Established 1936
SKY-SCRAPERS BKLYN NY
AMA Club Charter 470

FLYOFF

Round 19 / Fall 1992

The **SKYSCRAPERS** Quarterly

Edited by Bob Hatschek

What's up? XIX

The Westover Nats

This report is being written from memory a month and three meets after returning, so please excuse any mnemonic lapses from your editor—winner of the 1991 Geritol Award.

The Skyscrapers did well! Among achievements were:

(1) A 1-2-3 sweep of F1J for the second year in a row (by Jean Pailet, Jack Nix, and John Carbone) and the third year in a row that first in this event went to a Skyscraper.

(2) A magnificent showing by Jean Pailet. Besides topping F1J, Jean also took first in 1/2A and second in A gas using .050 and .061 Shurikens in the same model. (Look for Jean's *ShuriKing* in a future issue of *FLYOFF*.) Jean also took a prize with his ArmSoar HLG (*FLYOFF 14*).

(3) A typically top performance by Vic Nippert in winning two events—Coupe d'Hiver and Catapult Glider.

(4) A near record-breaking effort in P-30 by Art Ellis, whose remarkable *Window Plane* totaled 19 minutes. Art quit after the 4-minute flight because drift was dangerously close to the woods, the record was beyond capture under the existing conditions, and he was 13 minutes ahead of the second-place contestant. (An article on *Window Plane* and its development will appear soon in *FLYOFF*.)

(5) Charlie Gagliano won indoor HLG

(6) Generally "decent," if disappointing, performances were put in by a number of other Skyscrapers (this has been brought home three Nats placques, for instance) but the details have now escaped my geriatric memory.

Overall, outdoor free-flight at the Nats was well run by the Brainbuster's Abram Van Dover—whose readiness to move operations to suit changing weather made the field seem a lot larger than its reputation from previous Westover Nats. This reputation—deserved or not—was probably the main factor in holding down free-flight participation, which was disappointing at best. Aside from the ever-present Sal Taibi and a very few others, this was largely a Northeasterner's contest. But the sub-par attendance was not the fault of this year's free-flight officials.

Weather varied considerably. Strong winds prevailed only on the first day of outdoor flying. But steady and fairly heavy rain marred Day 2. F1G, flown in rounds on Saturday, was interrupted for about 90 minutes by a heavy thunderstorm—but, thank Heaven, the foot of hailstones that fell on nearby Holyoke never got to Chicopee.

Galeville Maintenance Fund, 7/21/92

Previous Balance (4/24/92)		**$2065.00**
New Contributions	**Amount**	**Balance**
Skyscrapers		
Cal Wix (5/92)	20.00	
Bob Langellus (5/92 & 7/92)	24.00	
Bob Gutai (7/92)	100.00	
		2209.00
Non Skyscrapers		
Dave Lacey (5/92)	50.00	
Brooks Goodnow (5/92)	10.00	
Ken Nawyn (5/92)	5.00	
Len Wieczorek (6/92)	25.00	
Bill Dunlop (6/92)	50.00	
SAM 11/J. Delagrange (6/92)	25.00	
Len Seastone (7/92)	5.00	
Fred Blom (7/92)	20.00	
Al Vollmer (7/92)	5.00	
Eastern FF Conference (7/92)	750.00	
EFFC Souvenir shirt & button sales / Betty Kerr (7/92)	152.00	
EFFC Raffle / Brainbusters (7/92)	58.00	
Ed, Larry & Marty Pelatowski (7/92)	75.00	
		3439.00
New Expenditures		
Removing previous paths and clearing new trail northeast from runway intersection (6/18/92)		—1200.00
Balance to 7/21/92		**$2239.00**

We welcome further contributions for continued maintenance and improvement of the field. Funds are kept in a separate account reserved for this use and full accounting is published in *FLYOFF*. Please send donations (payable to "Skyscrapers") to Tom Waddington, 3504 Carol Ct, Yorktown Hts, NY 10598. Thank you!

'93 Nats in Lubbock, Texas, July 17-26

So says the AMA Newsletter in a "late news" headline with no further information than that. We applaud the early notification; now we can schedule 1993.

Teuda triumphs in three World Cup events

Former Skyscraper Koei Tsuda (now living in Australia) got off to a flying start in F1C for the 1992 World Cup competition! He took 1st at the Kotuku Cup meet in New Zealand, 1st at the Pacific Championships in Australia, and 1st at the Australian Nats. This gives him 75 World Cup points, 30 ahead of his closest competitor at this writing. Koei really earned it, too: he flew alone at all three meets —with no helpers. Congratulations, Koei!

Nor was he the only former Skyscraper to earn points Down Under. In F1A Martin Gregorie (a native Kiwi now living in England) placed 4th at the Kotuku Cup meet and 6th at the Pacific Champs to put him 11th on the worldwide list. *FLYOFF* and the Skyscrapers salute you, too, Martin!

