Established 1936
SKY-SCRAPERS BKLYN NY
AMA Club Charter 470

FLYOFF

Round 32 / Winter 1995

The **SKYSCRAPERS** Quarterly

Edited by Bob Hatschek

What's up? XXXII

First, we gotta say Thanks! Thanks! Thanks!...
...for the extremely generous level of contributions to the Galeville Maintenance Fund. Just take a look at the table so labeled. And look at the same table in the previous issue.

Since Aug. 1, when we were permitted to start mowing, the GMF has paid out $8110 for clearing operations—**all of which was paid from AMA funds.** The AMA Executive Council approved a John Grigg motion to fund the Galeville clearing up to a level of $7500. Then Grigg, as our district vice president, authorized payment of the remaining $610 from AMA District II funds, thus covering the project's entire cost.

With more than 200 acres mowed, the field has acquired the appearance of "a huge park," in the words of one contributor. This new parklike condition has further inspired individual generosity and has probably also boosted the contributions from contest entry fees, raffles, souvenir hat sales and other fund-raising efforts designed to add to the GMF.

The chronic complainers, of course, are now griping that the cut stubble is puncturing their tissue. And it is true that the ground is still pretty rough. But both the stubble and the ruts will now tend to dissipate with time. And at least you can find your model easily.

We predict that Galeville will, be a much more popular field in 1996. And we are already at work on the 1996 Contest Calendar, which will be published in the Spring issue.

Galeville Maintenance Fund, 11/11/95

	Amount	Balance
Previous Contributions		
Skyscrapers	3039	
Friends of the Skyscrapers	12048	
		15087
Previous Expenditures	-13044	
		2043
New Contributions		
Skyscrapers		
Larry Davidson (8/95)	200	
Roger Lang (9/95)	75	
Cal Wix (9/95)	15	
Cliff Montplaisir (9/95)	25	
John Petchler (9/95)	50	
		2408
Friends of the Skyscrapers		
EFFC entry fees (6/95)	65	
EFFC hat sales (6/95)	60	
Brainbusters EFFC raffle (correction)	+34	
Burton Church (8/95)	20	
SAM 75 collection jar (8/95)	23	
Joe Williams (9/95)	25	
Ted Lewis (9/95)	20	
SAM-7 / Carmen Botticello (9/95)	50	
Tom Schmitt (9/95)	10	
Joe & Alex Dashko (9/95)	50	
AMA Dist II funds / John Grigg (9/95) (Supplementing AMA EC $7500)	610	
Gil Morris (9/95)	50	
Joe Macay (9/95)	10	
Dave Lacey (9/95)	50	
Chuck Markos (11/95)	30	
		3515
New Expenditures		
Second Porta-A-Potty (8/95)	-102	
Adjustment from previous report (Final bill was $8110)	-110	
Current Balance (11/11/95)		$3303

Sincere thanks for all donations. Funds are held in a separate account and are fully reported here. Please make checks payable to "Skyscrapers" and send to *FLYOFF*. Thank you again!

XXXII...Hey, that equals 32, by golly!

And that means we've been at this stand now for eight years. In that time we've published 40 outstanding FF designs (not counting what's in this Round 32) for your interest and amusement. The list has included a good number of Nats winners and near winners, a few record-setters, and at least one that was subsequently named Model of the Year by NFFS. There have been gliders—tow, HL, and catapult. Rubber models—from the indoor Chili Bean to the Mulvihill Sinistrorse. And "gas" jobs from Langelius's tiny Otenwee to Keck's C and D record holder, PrimeTime.

Throughout it all, we've tried to bridge the chasm between theory and practice. Examples: New concepts in rubber model props, pinhole turbulation in F1C, an all-out P-30 design (Window Plane, of course), a simple bunt mechanism (3rd Try + 1), and, coming soon, a torque-actuated cam-controlled wing programmer for F1B.

We're trying to feed serious free-flighters a diet they can enjoy and thrive on. If you feel hungry for some alternate fare, please write and tell us. Or, better yet, help the chef and write us an article about the dishes on your menu.

FAI Supply heads East

Ed Dolby, founder and proprietor of FAI Model Supply—the world's major source of the rubber strip powering just about all of the competition rubber jobs on every continent where

they're flown—has decided to hang it up and retire. But first he wanted to ensure the continued supply of our favorite gumbands. So he sold the business to an active competition rubber flyer who will carry on the tradition of FAI Tan and FAI Tan II. That's John Clapp of Sayre, Pennsylvania, a long-time subscriber to FLYOFF.

