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Midwest Slope Challenge Registration

The following announcement regarding the MWSC, held in Nebraska, is from Loren Blinde, <mwsc@alltel.net>:

"The calendar has turned another year and it's time to start thinking about flying instead of shoveling snow. The 2004 Midwest Slope Challenge will be held May 13-16 at Wilson Lake, Kansas. Registration opens one week from now on February 14; that would be Valentine's Day if you're relationship-challenged and need a reminder... :-)

"Complete details and information can be found at <http://home.alltel.net/mwsc>.

"The event will be pretty much the same format we've done before, you probably know the drill by now. The only rule change so far is that the foamie warbird race is open to 60" planes. However, "soft" plane rules still apply to the class; in other words, no plastic spinners or hard stuff, scale looks not withstanding.

"Just a reminder about the combat events: the weight limit of 35 oz. will be enforced. If your combat plane is heavier, you're still welcome to watch or even chase downed planes that weigh less than 35 oz.

"Race headquarters will not be at the "Lucas Inn" as in past years, and may very well be Alden Shipp's garage. If you're registered, I'll keep you updated.

"The City of Lucas airshow will happen, IF one of you would like to organize it. Any volunteers? The local Chamber of Commerce has already contacted me in anticipation of another great show.

"The other change from last year is that we now live in a world where this note, with 200 copies, will get bounced by many well-meaning spam blockers. I'll do my best to keep everyone informed, but you might want to circulate this note among your circle of flying friends, just in case."

Happy Flying!
Judy Slates

SCHEDULE OF SPECIAL EVENTS

May 13-16, 2004
Midwest Slope Challenge — Wilson Lake, KS
Loren Blinde, mwsc@alltel.net

August 21-22, 2004
Christmas in August — Cape Blanco, OR
Fun Fly
http://clubsos.itgo.com
(541) 269-2423, slimefink@yahoo.com

Please send in your scheduled 2004 events as they become available!

Airacobra

Dave Garwood's Slope Scale Bell P-39 Airacobra, built from a Cavazos Sailplane Design kit, flying over Wilson Lake, Russell County, Kansas during Midwest Slope Challenge 2002. A Power Scale Soaring (PSS) glider, it has a molded fiberglass fuselage, balsa-sheeted foam core wings, balsa tail parts, and is controlled by aileron and elevator servos. Span is 50 inches, weight is 28 ounces. Built around an Oldsmobile 37mm cannon firing through the propellor hub, nearly 5000 Airacobra P-39s were sent to Russia under the WWII Lend Lease program, and the aircraft filled a distinguished ground attack role.

Photo taken with Canon Eos camera using Canon telephoto zoom lens on Fujichrome 200 film by Joe Chovan.

Back Cover

Ken Ueyama's F3J 'wing

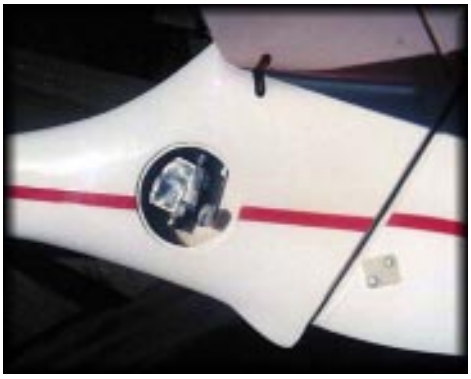
This photo of Ken's F3J Risky demonstrates its large wing span (3.56 meters). Mr. Youki, the mold builder, is holding the model.

Details on Ken's F5F tailless machine are covered this month by Bill & Bunny Kuhlman.

Completed Bird of Time.

BIRD of Time

Manufacturer:	Dynaflite
Wing Span:	3m
Wing Area:	1050 sq. in.
Weight:	60 oz. (Mine is 57 oz.)
Length:	49"
Radio Used:	JR 388
Servos:	1 JR 507 (rudder) 1 JR 241 (elevator)



JR 241 elevator servo. A bit tricky to install.

Jer's Workbench

Jerry Slates
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Santa Rosa, CA 95407
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Bird of Time ARF (aka, BOT)

Designed by Dave Thornburg some 30 years ago, this classic model sailplane was very competitive in the days of the rudder, elevator only class, and still is to this day.

What comes with the Bird of Time, ARF?

Kit Contents

I asked myself that question as I opened the box and found a beautiful set of wings, stabs, and rudder. All were pre-built and expertly covered, better than what I can do. The painted fiberglass fuselage was beautifully done, as well. The box also included several bags of miscellaneous parts.

Kit Assembly

Putting together the BOT is pretty easy, requiring only a few hours. My BOT arrived on Tuesday, and was flying the following weekend!

For the expert builder, the assembly should be quite easy. However, for the beginner, read the instruction manual cover to cover, carefully. It's a good instruction manual, and someone obviously spent a lot of time putting it together.

I like it when everything easily comes together. All the pre-cut parts were the correct size and shape; the pre-drilled holes were just right!

I followed the instruction manual step by step, except for one part. I didn't use the kit supplied parts to install my elevator servo. I prefer to install it using Marine Goop, because I've found it an easier method. However, there is a problem using Marine Goop

Bird of Time by Dynaflite as it comes out of the box.

Servo mounts, pushrod tube and antenna tube, all factory installed.

to install a servo. If it ever needs to be repaired, it will be a real bear removing it from the inside of the fuselage!

Once completed, the BOT was balanced per the instruction manual.

Flying

Day one at the flying field called for the usual radio range check, which checked out OK. I was ready for the first hand toss.

I *hate* this part of testing a new model, but knew it had to be done! With a good grip on the transmitter in my left hand, and the BOT in my right, I held the model over my head, took two running steps, and threw the BOT into the air. It went up about 30 feet. Before it had a chance to stall, I taped down elevator, watching it glide across the field, hands off for almost 300 feet. The glide was straight with no correction required.

Next step, using a 250 foot high start, indicated that the BOT had no bad habits on launch. It tracked straight up the line. Off tow, the glide was flat and, with its large rudder, the *Bird* turned when it should turn. It was even easy to read the air as thermals blew on the BOT wing tips.