Skyscrapers Annual Spring Meet, 1992

Galeville, NY, May 23-24, 1992—Ron Felix, CD

F1A — A2 Towline (5 entries)

1	Jim Bradley	180	180	134	180	180	180	180	1214
2	Aram Schlosberg	180	180	180	122	180	180	180	1202
3	Vic Nippert	180	180	161	123	180	63	159	1046
4	Kay Fags	180	180	180	165	144	0	—	849
5	Ed Pelatowski	0	—	—	—	—	108	—	108

F1B — Wakefield (13 entries)

1	Joe Williams	180	180	165	180	129	180	167	1181
2	Jim Brooks	180	180	146	180	180	130	180	1176
3	Tom Ioerger	180	95	180	180	180	180	180	1175
4	Jerry McGlashan	180	163	180	111	180	180	180	1174
5	Fred Blom	180	180	180	87	180	180	180	1167

F1C — FAI Power (5 entries)

1	Gil Morris	180	180	180	180	180	180	180	1260
	Bob Gutai	180	180	180	180	180	180	180	1260
3	Glenn Anderson	9	180	180	180	69	169	—	787
4	Ed Keck	180	180	21	—	—	—	—	381
5	Dave Rounsaville	0	—	—	—	—	—	—	0

Nos Gas Combined (6)

1	Emmet Holt	120	120	120	+109	469
2	Dick Delinski	120	120	120		360
3	Jack Nix	120	75	87		282
4	Brooks Goodnow	89	99	86		274
5	Ed Keck	120	9	—		129

P-30 Jr-Sr (1)

1	Rod Ioerger	120	—	—	120

P-30 Open (11)

1	Bill Buss	120	120	120	+84	444
2	Fred Blom	120	120	106		346
3	Vic Nippert	120	102	120		342
4	John Allen	120	72	120		312
5	Hank Cox	86	74	120		280

PeeWee 30 (6)

1	Jack Nix	800	750	500	2050
2	Bob Langelius	800	800	427	2027
3	Dick Delinski	667	633	470	1770
4	Vic Nippert	393	667	567	1627
5	Al Abriss	427	480	373	1280

Dawn Mulvihill (6)

1	Bob Lipori	221
2	Bob Hatschek	202
3	Joe Williams	187
4	Bill Buss	143
5	Dave Lacey	126

1/2A Power (0)

Hand-Launch Glider, Jr-Sr (1)

1	Greg Abriss	4	13	2	15	5	4	33

Hand-Launch Glider, Open (3)

1	Jean Pailet	36	37	30	25	—	—	103
2	John Allen	25	8	21	12	10	1	58
3	Al Abriss	3	12	4	4	14	12	38

Weather was good news, bad news

Original schedule for the Spring Meet called for NosGas, P-30, and PeeWee-30 to be held on Saturday; Dawn Mulvihill, 1/2A Gas, and Hand-Launch Glider on Sunday; and the three FAI events to have four rounds on Saturday and three on Sunday.

Saturday had bright sunshine, temperature about 90°, and light southerly winds. But the forecast called for a front to come through and bring strengthened northeast winds and a drastic drop in temperatures. On the slim chance that the forecasters might be right, it was decided (with the concurrence of the contestants) to accelerate the rounds and finish the FAI events on Saturday. This proved wise.

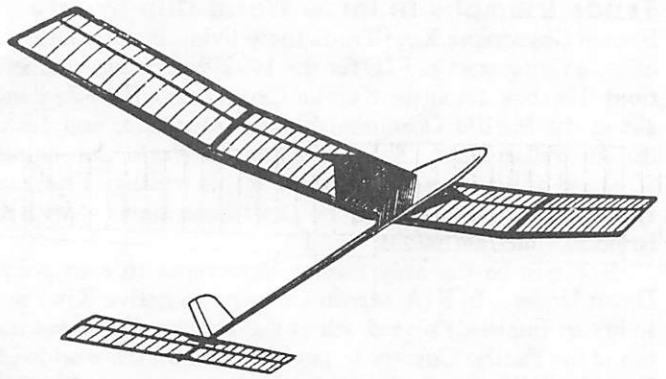
At 6:30 a.m. Sunday it was still shirtsleeve temperature and the wind was about 0-1 mph and variable. We didn't know where to set up for the 7:00 a.m. unlimited Mulvihill flight. At 6:45 someone turned the wind switch ON from the northeast, and we all headed that way. The CD proclaimed that the event would go from 7:15 to 7:30.

Six models were wound and launched. Vince Croghan had a 7-sec disaster (or maybe he was lucky), and the other five headed for Blue Chip Farm. Dave Lacey's dethermalized 126 put him at the fence line about 3/4 mile from the launch point. Three other models were picked up 1/4- to 1/2-mile beyond that. And one other hasn't been found at this writing. The wind was strong! Just look at the scores.

Nobody was willing to risk a 1/2A, which erased that event, and only four pitched their gliders.

Five-year-old Greg Abriss was the only junior contestant (Rod Ioerger is a senior), and was awarded the beautiful new Dorothy Waddington Memorial Trophy.

Greg's sportsmanship also merits recognition. When John Allen trashed his glider on the concrete for a 1-sec score, Greg ran up to him and offered to let John use his glider, as he had already finished his flights. So had John.



Czechmate A/2 kitted by Starline

Former Skyscraper Sal Fruciano writes that "short kits" of the *Czechmate* A/2 Nordic glider are now available from his firm, Starline International. Designed by Canadians Peter Allnutt and Ladi Horak, the glider is widely known.