Starting now, you can send your orders to FAI Model Supply, P.O.Box 366, Sayre, PA 18840-0366. Phone and FAX number is 717/882-9873. John expects to be able to start shipping about the third week of January.

As most *FLYOFF* readers know, rubber isn't the only free-flight product FAI offers; the complete line will still be available from the new address. And John is planning to expand that catalog with new and desirable FF goodies, the first of which is the addition of Polyspan (a non-woven polyester-based covering material that's widely used in Europe in place of Japanese tissue and just catching on in the USA).

You can get a copy of the expanded catalog for $2. And John would dearly like to know what new products you'd like to see in that catalog.

And another issue of *The Thermal Journal*

Got a card in September from Hugh Jones addressed to WNYFFS members. It said:

"Last spring, I put together pieces and pictures given to me by you folks and called it the *ThermalJournal*. That's all I did. It went over pretty good. That's because you sent in good stuff for publishing.

"We sent it to all of the members, and to just about as many 'Friends of WNYFFS' (well known and successful modelers and publishers of same).

"We're going to do it again. I need the same kind of effort as last time. Please send a contribution (in the medium of your choice...hi-tech, lo-tech, or no-tech)...anecdotal, historical, technical, tips-and-hints, photographic, data based, whatever, and get it to me so that I can massage it into columns and captions...hopefully, by the annual meeting in late fall.

"For those who couldn't contribute last time, no need to be famous or successful. a writer or a typist...much less a 'brilliant' any of these. Just be willing to help get out the second edition of the *ThermalJournal*. Thanks in advance."

[FLYOFF *was fortunate to be on the mailing list last year. The* Journal *was outstanding! And I'm sure Hugh would consider offerings from friends of the WNYFFS. Just address them to Hugh at 314 Shore Acres Dr, Rochester, NY 14612.*]

Merry Christmas! And a Happy New Year!

Oh come, all ye Skyscrapers, to...

...the annual dinner of all the Skyscrapers...where we will proceed with the celebration of our first 60 years of free flight. The shindig will be on Saturday, March 2, 1996, at Manero's Steak House in Greenwich, Conn. We will have a private room and a cash bar. The party starts at 3:00 p.m, with dinner at 5:00.

The menu features your choice of filet mignon, chicken Florentine, or the fish of the day. Price will be $20 per person, including tips. You do no have to make an advance selection, nor even pay in advance. But please call Bob Hatschek (718/224-3908) in advance to tell him how many places to set.

To get there, take I-95 (north or south) to Exit 3 (Arch St.) in Greenwich. Take Arch St. east for a short distance to Steamboat Rd. Turn right (south). Manero's is at 559 Steamboat Rd. (on left) one long block from Arch St. If lost, call us at Manero's (203/869-0049) for directions.

But report your 1995 scores first!

One feature of the banquet will be the annual awards: High-point trophies to the club's top three flyers; the Royal Order of the Purple Shaft to the Skyscraper with the worst luck in 1995—self-inflicted or not; and the trophy for the Outstanding Skyscraper of the Year. Nominations for these latter two awards may be made to Jean Pailet, who will pass your comments on to the "selection committee."

The point system was detailed in *FLYOFF 9*. All members who competed in any 1995 free-flight event should report their year's results to Jean Pailet (30 Emerson Rd, Brookville, NY 11545). Include date, name of meet and classification (A, AA, AAA, etc), event, your place, etc. Do it before Jan. 31.

Bob and LaVera Isaacson killed in accident

You've probably already heard this terrible news. It's been reported in every newsletter I've seen since October. In Brief, Bob Isaacson and his wife LaVera, both former teachers, were killed near their retirement home in Bakersfield, Calif, on the eve of a model meet at Lost Hills--apparently in a hit-run accident caused by a drunk driver. Those are the bare facts.

Bob was a top Nordic flyer for years, until knee problems (he'd played football for USC during his college career) recently forced a switch to Wakefield. I competed against him just about every time I ever flew A/2 at Taft, but I got to know him best at the 1975 World Championships in Bulgaria, where I was "official launcher" for the US glider team.

I'll never forget one launch in particular: Bob sensed a thermal downwind of the launch line (I don't remember what tipped him) and he started running—downwind. It was up to me to follow...to keep up with this top athlete, and to give him a clean launch while he was running faster than I can! How I did it I don't know, but it worked!

The following year I was in California on a short business trip and I brought my Blivet A/1 (the 4-foot glider in a 2-ft box). There was an A/1 event at Taft that Sunday, and Bob launched every flight for me. With Bob's help, Blivet maxed out and won the event! Add my name to the long list of those who'll miss Bob Isaacson.