Landing is different than landing a 6 servo sailplane, however. Since the BOT does not have flaps or spoilers, it does not want to slow down on landing. As it comes in on approach, 2 to 3 foot off the ground, ground effect takes over. Just like the Energizer Bunny, it wants to go and go and go. However, with just a bit of up elevator, but not so much that it stalls, it can be landed right on the spot.

Yup, I like my *Bird of Time*.

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DLG camber preset

Mark Drela

Q: Should camber be used in a DLG launch preset?

A: It's probably not beneficial.

The optimum CL for a DLG pullup is modest -- usually 0.4 or less -- and the reflexed airfoil has the least drag at this CL.

In any case, the CL you're pulling can be estimated by

$$CL = 2\,m / (\rho\, S\, R)$$

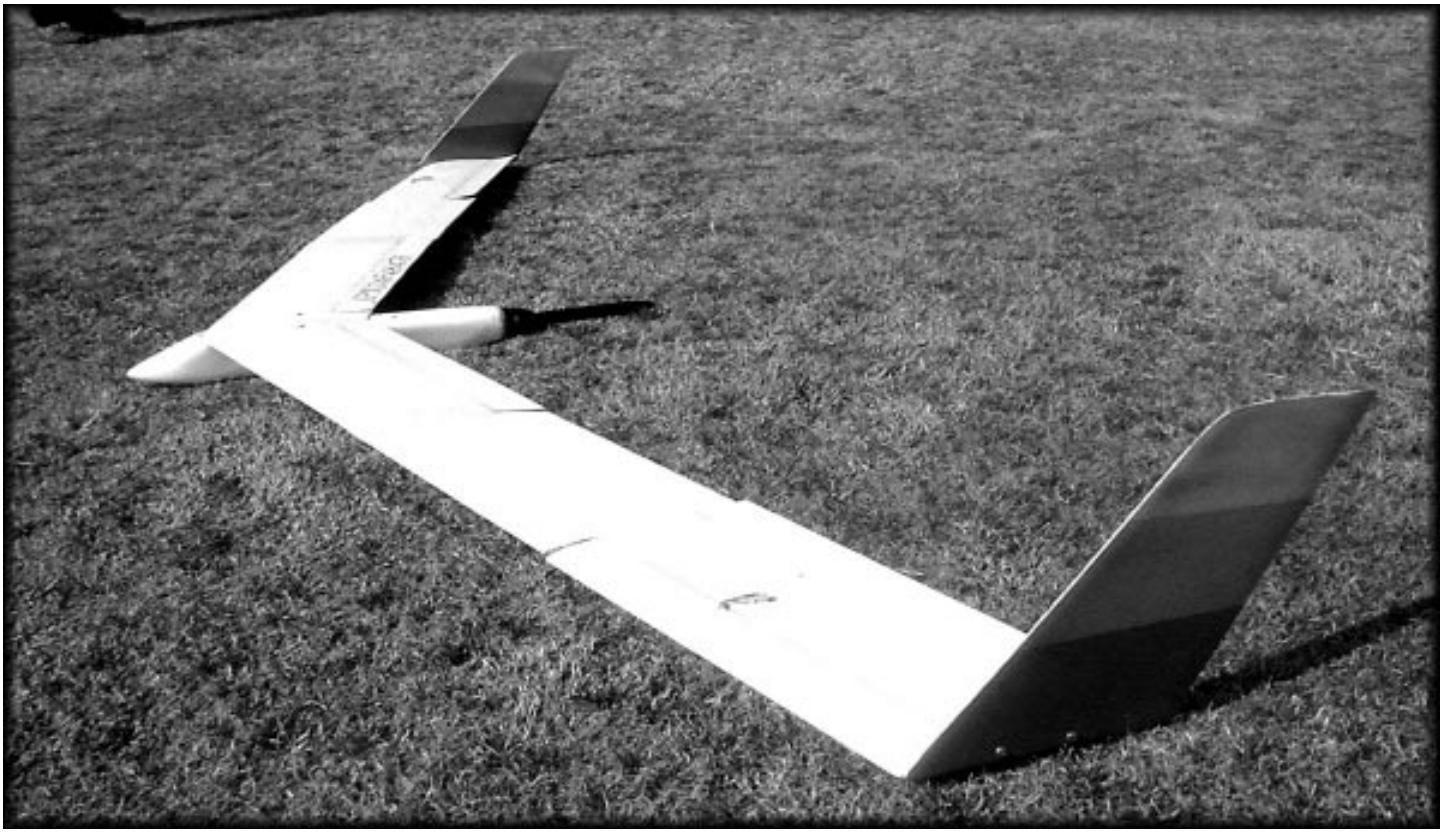
where R is the radius of curvature of the pullup. Typical DLG numbers:

$m = 0.28$ kg (10 oz)
$\rho = 1.22$ kg/m^3
$S = 0.22$ m^2
$R = 5$ m

therefore...

$$CL = 0.42$$

For camber to be helpful, the pullup would need to be done at least at CL = 0.7, which implies a pullup radius of only 3m. I don't think DLGs pull up quite that sharply. Just to align the wing and elevator with a 1m tail arm on the 3m radius arc, would require at least 20 degrees of elevator preset.



KU2F5Fv.1 ready for some test flying.

on the Wing B²

P.O. Box 975
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http://www.b2streamlines.com

Ken Ueyama's F5F 'wing

Kenichi "Ken" Ueyama resides in Yokohama Japan and has been involved in F5B national and world competition for the last 16 years. Ken will be the Team Japan manager for this summer's F5B World Championship in England. Fascinated by the flying wing concept, and knowing the design of conventional F5B gliders had reached near perfection, Ken determined to design, build and fly a tailless F5F machine.

Ken's decision was based on fairly extensive research. He initially believed there were large advantages to be derived from a tailless planform, but as he investigated further he found the actual performance differences to be relatively small.

Still, he remained interested in the tailless concept because of its unique appearance. Based on previous experience, he knew he would not be able to immediately have a record beating F5F glider, but he was reasonably certain he could come up with a competitive F5F flying wing. Three prototypes and twelve months later, Ken reached that goal with a molded 'wing he calls KU2F5F.