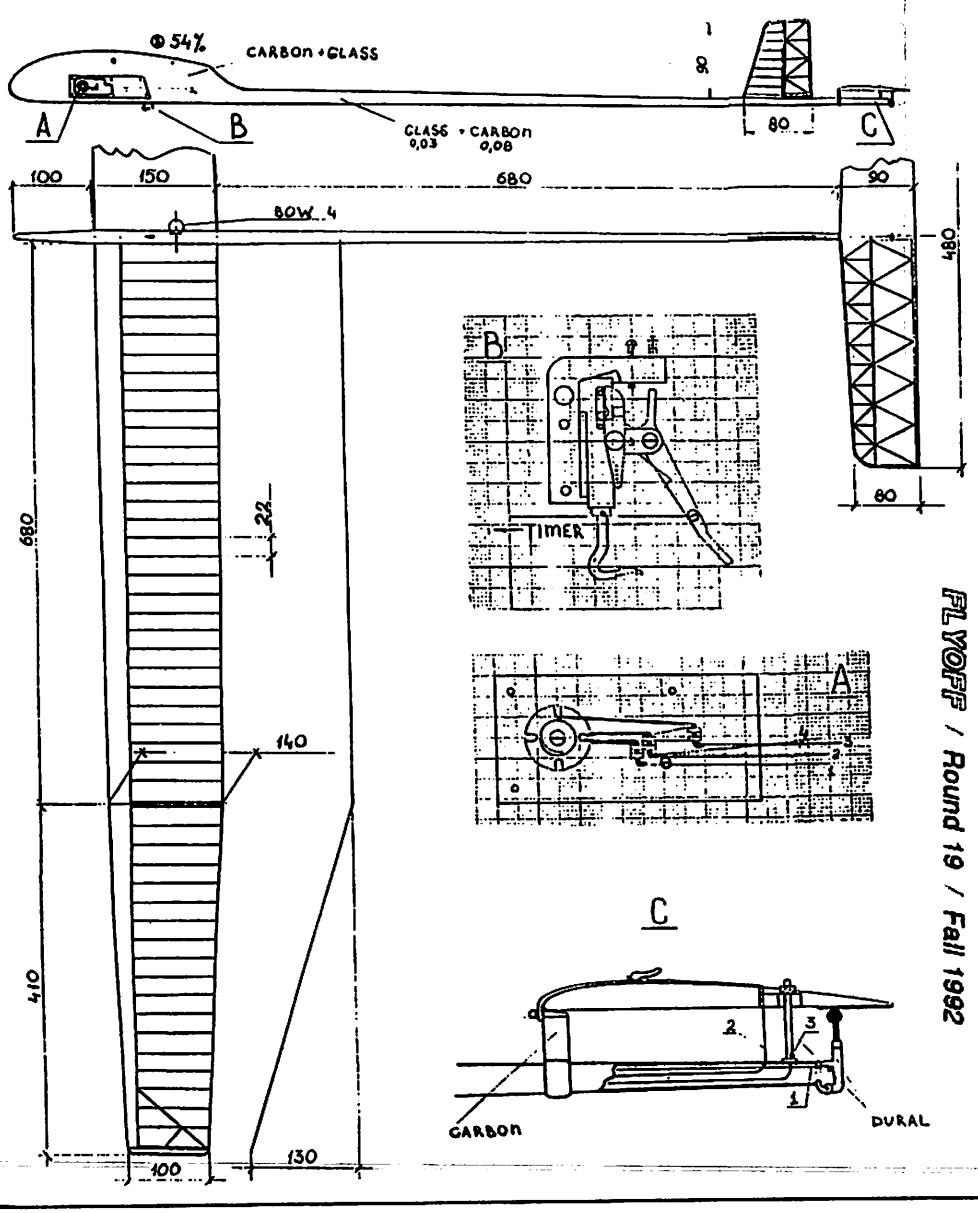
The kit (made for Starline in Czechoslovakia) includes detailed plans, a semifinished hardwood/plywood pod, a Kevlar/carbon boom, machine-cut and sanded ribs, but no strip wood. Price is $60.00 plus $6.00 for shipping.