A Texas Trimming Tip from Georgia

Frequent Atlanta contributor Walt Rozelle writes:

"Here's a neat trimming tip from Marvin Mace, noted power flyer from Seguin, Texas, and designer of the potent 'Marval.' It's applicable to virtually any model with a wing that straps on and that uses stab tilt for glide turn. But it's most helpful with power models, where you normally trim the power pattern first, then the glide.

"Problem with stab tilt is that when you change it, you usually also alter stab incidence and thus screw up the power pattern. What to do? Tilt the wing instead.

"Example: If you'd normally add stab tilt on the right side to tighten the right glide turn, [Continued on p4]

Guidelines for Electric FF

By Chuck Groth, Chicago Aeronuts

Area and weight—Electrics should have no greater wing loadings than gas models. Theory suggests that model weight should be proportional to "volume."

Using a value for K of 71 in the formula $K = A/w^{2/3}$ so that $A = 71\ w^{2/3}$ produces this table:

Weight (oz)	Area (in.^{2})
2	113
5	208
10	330
20	523
50	964

An appropriate weight budget is: 25% for the gearmotor, 25% for the battery, 50% for everything else.

With electrics, the absence of vibration and elimination of fuel soaking make lighter airframes practical. Select balsa carefully and use carbon fiber strategically. Tape the batteries under the body so they tear out in a crash and spare the structure.

Gears— Not all electrics have gears. Yours should. Ohmic heating limits an electric motor's torque. Maximizing the power (torque times rpm) requires that the motor turn fast. But a light model needs a big propeller turning slowly. Gears match the fast motor to the slow propeller. Installing an r:1 gearbox in a plane that used to have direct drive requires multiplying the propeller dimensions by slightly less than $r^{3/5}$. For example, if a 6x3 prop worked well when driven directly and you install a 4.2:1 gearbox, then mount a 14x7 propeller. Too little gear reduction gives inadequate static thrust; too much causes thrust to slump in flight. For good performance:

a. Static thrust should significantly exceed the weight. The model should want to VTO!

b. The "pitch speed" should double the glide speed.

Suppose a model glides at 12 ft/sec and has a 6x3 prop driven directly at 10,000 rpm. Its pitch velocity of 42 ft/sec (that's 10,000 rpm/60 sec/min x 3 in. pitch/12 in./ft) is more than double its glide speed; it needs a reduction gear. A reduction gear of 4:1 requires a 13.8x6.9 propeller, which at 2500 rpm produces a pitch velocity of 23.9 ft/sec—perfect! Keep the gearbox light, fold that large prop, and **experiment.**

Motors— Choose a good motor and operate it properly. Robust brushes and commutator, ball bearings, adjustable timing, and rare-earth magnets all help. Ample cooling holes lighten the motor and allow greater competition overload. Two motor specifications interest us: high efficiency reduces battery weight; large power/weight ratio keeps the motor itself light.

A motor's efficiency increases with size: VL's HY70 gearmotor absorbs 10 watts with 30% efficiency; VL's HY42 gearmotor absorbs 40W with 40% efficiency; Astro's 020 cobalt absorbs 120W with 50% efficiency. Good motors absorb at least 1 watt per gram of weight: Astro's 020 cobalt weighs 4 oz, absorbs 1.05 W/gram, and delivers 1/12 HP to the prop.

Every motor has a maximum current beyond which it will burn. Operate just below that line at as high a speed as your battery will allow. A larger prop increases the current. Don't lug it, but don't baby it either. If your motor has adjustable timing, set it for maximum speed, minimum current, and run it in the dark to make sure the brushes don't spark. Periodically use spray motor cleaner and relubricate the bearings.

Batteries— Also choose the right battery and operate it properly. You need nicads which can take a fast charge and a very fast discharge. The smallest cell advertised for rapid cycling weighs 18 grams—which favors large models. Sanyo yellowjackets, while not advertised as rapid, do give creditable performance in weights as light as 4 grams. The approximation $E = 1.32 - Ir$ gives the mid-run (10 sec) terminal potential in terms of the current (I). The very important internal resistance (r) varies inversely with the cell size:

Mfr	Cell	Color	Rating (mah)	Weight (grams)	Resistance (milliohms)
Sanyo	N50AAA	yellow	50	4	160
Sanyo	N110AA	yellow	110	7	60
Sanyo	N270AA	yellow	270	14	39
SR	500 Max	white	500	18	18

Power/weight ratio again concerns us greatly. Power (EI) maximizes at a current of .66/r. For the 270 yellowjacket that is 11.2W at 16.9 amps, yielding a power per unit of weight of .8 W/g. Good battery life favors slightly less current—most cells work well delivering one amp per gram—14 amps for the 270 cell. The battery under load should provide between .75 and 1.0 volt per cell.

