an empty cockpit looks pretty bad to me. Luckily, I'm married to a fine artist, and she's helped me many times in matters of markings, paint schemes and other matters of artistic judgment in model airplanes. Paula made "photo-pilots" for the ASK-21; she explains her method in a companion How-To article. Thanks go to our son, Lou, for taking the photographs used in the pilot project.

I made two changes to the construction methods given in the instruction booklet. The first was to substitute a plastic push rod for the rudder pull-pull cables provided in the kit. I have not built a pull-pull mechanism before, and since no instructions were provided for it, I decided to stay in familiar territory. The full scale ASK-21 does use pull-pull cables for rudder control.

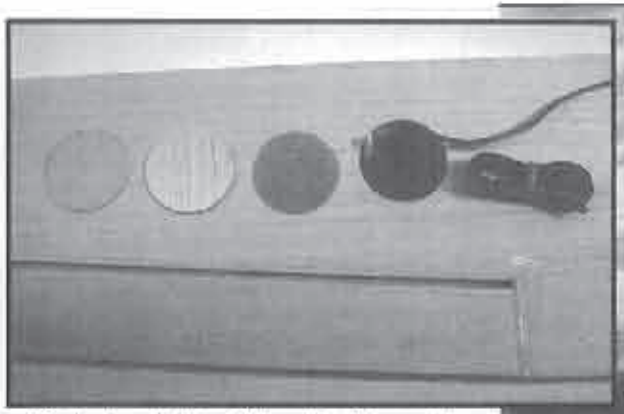
Second was to tape the wings in place rather than use the rubber band method suggested, as it seemed that sealing the gap would make a cleaner and quieter sailplane. All other items were built as instructed, and total construction time up to covering for me was 17 hours. Covering took 4 hours; radio installation and setup another 4 hours.

The ready to fly weight of my ASK-21 was 46.5 ounces, for a wing loading of 13.0 ounces per square foot, and it balanced at the factory specified CG without addition of any nose weight.

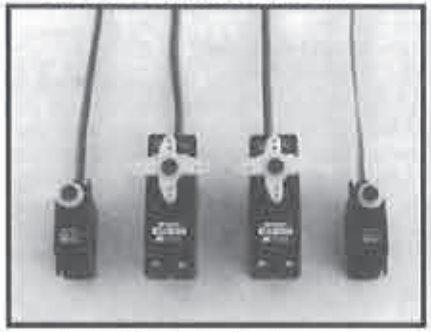
Scale Documentation and Markings

Etienne Dorig at Icare sent me a copy of the Schleicher Sailplanes brochure which contained some fascinating background information and small three view drawings. I ordered from Bob Banka's Scale Model Research Foto-Paak # 615, which contained 25 color photographs for $20.50; a three-view drawing and a specifications sheet cost $3.00 plus $3.00 shipping and handling. (Total $26.50.)

From this documentation, I learned that the profile outline of the Icare Sailplanes ASK-21 is highly accurate, and the only serious deviation from scale planform is the provision of a wider chord on the model to increase the wing area. The ailerons are protypical size and position. Spoilers and curved down wing tips, however, are not modeled for simplicity. Wheels may be installed at the builder's



Circles from left to right are: See-Temp pattern, 1/6 balsa spacer, 1/64 plywood servo mounting surface and JR 341 servo in the factory routed servo pocket. Wire for making servo lead extension is included in the kit.



A pair of JR 341 micro servos were used for aileron control, and JR 517 full size ball bearing servos were used for elevator and rudder control.

option, but are not included in this kit.

The markings were made by Clyde Geist at AMP Graphics. The photos from Scale Model Research made it easy to order stick-on vinyl lettering, because I just sent a few photos to Clyde and specified the height and the color of the lettering I wanted. Clyde got the lettering style from the SMR photographs.

Radio Installation

The ASK-21 was designed for three channel control: rudder, elevator and ailerons. Flaps or spoilers are not provided. I installed a four channel radio system, putting rudder on the left stick, aileron and elevator on the right stick.

I'm very happy with the choice of JR 517 ball bearing servos inside the fuselage, and JR 341 micro servos in the wings for aileron control. The aileron cables were lengthened by cutting the leads and soldering in three conductor wire provided in the kit. Ailerons servos are fitted to one radio channel with a Y-cable. I used a four channel Futaba transmitter and receiver, and a JR 500 mAh battery pack.

Icare ASK-21 performs well in slope lift at 1996 Los Banos scale fly in. Photo by Shelby Sanders.

Flight Report

The first flight of the ASK-21 was in thermal lift conditions, launching with a small high start. The plane climbed at an average rate and descended rather quickly. Rudder was definitely needed to initiate a smooth turn. Balanced 1/16 inch in front of the specified CG, the

plane was wildly oversensitive to elevator control. All in all, it was not a pleasure to fly on that day in thermal lift conditions.

I desensitized the elevator control by using the shortest control horn available, and by doubling the length of the elevator control horn. I also moved the battery forward inside the fuselage to balance 1/4 inch in front of the specified CG position, and got the plane ready to ship to the Los Banos slope scale fly-in.

My first launch into slope lift resulted in a half hour flight, which included fast passes, inside loops, stall turns, and inverted flight. I was amazed at how good this plane's inverted performance was, as no elevator compensation was necessary; it would fly hands-off inverted for 5-10 second periods. It was fast and still very sensitive to elevator control input. It tended to tuck under on the dive test, indicating it was still tail heavy.

I flew the plane four more times over two days and on each of subsequent flights I added more nose weight; each time, the pitch control became smoother and smoother. I ended up with 3 ounces of nose weight, the CG 3/4 inch in front of the factory specification. With 1/2 inch of elevator throw and 3/4 inch of aileron throw, it is now a sweet-handling airplane, at least for me.

Your taste may vary, and certainly the CG can be moved to meet the needs of differing flying conditions: forward for turbulent conditions and back for smooth air. With the weight shift, the hands-off inverted performance was lost; now a slight bit of forward stick is needed. The new flying weight is 49.5 ounces for a wing loading of 13.8 ounces per square foot.

The plane is speedy and solid in flight, with no sign of control surface flutter. One observer at Los Banos asked me if it was a racer.

On the slope, and balanced a little forward of the specified CG, the plane flies wonderfully, and looks pretty good doing it. I think the manufacturer intends the ASK-21 to be more of a slope plane than a thermal plane, as a tow hook is not provided in the kit, although its location is specified.

In my view, this good-looking 2.2 meter sailplane with finished fuselage and sheeted wings is well worth its cost of US$185. While the foam wing model is in its element in strong slope lift, a fiberglass fuselage with built up balsa wing kit is available at US$125, and is likely to have a lower weight and be more suitable for thermal lift.

Supplier Contact Information

Etienne Dorig
Icare Sailplanes
381 Joseph-Huet
Boucherville, Quebec
Canada J4B 2C4
voice (514) 449-9094
FAX (514) 449-3497

Bob Banka
Scale Model Research
3114 Yukon Avenue
Costa Mesa, CA 92626 USA
(714) 979-8058

Clyde Geist
AMP Graphics
42a Nancy Street
West Babylon, NY 11701 USA
(516) 253-2702

■

Hobby Shops that Carry *RCSD*

Air Capital Hobbies
8989 West Central
Wichita, KS 67212
(316) 721-4164

California Soaring Products
1010 North Citrus
Covina, CA 91722
(818) 966-7215

Finney's Hobbies
3455 Peachtree
Industrial Blvd., Ste. 980
Duluth, GA 30136
(770) 495-8512
(770) 495-8513 fax

Gunnings Hobbies
550 San Anselmo Ave.
San Anselmo, CA 94960
(415) 454-3087

Gyro Hobbies
23052 Lake Forrest Dr.
Unit C2
Laguna Hills, CA 92653
(714) 583-1775

HiTecHobbys
284 - B Wellsian Way
Richland, WA 99352
(509) 943-9241

Hobbies'N Stuff
9577 L Osuna Rd. NE
Albuquerque, NM 87111
(505) 293-1217

Hobby Town USA
8060 S. 84th St.
La Vista, NE 68128
(402) 597-1888

Hobby Warehouse
4118 South Street
Lakewood, CA 90712
(310) 531-8383

PEC'S Hobby Supplies
947 Stierlin Road
Mountain View, CA 94043
(415) 968-0800

Red Baron Model Hobbies
77 Daily Dr.
Camarillo, CA 93010
(805) 482-0250

Tim's Bike & Hobby
2507 Broadway
Everett, WA 98201
(206) 259-0912

Selig Airfoil Book
" Volume 2" Announcement

...by Herk Stokely
Virginia Beach, Virginia

The second installment of the wind tunnel work that Michael Selig and his graduate students have been conducting at the University of Illinois, may now be ordered. This work is titled "Summary of Low-Speed Airfoil Data - Volume 2". Twenty five airfoils were tested, many with a variety of flap and turbulator configurations. Continuous improvement of the wind tunnel, and data reduction system has resulted in better accuracy and reliability in the data. The team is still working to improve these systems. In the next series, increased accuracy and the addition of airfoil pitching moment data may be expected.