What is F5F?

FAI F5F competition is essentially the F3B format translated to electric powered sailplanes with a minimum weight and wing area, ten cell maximum, and a maximum motor weight. See Table 1.

The FAI changed the rules for F5B and F5F last year so use of NiMH battery is now approved. The 2004 world championship, to be held this fall, will be the first to allow use of NiMh batteries. All the current F5B & F5F competitors are testing and flying with NiMh batteries.

The trend seems to be to use ten GP 3300 cells for F5F and 17 GP3000 cells for F5B. The current draw for these machines is running near 150 amp/h in both categories.

Kenichi "Ken" Ueyama and his KU2F5Fv.3 at the club flying field.

Table 1

Parameter	F5B	F5F (Provisional)
Minimum/Maximum total area	none/150 dm^2	36 dm^2/150 dm^2
Minimum/Maximum weight	2000/5000 g	1500 g/5000 g
Minimum/Maximum loading	12 g/dm^2/75 g/dm^2	12 g/dm^2/75 g/dm^2
Maximum # cells Maximum battery weight	30 NiCd or NiMH 1100 g	10 NiCd or NiMH no weight limit

Table 2

Parameter	KU2F5Fv.1 and v.2	KU2F5Fv.3
Span	2000 mm	2000 mm
Chord	180 mm (constant)	180 mm (constant)
Weight	1800 g	1800 g
Sweep angle	20 degrees	25 degrees
Airfoils	v.1 Root to 35% b/2 = HD47 35% b/2 to tip = EH 1.0/6.5 v.2 Root to tip = HD46	Root to 24% b/2 = RS004 24% b/2 to tip = EH1.0/7.0
Twist	v.1 = -4 mm, -1.27 degrees v.2 = -10 mm, -3.18 degrees	-5 mm, -1.6 degrees
Control surfaces	Elevons and flaps LE flap on v.1 only	Elevons and flaps
Motor	Hacker B40 F5F, 6.7:1	Plettenberg HP220/25 A1 P6, 7:1
Propeller	16x17 folder	17X18 folder
Battery complement	v.1 =Sanyo RC2400, 10 cells v.2 = Sanyo RC2700, 10 cells	GP 3300 NiMH, 10 cells
Speed control	Shulze Future 111Fo	Shulze Future 18-129F

KU2F5F design motivation

We asked Ken why he had chosen a pusher rather than a tractor configuration. He explained current F5F gliders use a 16x16 to 18x17 folding prop. To clear the leading edge in the folded position, the nose must be at least as long as half the propeller span. The aircraft is tremendously nose heavy with the motor so far forward. The spinner is 18 inches in front of the CG! Placing the receiver battery, receiver, power battery, controller, motor and prop in order from nose to tail makes for an almost perfect balance. Ken also notes the aircraft is prettier this way, particularly when it's gliding and the trailing props look like long skinny bird legs.

F5F is like F3B in that it is a multi task competition. Similar to F3B, the speed task points usually decide the winner. Almost everyone gets the maximum points for the thermal duration task. Efficient high speed cruise is the most important design criteria, therefore some low speed performance must be sacrificed.

KU2F5Fv.1 and v.2

The design coefficient of lift for the speed task is 0.05 (40m/sec), the design coefficient of lift for the thermal duration task is 1.25 (8m/sec). Plugging these numbers into the Panknin formula, we find the twist required is -2.2mm (0.7 degrees) for the speed task and -27mm (8.6 degrees) for the thermal task. If you use the twist value for the speed task, a lot of up trim will be required. Additionally, there is the matter of up aileron deflection during roll. Twist affects the entire wing chord, whereas an elevon uses only the rear 25% or so.

Taking a cue from Hans-Jürgen Unverferth's *Joined One*, Ken believed a leading edge flap would alleviate some of the elevon surface deflection, making it more akin to wing twist. At thermal setting the leading edge is slightly down and the elevon is up. The flight speed decreases roughly 10~20% compared to the case without LE flap deflection. Stall characteristics are also slightly better, but there's not much difference in that area.

Ken was disappointed, as he was expecting a big difference in the effect of the LE flap. He had thought this flying wing, with super thin airfoil and high wing loading and almost no twist, must have a LE flap or some other similar device in order to float at low speed. Surprisingly, it flew very well without LE flap deflection.

Close-up of the LE flap system on KU2F5Fv.1.

KU2F5Fv.1 used a three piece blue foam wing, and about 15 flights were put on this airframe. From the start, the aircraft was very prone to flutter. The problem resulted from the wing chord being effectively halved by the leading edge flap and elevon cutouts. Putting servos in the area did not help matters, especially in light of the wing thickness at that point, which is just 11.7mm. Flutter at high speed lead to this model's demise.

The second version, KU2F5Fv.2, used a two piece wing of blue foam and had no leading edge flap. It was destroyed on its maiden outing when it hit the bungee post on the first launch.

KU2F5Fv.3

KU2F5Fv.3 employs different airfoils for root and tip than the previous versions. The portion of the span used for each section is different as well. See Table 2. Again, there are no leading edge flaps.

The very streamlined Risky fuselage pod.

In its first competition, Ken's KU2F5F flew 28 laps in distance and climbed out and thermalled better than any other entry. It handles beautifully, with no adverse tendencies. At the design top speed (40m/sec) it needs no reflex. It flies fast and flat. Ken is sure with further fine tuning he can get it to be even more competitive.

The KU2F5Fv.3 uses a two piece molded wing with carbon skin and spar structure. Construction consists of a blue foam core, Kevlar and carbon skin and spar system, vacuum bagged.

Mr. Okada, a member of Ken's club, holds KU2F5Fv.3.

As you can see in the photos, Ken has produced a beautiful aircraft. He is extremely pleased with its performance, and is looking forward to entering it in future competitions.

Because of its popularity and provi-

sional status, the organizers of each F5F "world championship" event have always promoted the international contests as World Games. Team Japan will enter Ken's KU2F5F in this summer's F5F World Games. This will mark the first time a flying wing will compete in either F5B or F5F at the World level. Ken says his KU2F5F may not win, but Team Japan is certain to stir up a lot of curiosity and interest among the other competitors.