Suppose an Astro 020 ferrite motor draws 5.5 amps from a battery of four 270 yellowjackets. Then $E = 1.32 - 5.5(.039) = 1.106V$, EI = 6.1 W/cell, and the power/weight of .43 W/g seriously underutilizes the battery. Substituting the 110 yellowjacket at the same current gives E = .99V, EI = 5.4 W/cell, and a reasonable power/weight of .77 W/g. Substituting five 110 cells for the four 270 cells would increase the power considerably while lightening the battery by 38%—if the motor can take it.

Once you have the right battery, take care of it. Avoid hot cells, from overcharging, or reversed cells, from overdraining. Cycle to avoid a memory. Trickle charge at C/10 the night before the contest, and peak charge before each flight.

Performance— Category 3 rules call for a duration of 120 sec on a 20-sec run for three flights and on a 15-sec run for the flyoffs. That's a figure of merit of 120/20 = 6 for three flights, 8 for the flyoffs. The airplane must fly 6 sec, and then 8, for each second of power. A useful approximation:

Figure of merit = (glide ratio) x (thrust/weight)

The static thrust of a good electric exceeds its weight by 33%, giving a thrust to weight ratio of 4/3. At flight speed, the thrust decreases by about 40%, bringing the dynamic thrust /weight ratio to 4/5. Large clean models glide with a ratio of 8:1. This brings the figure of merit to 6.4. Electrics easily max out—but they need help in the flyoffs. A thermal is everything!

[Continued from p2]
shim the left side of the wing instead. This is especially handy on a pylon job with a rectangular wing saddle. Then, for final trim, you can just use strips of masking tape along the edge of the mount.

"This is the way Marvin sets up the basic Category III 7-sec and 4-sec power patterns on his fixed geometry Marvals down to how much he has to turn the stab screw to go from one to the other. Only then does he start fiddling with glide trim."

Walt also notes that there's a bunch of other good trimming ideas in Mace's article on the Marval in the 26th NFFS Sympo (1993).

From our readers

To the editor,
This year's donation to the Galeville Maintenance Fund is enclosed. If only I lived close enough to be able to use the "new" field once a week! It looks like a huge park.

I enjoy *FLYOFF* and appreciate the work it must take to keep it coming. Best regards.

Ted Lewis, Chelmsford, Mass.

Double thanks, Ted, for the GMF check and for the kind words.
FLYOFF

The following correspondence pertains to earlier Rounds of *FLYOFF*. We apologize for the delay, but there just wasn't space to publish the letters sooner.
FLYOFF

To the editor,
PVC pipe for winding tubes. . .Winding tubes should be as light as possible. (Would you use iron pipe?) So you want the lightweight stuff, which has a wall thickness of about 0.05 in., not the heavy-wall stuff with a wall thickness of about 0.10 in. The most useful sizes are 1/2-in. and 3/4-in. nominal, which have ODs of about 0.84 and 1.06 in. and weights of about 1.1 and 1.2 oz per 10 in., respectively. The PVC pipe, which you want, is white; other kinds of plastic pipe are black and gray, but I think they only come with the thick wall. Plastic golf-bag inserts are reported to make good winding tubes, but I could never find any that were straight enough.

Bob Meuser
Oakland, Calif.

To the editor,
I guess there is a little Yankee (use it up, wear it out, make it do, or do without) in most of us. But *FLYOFF, Round 26,* page 3, "Keep your powder dry" is not quite right.

Oh, the silica gel is good. Just the way it is used, or reused, is not good. How do you know that the second-hand silica gel is not fully used? I have seen what I thought was silica gel in small and large woven cloth bags. That is wrong.

To correctly use silica gel you must see it. Good silica gel has a bright blue color. Used silica gel turns pink as it picks up water from the area it is protecting. Use silica gel in a clear jar with holes in the cover—maybe something like a salt shaker. The small holes keep the crystals inside in case of a spill and let the atmosphere inside.

The nice part about silica gel is... [Continued on p8]

Feather Shooter

Category I Indoor Record Holder

By Bob Bienenstein, AMA 268

This low-ceiling catapult glider is a takeoff on my Little Shooter Category III record holder. I have been flying variations of this design since '85. The first designs were super sensitive to adjust before updating to the present design by addition of the pylon, a la Stan Buddenbohm The wing is the flex-flap design pioneered by Mike and Stan Stoy.

Unlike other catapult designs, this one is held by a finger grip under the wing, which was done to keep the total weight down to the 2 grams projected minimum weight needed for record flights. This also keeps the rear light, which helps the roll-out. And that is desperately needed in low-ceiling flying!