Volume two is based on the second series of wind tunnel tests at UIUC. A third series of tests have now begun, and we expect that some time before the end of 1996, Volume three will also be published.

"Summary .. Vol 2" is 251 pages of narrative and data much like Michael's previous works "Summary of Low - Speed Airfoil Data Volume 1" (1995) and "Airfoils at Low Speeds" (SoarTech #8 - 1989). This book is similar in content and organization to Volume 1, and is similar also to the material in "Airfoils at Low Speeds". We've set the price at $25 in the USA, which includes postage.

All of the actual tabulated data and airfoil coordinates (but none of the narrative or illustrations) in the book are available on disk in ascii text files. There is no program for use of these files included on the disk. These are provided for those who wish to use the data in their own programs. By formatting the data properly, their use can make manual re-entry of the data unnecessary. The price for the disk data in the USA is $15 including postage.

When ordering the book from outside the USA, add $4 to the basic US price for international surface mail. For Air Mail to the Western Hemisphere, add $6 to the basic US price. For Air Mail to Europe add $13, and for other parts of the world add $17. For disk orders from outside of the USA, add one dollar to its price. A significant portion of the price received from all book and disk sales will be returned to UIUC to provide part of the continuing support for Michael's ongoing test program.

"Summary .....Volume 1" and "SoarTech 8" are both currently available, also. The price for Volume 1 is the same as for Volume 2. "SoarTech 8" has a base price in the USA of $20 and the international surcharges are the same as for Volume 1 and 2. Data disks are also available for Volume 1 and "SoarTech 8". The SoarTech operation isn't big enough to handle credit card orders.

Please feel free to question me directly by e-mail. (herkstok@aol.com), or send regular mail to SoarTech Publications, 1504 N. Horseshoe Cir., Virginia Beach, VA 23451 U.S.A. When ordering, PLEASE provide a check or money order in US Dollars which can be paid at a US bank. U.S. cash is also accepted. Residents of Virginia should add the state 4-1/2 percent sales tax to the above rates. ■

3rd Annual

Southern California Scale Glider Festival

September 14 & 15

To be held at the S.U.L.A. Field at the campus of
Cal. State Dominguez Hills
corner of Avalon Blvd. and Victoria, Carson California

Awards for:
Vintage (1908-1945) 1st, 2nd, 3rd
Modern (1945-1996) 1st thru 5th

Cash awards for:
Best of 4, scale landing attempts
Best of 4, longest flight

Aerotowing and winch launching

Events;
Saturday, 8:30 to 9:00 check-in, 9:00 pilots meeting, 9:30 to 3:00 open flying
10:00 static judging
Sunday, 9:00 pilots meeting, 9:30 to 2:00 open flying
2:00 awards presentation, 3:00 see you next year !!

Public Invited !

See, Full size vintage and modern gliders, Hot air balloon & Hotdogs

All model industry vendors welcome !

Entry fee $25.00 All entrants must have a current AMA card ! no exceptions!!!

For information call: Rick Briggs 310-438-6827 eve, fax 310-484-0155
Email Rick Briggs 75754.1422@compuserve.com
Dennis Brandt 714-821-4181 eve

20th Annual Northwest Championship Soaring Tournament

September 14 & 15, 1996
Tri-Cities, Washington

- 1 1/2 days qualifying rounds
- 1/2 day final flyoffs
- two team competitions
- Saturday night banquet

Northwest Soaring Society

CD - Tom Culmsee, (509) 375-1587

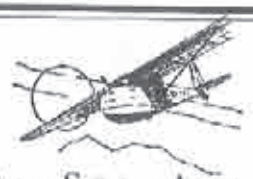
Sailplane Homebuilders Association (SHA)

A Division of the Soaring Society of America

The purpose of the Sailplane Homebuilders Association is to stimulate interest in full-size sailplane design and construction by homebuilders. To establish classes, standards, categories, where applicable. To desiminate information relating to construction techniques, materials, theory and related topics. To give recognition for noteworthy designs and accomplishments.

SHA publishes the monthly ***Sailplane Builder*** newsletter. Membership cost: $15 U.S. Student (3rd Class Mail), $21 U.S. Regular Membership (3rd Class Mail), $30 U.S. Regular Membership (1st Class Mail), $29 for All Other Countries (Surface Mail).

Sailplane Homebuilders Association
Dan Armstrong, Sec./Treas.
21100 Angel Street
Tehachapi, CA 93561 U.S.A.



The Vintage Sailplane Association

Soaring from the past and into the future! The VSA is dedicated to the preservation and flying of vintage and classic sailplanes. Members include modelers, historians, collectors, soaring veterans, and enthusiasts from around the world. Vintage sailplane meets are held each year. VSA publishes the quarterly BUNGEE CORD newsletter. Sample issue: $1.00. Membership is $15.00 per year. For more information, write to the:

Vintage Sailplane Association
Route 1, Box 239
Lovettsville, VA 22080

THERMAL TALK

A NEWSLETTER FOR F3J ENTHUSIASTS WITH EUROPEAN F3J LEAGUE NEWS

Thermal Talk is an unofficial publication designed to act as a forum to discuss, educate, and exchange information concerning FAI Class F3J. Subscription Rates: £5.00 UK, £8.00 Continental Europe, $11.00 North America, £8.00 Rest of World.

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Or e-mail: Jack Termtalk@demon.co.uk

ZIKA

T.W.I.T.T.

(The Wing Is The Thing)

T.W.I.T.T. is a non-profit organization whose membership seeks to promote the research and development of flying wings and other tailless aircraft by providing a forum for the exchange of ideas and experiences on an international basis. T.W.I.T.T. is affiliated with The Hunsaker Foundation which is dedicated to furthering education and research in a variety of disciplines. Full information package including one back issue of newsletter is $2.50 US ($3.00 foreign). Subscription rates are $18.00 (US) or $22.00 (Foreign) per year for twelve issues.

T.W.I.T.T., P.O. Box 20430
El Cajon, CA 92021

LSF

The League of Silent Flight (LSF) is an international fraternity of RC Soaring pilots who have earned the right to become members by achieving specific goals in soaring flight. There are no dues. Once you qualify for membership you are in for life.

The LSF program consists of five "Achievement Levels". These levels contain specific soaring tasks to be completed prior to advancement to the next level.

League of Silent Flight
10173 St. Joe Rd.
Ft. Wayne, IN 46835

R/C Soaring Resources

These contacts have volunteered to answer questions on soaring sites or contests in their area.

Contacts & Soaring Groups - U.S.A.

Alabama - North Alabama Silent Flyers, Ron Swinehart, 8733 Edgehill Dr. SE, Huntsville, AL 35802; (205) 883-7831.

Alabama - Central Alabama Soaring Society, Ron Richardson (Tres.), 381 Stonebridge Rd., Birmingham, AL 35210; (205) 956-4744, e-mail: lamerat@ix.netcom.com.

Alabama - Southern Alabama & NW Florida Aerotow, Asher Carmichael, (334) 626-9141, or Rusty Rood, (904) 432-3743.

Arizona - Central Arizona Soaring League, Iain Glithero, (602) 839-1733.

Arizona - Southern Arizona Glider Enthusiasts, Bill Melcher (contact), 14260 N. Silwind Way, Tucson, AZ. 85737; (602) 325-2729. SAGE welcomes all level of flyers!

Arkansas - Northwest Arkansas Soaring Society, Tom Tapp (President), RT 2 Box 306, Huntsville, AR 72740; (501) 665-2201, eve.

California - California Slope Racers, John Dvorak, 1063 Glen Echo Ave., San Jose, CA 95125; (408) 259-4205.

California - Desert Union of Sailplane Thermalists, Buzz Waltz, 3390 Paseo Barbara RD, Palm Springs, CA 92262; (619) 327-1775.

