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SKY-SCRAPERS BKLYN NY
AMA Club Charter 470

FLYOFF

Round 13 / Spring 1991

The SKYSCRAPERS Quarterly

Edited by Bob Hatschek

Skyscrapers to Moscow: Send us your flyers

SKY-SCRAPERS
Bklyn
NY

February 3, 1991

Embassy of the Soviet Union
1125 16th St. NW
Washington, DC 20036

Dear Sirs:

On behalf of the New York "Sky-Scrapers" Model Airplane Club, I wish to extend an official invitation to the Moscow Aero Modelling Club to come to New York, visit, and compete with us in our 25th Anniversary FAI International Challenge Competition. This event will take place on Oct 12-13, 1991, in Wallkill, New York. We extend this invitation to the following gentlemen:

Mr. Alexi Gegorov — to compete in F1A class
Mr. Vladimir Feodorov — to compete in F1B class
Mr. Vassily Katchenko — to compete in F1C class

We make this invitation in the hopes that, through friendly sporting competition, we can further the understanding between the people of our two countries and promote the peaceful goals of both our presidents, Mikhail Gorbachov and George Bush.

Our club would be most grateful if you would extend this invitation thru the official channels to the above gentlemen. Please do not hesitate to contact us if you require any further information.

Sincerely yours,
Ronald A. Felix
Contest Director

The above letter is presumably now under consideration in the Soviet Union. It was conceived by Ron Felix, who had met and befriended fellow Wakefield flyer Vladimir Feodorov at a meet in Hungary last year. The two have remained in contact ever since.

The concept of inviting the Russians to come and compete with us was heartily and enthusiastically endorsed by the Skyscrapers at the club's January meeting, and it now stands where you see it.

Whether or not the visit will come about — given the state of the world as this is being written — is strictly in the realm of conjecture. But we fervently hope that it does!

Your editor, who has had many personal contacts with Soviet free-flighters since his 1959 swap of Wakefields with Vladimir Matveev in Paris, reports that they are a cordial, generous, and candid group — fully compatible with free-flighters anywhere in the world. Indeed, the only difference is language. And that is a gap that is easily transcended.

After all, when a Soviet modeler gets nicked by his prop, you need not understand Russian to know what he's saying!

What's Up? XIII

Thirteen! With this issue, *FLYOFF* starts its fourth year of publication! How about that?

The first dozen issues (we're quarterly, remember) have brought you 16 model designs. All articles had enough information so the models could be built, and several even included full-size plans (up to a 32" Old-Timer). Model sizes ranged from a Peanut Zlin to the current Category III C-Gas record-holder. Vintages ranged from the mid-1930s to the present decade. Variety ranged from a 1/2A Nostalgia ROW to a canard P30U. Most of them (9) were previously unpublished anywhere, and several have now been reprinted in other publications.

FLYOFF, has also presented material on design factors, building techniques, components, gadgets, support equipment, and even one article on what to do about heat-stroke—both preventive before and first-aid after.

"The Skyscrapers Quarterly," in addition, has tried to keep free-flighters aware of what's going on (calendar, contest reports, and commentary on "official" doings, etc)—in the Northeast, around the nation, and abroad. And we've taken a few editorial stands.

A few things we don't give you. We don't give you photographs (since Round 2, anyway) because we can't reproduce them with the quality and clarity necessary for them to be meaningful and instructive. We don't give you cartoons because we don't have the necessary talent — and you'll probably see the few good ones somewhere else anyway. Thus, reprinting them here would waste space that could be used more constructively (pun intended).

And we're sorry we can't do a better typesetting job that would allow us to use even smaller type to get more into our limited number of pages. We just can't afford to buy a laser printer.

Which brings us back to this issue, Round 13. This is our first that doesn't include an article on a complete model design. We apologize for that—especially to those readers who don't share our personal enthusiasm for gum-band propulsion. *FLYOFF* has received a significant amount of correspondence querying us about rubber-model props, and it seemed to be a good idea to do a fairly definitive piece on where we are today.