Risky

In addition to his KU2F5F, Ken also has an F3J wing, *Risky*, in the works. The molds for the airframe were made by Ken's friend Mr. Youki, a world class F3B flyer. *Risky* has a huge wing span — 3.56 meters — and an extremely high aspect ratio.

Initial test flights in mid-December 2003 were completed using a "shock cord" bungee to get the CG and trim adjusted before winch launching. With two tow hooks and a Y-cable, *Risky* went up like a kite, very steady and easy to control. It has an extremely high glide ratio, but still needs some adjustments of flap settings and elevon differential; it is therefore currently undergoing further flight testing.

There is hope *Risky* will be soon be available for sale. Information concerning availability can be found at on Mr. Youki's web site <http://homepage3.nifty.com/t-youki/risky/newpage1.htm>.

We look forward to providing further updates to Mr. Ueyama's tailless projects, including contest records.

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We're always looking forward to hearing about *RCSD* reader projects. Information, photos, and ideas for future columns can always be sent to us at either <bsquared@appleisp.net> or P.O. Box 975, Olalla WA 98359-0975.

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TECH TOPICS

Dave Register
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2 METER DESIGN ANALYSIS

Designing a 2 Meter sailplane for thermal duration performance can be challenging. The trade-off in wing loading, aspect ratio and airfoil is much more constrained than for an open class design.

People have many opinions on this topic, but for me Mark LeVoe's Super-V (2 Meter) is still the best of this class. The combination of airfoil, planform and generous V-stab surfaces make a pleasing appearance and a very stable, high performance design.

Although you can find 2M Super-Vs out there, Mark stopped production of this ship several years ago. The planes that Mark designed, from the Albatross to the Super-V, are excellent flying machines.

Everyone has his or her favorite plane or design trend, so I won't try and defend everything we're going to discuss. The approach I'll use is just one of several ways to look at the whole problem.

There are a number of good 2 Meter ships out there. Three that appear to have promise are the Starling Pro (assuming the spar quality improves), the Mini-Graphite from Kennedy Composites and the Laser 2M from NE Sailplane Products (sorry, Sal but V-tails are just sexier). The Organic is a beautifully crafted airplane but too fragile for the way I hammer my planes. And so on.

To address the 2 Meter design challenge, there are several issues to be reviewed:

1) Wing loading and airfoil selection,
2) Wing planform – which depends a great deal on #1,
3) Pitch and yaw stability analysis, and
4) Fuselage/stabilizer design, which depends a great deal on #3.

To look at trade-offs with the wing loading, airfoil and planform selection, we'll use (you guessed it) a polar analysis. We'll first evaluate the estimated flight profile for the things we can conveniently change and then see how that plays into the choice of the airfoil and wing planform.

To provide input to the polar program, we need estimates for scaling the weight of our designs. To do that, I'll work from measured values for planes I've been flying that use composite construction techniques. After measuring everything I've got in the shop, I come up with the following average numbers:

Wing ~ 4.75 oz./sq.ft.
Stabs ~ 2.50 oz./sq.ft.
Fuselage ~ 1.77 oz./ft.

These are all 'dry' weights - as received in the box. Note that the fuselage scaling is based on the overall length of the fuselage and not its wetted area. This is a reasonably consistent number for the 2 Meter and Open class ships used to come up with these averages.

Weights for other components can be measured directly. I'm assuming a six-servo design with a 500maH NiCd pack. The additional weight from the

Figure 1: Polar Plots For 2 Meter Design Estimates

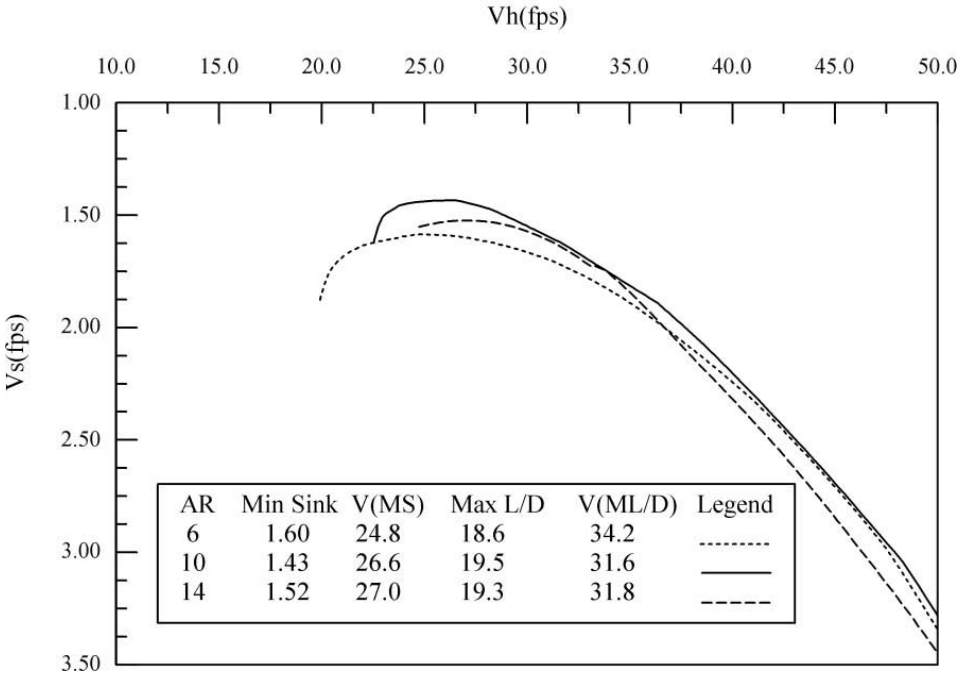


Table 1: 2 Meter Design Values

Aspect Ratio	6	8	10	12	14
Wing Area (si)	1027	770	616	514	440
Stab Area (si)	305	184	125	92.5	72
Weight (oz)	62	52	46	42	40
Loading (oz/sf)	8.8	9.7	10.8	11.8	12.9

flight gear comes to about 17-19 oz.:

6 Servos: 1 oz. each
Receiver: 1.5 oz.
Battery/Harness: 3.0 oz.
Wing Wiring Harnesses: 1.0 oz.
Wing Rod: 3.5 oz.
Misc.: 5.0 oz.