Assembly and trimming

Key weights to shoot for in building your version of the Feather Shooter are:

Wing	1.1 grams
Tail	0.08
Body	0.55
Clay	0.20
Total	1.93 grams

All parts are assembled with Tite Bond aliphatic resin glue except for the small carbon-fiber reinforcement on top of the wing at the center. This piece is used as a rip stop and is attached with cyanoacrylate. Note that this area should be checked for cracks when you're flying the glider.

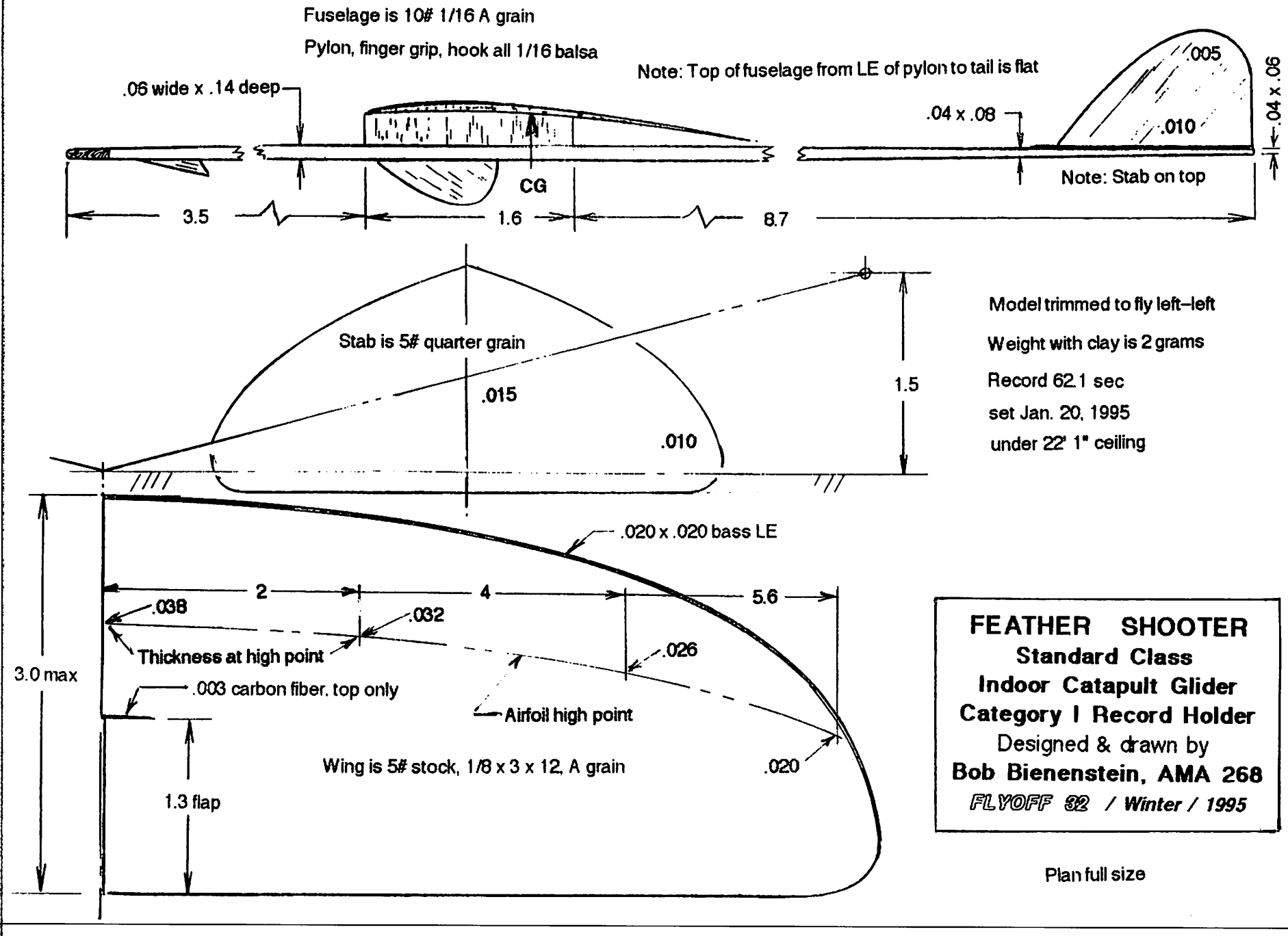
If you are not familiar with the pylon trimming method, start the assembly by putting together all body parts (including the finger grip and rubber attachment wedge) and the tail surfaces, but excluding the pylon. Make the pylon from 1/16" 5–6# balsa approximately 1/4" high. Using Tite Bond (aliphatic resin) glue, attach the pylon to the wing, making sure that the flaps are warped down approximately 1/16".