The state of the season

There's good news; and there's bad news. As this is being written we're about 5 weeks into a war that has already had some effects on free-flight activities, and which could affect a lot of other things.

The 1991 competition season is shaping up pretty nicely.

But there are some heavy negatives: Word is that scheduled model aviation activities are canceled at several (if not all) active military bases. This includes Westover AFB (Chicopee, Mass), Wright-Patterson AFB (Dayton, Ohio), and NAS Johnsville (Warminster, Pa) — all of which regularly host major free-flight meets. It may also include NAS Lakehurst, although we have not heard specifically. [Continued on page 2]

FLYOFF 1991 Free Flight contest calendar for the Northeast (As of Feb 24, 1991)

Any sponsor of a free-flight meet (unrestricted entry) within 500 miles of New York City is urged to contact *FLYOFF*. As many as possible will be listed, with priority as follows: "Modern" events (AMA, FAI, MAAC), NFFS NosGas, SAM old-timer, FAC scale. Outdoor and indoor both considered.

Some listings may be tentative and subject to change. To conserve space, information has been cut to the minimum and some entries may have lost clarity. This listing is **not** complete—we are aware of meets in the Northeast that are not listed simply because we do not have information. If any errors exist, we humbly apologize. For additional information, look for separate articles on some of the meets or footnotes below the table. And be sure to contact the sponsoring organization for confirmation of all information and for any last minute details before you depart on any long journey.

Dates	Site	Sponsor / Meet	Notes	Info contact (Phone or send S.A.S.E.)
5/12	Galeville, NY	Skyscraper Monthly	3	Dave Acton, RD #3 Box 227, Mahopac, NY 10541 (Tel 914/628-0526)
5/18-19	Petersburg, VA	Brainbuster Spring Meet	7	A. Van Dover, 112 Tillerson Dr, Newport News, VA 23602 (Tel: 804/877-2830)
5/25-26	Galeville, NY	Skyscraper Spring Meet	4, 2	John Carbone, 394 Oakwood Dr, Huntington Sta, NY 11746 (Tel 516/271-5548)
6/4-7	Johnson City, TN	USIC/Nats Indoor	7	USIC, 1655 Revere Dr, Brookfield, WI 53005
6/16	Galeville, NY	Skyscraper Monthly	3	Dave Acton (see above)
6/18-22	Lawrenceville, IL	AMA FF Nats	7	AMA HQ (Tel 703/435-0750)
		NFFS NosGas & special events	7, 8	A. Van Dover (see above)
		SAM 57	7	Don Sachtjen, RR 5, Box 56B, Bloomfield, IN 47424 (Tel 812/384-3102
		FAC events	7	Lin Reichel, 3301 Cindy Ln, Erie, PA 16506 (Tel 814/833-0314)
6/29-30	Galeville, NY	EFFC Champs	7, 2	Bill Poythress, 2 Hemlock Ct, Saugerties, NY 12477 (Tel 914/246-8850)
7/14	Galeville, NY	Skyscraper Monthly	3	Dave Acton (see above)
8/10-11	Fayette, NY	Empire State FF Champs	7	Bill Burris, 209 Hamilton St, Penn Yan, NY 14527 (Tel 315/536-9479)
8/11	Galeville, NY	Skyscraper Monthly	3	Dave Acton (see above)
8/18	Galeville, NY	Mid Hudson Modelmasters	0	Vance Sutton (Tel 914/679-2152)
8/31-9/2	Galeville, NY	FAI FF Team Semifinal	5	Dave Acton (see above)
9/15	Galeville, NY	Bath BAM Bash	7	Clay Ott, 6018 Nor-Bath Blvd, Bath, PA 18014
9/22	Galeville, NY	Skyscraper Monthly	3	Dave Acton (see above)
10/6-11	Jean, NV	SAM Champs	7	Mike Granieri, Dreyden Rd, Box 78, Pottersville, NJ 07974 (Tel 201/439-2933)
10/12-13	Galeville, NY	Skyscraper Intl Challenge	1, 2, 6	Vito Gagliano, 104 Cherry St, Floral Park, NY 11001 (Tel 516/488-4217)
10/27	Galeville, NY	Skyscraper Monthly	3	Dave Acton (see above)