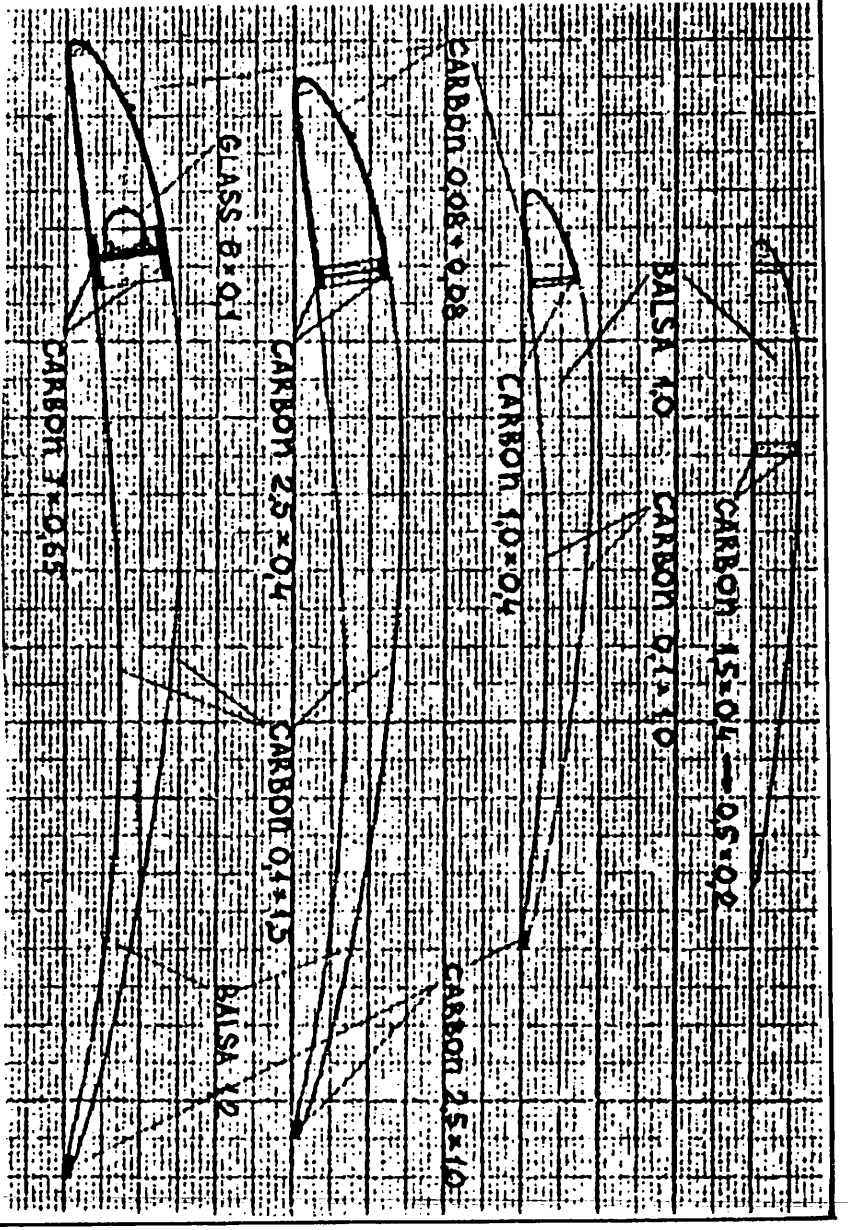
Any towhook and timer may be used, but the plans show the latest Issaenko sliding-plate hook, which is also available (made in Ukraine) for $30.00 from Starline International, 6146 E Cactus Wren Rd, Scottsdale, AZ 85253.

Yegarov's Bunter

Alexei Yegarov is one of the three Russian modelers from the Moscow Aeromodeling Club who accepted the Skyscrapers' invitation to attend our 25th Annual International Challenge. And this is the bunt Nordic with which he won the F1A event at that 1991 meet.

The model is completely "state-of-the-art" and Alexei flew it with great skill. With virtually no testing and trimming—largely because all three Russians were politely answering questions and showing features of their models—Alexei and his launcher (Vladimir Feodorov) demonstrated a remarkable ability to pick good air on an unfamiliar field. He deserved to win!





Airfoils are full size

In memoriam: Frank L. Haynes, Sr.

It is probably not true that Alphonse Penaud wound for history's first rubber-model flight with a winder borrowed from Frank Haynes. But he might have!

Truly a free-flight pioneer, soft-spoken Frank Haynes died in a nursing home on Aug. 16. Frank was 78, and he was suffering from both Lou Gehrig's Disease and Alzheimer's. Long a Skyscraper, gentle Frank was best known for flying the gentlest free-flights: indoor feathers. But in decades past he also flew all types of outdoor models: 1/2A to C gassies, Wakes and Mulvihills, even towline gliders. All of Frank's models exemplified the highest of intelligence and the finest of craftsmanship. And he flew them like a true champion.

We offer our sympathy and condolences to Frank's widow, Carrie, and to their children. In lieu of flowers, the family requests that memorial donations be sent to the Greater ALF, New York City Chapter, 136 E 56 St, New York, NY 10022. This organization is dedicated to fighting Lou Gehrig's disease.

Mark Valerius succumbs to heart attack

Free flight has lost a sparkling competitor with the sudden death of Mark Valerius, 63, of Sugar Land, Texas, on May 29. Mark and his son Steve were Skyscrapers some 25 years ago when they lived in Connecticut. Two things that Mark Valerius loved dearly were free flight and deep-sea fishing. He died of a heart attack while fishing off Costa Rica. He had just gotten a bottle of beer, taken a sip, and collapsed. There were no signs of life. That was it.

The Skyscrapers, indeed all free flighters, offer sincere condolences to Mary Nell, his wife, to Steve and Marguerite, his children, and to the other members of his family. Contributions in Mark's memory have been made to the Junior Free Flight World Championships Team fund.

From Mary Nell Valerius

"AMA has informed me of a donation from the Brooklyn Skyscrapers and from both you and Thomas Waddington. [I would like to] express my appreciation. . . I think Mark would be very pleased with the Junior Free Flight Team as a memorial..

"Your letter planted a seed—the fellows up at the Tri City Free Flight Club in Seguin, Texas, came to Houston and packed up all of Mark's model stuff and had a 'bake sale.' I had asked that some of the proceeds go to the juniors. They made about $1200—half went with a request that it be used for the 1992 Junior Team, half to something else AMA-related. Thank you for having the right idea."

Mary Valerius

Bob McDow passes on

This is the part of editing a newsletter that I really hate! But I also have to report the death of longtime Skyscraper Bob McDow. Bob was 63, he had taken early retirement after a multiple bypass operation, and he had moved to Tucson, Arizona. There he had settled into a new apartment, joined the local model club (mostly U-control, I believe), and started to enjoy his new life.