California - Inland Soaring Society, Robert Cavazos, 12901 Forman Ave., Moreno Valley, CA 92553, RCAV@ aol.com.

California - Northern California Soaring League, Mike Clancy, 2018 El Dorado Ct, Novato, CA 94947; (415) 897-2917.

California - South Bay Soaring Society, Dave Burwell, P.O. Box 2012, Sunnyvale, CA 94087; ticedoff@ix.netcom.com.

California - Southern Calif. Electric Flyers, John Raley (President), 1375 Logan Ave., Costa Mesa, CA 92626; (714) 641-1776 (D), (714) 962-4961 (E), e-mail: E-Flyer@ix.netcom.com.

California - Torrey Pines Gulls, Ron Scharck, 7319 Olivetas Ave., La Jolla, CA 92037; (619) 454-4900.

Colorado - Rocky Mountain Soaring Assn., Phil Weigle, 1290 Salem St., Aurora, CO 80011; (303) 341-9256 eve.

Eastern Soaring League (VA, MD, DE, PA, NJ, NY, CT, RI, MA), Jack Cash (President), (301) 898-3297, e-mail BadIdeas@aol.com; Bill Miller (Sec./Tres.), (609) 989-7991, e-mail JerseyBill@aol.com; Michael Lachowski (Editor), 448 County Rt 579, Milford, NJ 08848, e-mail mikel@airage.com.

Florida - Florida Soaring Society, Mark Atzel (President), 1810 SW Terrace, Ft. Lauderdale, FL 33312, (954) 792-4918.

Georgia - North Atlanta Soaring Association, Tim Foster, (770) 446-5938 or Tom Long, (770) 449-1968 (anytime).

Hawaii - Maui Island Slope Soaring Operation, MISO, Hank Vendiola, 10-C Al St., Makawao Maui, HI 96768; (808) 572-5283.

Illinois (Chicago Area) - Silent Order of Aeromodeling by Radio (S.O.A.R.), Jim McIntyre (contact), 23546 W. Fern St., Plainfield, IL 60544-2324; (815) 436-2744. Bill Christian (contact), 1604 N. Chestnut Ave., Arlington Heights, IL 60004; (708) 259-4617.

Illinois (Northwest) - Valley Hawks R/C Soaring Club, Jeff Kennedy (President), 414 Webster St., Algonquin, IL 60102, (708) 658-0755, eve. or msg.

Iowa - Eastern Iowa Soaring Society (Iowa, Illinois, Wisconsin, Minnesota), Bob Baker (Editor), 1408 62nd St., Des Moines, IA 50311; (515) 277-5258.

Indiana - Bob Steele, 10173 ST Joe Rd., Fort Wayne, IN 46835; (219) 485-1145.

Kansas - Wichita Area Soaring Association, Pat McCleave (Contact), 11621 Nantucket, Wichita, KS 67212; (316) 721-5647.

Kentucky - Bluegrass Soaring Society, Frank Foster (President), 4939 Hartland Pkwy., Lexington, KY 40515; (606) 273-1817.

Maine - DownEast Soaring Club (New England area), Steve Savoie (Contact), RR#3 Box 569, Gorham, ME 04038; (207) 929-6639. InterNet e-mail <Jim.Armstrong@acornbbs.com>.

Maryland - Baltimore Area Soaring Society, Russell Bennett (President), 30 Maple Ave., Baltimore, MD 21228; (410)744-2093.

Maryland & Northern Virginia - Capital Area Soaring Association (MD, DC, & Northern VA), Steven Lorentz (Coordinator), 12504 Circle Drive, Rockville, MD 20850; (301) 845-4386.

Michigan - Great Lakes 1.5m R/C Soaring League & "Wings" Flight Achievement Program & Instruction. Ray Hayes, 58030 Cyrenus Lane, Washington, MI 48094; (810) 781-7018.

Minnesota - Minnesota R/C Soaring Society, Tom Rent (Contact), 17540 Kodiak Ave., Lakeville, MN 55044; (612) 435-2792.

Missouri - Independence Soaring Club (Kansas City area, Western Missouri), Edwin Ley (Contact), 12904 E 36 Terrace, Independence, MO 64055; (813) 833-1553, eve.

Missouri - Mississippi Valley Soaring Assoc. (St. Louis area), Ken Trudeau, 3033 Plum Creek Dr., St. Charles, MO 63303; (314) 926-3537.

Nebraska - B.F.P.L. Slopers, Steve Loudon (contact), RR2 Box 149 E1, Lexington, NE 68850; (308) 324-3451/5139.

Nebraska - S.W.I.F.T., Christopher Knowles (Contact), 12821 Jackson St., Omaha, NE 68154-2934; (402) 330-5335.

Nevada - Las Vegas Soaring Club, Jim Allen (President), 7117 Caprock Cir., Las Vegas, NV 89129; ph (702) 658-2363, fax (702) 658-1998.

New Jersey - Vintage Sailplane R/C Association, Richard G. Tanis (President/Founder), 391 Central Ave., Hawthorne, NJ 07506; (201) 427-4773.

New York - Elmira - Harris Hill L/D R/C, aerotowing & slope, John Derstine, (717) 596-2392, e-mail 2076482@mcimail.com.

New York, aerotowing Long Island Area, Robin Lehman, (212) 744-0405.

New York, aerotowing Rochester area, Jim Blum and Robin Lehman, (716) 367-2911.

New York - (Buffalo/Niagara Falls area) - Clarence Sailplane Society, Lyn Perry (President), (716)655-0775; e-mail perryl@sstaff.sunyerie.edu; Jim Roller (Competition Coordinator), (716) 937-6427.

New York - Long Island Silent Flyers, Stillwell Nature Preserve, Syosset, NY, Joe Coppola (President), (516) 798-1479, or Taylor Fiederlein (VP), (516) 922-1336.

New York - Syracuse area, Central NY Sailplane Group, Dave Zinteck, Minoa, NY, (315) 656-7103, e-mail Zinteck@aol.com.

North Carolina - Aerotowing, Wayne Parrish, (919) 362-7150.

Northwest Soaring Society (Oregon, Washington, Idaho, Montana, Alaska, British Columbia, Alberta), Roger Breedlove (Editor), 6680 S.W. Wisteria Pl, Beaverton, OR 97005; (503) 646-1695 (H) (503) 297-7691 (O).

Ohio - Cincinnati Soaring Society, Chuck Lohre, 3015 Beaver Ave., Cincinnati, OH 45213; (513) 731-3429, lohre@iac.net, http://www.iac.net/~lohre.

Ohio - Dayton Area Thermal Soarers (D.A.R.T.S.), Walt Schmoll, 3513 Pobst Dr., Kettering, OH 45420, (513) 299-1758.

Ohio - Mid Ohio Soaring Society (MOSS), Hugh Rogers, 888 Kennet Ct., Columbus, OH 43220; (614) 451-5189, e-mail tomnagel@freenet.columbus.oh.us.

Oklahoma - Central Oklahoma Soaring, George Voss, (405) 692-1122.

Oregon - Southern Oregon Soaring Society, Jerry Miller, 3431 S. Pacific Hwy. TRLR 64, Medford, OR 97501, e-mail jmill@cdsnet.net, ph/fax (541) 535-4410.

Tennessee - Memphis Area Soaring Society, Bob Sowder, 1610 Saddle Glen Cove, Cordova, TN 38018, (901) 751-7252, FAX (901) 758-1842.

Tennessee - Tullahoma (Southern Middle Area), Coffee Airfoilers, Craig Logan, 147 Stillwood Dr., Manchester, TN 37355, (615) 728-5446, jclogan@edge.net.

Tennessee - Soaring Union of Nashville, Terry Silberman, PO Box 17946, Nashville, TN 37217-0946, (615) 399-0846.

Texas - Texas Soaring Conference (Texas, Oklahoma, New Mexico, Louisiana, Arkansas), Gordon Jones, 214 Sunflower Drive, Garland, Tx 75041; (214) 271-5334.

Utah - Intermountain Silent Flyers, Bob Harman, (801) 571-6406.. "Come Fly With Us!"

Virginia - Appalachian Soaring Association, Virginia's Southwest (Bristol area), Greg Finney, 266 Plumb Alley West, Abingdon, VA 24210; (540) 628-4469 (H), (540) 676-3788 (W), (540) 676-3094 (fax).

Virginia - Tidewater Model Soaring Society, Herk Stokely, (804) 428-8064, email: herkstok@aol.com.