Notes: All listed meets include FF events (AMA, FAI, and/or MAAC and/or SAM and/or NFFS). Record trials / practice sessions scheduled for Galeville on 4/6-7, 4/13-14, 4/27-28, 6/1-2, 8/24-25

As of this date, it is reported that meets usually scheduled for NAS Johnsville, Westover AFB, and Wright-Patterson AFB are deleted from 1991 calendar for military reasons. Situation could change. Check sponsor.

0. Specific events not known.
1. Selected contest for 1993 Team Selection Program.
2. Americas Cup points awarded
3. 1/2A, A-D comb, F1ABC comb, PW30, NosGas, .02Repl, HLG, Cat G, P30, P30U, Mulv – Category III
4. Dawn Mulv, 1/2A, PW30, P30, F1A, F1B, F1C, HLG, NosGAs – Category III
5. F1A, F1B, F1C
6. F1A, F1B, F1C, F1G, F1H, F1J, German rules HLG
7. Similar to 1990
8. Helicopter, autogyro, biplane, 7-11 special events dropped

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[Continued from page 1]

Happily for us, it apparently does not affect the ever-precarious activities at Galeville, which is not an active military base.

And now we're 6 weeks into the war, which means that President Bush declared the cease-fire last night. What that means for free-flight activities at military installations this summer is completely unknown at this time. But we're optimistic!

One reason we call this publication "the Skyscrapers quarterly" and not a newsletter is that news has a time value, and the infrequency of our mailings makes it impossible to stay completely up to date.

So it will be a very good idea to check on the status of any meet held on a military facility before you hit the road. But do your building now and be ready to load the car quickly.

USOC/Nats—More good news, more bad news

More good news is that there will be an AMA-hosted FF Nats at Lawrenceville, Ill. on June 18-22. CD will be Abram Van Dover of the Brain Busters. Also, NFFS will sponsor NosGas and other special events (but will drop a few of the more obscure specials, like helicopter, autogyro, biplane, and 7-11 distance). It

[Continued on page 8]

Propellers '91—Progress and Practicalities

Why my props look like that. And how I make them. Many lessons learned the hard way—explained in an unscientific way

by Bob Hatechek, the Skyscrapers

Propellers for outdoor rubber jobs are quite complex aerodynamically—yet they can be surprisingly simple to make. This article touches on both aspects: Describing the most successful props I have used in more than 50 years, and detailing some of the methods and "tooling" I use to make them.

Upon reflection, what is most surprising to me is that I have learned more in the last 5 years than in the first 45! That may be a reflection on me.

The long props, I

Extrapolation of self-evident long-term trends toward larger diameters initially led me to try 24" props on Coupe d'Hiver and Coupe-sized Mulvihill models early in 1989.

Pitch/diameter ratio (which I consider more significant than the absolute value of pitch) was held at 1.25, resulting in a nominal pitch of about 30". Since we normally "fly" our airfoils at a positive angle of attack, the blades were arbitrarily carved to fit a 26.4" helix and a 3.5^0 attack angle was added. This results in the pitch distribution labeled "Liberty II" in Fig. 1.

To suit the prop to a "normal" Coupe motor, blade area was reduced by decreasing the chord 1.0". And blades were trimmed to an aesthetically pleasing "elliptical" outline.

Following my long-term practice, a flat-bottomed airfoil was used. Wings should be undercambered to gain the highest possible ratio of $L^{3/2}/D$ (Read that as "Lift raised to the three-halves power, divided by Drag." You get the 3/2 power by cubing the square root of a number.) for minimum sink rate. Propellers do better with airfoils having a higher L/D ratio—typically flat-bottomed or semi-symmetrical. And flat is easier to make than semi-symmetrical.

Turbulators and invigorators made of 1/32" Chartpak tape were added. I am not sure if they help. They don't seem to hurt. And they do eliminate the typical "whistle" that indicates turbulence.