Then tape the pylon-mounted wing at the location shown and add weight to get the CG location shown on the plan. Now you adjust the incidence angle in test flights (by carefully sanding the bottom of the pylon). You'll know you've got it right when you can firmly hand launch the glider in a level launch and get a smooth recovery, and now you can glue the pylon to the fuselage.

Final tweaking should produce a left launch and a left glide with a near-vertical launch.

To catapult the Feather Shooter, I use a piece of bamboo 1/16" x 1/8" x 5-3/4" with a wire loop on the end. Attached to this is a loop of FAI Tan rubber .030" x .040" x 8" long.

Feather Shooter's record two-flight total of 62.1 seconds was set Jan. 20, 1995, in the gymnasium of the Adrian (Mich.) High School, which has a ceiling height of 22 feet 1 inch. Now the search is on for a gym with a 26-foot ceiling!


Fuselage is 10# 1/16 A grain
Pylon, finger grip, hook all 1/16 balsa
.06 wide x .14 deep
Note: Top of fuselage from LE of pylon to tail is flat
.04 x .08
.005
.010
.04 x .06
CG
Note: Stab on top
3.5
1.6
8.7
Stab is 5# quarter grain
.015
.010
1.5
Model trimmed to fly left-left
Weight with clay is 2 grams
Record 62.1 sec
set Jan. 20, 1995
under 22' 1" ceiling
.020 x .020 bass LE
2
4
5.6
.038
.032
.026
Thickness at high point
3.0 max
.003 carbon fiber, top only
Airfoil high point
Wing is 5# stock, 1/8 x 3 x 12, A grain
.020
1.3 flap
FEATHER SHOOTER
Standard Class
Indoor Catapult Glider
Category I Record Holder
Designed & drawn by
Bob Bienenstein, AMA 268
FLYOFF 32 / Winter / 1995
Plan full size

Skyscrapers 1995 Annual Contest

Galeville, NY, Aug. 26-27, 1995, Dave Acton, CD

Weather was excellent. Wind never exceeded about 10 mph, although there was a 180° reversal that required moving the launch line between rounds on Sunday.

F1A, B, C were flown in four 90-min rounds 12 noon to 6:00 p.m. on Saturday plus three 90-min rounds 8:00 a.m. to 12:30 p.m. on Sunday. F1G, H, J were not held at this meet.

F1A

1	AndrewBarron	180	180	180	180	180	180	22	1102
2	David Ellis (Jr.)	180	75	94	148	180	180	175	1032
3	Kay Fags	70	180	75	180	180	110	180	975
4	Bob Sifleet	180	180	—	—	—	—	—	360

F1B

1	Larry Pelatowski	180	180	180	180	210	180	180	240	1530
2	Don Vetter	180	180	180	180	210	180	180	165	1455
3	Joe Williams	180	120	180	180	210	180	180		1230
4	Tom Ioerger	178	180	180	162	210	180	130		1220
5	Bill Buss	180	180	180	180	210	150	91		1171
6	Vic Nippert	180	180	180	180	144	144	154		1162
7	Fred Blom	82	180	180	162	210	140	150		1104
8	Bob Sifleet	180	180	180	89	—	—	—		629
9	Ed Pelatowski	36	180	—	—	—	—	—		216

F1C

1	Bob Sifleet	58	—	—	95	240	180	—	573
2	Joe Wagner	—	—	—	95	—	104	85	284

Mulvihill, Open

1	Craig Gunder	120	120	120	180	240	300	1080
2	Joe Williams	120	120	120	180	240	222	1002
3	John Clapp	120	120	120	180	240	137	917
4	Bob Hatschek	120	120	120	180	240	77	857
5	Art Phillips	120	120	120	180	150		690
6	Tom Ioerger	120	120	120	180			540
7	Vic Nippert	92	110	—				202
8	Hank Cox	78	69	—				147

Mulvihill, Junior

1	John Barron	100	99	120	319
2	Austin Gunder	101	—	—	101
3	PeterBarron	48	—	—	48

Dawn Unlimited

1	Tom Ioerger	490
2	Joe Williams	430
3	Bob Hatschek	402
4	Fred Blom	195
5	Art Ellis	150

P-30 Open

1	Joe Williams	120	120	120		360
2	Ed Pelatowski	83	80	109		272
3	Vic Nippert	73	98	67		238
4	John Clapp	80	120	21		221
5	Bob Hatschek	105	—	—		105
6	Art Ellis	104	—	—		104
7	Bill Buss	83	—	—		83