Washington - Seattle Area Soaring Society, Waid Reynolds (Editor), 12448 83rd Avenue South, Seattle, WA 98178; (206) 772-0291.

Outside U.S.A.

Australia - Southern Soaring League, Inc. (SSL), Mike O'Reilly, Model Flight, 42 Maple Ave., Keswick SA 5035, Australia. Phones: ISD+(08) 293-3674, ISD+(08) 297-7349, ISD+(018) 082-156 (Mobile). FAX: ISD+(08) 371-0659.

Canada - Greater Niagara Area Thermal Soarers (GNATS), Flat Field Soaring & Aerotowing, Gerry Knight, (905) 934-7451 or Don Smith, (905)934-3815.

Canada - MAAC Men Gliding Club, Jim Holland, 168 Verona Dr., Winnipeg, Manitoba, Canada R2P 2R8; (204) 697-1297.

Canada - Southern Ontario Glider Group, "Wings" Programme, dedicated instructors, Fred Freeman, (905) 627-9090, or Bill Woodward, (516) 653-4251.

England (Thermal Talk & Europe), Jack Sile (Editor), 21 Bures Close, Stowmarket, Suffolk, IP14 2PL, England; Tele. # 0449-675190.

England (southwest) - Sean Walbank, Woolcombe Hays, Melbury Bubb, Dorchester, Dorset, DT2 0NJ, phone 01935-83316.

Hong Kong - Robert Yan, 90 Robinson Road, 4th Floor, Hong Kong; (852) 25228083, FAX (852) 28450497, yanr@hkstar.com.

Japan - Dr. Paul "Sky Pilot" Clark, 2-35 Suikoen Cho, Hirakata Shi 573, Osaka Fu, Japan; IAC+(81) 720-41-2934, fax: IAC+(81) 6-954-4144, e-mail: 76055.3546@compuserve.com, http://chaos.fullerton.edu/~jclark/skypilot.

Scotland - Ron Russell, 25 Napier Place, South Parks, Glenrothes, Fife, Scotland KY6 1DX; Tele. # 01592 753689.

BBS/Internet

Internet - Email list/resource of RC soaring related folks, including US and international club contacts, vendors, kit manufacturers/distributors, software, equipment and supplies. Also a resource for aeromodelling related WEB sites on the Internet. Contact Manny Tau at taucom@kaiwan.com, or on CompuServe: 73617,1731.

Internet soaring mailing listserve linking hundreds of soaring pilots worldwide. Send a msg. containing just the word "subscribe" to soaring-request@airage.com. The "digestified" version that combines all the msgs. each day into one msg. is recommended for dial-up users on the Internet, AOL, CIS, etc. Subscribe using soaring-digest-request@airage.com. Post msgs. to soaring@airage.com. For more info., contact Michael Lachowski at mike@airage.com.

The Frequent Flier's Info. Hot Line, San Francisco Bay Area - Box 1 (lost & found airplanes, helpful tips, upcoming events), Box 2 (questions), Larry Levstik, (415) 924-4490.

Seminars & Workshops

Free instruction for beginners on construction & flight techniques, week-ends (excl. contest days), "AJ" Angelo, South Bay Soaring Society (San Jose area), (415) 321-8583.

1ST ANNUAL GULF COAST SCALE/AEROTOW MEET

October 5 & 6, 1996

SITE 8
Pensacola, Florida

For further information, contact:
Asher Carmichael, (334) 626-9141
ACarmic985@aol.com
Rusty Rood, (904) 432-3743

The Pensacola Aeromodelers is pleased to announce the 1st Annual Gulf Coast Scale/Airtow Meet. This event promises to be an outstanding opportunity for pilots from around the southeast to meet, exchange ideas, and improve our skills. With interest in scale sailplanes & airtowing growing rapidly, this is a chance to experience this wonderful aspect of soaring first hand.

Site 8, located in beautiful Pensacola, Florida, is a 640 acre U.S. Navy practice field, grass covered and fully maintained. This premier site is used regularly by local fliers for thermal duration, scale/aerotow, and free flight activities.

For those who have not tried aerotow or scale soaring, come and experience the thrill. There will be one or two sailplanes available for those who want to give it a try. Or, you can equip your own open class, aileron ship with a tow release and bring it along. We'll get you some air time if you are an experienced R/C sailplane pilot. Towplanes are welcome, if you have one.

Robin Lehman of Sailplanes Unlimited, LTD., will be on hand to teach and coach us along. His input and expertise will offer something for the beginner & expert alike.

While this first meet is a fun fly, there will be trophies: Pilot's Choice (Vintage & Modern), & Longest Duration Flight. Rules & competition format will be announced at the Pilot's Meeting. AMA insurance & membership is required, this is a sanctioned event. A $10.00 per pilot entry fee will be charged the day of registration.

Pensacola has much in the way of entertainment for the family; beautiful beaches, a great zoo, and wonderful shopping are close to the flying field. Gambling casinos along the Mississippi gulf coast are 1 1/2 hours away, and the Naval Aviation Museum is an unmatched, 3 dimensional journey: the beginnings of aviation, present day and beyond.

Reference Material

Still a few copies available of some issues of the printed transcripts of talks given on RC Soaring at the Previous Annual National Sailplane Symposium. Prices reduced to clear out stock. Talks were on thermal meteorology, flying techniques, hand launch, cross country, plane design, airfoil selection, vacuum bagging, plastic coverings, flying wings, etc., etc. Send SASE or call for flyer giving details. Many copies of most recent (1992) transcript left. Clubs have found them good for raffle prizes, gifts, etc. Al Scidmore, 5013 Dorsett Drive, Madison, WI 53711; (608) 271-5500.

"Summary of Low-Speed Airfoil Data - Volume 1", Michael Selig wind tunnel testing results. $25 USA (includes postage), $29 surface outside USA, $31 air Western Hemisphere, $38 air Europe, $42 air all other countries. Computer disk, ascii text files (no narrative or illustrations), is $15 in USA, $16 outside USA. Source for all "SoarTech" publications, also. Contact Herk Stokely, 1504 N. Horseshoe Cir., Virginia Beach, VA 23451. Phone (804) 428-8064, email: herkstok@aol.com.

Classified Note

Please note that the cut-off date for classified & display ads is the 1st of the month.

THE GREATER NIAGARA AREA THERMAL SOARERS (GNATS)

Will Host a
SCALE FUN FLY for
SAILPLANES & MOTORGLIDERS
SEPTEMBER 21 & 22, 1996
Approx. 30 Miles West of Buffalo/Ft. Erie
Niagara Peninsula, Canada

Emphasis will be on aerotowing, although winches will be available for those wishing to launch smaller size sailplanes. Bring your 3M (118") or larger sailplane with releasable nose hook and ailerons. Enjoy the thrill of being launched behind a skilled tug pilot; join the growing aerotow movement. 1996 MAAC and/or AMA membership required. $6 pilot registration fee.

We are expecting Robin Lehman, Sailplanes Unlimited, Ltd., and Jim Blum to be on hand, with their 1/3 and 1/2 scale gliders & tugs, to demonstrate and instruct in the art of aerotowing.

For additional information contact:
Gerry Knight, 360 Bunting Rd., St. Catherines, Ontario, Canada L2M 7L6
(905) 934-7451

Don Smith, 996 Lakeshore Rd., Niagara-on-the-Lake, Ontario, Canada L0S 1J0
(905) 934-3815