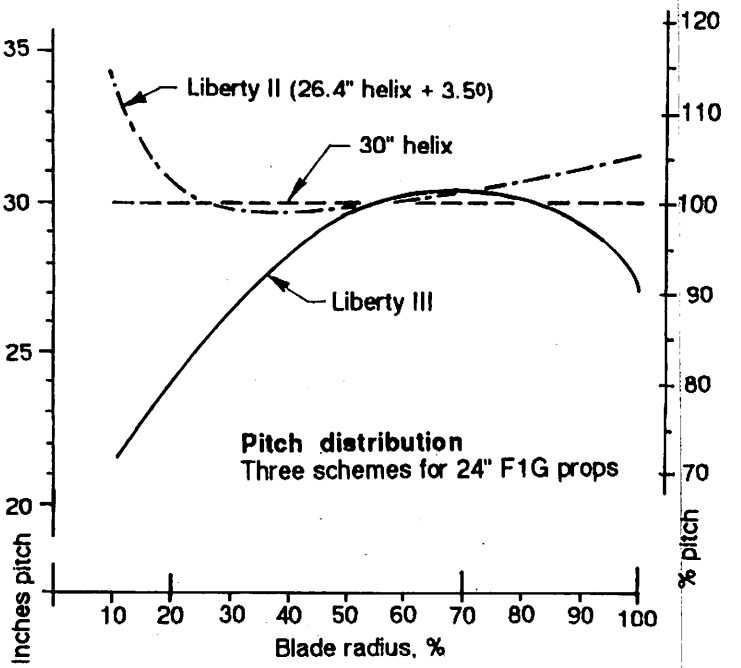
As previously reported (*FLYOFF*, Round 7, Fall '89; and *NFFS Digest*, Vol XXIV No. 7 and 8, Aug-Sept and Oct '90), results were excellent. These props resulted in both greater altitude and longer prop run.

The long props, II

A full contest season (1989) convinced me I was on the right track with respect to diameter, P/D ratio, blade area, aspect ratio, and airfoil. I still wasn't sure about pitch distribution and blade outline. And a still bigger question was how the concepts would work when enlarged for Wakefield and large Mulvihill models.

Schwartzbach and Larrabee have both "disproved" the correctness of using a true helix. Their designs involve very high pitch near the hub, with washout (compared to a helix) from hub to tip. Many of the world's most successful F1B flyers in recent years have used props with reduced pitch both at the tip and at the root. (See Joe Maxwell's "Wakefield Propellers—The State of the Art" in *SYMPO 88*, which contains several other outstanding articles on rubber-model props.)

New 24" props were made for the Cd'H and the small Mulvihill. These use the pitch distribution tagged "Liberty III" in Fig. 1 and the "cutlass" outline illustrated elsewhere. All other features are essentially as before. And motors are the same: 12 strands of 1/8" FAI tan wound to about 350 turns and 35 oz-in. torque.



Pitch Distribution—3 schemes for 24" F1G props

Radius		30" helical		Liberty II		Liberty III	
%	in.	P"	A^0	P"	A^0	P"	A^0
0	0.0	—	—	—	—	—	—
10	1.2	30.0	75.8	34.3	77.6	21.5	70.7
20	2.4	30.0	63.3	30.6	63.8	24.0	57.9
30	3.6	30.0	53.0	29.9	52.9	26.5	49.5
40	4.8	30.0	44.8	29.8	44.7	28.0	42.9
50	6.0	30.0	38.5	30.0	38.5	29.5	38.0
60	7.2	30.0	33.6	30.3	33.8	30.0	33.6
70	8.4	30.0	29.6	30.3	29.9	30.5	30.0
80	9.6	30.0	26.4	30.6	26.9	30.0	26.4
90	10.8	30.0	23.9	31.1	24.6	29.5	23.5
100	12.0	30.0	21.7	31.4	22.6	27.0	19.7

This table gives absolute values from which the plots were drawn, and also gives the blade pitch angle (A, in degrees) at each radius.