(Servo Mount/switch/plugs/linkage/control horns/tow hook/skid/skeg/etc.)

Total ~ 20.0 oz.

There are lighter weight components available but these values are typical of equipment normally used to run a 6-servo ship. You can use a NiMh battery and save some weight but you'll probably add it back as lead in the nose. If you have numbers that represent your equipment better, go for it.

Right away I think you can see the problem. The weight of the ancillary equipment is proportionally higher for a 2 Meter ship than for open class. That 20 oz. number is real. It includes the wing rod, skid, skeg, linkage, wing wiring harness and then ALL of the components of your radio gear. If you don't come up with at least 18 oz. for a typical setup, I'll be surprised.

A 2M ship typically weighs ~ 44 oz. while an open class comes in ~ 76 oz. Using the above numbers we find that your hardware contributes about 45% of the flying weight of a 2 Meter plane whereas that same value is about 30% of the weight of an open class ship. This really affects the wing loading and the subsequent performance envelope of the 2 Meter class.

Assuming values for the stabilizer volume coefficients (RVC ~ 0.045 and TVC ~ 0.50) and the fuselage moment arm (distance from 25% wing average chord to 25% horizontal stabilizer chord), we can come up with estimated wing loadings as a function of wing aspect ratio. Table 1 provides the scaling information to be used for our first cut at a 2 Meter design.

Aspect ratio is an important criterion. High aspect ratio is good for low induced drag but bad for wing loading. One can compensate with a high lift airfoil but then profile drag becomes a problem at higher speeds.

Plugging this all into a polar analysis helps sort out the trade-offs.

First, let's zero in on the aspect ratio/wing loading trade-off using data for the SA7035. What I'm looking for is a minimum sink velocity ~ 1 ft/sec, a max L/D of ~ 18. Based on my personal preferences, I'd also like a flying speed of ~ 25 ft/sec in the min sink to max L/D part of the flight profile. An added bonus would be a fairly broad polar at higher speeds to allow good cruising efficiency when you have to bring it back in a modest breeze.

Figure 1 shows the result of this analysis for the aspect ratios and wing loadings summarized in Table 1. One of the first things we see is that the wing loading for a 2-meter design makes it difficult to make that 1 ft/sec minimum sink velocity.

It's tough getting down to the cruising range I'd like with the SA7035. However, we do see a reasonable optimization of things around an AR of 8 - 10.

The velocity near minimum sink is ~ 25 ft/sec but the sink rate is a little high and I'd like to bring that down a bit if possible.

Before looking at airfoil responses, it's useful to compare this same analysis to an open class ship. Table 2 contains the same type of estimates but using a 124 inch span (~ 3 meter). As a reality check, my Laser 3MC has an AR ~ 15 and weighs in at 74 oz.

Figure 2 presents the polar calculation for the data in Table 2. Note that the minimum sink, max L/D and velocity in the min sink range are all more favorable than the 2-meter case. So 'yes' is the quick answer to 'does bigger fly better'?

If we take a close look at Reynolds number (Re) for these two configurations we find Re has very little to do with the performance difference. It's almost exclusively aspect ratio and wing loading. Since the radio, servo and ancillary equipment weight is

Figure 2: Polar Plots For Open Class Design Estimates

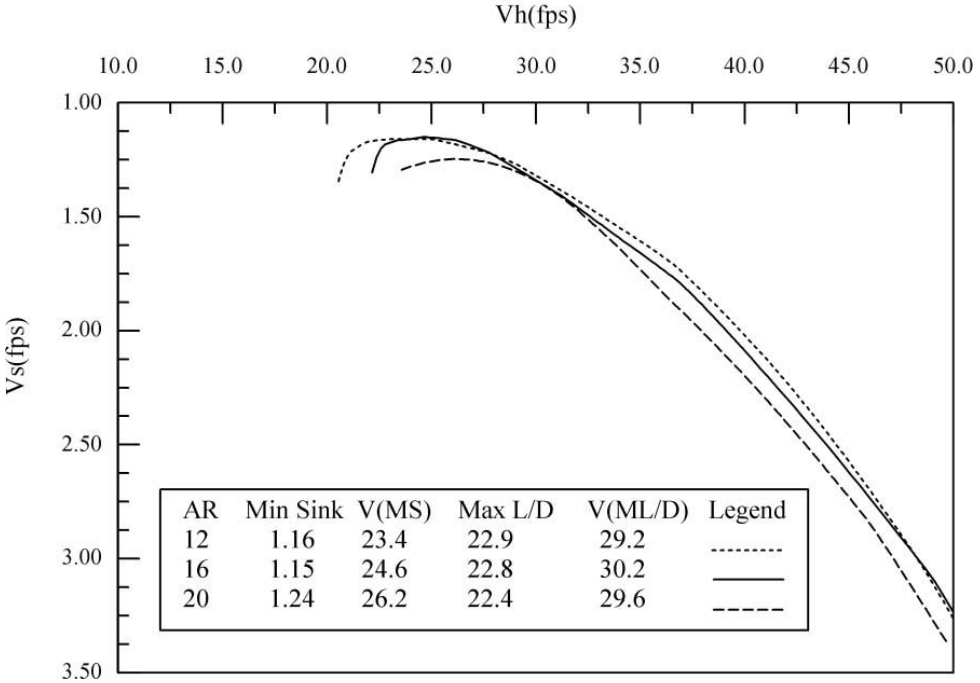


Table 2: Open Class Design Values

Aspect Ratio	12	14	16	18	20
Wing Area (si)	1281	1098	961	854	769
Stab Area (si)	300	233	188	157	133
Weight (oz)	82	75	69	65	62
Loading (oz/sf)	9.2	9.8	10.4	11.0	11.6

about the same for both sailplane classes, we can add more wing area at a higher aspect ratio in open class and still come out ahead on wing loading.