But he suffered new problems, and he died on the operating table while undergoing a second bypass operation.

Eastern modelers will remember Bob particularly for his indoor activities—especially in promoting and sponsoring "Dime Scale" events. We'll all miss him.

Bewitched! A winning F1J

By John Carbone, the Skyscrapers

[The Skyscrapers Club originally proposed the F1J international class for small power models to the FAI in 1986 "in celebration of its First 50 Years of Free Flight." The club now seems to have a lock on the event in US national competition. Skyscrapers have won the event three years in a row, and have swept the top three places for the past two years. Carbone's *Bewitched* took first at Lawrenceville in '91 and third at Chicopee in '92.— the Editor]

Bewitched happens to be my best design effort to date. The design incorporates features that make this model most compatible and still consistent. A compromise had to be made only to combine a fast, high climb and a floating glide. Either of these characteristics is easily attained by itself; but when they are combined, a compromise has to be made.

For the climb portion of the flight, I have relied on a thin, flat-bottom airfoil section and kept it just under 8% in thickness to reduce drag without unduly sacrificing lift. Another measure for maintaining lift was the use of a wide chord to increase both area and Reynolds number.

Keeping the model light with carefully selected wood further contributes to the overall climb and glide performance.

Probably one of the most important climb-influencing factors is the power plant. The 1991 Nationals was won using all the rpm I could get out of my Cox .049 turning a 6 x 3 Top Flite prop. I used no pressure, but did burn 40% nitro fuel. A good engine is a must! I have experimented with the new Shuriken and the performance was spectacular. I had to add a slight amount more down thrust, but the climb pattern was the same as with the Cox, but much faster.

Getting to the glide, the 300 sq. in. area and the wide chord contribute to a good still-air time.

I kept the pylon low and the tail moment long to reduce frontal drag and to lower the downwash effect. I also believe that the swept wingtips are a very effective feature for reducing drag.

All these features add to this model's potential to do well. But, of course, a well-designed and well-trimmed model is still only part of it. Launching into good air and just plain luck have an important bearing on success as well.

Flying a new model is always a nervous experience. But that can be lessened somewhat by a careful and systematic approach to the subject.

Set the CG (center of gravity) and the thrust offsets as shown on the plan. There is no wash-in or -out on the main wing panels, but both tip panels have 1/8" wash-out to prevent the tips from stalling before the main panels.

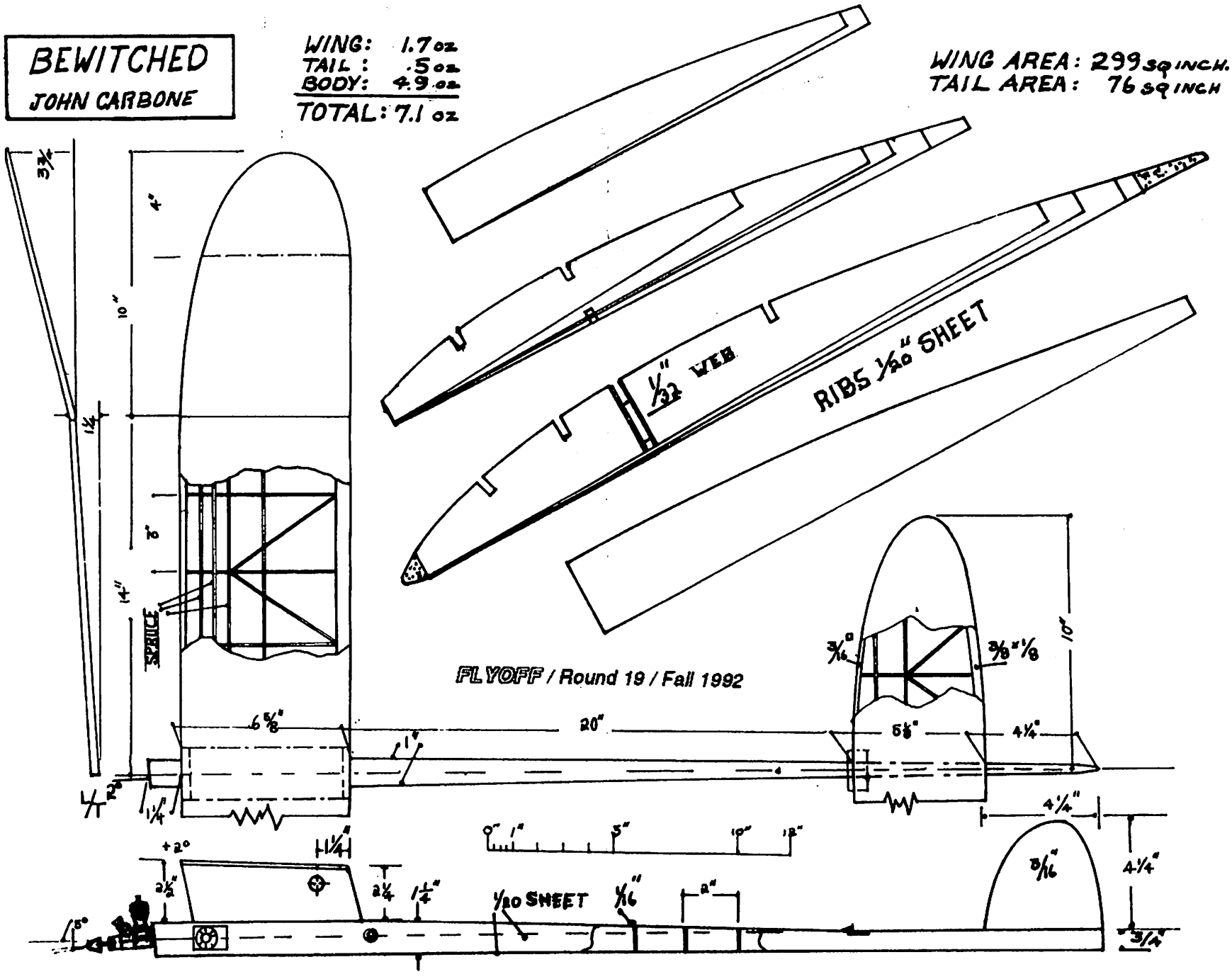
A set of full-size plans can be obtained by sending $8.00 to:
John Carbone
394 Oakwood Road
Huntington Station, NY 11746