As compared to the 1989 props, these new ones resulted in about the same estimated altitude, but with a slightly shorter run (45-47 sec vs. 50-52 sec). Initial acceleration seems faster, and the models exhibit a "punchier" ability to break through gusty air and low-level turbulence.

Joe Macay, of the Detroit Balsa Bugs, was first to extend the concepts to a large Mulvihill (298 sq in. wing, 56" long, powered by 16 strands of 1/4" FAI 42" long). Prop diameter is 32". Pitch is a 40" helix from the root to 0.7R (70% radius) and washed out to 36" at the tip (100% radius). Blade width is 1.25" and the outline is an eye-pleasing "ellipse." No turbulators or invigorators were added. Airfoil is flat-bottomed.

The model has not been flown extensively. Joe has no local testing site, and he lugged the model around for more than 7000 miles early in the 1990 season before he encountered suitable testing weather on a decent field. Then the model, a new design, showed some Dutch roll problems. Nevertheless, Joe says he's

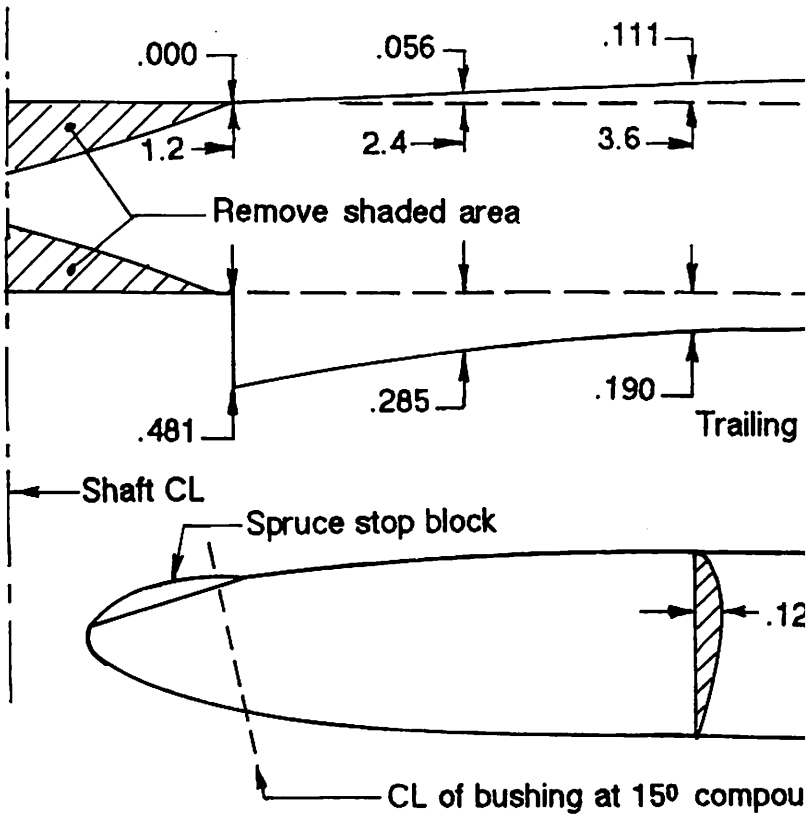
Two Props –

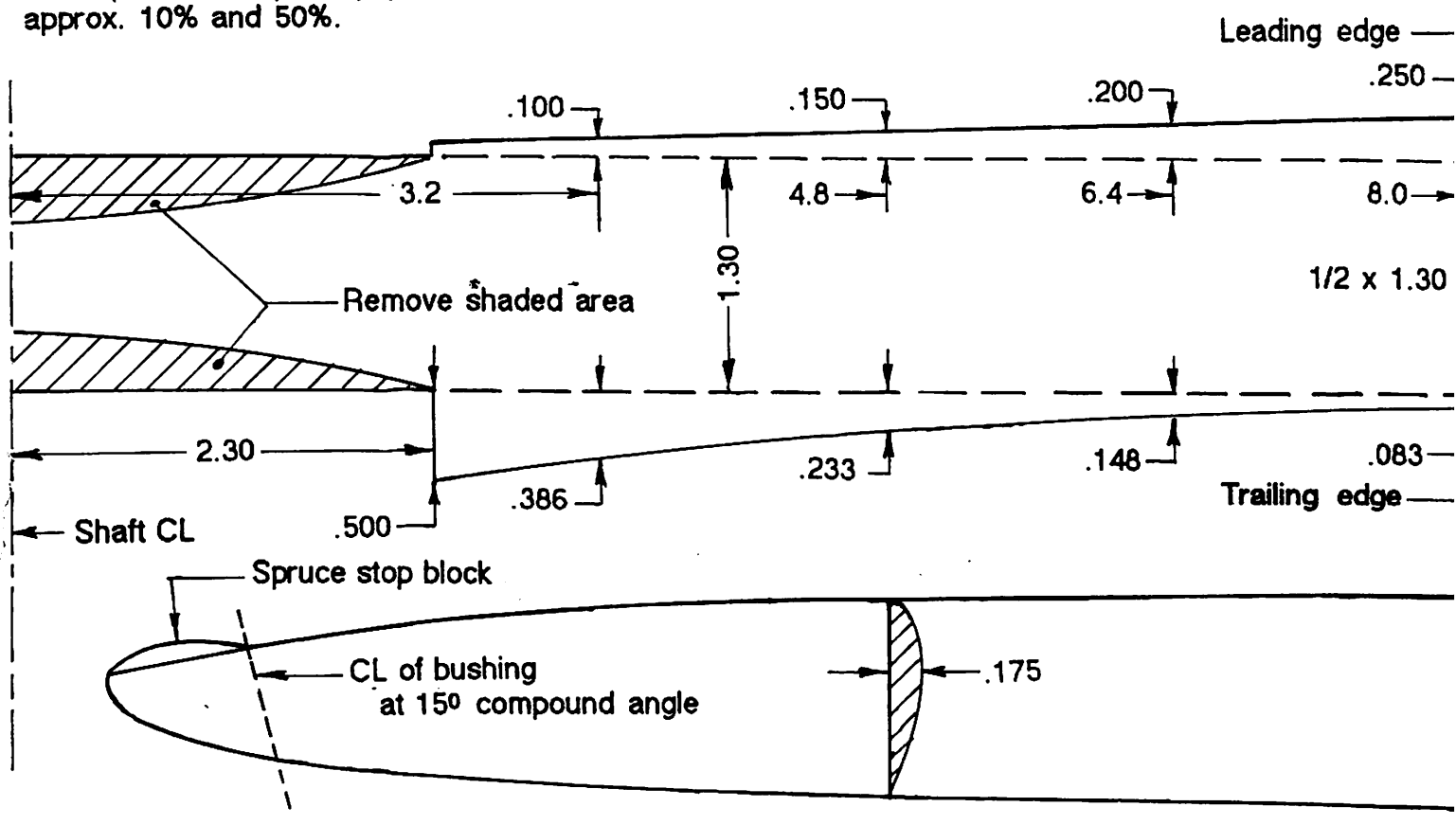
by Bob Hatschek, the Skyscrapers

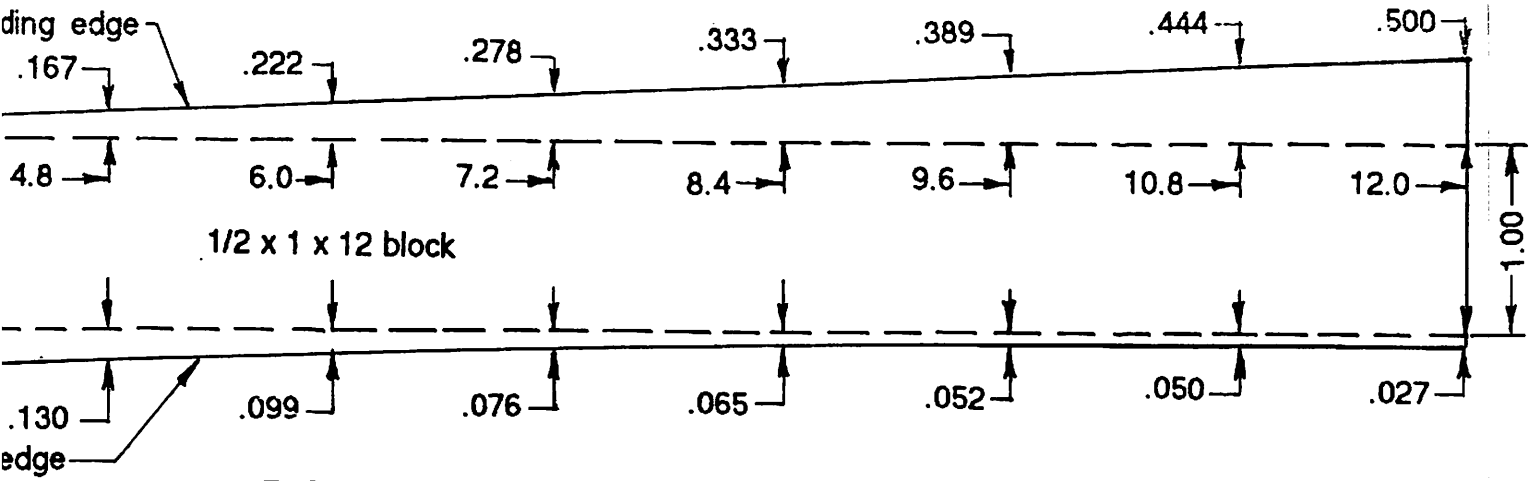
Select flat 1/2" balsa sheet for blades. Should be at least 10-12 lb/ft³ density, quarter grain. Grain and density as uniform as possible. Cut to width and length (1.0" x 24" or 1.30" x 32"). Label ends North and South, faces A and B. Cut in half for two blades and label both N/S and A/B. For best posible match of blades, both blades should have tips at N end, and identical rear face (A or B).