P-30, Junior

1	Austin Gunder	120	120	120	360
2	PeterBarron	40	120	90	250
3	David Ellis	107	92	48	247
4	John Barron	80	65	90	235

1/2A AMA Power

1	Larry Davidson	120	120	120	360
2	Jean Pailet	88	120	109	317
3	Joe Wagner	105	81	120	306
4	Bob Geyer	92	105	96	293

ABCD AMA Power

1	Dan Aggers	120	120	120	120	120	180	780
2	Bob Geyer	120	120	120	120	85		565
3	Clark Darling	114	120	80				314

Early 1/2A NosGas

1	Al Vollmer	120	120	81	321
2	Bob Langelius	58	120	—	178

PeeWee-30

1	Bob Langelius	726	800	858	2384
2	Al Vollmer	800	586	766	2152
3	Al Abriss	453	573	490	1516

ABCD NosGas

1	Larry Davidson	120	120	120	120	480
2	Dan Aggers	120	120	120		360

HLGlider, Open

1	Al Vollmer	39	35	28	4	120	—	194
2	Ed Pelatowski	34	79	38	31	46	49	174
3	Don Vetter	43	23	70	24	28	42	155
4	Jean Pailet	47	28	39	16	7	33	119
5	Art Collard	24	44	6	22	30	42	116
6	Vic Nippert	9	5	4	9	24	25	58
7	Art Ellis	22	25	—	—	—	—	47

HL Glider, Junior

1	Austin Gunder	18	22	14	21	111	32	165
2	David Ellis	18	39	13	27	27	6	93
3	Taylor Gunder	38	30	22	12	4	19	90
4	John Barron	39	7	7	9	7	3	55
5	PeterBarron	18	3	14	20	3	7	52

Catapult Glider, Open

1	Al Vollmer	110	66	120	38	90	65	320
2	Jean Pailet	20	25	36	37	93	21	166
3	Art Collard	32	19	15	30	67	18	129
4	Vic Nippert	20	12	38	49	30	27	117
5	Art Ellis	20	37	36	42	16	18	115
6	Bill Buss	31	29	22	36	33	27	100
7	Fred Blom	18	30	32	32	25	31	95

Catapult Glider, Junior

1	David Ellis	20	9	33	120	20	31	184
2	John Barron	26	19	1	16	10	28	73
3	PeterBarron	25	13	16	9	15	18	59

Hi-tech at the World Champs

By Martin Gregorie

[This article is extracted from Martin's WC report in FFONZ NEWZ from New Zealand. Martin, of course, was a very active Skyscraper during his time in the USA.— *FLYOFF*]

Flappers were back in F1C. They have become practical since foil covered wings were invented, though haven't been necessary till now when foil F1C designs and performance are showing signs of topping out. The only way to get an edge now is to go to extreme aspect ratios (Georgio Venuti has a 110"-span F1C using foam wing construction) or to consider flaps. Thomas Koster, making a welcome comeback, was flying his 1989 Andromeda flappers and made it to the flyoff. This is a V-dihedral design. Leonid Fuzeyev has some short polyhedral flappers, though I only saw him fly his unflapped, winglet-equipped models. Gil Morris came third flying a flapper. The two inner panels are flapped and there are also power and glide stops at the outboard end of the flaps as well as at the root. This stops flap flutter and ensures consistency by providing positive stops to locate the outer panel, which is held down by a rubber band. The inner panel is located by other stops at the root and is (presumably) torqued against the outer stops by allowing less movement out there. The motor of the meet seemed to be the new rear-exhaust Nelson.

F1B had no really new developments. The standard is very high these days and, thanks to Tan II and motor heaters, a lot of models have fantastic climbs. Alex Andrjukov was cooling his motor with a damp cloth. He said that the day was too hot [35–40°C] for best energy output and added that, of course, it was a special towel, included as standard with his heater kits.

F1A bunters are now virtually universal—there were very few catapult models to be seen. Structures are settling down to the carbon D-box M&K/Stamov standard, though the filling in the D-box can be foam, ribs, or the Rumpp/Aringer ribless type. This is made by forming the shell from two layers of 83g cloth at 45° and a layer of Russian 0.08mm unidirectional carbon with the fibers running chordwise to form a sort of distributed rib. Advantages are fast construction and ease of repair. The disadvantage is a slight drop in stiffness. M&K use this for their small models and Gerd Aringer uses it for F1Cs as well as F1A. He says he can build an F1C wing in 10 hours using this technique. Rumpp & Co. also wrap their spars in a woven carbon tube rather than Kevlar thread—again because it's faster.