Schedule of Special Events

Date	Event	Location	Contact
Aug. 24	1.5m Hi Start Contest	Washington, MI	Ray Hayes, (810) 781-7018
Aug. 24-25	I.G.G. Annual Scale Slope Soaring Festival-Swiss Alps	Adelboder, Switzerland	Jack Kagi, 011-41-01-926-2187
Aug. 30-Sept. 2	2m, Unl., Fun, XC	Williston, FL	Ken Goodwin, (904) 528-3744
Aug. 30-Sept. 1	T.N.T.	Dallas, TX	Henry Bostick, (214) 279-8337
Aug. 31	1.5m Hi Start Contest	Washington, MI	Ray Hayes, (810) 781-7018
Aug. 31-Sept. 2	SHA Western Workshop	Tehachapi, CA	Dan Armstrong, (805) 822-8852
Aug. 31	SASS HL #2	Redmond, WA	Jim Thomas, (206) 488-2524
Sept. 13-15	Scale Airtow Meeting	Röttingen, Germany	Local Model Club or Hobby Shop
Sept. 14-15	Airtow Fly-in - Plettenberg, Germany		Local Model Club or Hobby Shop
Sept. 14-15	20th Annual NW Championship Soaring Tournament	Tri-Cities, WA	Tom Culmsee, (509) 375-1587
Sept. 14-15	Southern California Scale Glider Festival - Cal. State Dominguez Hills	Carson, CA	Rick Briggs, (310) 433-6327 75754.1422@compuserve.com
Sept. 15	2M Postal	Everywhere	Steen Hoej Rasmussen, Denmark
Alternate: Sept. 29			(Contact RCSD for forms.)
Sept. 20-22	Last Fling of Summer	Broken Arrow, OK	Dale Nutter, (918) 492-3760
Sept. 21-22	Scale Fun Fly	St. Catharines Ontario, Canada	Gerry Knight, (905) 934-7451 Don Smith, (905) 934-3815
Sept. 21-22	2m, Unl.	Orlando, FL	Hank McDaniel, (407) 831-3688
Sept. 21-22	Fall Thermal Soaring	Tullahoma, TN	Chuck Anderson, (615) 455-6430
Oct. 4-6	Aerotow Fly-In	Pensacola, FL	Asher Carmichael, (334) 626-9141 Rusty Rood, (904) 432-3743
Oct. 6	Fall "Intergalactic" RCHLG Championship	Cincinnati, OH	Paul Siegel, (513) 561-6872
Oct. 12	Fall Soaring Tournament	Memphis, TN	Bob Sowder, (901) 751-7252
Oct. 12-13	Fall Soar	Bristol, VA	Greg Finney, (540) 676-3788
Oct. 19-20	CSS STD & UNL (Sanct.)	Cincinnati, OH	Chuck Lohre, (513) 731-3429
Oct. 19-20	2m, Unl.	Williston, FL	Bob Wargo, (813) 938-6582
Nov. 29-1	Tangerine	Orlando, FL	Ed White, (407) 321-1863
June 19-22	1997 MSSC	Huntsville, AL	Ron Swinehart, (205) 883-7831

LIFT

The sun warms the morning's air,
Insects through light breezes sift.
Small clouds form without much care,
Today has promise of lift.

Telltale dance in cycles brief,
The hill breathes in and out.
Birds take flight in search of bugs,
For them there is no doubt.

An owl below in silence turns,
No effort he expends.
Riding on an unseen shaft,
Feathers on tiplets bend.

Again, a breeze blows up the hill,
The grass around me shakes.
I launch into the stirring air,
My glider free, awakes.

On lifted wing and rising air,
It gains toward azure sky.
Banking right in graceful turns,
With owl my heart does fly.

We soar together he and I,
In warmth I only see.
He above and me below,
Our spirits now are free.

Dale Collier
Redmond, Oregon

THANK-YOU FOR KEEPING YOUR LISTINGS UP TO DATE!!

Classified Advertising Policy

Classified ads are free of charge to subscribers provided the ad is personal in nature and does not refer to a business enterprise. Classified ads that refer to a business enterprise are charged $5.00 per month and are limited to a maximum of 40 words. The deadline for receiving advertising material is the 1st day of the month. (Example: If you wish to place an ad in the March issue, it must be received by February 1.) *RCSD* has neither the facilities or the staff to investigate advertising claims. However, please notify *RCSD* if any misrepresentation occurs.

Personal ads are run for one month and are then deleted automatically. However, if you have items that might be hard to sell, you may run the ad for two months consecutively.

For Sale - Business

GLIDER RETRACTS - high quality, 1/5, 1/4, 1/3 scale made in U.S.A. 1/4 are standard or heavy duty. Contact Bill Liscomb, 7034 Fern Place, Carlsbad, CA 92009; (619) 931-1438.

PC-Soar Version 3.5 Sailplane Performance Evaluation Program Optional Sailplane Library now expanded to 54 models including: Alcyone, Anthem, Genesis, Mako, Probe, Thermal Eagle, and Synergy-91. Free Library Upgrades. PC-Soar Upgrade to Ver. 3.5 $10, PC-Soar New Purchase $40. New Libraries of Sailplanes and Airfoil Polars $30. Please include $3 P&H for all purchases & upgrades. Also available: *RCSD* Database and Laser cut airfoil templates. LJM Associates, 1300 Bay Ridge Rd., Appleton, WI 54915; ph: (414) 731-4848 after 5:30 pm weekdays or on weekends.

PRECISION AMAP WING CUTTER, replacement parts, and service. AMAP Model Products, 2943 Broadway, Oakland, CA 94611. Butch Hollidge, (510) 451-6129, or FAX (510) 834-0349.

A.M.P. Aerial Model Products, sport, slope, race prototypes - all airfoils. 60" Del Valle Snake, 94" H&K Cobra, AMAP Flair, Kevin Cutler's full house Davenport Monitor. All race tested. Butch Hollidge, (510) 680-0589, eve, California.

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ELECTRICS ARE NOW: Specializing in ASTRO FLIGHT & LEISURE equipment. Illustrated catalog with special ELECTRIC FLIGHT information packet available. Phone 508-947-2805, $7.00 USA, $8.50 Canada, $10.00 overseas. Visa, Master & Discover Card. C S FLIGHT SYSTEMS, 31 Perry Street, Middleboro, MA 02346; ph/fax 508-947-2805.

PARACHUTES: $10. Dale King, 11111 Highridge Drive, Wylie, TX 75098; (214) 475-8093.

For Sale - Personal

RnR Synergy III, one of the original planes produced, includes 4 Airtronics 141's in the wing, in great condition, makes a great slope racer... $325.00. I'll split shipping costs. Jose Serrano, (310) 529-8387, after 5 pm, PST.

Roebers ASW-24, 4 meter span, 1/2 built, excellent condition... $400.00; Roedelmodel ASK-21, 4.2 meter span, excellent condition... $400.00; WIK Twin Astir, all glass, 3.75 meter span, NIB... $500.00; Fiberglass Flügel Kimbo, 106" span, all glass, "T" tail version of Salto, excellent condition... $250.00; DG-300, 1/4 scale, 3.75 meter span, good condition, needs paint on fuse... $275.00; Robbe ASH-25, 3.5 meter span, plura fuse, NIB... $200.00. Shipping extra on all models. Philip Fugate, (423) 338-2096, after 5 pm, EST, Tennessee.

1/4 Roebers Pilatus B4, 3.75 meter span (147"), wing profile Ritz 3, NIB... $495.00; 1/4 Roedel Super Cub (towplane), 2.687 meter span, wing profile Clark Y mod. (suitable motors are 160 T, 300 T, OS BGX-1, Brison 3.2 or similar), NIB... $385.00; 1/4 Rosenthal Ralley Morane (towplane), 2.78 meter span (109"), NIB... $495.00; Twin Astir, all glass, 4 meter span, has been flown, hangar rash... $350.00. Contact Robin Lehman, 63 E. 82nd St., New York, NY 10028; (212) 879-1634.

Roedel PSS A-10 Warthog, all styro, 1.7 meters, E205 wing profile, weight ca. 4 lbs... $100.00. Robin Lehman, 63 E. 82nd St., New York, NY 10028; (212) 879-1634.

Robbe 1/4 scale ASH-26, 4.5 m sailplane, HQ airfoil, features seamless fiberglass fuselage, Obechi sheeted wings/stab/rudder, completely built, full scale cockpit detail, aerotow release mechanism, also set up for winch launch, first place scale trophy winner at 1994 WRAMS Show, featured in January 1994 issue of *Model Airplane News*, excellent flight characteristics, includes aileron servos... $650.00. Sal Iasilli, (516) 922-7432, after 6 pm, EST.

O.S. 300, Gemini Twin 4-cycle engine, excellent power for aerotowing, NIB, never used... $750.00 (currently selling for $999.99). Sal Iasilli, (516) 922-7432, after 6 pm, EST.

Dart, Cumulus, Paramount 14', large tow plane "Stinson Reliant", Stearman Bi Plane, or trade for large gliders, scale, etc. Gene Molnar, 5362 Aurelia St., Simi Valley, CA 93063; (805) 527-8582.