Cut template from heavy paper or light card stock (such as Manila folder). Wrap around front of block. Trace L.E. and T.E. curves (L.E. is actually a straight line). Carve rear face flat to these lines and sand. Rough carve front face. Trim blade outline. Sand front face to airfoil. Install aluminum hinge bushing (or tube) at 15° compound angle with prop in jig holding indicated radius at 30° setup angle.

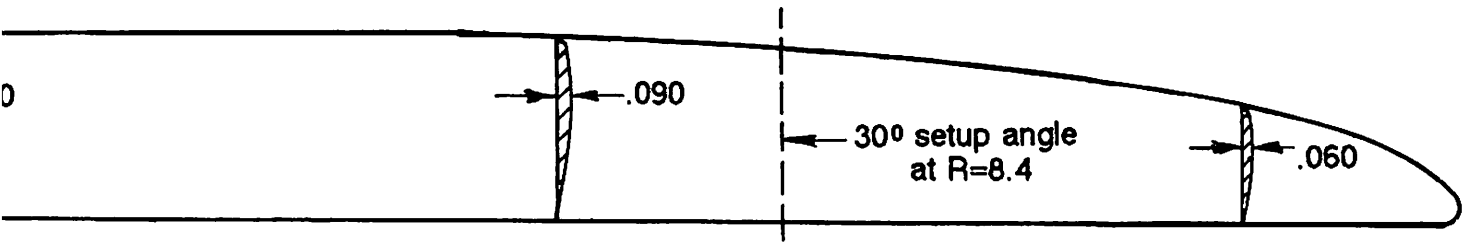
Fine sand all over. Check balance (on hub) occasionally. Cover with tissue or glass cloth and finish with unplasticized dope or epoxy. After desired gloss is achieved, add turbulators (1/32" Chartpak tape) from root to tip at approx. 10% and 50%.