BEWITCHED

JOHN CARBONE

WING: 1.7 oz
TAIL: .5 oz
BODY: 4.9 oz
TOTAL: 7.1 oz

WING AREA: 299 SQ INCH.
TAIL AREA: 76 SQ INCH



Block hinges yield new advantages

by Bob Hatschek, the Skyscrapers

Continuing experimentation with propeller designs of various diameters, aspect ratios, and pitch distributions made it desirable to have an adjustable pitch hub. But most adjustable pitch hubs rely on an axial locknut on the blade butt. I have used this configuration as well as a cobbled up "inside-out collet" arrangement. Both types are difficult to lock because you're trying to hold desired blade angle while tightening up the locknut. It slips. And you have to start all over again.

A far better arrangement is to use a clamp ring. But hubs I have made with this feature are either difficult to make or require several parts which are likely to get lost.

It finally dawned on me that the exterior of the part doesn't have to be round, and that a very simple block, approximately a cube, with three mutually-perpendicular holes drilled through it would work. I have now made 6 props with this setup—and it not only works great, but also provides several advantages in addition to the ability to adjust pitch:

1. The blocks are easy to make.
2. Because they're so easy to adjust, they greatly reduce the need for precision in making the hub, thus making that component easier to produce.
3. Adjustability allows you to "tailor" the fold so that both blades lie neatly along the fuselage centerline even if the model has significant downthrust. In other words, you can adjust the fold of the blades independently so that they match perfectly while rotating but fold differently.

This adjustable hinge block can go on any type of wire hub, but mine all use Hiborks hubs (see *FLYOFF 13* for details)—with the hinge axis bent somewhat sharper but using the same 15° compound angle.

Fig 1 shows details of the block four times life size, and Fig 2 shows how it mates a blade and a hub. Precision is not vital, but make sure no holes intersect!

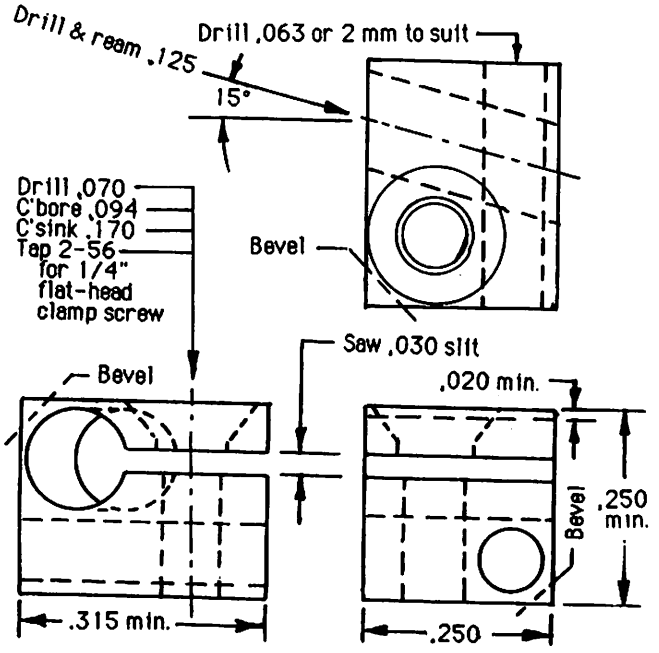


Fig 1—Hinge block (4 x full size)
Make 2 from hard aluminum alloy

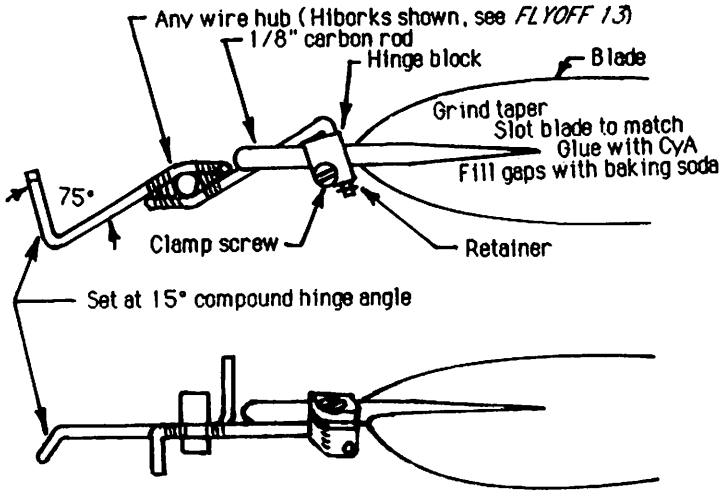


Fig 2—Prop assembly (No scale)