The next variable we can push around is airfoil selection. Since we're flying at typically higher wing loadings in 2-meter class, we should probably look at higher lift sections. The SA7038 and S3021 are worth a look. I had excellent performance with the S3021 on a standard Duck a few years ago. Other good airfoils are certainly available but these three give a reasonable look at the responses.

Using an aspect ratio of 10 (2 Meter case), Figure 3 compares these four airfoils using the same planform considerations. The SA7038 appears to give the best benefit for the selected AR and wing loading.

Finally, in Figure 4, we compare the suggested 2-meter configuration (SA7038 airfoil, AR ~ 10) with an optimized open class ship (AR ~ 14) using the SA7035. Although the Open class ship is still the better overall performer, we've closed the gap quite a bit.

To summarize what we've learned so far:

Bigger does fly better,
Re is not the dominant effect in the 2 meter and larger classes,
Wing loading and aspect ratio flexibility favors the open class design, and
To approach open class performance, a 2-meter design will need to use a lower aspect ratio wing and a higher lift airfoil section.

Clearly, if we can change the construction and equipment weight parameters to the low side, you'll also come out ahead. But the numbers used are typical of the planes out there in production. When you start using exotic materials and construction techniques to lighten the load, the cost usually goes up and the durability goes down – at least for a ham-handed guy like me.

In the next several installments, we'll do the same calculations for some two meter designs with which I have personal experience. Then we'll look in more detail at optimizing the wing planform for lift distribution and wash-out. Finally, we'll wrap up by taking a look at some stability criteria which will help properly size the horizontal and vertical stabilizers.

Figure 3: Polar Plots For 2 Meter Airfoils (AR = 10)

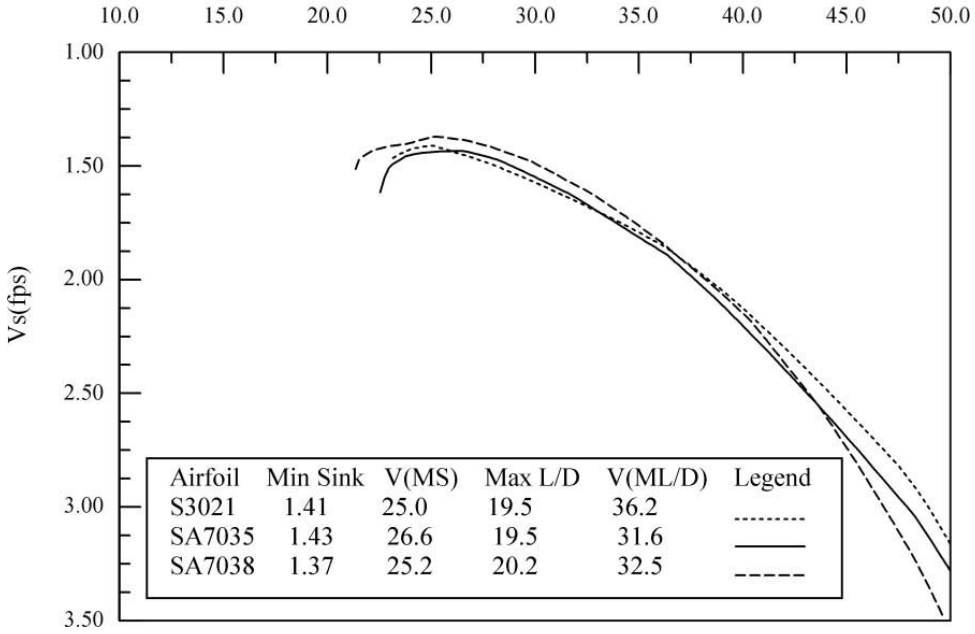
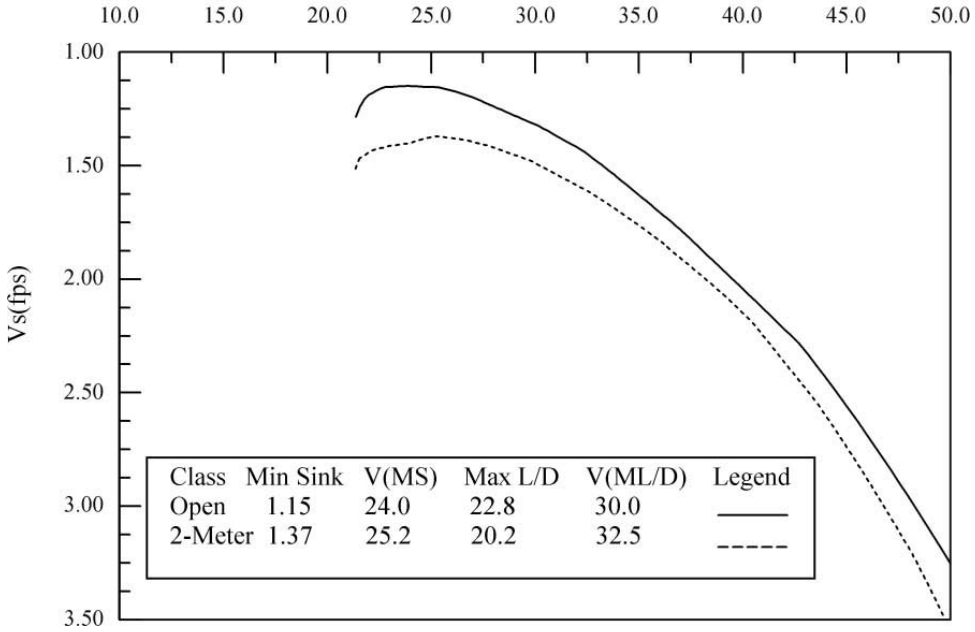


Figure 4: 2 Meter (AR=10) and Open (AR=14) Optimization



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HAVE SAILPLANE, WILL TRAVEL!

Weasel sloper at Linnville, Ohio, Jan 1, 2004.

By Tom H. Nagel
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MEADE CaptureView Integrated Binoculars and Digital Camera

A New Sailplane Toy

Every once in a while some new gadget comes along, usually intended for a purpose totally removed from RC sailplanes, and it suddenly becomes a "gotta have" addition to the RC pilot's toy box. Some examples that I recall are the Casio altimeter watch, the Radio Shack talking timer, and cell phone battery technology in general. For awhile, Triad brand combination sun screen/bug repellant/desert topping was a hot item, but for the fact that the manufacturer seems to have gone out of business for some reason. Here's what may be the next big thing.