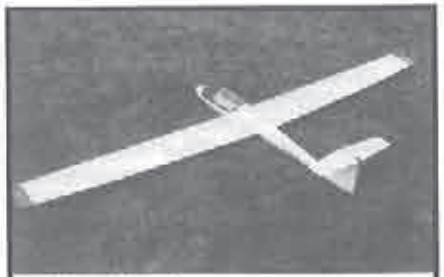
Wanted

Nelson KA6 glider or parts. Large, wood sailplanes, Baby Boas, Albatross, Minimoa, Comet. Broken or not. Kits or plans for gliders. Synergy, 91SE, Samuri, ASK-18; or wings and tailfeathers for DG-600. Primary trainer. Hollow core wings, any size. Racers or scale. Hobie Hawk parts - tail feathers, left wing, or whatever may be available. Gene Molnar, 5362 Aurelia St., Simi Valley, CA 93063; (805) 527-8582.

ZIKA

Advertising

Advertiser Index



***ASK-21* (2m)**

Wing Span: 83" Airfoil: E374
Weight: 42 oz. Wingload: 11 oz/sq. ft.
ARC Wing Kit: U$ 185.00 + 15.00 S&H

SALTO H101

Wing Span: 53" Airfoil: GOE 795
Weight: 16 oz. Wingload: 11 oz/sq. ft.
ARC Wing Kit: U$ 145.00 + 10.00 S&H

***SPARK* electric sailplane**

Wing Span: 71" Airfoil: E211
Weight: 46 oz. Wingload: 12 oz/sq. ft.
ARC Wing Kit: U$ 187.00 + 15.00 S&H

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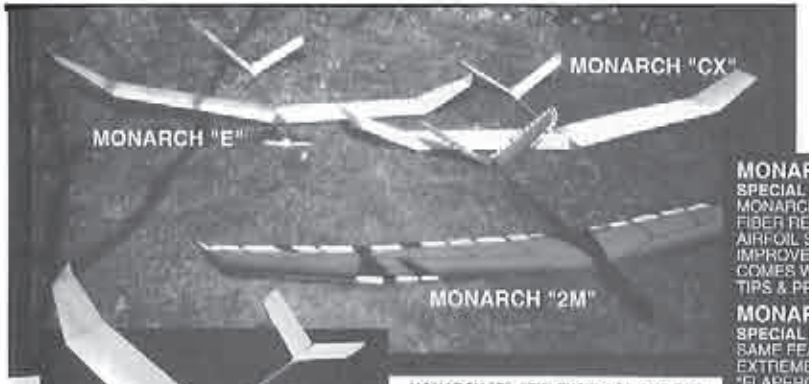

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MONARCH 2 METER

INTRODUCTORY PRICE: $325.00 + S&H

"Incorporating our own airfoil optimized for great L/D in various conditions, the speed range on this ship is extremely wide. Flap effectivity is excellent for thermalling set-up, with a bit of camber, and for landing tasks, with reflex (spoiler) for descent rate control."
...Joe Hahn

ALL COMPOSITE CONSTRUCTION, DESIGNED TO WITHSTAND THE MIGHTIEST ZOOM LAUNCHES, & "SPIKE" LANDINGS!

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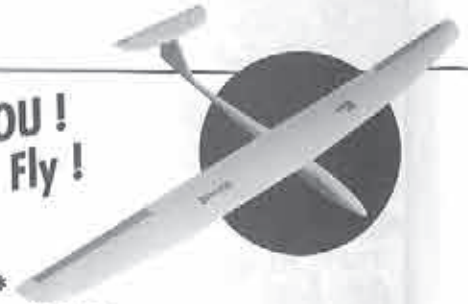
*Prices do not include shipping and custom charges.



FLIC FLAC $ 380*
FLIC FLAC ELEKTRO $ 410 *Two metre class elegance !*

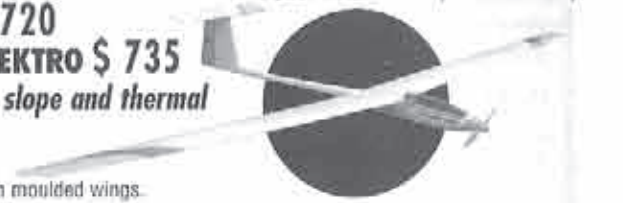
- Gelcoated fiberglass/epoxy carbon reinforced fuselage.
- Balsa sheeted foam wings with carbon fiber spar covered with Oracover.
- Cased aileron servo bays with pre-wired leads.
- Complete accessory pack.

Wingspan : 2 100 mm
Airfoil : RG15
Fuselage length : 1 050 mm (glider); 950 mm (Elektro)
Wing area : 34,5 dm2
Airframe weight : 720 g (Glider); 740 g (Elektro)
Functions : ailerons, elevator
Power : 10-12 cells (Elektro version)*

REFLEX EXPERT $ 525
REFLEX EXPERT ELEKTRO $ 535
An excellent all around performer.

- Gelcoated fiberglass/epoxy kevlar reinforced fuselage
- Obechi/fiberglass/expoxy sandwich sheeted foam wings covered with Oracover
- Carbon fiber reinforced main spar.
- Pre-installed MULTIPLEX scissor airbrakes.
- Cased aileron and airbrake servo bays.
- Pre-wired aileron and airbrake servo leads.
- Pre-installed rudder and elevator Bowden cables.
- Gelcoated moulded full flying stab and rudder (Glider).
- Complete accessory pack.

Wingspan : 2 800 mm
Airfoil : RG12
Length : 1 230 mm
Wing area : 54 dm2
Airframe weight : 1 300 g (Glider); 1 250 g (Elektro)
Functions : ailerons, rudder, elevator, airbrakes
Power : 10-12 cells (Elektro version)



CARAT EXPERT SPECIAL $ 720
CARAT EXPERT SPECIAL ELEKTRO $ 735
Voll GFK/CFK...Master of the slope and thermal

- Gelcoated fiberglass/epoxy kevlar reinforced fuselage.
- Fiberglass/carbon fiber/epoxy sandwich moulded wings.
- Pre-installed MULTIPLEX scissor airbrakes.
- Pre-cut aileron and airbrake servo bays.
- Pre-wired aileron and airbrake servo leads.
- Pre-hinged ailerons and flaps.
- Pre-installed rudder and elevator Bowden cables.
- Gelcoated moulded full flying stab and rudder.
- Complete accessory pack.

Wingspan : 3 600 mm
Airfoil : RG8
Length : 1 400 mm
Wing area : 69 dm2
Airframe weight : 1 800 g (Glider & Elektro)
Functions : ailerons, rudder, elevator, airbrakes
Power : 14-16 cells (Elektro version)

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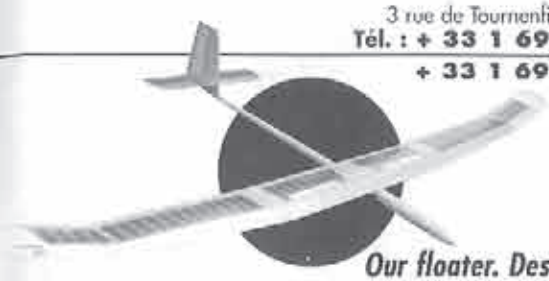

SUNWIND $ 490
SUNWIND ELEKTRO $ 490
Our floater. Designed for F3J thermal soaring class.

- Gelcoated fiberglass/epoxy kevlar reinforced fuselage.
- 3 piece built-up wing covered with transparent Oracover.
- Carbon fiber reinforced main spar.
- Pre-installed rudder and elevator Bowden cables.
- Pre-installed flip-up airbrakes.
- Built-up full full flying stab covered with transparent Oracover.
- Complete accessory pack.

Wingspan : 3 100 mm
Airfoil : SD 3021
Length : 1 420 mm
Wing area : 63 dm2
Airframe weight : 1 050 g (Glider & Elektro)
Functions : rudder, elevator, airbrakes
Power : 7-10 cells (Elektro version)

SPIRO SPECIAL $ 525
For pure fun and versatility, the SPIRO is hard to beat.

- Gelcoated fiberglass/Aramid/epoxy carbon fiber reinforced fuselage.
- Fiberglass/carbon fiber/epoxy sandwich moulded wing.
- Carbon fiber main spar.
- Aileron servo bays pre-cut and pre-wired.
- Carbon fiber wing key.
- Fiberglass/epoxy moulded T stab.
- Pre-hinged ailerons and elevator.
- Rainbow airbrush design on wing and stab.
- Complete accessory pack.