Start with 1/4" aluminum alloy plate (2024-T3 or 6061-T3 are excellent). Cut a length (at least 1", longer if you want to make several sets—which I recommend because they're rather easy to spoil in later steps), which should be about 5/16" wide. File it clean. Clamp this in your drillpress vise (or whatever) at 15° angle and spotdrill, drill, and ream to 1/8" diameter every 3/8" along the length (you'll cut them apart later). If you don't have a spot drill or reamer, centerpunch for location, drill 3/32" and redrill slowly with 1/8" drill. The idea is to get a nice, smooth hole, where you want it, and at the correct angle.

Incidentally, make all blocks identical. Don't be tempted to make lefts and rights. (Just like the blades aren't left and right.)

Unclamp vise, rotate stock 90°, and reclamp flat. Drill, counterbore, countersink, and tap 2-56 (as shown) as many times as you made 1/8" holes.

Now saw the workpiece into 3/8" lengths (less kerf, approx 5/16") for the individual blocks. Clamp these vertically (as accurately as you can) and drill the 1/16" (for Coupe) or 2mm (for Wake) hinge holes. Now, with a pretty fine saw, cut the clamping slit through to the 1/8" hole. This completes the "machining."

Finally, clamp the blocks at the ends of a 6" or 8" length of 1/8" music wire for a handle and hand file bevels or radii wherever you can without intruding into any of the holes. This makes the blocks prettier, smoother, lighter, more streamlined, more and impressive to kibitzers, but it doesn't make them work any better. The blocks are now complete.

The blade butts are made of 1/8" carbon-epoxy rod. The outer ends are flat-tapered on a bench grinder, the prop blades are carefully slotted to fit, and the butts are glued in with cyano. Fill any voids with baking soda and add more cyano (Neatly, it's tough to sand later). Take extra care that the butts fit both blades as near the same as possible.

Slip the butts into the blocks, tighten clamp screws lightly, and assemble the prop on a pitch jig. (The jig shown in *FLYOFF 13* is fine. But my props have outgrown my ancient jig, so I made a new one, Fig 3, that is now mounted in my model box so it's always with me.) Tighten clamp screws. Make sure the prop tracks; if not, bend the wire hub fore or aft until it does. Make sure the open blades are properly aligned on opposite sides (if it balances, they probably are okay).

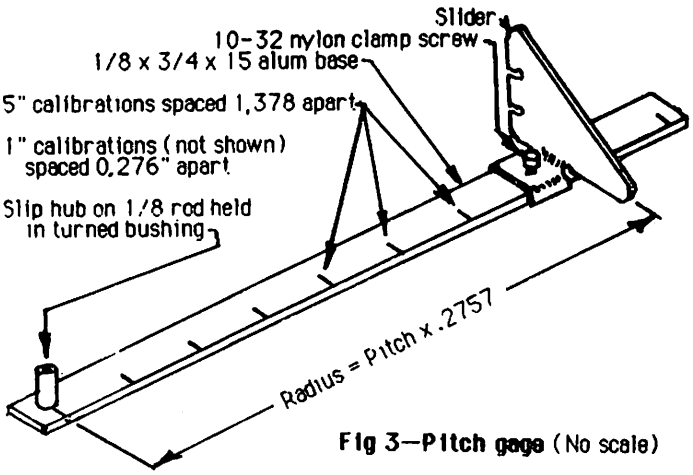


Fig 3—Pitch gage (No scale)

It's now a simple matter to readjust prop pitch for best effect. And if downthrust is required that destroys the perfection of the fold (you know, the blades fold neatly back along the shaft axis and stick up above the fuselage like flags) it is now possible to correct this. Just twist and otherwise contort the wire hub so that both blades now lie neatly along the fuselage centerline when folded, and repeat all steps in the above paragraph so that the blades are again in aerodynamic and static balance when they are open and pulling. It really works!

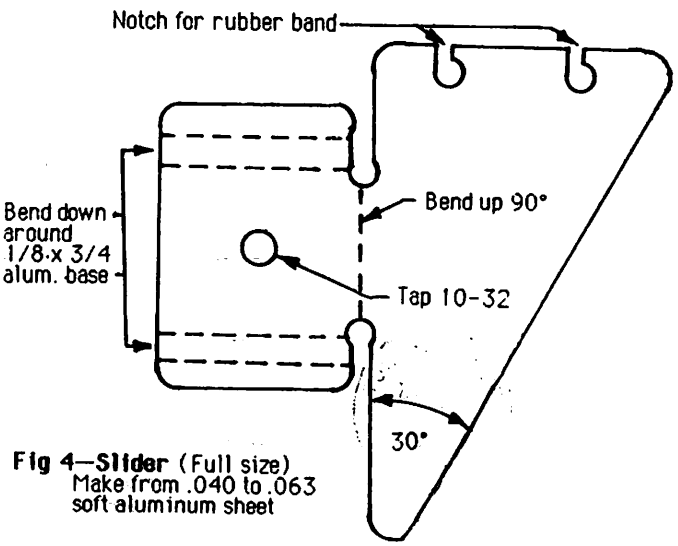


Fig 4—Slider (Full size)
Make from .040 to .063 soft aluminum sheet

Some notes on the Pitch Jig

The pitch jig in Fig. 3 is really quite simple to make. The base is 1/8" x 3/4" Do-It-Yourself Aluminum from the local hardware store, the slider is soft sheet aluminum, and the bushing was turned from 3/4" aluminum barstock on my Unimat. The base is screwed onto a 1/8" plywood interior "lid" in my model box on 1/8" standoffs to allow the slider to slide.