This Christmas my mother-in-law, who has a talent for finding the right gift for the right person, found the Mead CaptureView at Radio Shack and got one for me. I don't know what she thought I would do with it, but it quickly became apparent to me that the combination compact binocular and digital camera was just about ideal for taking pictures of flying sailplanes and slope sites. Using the CaptureView unit takes some practice, but the "film" is virtually free, so I have been practicing and I am pleased with the results.

The Meade CaptureView is a pair of compact 8-power roof prism binoculars, with a little digital camera slung between the binocular barrels. The digital camera is a fixed focus automatic exposure device with a lens equivalent to a 35mm camera's 400 mm lens. The camera records pretty much what you see through the binoculars on a 640x480 pixel chip. There is no display device on the CaptureView. You have to wait until you get home to download the images onto your computer and see what views you captured. A USB patch chord and Ulead Photo Express software on a CD-ROM are included with the purchase.

The digital camera needs bright light to take a decent picture and is in focus for anything beyond 50 feet. While this makes is useless for home snapshots around a birthday cake (unless you are REALLY old, with a big cake and lot of candles), it makes the unit just about

Running deer, captured on film, demonstrate about how fast you can take successive pictures with the CaptureView!

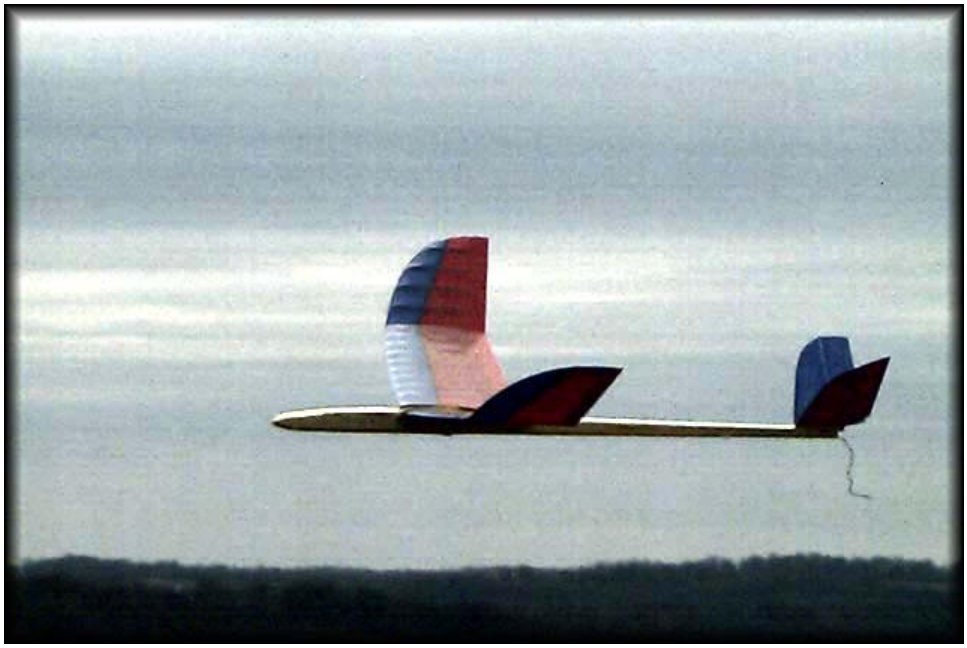
ideal for taking flying slope and thermal sailplane pictures. The CaptureView is discounted to around $50 now, so even though you can find more versatile or high resolution digital cameras on the market, this one gives a lot of bang for the buck.

Controls are simple: two buttons, one for each index finger, right where you'd put them if you had a firm two hand grip on the binoculars. The left button turns on the camera and allows you to scroll through some options. (The camera defaults to high resolution, so you don't need to worry about the option settings if you are trying to catch a quick picture. The camera also turns itself off automatically in about 20 seconds, so you don't need to worry about turning it off.)

The right hand button is the shutter. The camera bleeps at you when you turn it on, when you shoot a picture, and when it turns itself off, so it is relatively easy to keep track of the bleeping thing without having to look at the controls.

Recovery time between shots seems to be about as fast as you can work the shutter. The "shutter" releases when you take your finger off the button, not when you press it down. Therefore, holding the shutter button down does NOT give you successive rapid fire shots. If you hold the button down too long, waiting for your shot to set up, the camera will turn itself off.

Most of us know how to use binoculars so there are only a couple of tricks you need to master to take pictures with the CaptureView:



CaptureView photo from New Year's Day - Skye Malcolm's 60" Chrysalis.

1. Don't worry about focusing the binoculars – the camera is fixed focus. Concentrate on framing, not focus.

2. Hold the CaptureView steady. Use two hands, and squeeze your elbows down against your ribs. Brace yourself if you can. Press the shutter button as soon as a you see a shot coming.

3. Pan your CaptureView to capture a flyby, and follow through.

4. Remember, the "shutter" releases when you release the shutter button.

5. Timing is everything. The CaptureView will bleep itself into "off" mode in only twenty seconds, so watch your subject through the binoculars and don't turn on the camera (left button) until you are "fixin' to shoot a pitcher" as they say in Texas. Or at the White House nowadays.

6. Don't look at the sun. Looking at the sun through binoculars is what optometrists refer to as a "bad thing." I get the impression that RC

flyers generally keep track of where the sun is almost by reflex after flying for a few years. This should stand you in good stead while using the CaptureView.

7. Take lots of pictures and throw away most of them.

One final note: the instructions advise you to remove the batteries if you are not going to be using the camera for a while. Apparently there is a small but significant battery drain even when the unit is turned off. There is a low battery indicator on the camera, and it is a good idea to check it before going to take pictures. If the batteries die, any stored pictures are lost.