Wingspan : 1 800 mm
Airfoil : RG15 8,5%
Length : 980 mm
Wing area : 33,5 dm2
Airframe weight : 610 g
Functions : ailerons, elevator
Power : 7-16 cells

SOLITAIRE $ 450
The Hotliner for the serious F5B competitor

- Gelcoated glassfiber/Aramid/epoxy sandwich fuselage.
- One-piece fiberglass/Aramid/carbon fiber sandwich moulded wings.
- Carbon fiber main spar.
- Servo bays pre-cut.
- Pre-wired aileron servo leads.
- Fiberglass/epoxy moulded T stab.
- Pre-hinged ailerons and elevator.
- Complete accessory pack.

Wingspan : 1 690 mm
Airfoil : RG15 8,5% mod
Length : 985 mm
Wing area : 31,3 dm2
Airframe weight : 585 g
Functions : ailerons, elevator
Power : 27 cells

Also available : complete line of AERO-NAUT accessories such as CF propellers, yokes & shaft adapters.

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100 inches
118 inches

ZUNI
100 inches

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144 inches

Thank you for your attention. Aerodyne's kits include a fiberglass fuselage, a scale canopy frame, and a clear canopy. The wings are constructed using foam cores. Balsa sheeting is provided. The elevator and rudder are foam core or planking. The wood is precut and ready for assembly. All of the hardware including control rods are provided. A typical two meter aircraft assembles in about twenty hours. Each aircraft is completely contained in its own carrying case. The foam interior secures the sailplane. Even the radio has a home.

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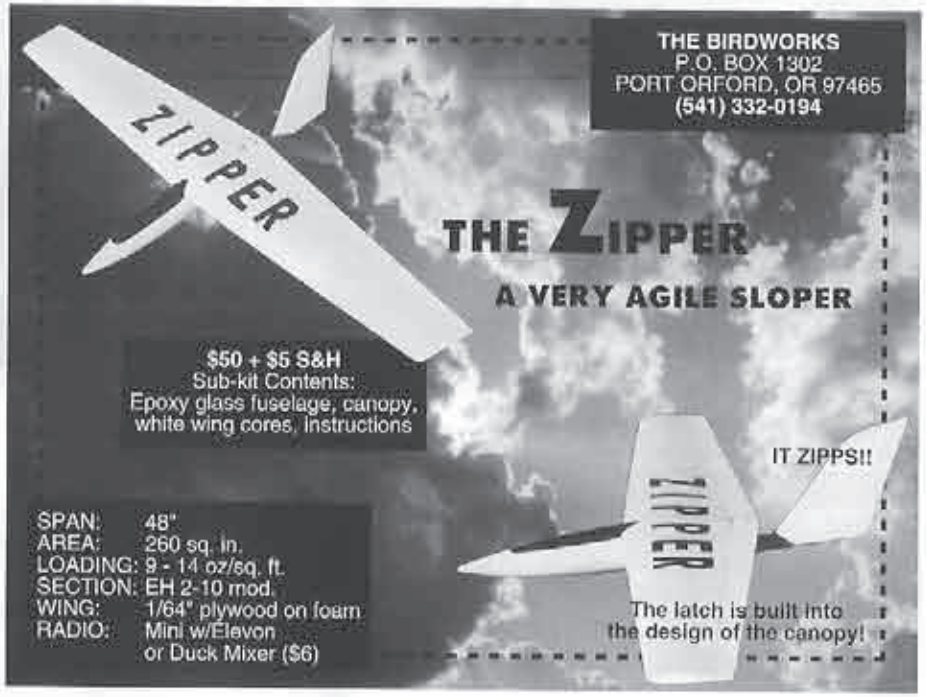
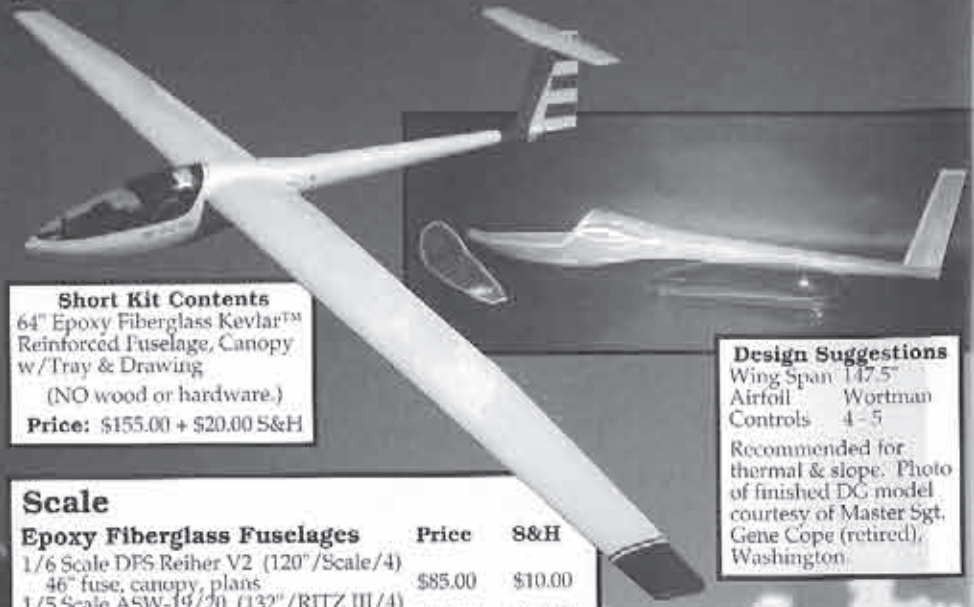


CUSTOM DESIGNED, FIBERGLASS FUSELAGES FOR THE SCRATCH BUILDER

1/4 Scale DG - 100/200



Short Kit Contents
64" Epoxy Fiberglass Kevlar™ Reinforced Fuselage, Canopy w/Tray & Drawing
(NO wood or hardware.)
Price: $155.00 + $20.00 S&H

Design Suggestions
Wing Span 147.5"
Airfoil Wortman
Controls 4 - 5
Recommended for thermal & slope. Photo of finished DG model courtesy of Master Sgt. Gene Cope (retired), Washington

Scale

Epoxy Fiberglass Fuselages	Price	S&H
1/6 Scale DFS Reiher V2 (120"/Scale/4) 46" fuse, canopy, plans	$85.00	$10.00
1/5 Scale ASW-19/20 (132"/RITZ III/4) 54" fuse, canopy, plans	$85.00	$10.00
1/5 Scale Nimbus (159"/Wortman/4 - 5) 54" fuse, canopy, plans	$85.00	$10.00
1/5 Scale Rhoenbussard (112.5"/Scale/4) 40" fuse, plans	$80.00	$10.00
1/5 Scale ASW-17 (135"/Mod. Eppler/4-5) 49" fuse, canopy, tray, dwg.	$90.00	$10.00
1/5 Scale Orlice (135"/E392/3-4) 49" fuse, canopy, tray, dwg.	$80.00	$10.00
1/5 Scale Ornith (142"/E392/3-4) 49" fuse, canopy, tray, dwg	$90.00	$10.00
1/5 Scale Salto (90"/E387/3) 42" fuse, canopy, plan	$80.00	$10.00
1/4 Scale DG-100/200 (147.5"/Wortman/4 - 5) 64" fuse, canopy, tray	$155.00	$20.00
1/4 Scale Libelle (154"/RITZ 1/ 3-4) 58.5" fuse, canopy, frame	$155.00	$20.00
1/4 Scale Jantar (187" or 202"/Wortman/4) 67" fuse, canopy, plans	$155.00	$20.00
1/4 Scale HP-18 (147"/RITZ III/4) 69" fuse, canopy, plans	$145.00	$20.00
1/4 + 10% Scale Salto (142.5"/RITZ 1/ 3-4) 61" fuse, canopy, frame, plan	$155.00	$20.00
1/4 Scale SZD - 30 Pirat (147"/Clark Y/4) 62" fuse, canopy, plans	$155.00	$20.00
1/4 Scale Kestrel (167" or 187"/RITZ/4-5) 63" fuse, canopy, frame	$155.00	$20.00
1/3 Scale ASW-19/20 (16.5'/Wortman/4-5) 89" fuse, canopy	$250.00	Call
Semi-Scale ASK-14 (90" or 110"/flat bottom/4) (motor glider .15 cube in. or electric) 40" fuse, canopy, plans	$80.00	$10.00
1/4 Scale Super Cub (108"/12-20 lbs./4/Zenoah G-38 or equiv.) fuse, fiberglass cowl & wing tips, white foam cores, plans (NO wood or hardware.) 2 Boxes	$250.00	$25.00

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Short Kit Contents
41" Epoxy Fiberglass Kevlar™ Reinforced Fuselage, Hatch, Plans
Price: $75.00 + $10.00 S&H

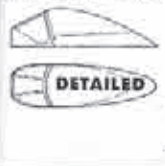
Servo Cover Set w/Instructions
Covers 1 1/2" x 1 1/2" Servo Well
Trimming Req. $4.95 per set

Need Custom Mold Making?
Please call.