There's nothing magic about using a 30° angle on the slider. But it's a good idea to measure prop pitch at approximately 70% of the radius from the hub. About half the prop-disk area is outside of this radius, and about half is inside. Using a pitch/diameter ratio of 1.25, the blade angle at this radius is just about 30°.

Making the first two parts is pretty much self-explanatory on the drawings; the bushing has a flange 1/8" thick, a body OD of 1/4", and a 1/8" bore. The bushing is inserted from below through a 1/4" hole in the base. The flange, therefore, acts as one of the standoffs, and a 1/8" stack of washers is the standoff at the other end.

Since the shafts can be easily removed from all of my Hiborks hubs, it's a simple matter to mount these hubs on a 1/8" rod inserted in the bushing. If the shaft hole in the hub is smaller than 1/8", an adapter tube is inserted first; and if the hole in the hub is larger than 1/8", an appropriate adapter tube goes on the rod above the bushing.

If your prop hubs don't feature a removable shaft, you'll have to invent some sort of noseblock adapter to attach to the jig base. This can be quite simple (See pitch jig in *FLYOFF 13*). But to ensure accuracy in setting prop pitch it would be a good idea to leave the noseblock in place and rotate the prop when setting pitch on the second blade. That way, if there's any thrustline offset built into the noseblock it won't affect the positioning of the shaft. It's true that the calibration will be off a trifle, but the blades can be set identically—and that's the important point.

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Wheels, low-drag, light-weight

By Walt Rozelle, TTOMA

When it comes to a model's undercarriage, I agree with James Brown: "I like them skinny laigs!" Hardline Old Timer afficionados may disagree, but I think hanging a pair of Trexler air wheels under an endurance model is a crime.

Regardless of model type, the object of free flight is endurance, and drag is anathema to endurance. If the category requires a landing gear, the drag of music wire is horrendous enough, so why compound the handicap with fat wheels? Why not minimize frontal drag by making some skinny wheels? Besides, these are usually much lighter than rubber wheels.

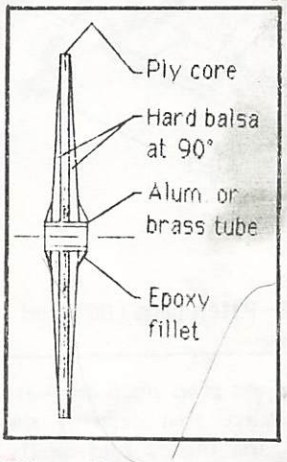
I have used wheels constructed in this manner on models ranging from OT rubber to Class C Nostalgia. They have held up well. Even wheels of this type installed on a Zipper, which had to undergo the rigors of ROG takeoffs and heavily loaded DTs, are none the worse for wear.

(1) If your model's rules require conformance to a given wheel diameter, cut a core to this diameter from plywood. As a guideline for ply thickness, I suggest 1/32" or 1/16" for lightly loaded models, 3/32" for large Class A, and 1/8" for large B-C glow and ignition models.

(2) Scribe the desired diameter and mark the center point. Drill a 1/16" hole at the center and cut out the core. Using a cutoff-wheel mandrel, mount the core in your Dremel. With a sanding block or fingernail emery board, sand the OD smooth.

Using hard balsa the same thickness as the ply, cut two outer scabs, a bit oversize. Glue one scab to the center core with thick CyA. Drill the center hole. CyA the second scab with grain at 90° to the first scab. Mount the assembly on the Dremel and sand the diameter down to that of the ply core.

(3) Cut a bushing from aluminum or brass tubing of the appropriate ID and to about 1/8" longer than the wheel thickness. Aluminum tubing is okay for all wheels other than OT models that must ROG. Clean up the ID of the tubing with a drill and enlarge the hole in the wheel to the proper size. With slow-drying epoxy, glue the tubing into the hole, making sure it is centered and square before the epoxy sets. Make small epoxy fillets on each side at the tubing-wheel joint.



(4) Mount the wheel on your Dremel and taper the balsa scabs from the bushing to the outer diameter, sanding slightly into the balsa on the circumference so the edge of the ply core is exposed. This enables it to take the abuse of landings and ROG takeoffs.

(5) Give the wheel several coats of dope, sanding between coats. Then finish with epoxy unless the wheel is intended for a rubber model. (Remember that CyA is not fuel proof.)

(6) Mount the wheel in your favorite manner. I prefer a soldered washer on the inside and a wheel collar outside. If necessary, use a drill bit about 1/64" greater than the music wire diameter to ensure free rotation. Of course, the wheel doesn't have to rotate unless your model must ROG.