The new technology in F1A is the appearance of a number of electronic multifunction glider timers, easily capable of handling bunt systems. As well as the long-established systems from Allard van Wallene and Andrew Bauer (used by Andrew Barron, Jim Parker, and Peter Allnutt). The Nyhegns have just developed a microprocessor-based system used by Bo and Jes in the Champs, and Matt Gewain was flying a new system he has developed based on a STAMP microprocessor system. With the exception of the van Wallene system, all used RC servos for output and offer totally programmable stab incidence settings as well as delay times. The microprocessor is the simplest way of setting up the timer; everybody says that the trim pots used on the Bauer system are a pain compared with the ease of plugging in the control box and editing the settings. Microprocessors offer a few other advantages as well:

- Arranging for the model to d/t with a broken towline, etc (the main advantage still of an electronic timer over its mechanical counterpart) is quite difficult with dumb electronics but very easy with a programmable device.
- Microprocessor-based systems all offer a solution to the deadly situation where the latch has opened but the model wasn't launched. With a standard bunter this is death; you can't circle again to start a bunt launch and if you float it off, the model will bunt into the ground. All the microprocessor-based systems except Gewain's detect this situation by looking at the time the hook stays forward after the latch has opened; if this exceeds 10 sec or so they realize that the launch has been aborted and dump the bunt functions so that the model can be floated off. The Nyhegn system offers the option of configuring the system to d/t on the line, allowing another attempt.
- It's easy to allow the system to turn itself off after d/t to conserve battery life.

All the systems apart from Matt Gewain's are deterministic; the microprocessor starts its master timer when the hook moves back with the latch open and drives its servo or releases levers in a predetermined way at selected times after launch.

Matt's system is different; after launch it reduces the stab incidence in two predefined steps and thereafter does NOT time the remaining bunt functions. The model carries a mercury switch to detect a nose-down attitude after launch; when this occurs, the stab is driven to its glide setting. Matt says he's seen the 'cruise' part of the bunt last up to 2 sec in a huge thermal and, of course, if he aborts the launch and floats the glider off, the system will see the immediate nose drop and go to its glide setting straight away.

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that it is a reversible chemical. Bake the moisture-laden pink crystals until they are bright blue again.

John S. Ahearn
Squantum, Mass.

To the editor,

Nice of you to list the countries and their newly established three-letter designations [in Round 26]. I had not seen that piece of information. I also liked the bit on keeping CyA fluid with a dessicant. I have copied those two pieces and will include them in a special issue [of SCATTER] to club members along with learned comments by Ian Kaynes concerning FAI rules change ideas. While Lost Hills can handle 11+ minute flyoffs with no difficulty, the top ships at future World Championships surely will give the flyers arduous chases. It is time for learned discussion.

Moving the CG 2% because someone said it would improve the ship is like thinking that all same-design ships are built the same. Shoot, moving the CG is just one of many things we must do to improve the performance and where it winds up is due to how the flyer wants the climb and glide to be. Just do not start out with an aft CG. Too dangerous.

Bill Bogart
Editor, SCATTER
Hacienda Heights, Calif.

Northeastern FAI Semifinal

Galeville, NY, Sept. 16-17, 1995, A. Schlosberg, CD

Saturday was windy and very turbulent. On Sunday, it rained continuously. Only five rounds were completed because of the inclement weather, two on Saturday (4:00-5:30 and 5:00-6:30) and three on Sunday (8:00-9:30, 9:00-10:30, 10:00-11:30).

Two power models (Gutai and Wagner) were damaged in trees at the northwest corner of the field.

F1A

1	David Ellis (Jr.)	45	99	165	155	21	485	100%
2	Aram Schlosberg	42	121	53	112	106	434	89.4%
3	Bob Sifleet	167	61	107	30	8	373	76.9%

F1B

1	Ed Pelatowski	180	180	180	145	180	863	100%
2	Tom Ioerger	151	145	155	180	171	802	92.7%
3	Larry Pelatowski	180	180	180	86	121	747	86.3%
4	Vic Nippert	180	145	96	117	180	718	83.2%
5	Dave Lacey	115	76	180	154	138	663	76.6%
6	Henry Struck	180	180	6	73	76	515	59.5%

F1C

1	Bob Sifleet	60	80	122	164	180	606	100%
2	Joe Wagner	180	—	155	—	—	335	55.2%
3	Bob Gutai	169	—	—	—	—	169	27.8%
4	Dave Rounsaville	—	—	—	—	—	0	0%