Design Suggestions
Wing Span 83"
Airfoil E193
Channels 3
Recommended for thermal & F3B.

Canopies & Accessories
An in-house vacuum form machine allows us to produce our own canopies, which are made using PETG .040. If you are looking for a canopy or other vacuum formed accessories (including sailplane, power, etc.), please let us know. We have a large inventory of canopies and do short production runs. Manufacturer inquiries are welcome.
Glider type from 11" - 24"
Standard type from 4" - 18"
Detailed type from 6" - 13"
Others - Various Sizes

Price Range:
Glider Type $5.00 - $18.00
Standard Type $4.00 - $12.00
Detailed Type $4.00 - $12.00



??NEED WINGS TO GO WITH THESE FUSELAGES??

Selected foam cores are available thru:

Dale King
1111 Highridge Drive
Wylie, TX 75098
(214) 475-8093

Foam cores or Ben Matsumoto, custom, glass bagged wings, stabs, rudders and other building services for all Viking Models, U.S.A. fuselages are available thru California Soaring Products.

California Soaring Products, Paul Ikona
Orders: (800) 520-SOAR
Inquiries: (818) 966-7215
FAX: (818) 966-7915

Thermal or Slope

Epoxy Fiberglass Fuselages	Price	S&H
Aeolus III (60"/NACA 63A010/3) 43" fuse, plans	$65.00	$10.00
Condor 3m (bolt-on wing mount/up to 10" chord) 52 1/4" fuse, nose cone	$80.00	$10.00
Contestant (148"/E205/3-4/10.5" chord) 60" fuse, canopy, tray	$80.00	$10.00
Elf 2m (bolt-on wing mount/up to 10" chord) 44 3/8" fuse, nose cone	$70.00	$10.00
Facctor (83"/E193/3) 41" fuse, hatch, plans	$75.00	$10.00
Oden (100-130"/S3021/As Req./10.25" chord) 51" fuse, canopy	$75.00	$10.00
Raven 3m (119"/Mod. E193/As Req./10.75" chord) 51" fuse, plans	$80.00	$10.00
Smoothie (100"+/None/Var.) 49" fuse, hatch	$70.00	$10.00
Special Edition (100-130"/Any/As Req./9.625" chord/bolt-on wing) 54" fuse, nose cone	$80.00	$10.00
Stiletto I (100-136"/Any/As Req./10" max. chord/plug-in wing) 49" fuse	$75.00	$10.00
Stiletto II (100-136"/Any/As Req./10" max. chord/bolt-on wing) 49" fuse, hatch	$75.00	$10.00
Stiletto RG-15 (100-136"/RG-15/As Req./plug-in wing) 49" fuse	$75.00	$10.00
Stiletto HQ 2.5/9 (100 - 114"/HQ2.5/9/As Req./10" root cord/plug-in wing) 49" fuse	$75.00	$10.00
Zen (100"+/None/Var.) 51" fuse, hatch	$75.00	$10.00

All fuselages are Kevlar™ reinforced.

S&H via U.P.S. - Continental U.S.A.
(Texas residents add 7.25% state sales tax.)

Check or money order only, U.S. funds, please. C.O.D. $4.75 additional. Prices subject to change without notice.

SLEGERS INTERNATIONAL

Route 15, Wharton, New Jersey 07885
(201) 366-0880 - FAX (201) 366-0549
9:30 A.M.- 5:00 P.M. (**Closed Sun. & Mon.**)

Now there are three locations to serve you better! Our sailplanes are available direct from us or from:
KENNEDY COMPOSITES, 10215 North MacArthur Blvd. #136, Irving, TX 75063 • (214) 831-1141
CALIFORNIA SOARING PRODUCTS, 1010 North Citrus, Covina, CA 91722 • (800) 520-SOAR • FAX (818) 966-7915

BARRACUDA

Designed by Brian Agnew

- Glass, reinforced with kevlar, fuselage accommodates standard servos
- Pre-sheeted wings & stabs
- Wing incorporates a poly break sheeted with one piece of obechi without a seam
- Full flying stabs
- Pre-routed flap & aileron and servo holes

Kit includes: full instructions, Squires wing rod, Byron Blakeslee control cables, Ziegelmeyer control horns and tow hook. All wood and hardware is of highest quality available.

Specifications	
Wing Span	110"
Airfoil	SD7080
Weight	59-61 oz.
Price	$395.00

VULCAN 2M

Designed by Mark Allen

V-tail

Vucanistics:

Wing Span	78.73"
Weight	33 - 38 oz.
Airfoil (8 1/2%)	S7012
Wing Area	556.55 sq. in.
Wing Loading	9.25 oz./sq. ft.
Aspect Ratio	11.13:1
Average Wing Chord	7.07"
Price	$239.00

Pre-sheeted wings
Epoxy, high tek fuselage

SPECTRUM OPEN & 2M

SLIP ON NOSE CONE
PRE-SHEETED WINGS AND STAB
KEVLAR REINFORCED FUSELAGE
PRE-CUT AILERONS, FLAPS, AND ELEVATOR

Specifications	Spectrum Open	Spectrum 2M
Wing Span	104"	78.5"
Wing Area	855 sq. in.	554 sq. in.
Airfoil	SD7037/HG-15	SD7037
Aspect Ratio	13:1	11.2:1
Weight	60 oz.	40 - 43 oz.
Wing Loading	10 oz/sq. ft.	10 oz/sq. ft.
Price	$359.00	$259.00

ELECTRIC HAWK

Designed by Mark Allen

Wing Span:	74 in
Wing Area:	510 sq in
Airfoil:	SD7037
Price:	$229.00

Fiberglass fuselage reinforced with Kevlar
Pre-sheeted wings and stab
Double taper planform
7 - 10 cell electric

NIGHTHAWK

Designed by Mark Allen

Wing Span:	60 in
Wing Area:	370 sq in
Airfoil:	RG15
Price:	$195.00

The design features a slightly longer fuselage and larger stab for high speed stability and to provide better energy retention through turns and aerobatics.
Fiberglass fuselage
Pre-sheeted wings

Sky Hawk

Designed by Mark Allen

Sky Hawk Attributes

- ✓ High aspect ratio wing
- ✓ "Swift" wing tip technology
- ✓ Thin airfoils at the wing tip
- ✓ Large control surfaces
- ✓ Large tail surfaces
- ✓ Long tail moment
- ✓ Exceptional performance
- ✓ Sleek lines and good looks
- ✓ Easy to handle
- ✓ Lots of room for radio gear

Sky Hawk kit features a kevlar - carbon reinforced, fiberglass fuselage with carbon reinforced obechi - foam, pre-sheeted wings. A unique direct drive elevator servo is installed in the vertical fin.

Specifications

Wing Span	116"
Weight	58 - 65 oz.
Airfoil - Root	SD 7037 or S7012
Airfoil - Tip	SD 7037 or S7012 - 8%
Wing Area	900 sq. in.
Wing Loading	9.5 - 10.5 oz /sq. ft.
Aspect Ratio	15:1
Price	$359.00

(Prices do not include S&H or New Jersey resident sales tax.)

High Quality Electric & Non-Electric Sailplanes, Radios, and Accessories for the Sailplane Enthusiast

PRISM

UNLIMITED THERMAL DURATION SAILPLANE

STANDARD TAIL

V-TAIL

PRE-SHEETED WINGS AND STAB
TRIPLE TAPER WING PLANFORM
SERVO BAYS ROUTED & WIRE CHANNELS CUT
ROUTED HINGE LINE W/PLYWOOD ROOT RIB PRE-INSTALLED
FIBERGLASS W/CARBON FIBER KEVLAR REINFORCED FUSELAGE
SLIP ON NOSE CONE
3/6" TITANIUM WING ROD
COMPLETE INSTRUCTIONS & HARDWARE

Specifications V-Tail & Standard	
Wing Span	117"
Wing Area	910 sq. in.
Stab Area	102 sq. in.
Airfoil	SD7037
Aspect Ratio	15:1
Weight	60-65 oz.
Wing Loading	9.8 - 10.5 oz/sq. ft.
Price	$359.00

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