Now, here's a project for the inveterate tinkerers among us. The streamlined little digital camera pod (less the binoculars) would make a nifty airborne digital camera, slung under a wing or on top of a fuselage. One servo with a dual output arm could be set up to push both buttons, and both turn on the camera and take pictures. Taking the CaptureView apart would certainly void the warranty, but so does the rest of the stuff we usually do with our equipment. Plus, you would have a perfectly good set of binoculars left over. Drop me a note if you try this. I want to make sure to keep my equipment locked up when you are around.

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This column is dedicated to soaring vacations. If you have a favorite sailplane saga, consider writing it down for *RCSD*. If you are planning a vacation that includes your plane and transmitter, consider making notes as you go, and working up an article later. Take photos. Collect maps. And send your story to Tom Nagel at tomnagel@iwaynet.net for gentle editing and suggestions.

Tom

2003 Tangerine Soaring Contest

by Phil Knowlton

The 30th Annual Tangerine Soaring Contest of Orlando, Florida was held on Thanksgiving weekend, 2003. Over 40 RC soaring enthusiasts participated in the two-day event, which was sponsored by the Orlando Buzzards Soaring Club and officially sanctioned by AMA. The Tangerine is one of the premier thermal soaring contests held every year in Central Florida. Contestants came to Orlando from as far away as New York, Pennsylvania, Illinois, and Arizona.

The weather in Orlando proved to be challenging with unusually cold temperatures (cool by our northern brethren standards) and gusty winds produced by the passing of a cold front the night before the contest. Those who had extra hot coffee in the mornings proved to be very popular with everyone. While temperatures dipped into the high forties in the mornings, requiring jackets (and for some of us native central Floridians, long underwear), the spirits of everyone remained high.

All participants received a memento of the contest. T-shirts were available for purchase. An informal swap meet was held (as usual when multiple RC enthusiasts are in the same place) which included the exchange of planes, parts, supplies and equipment for American currency. Food was available during the lunch breaks in the competition, and the Buzzards held a raffle on the last day giving away over $700 in prizes including several planes donated by sponsors.

The Tangerine is a thermal duration with landing task competition. With finding lift difficult this year because of the weather, the landing task became key. This placed additional emphasis on lower altitude flying skills. The gusty winds also played a role in clearing the trees along three of the field's boundaries. This, of course, is very important for those of us that have limited tree-climbing abilities. These same flying skills were also essential in everyone's attempts to severely limit the "jettisoning" of plane parts upon landing.

This year's contest consisted of contestants in three skill levels: Sportsman, Expert, and Master with 2 meter, Rudder Elevator Spoiler (RES), and Unlimited planes. Seven rounds of 2 meter and Unlimited competition in each skill level were held on Saturday and five rounds of Unlimited and RES in each skill level on Sunday. This year's official results are shown in the tables.

The Grand Champion is Brian Agnew – Fort Myers, Florida!

As usual there were a few plane mishaps including some hard landings, structural failures, etc., which were attributed to pilot or builder errors (often these were the same people). Safety is always paramount in an event this size, particularly using powered winches for launch. I'm pleased to report that no safety incidents were reported.

I think everyone would agree that the

Saturday – November 29, 2003

Unlimited Master	Name - Home	Total Score
1st Place	Brian Agnew, Fort Myers, FL	3588
2nd Place	Gearald Baxter , Enterprise, AL	3036
3rd Place	Ray Alonzo , Valrico, FL	2849

Unlimited Expert	Name - Home	Final Score
1st Place	Robin Meek, Grayslake, IL	2595
2nd Place	Victor Yeung, Rockledge, FL	2297
3rd Place	Rick Sunderland, Tallahassee, FL	1943

Unlimited Sportsman	Name - Home	Final Score
1st Place	Hugh Gardner, Tallahassee, FL	2542
2nd Place	Steve Hancock, Williston, FL	2416
3rd Place	Chuck McCann, Jacksonville, FL	1828

2 Meter Master	Name - Home	Final Score
1st Place	Brian Agnew, Fort Myers, FL	3105
2nd Place	Ray Alonzo , Valrico, FL	2792
3rd Place	Kurt Carlsen, Port St. Lucie, FL	2674

2 Meter Expert	Name - Home	Final Score
1st Place	Ben Cleveland, Leesburg, FL	2349
2nd Place	Dan Johns, West Palm, FL	2038
3rd Place	Scott Krogmann, Orlando, FL	2025

2 Meter Sportsman	Name - Home	Final Score
1st Place	Luis Rluiz, Oviedo, FL	1661
2nd Place	Bill Robinson	1093

30th Annual Tangerine Thermal Soaring Contest was a rousing success and enjoyed by all. The Orlando Buzzards participate in the Florida Soaring Society (FSS) and hold additional associated contests each year. The next big one for the club is the Gentle Lady Contest held in the spring. For more information on this and other contests as well as the Orlando Buzzards RC Soaring Club, please see www.Orlandobuzzards.com on the Internet.

Orlando is one of the country's best tourist destinations for adults and families, so plan on dropping off the significant other and the kids at Disney and coming out to the 31st Tangerine next year. Or even better… Bring them with you. See you next year. "Y'all come."

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Sunday – November 30, 2003

Unlimited Master	Name - Home	Final Score
1st Place	Brian Agnew, Fort Myers, FL	2452
2nd Place	Rusty Carver, Orlando, FL	2415
3rd Place	Tim Cyr, Clearwater, FL	2387

Unlimited Expert	Name - Home	Final Score
1st Place	Victor Yeung, Rockledge, FL	2125
2nd Place	Dan Montgomery, Inverness, FL	1930
3rd Place	Lewis Gray, Winter Springs, FL	1769

Unlimited Sportsman	Name - Home	Final Score
1st Place	Chuck McCann, Jacksonville, FL	1516
2nd Place	Steve Hancock, Williston, FL	1427
3rd Place	Hugh Gardner, Tallahassee, FL	1402

RES Master	Name - Home	Final Score
1st Place	Ray Alonzo , Valrico, FL	2297
2nd Place	Brian Agnew, Fort Myers, FL	2148
3rd Place	Tony Rogers, Boynton Beach, FL	1767

RES Sportsman	Name - Home	Final Score
1st Place	Matt Fair, Orlando, FL	1029
2nd Place	Lee Royer, Satellilte Beach, FL	975