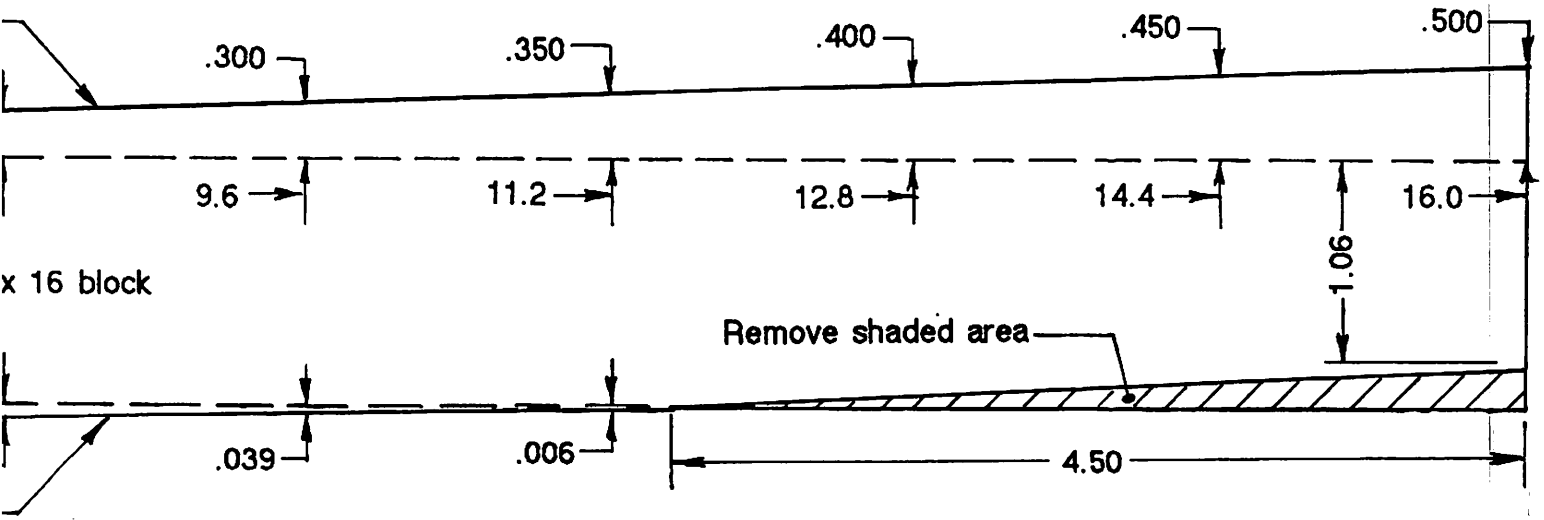


F1G – 24 dia x 30.5 nominal pitch

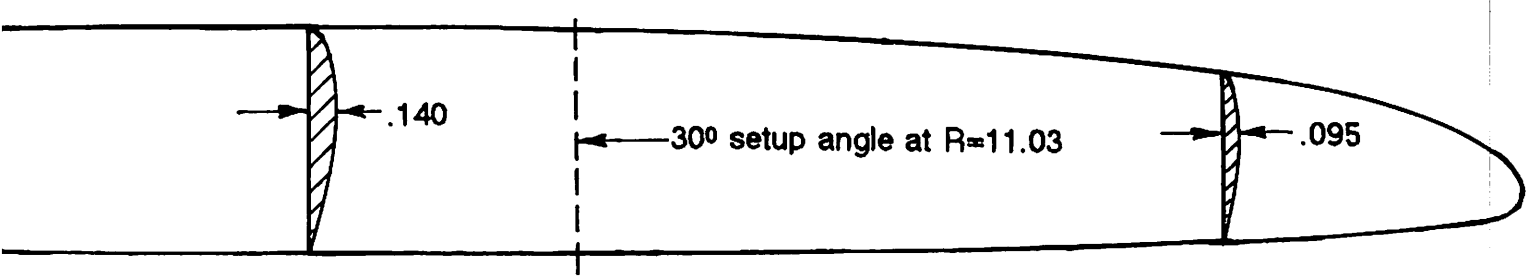


ıd angle

All dimensions in inches



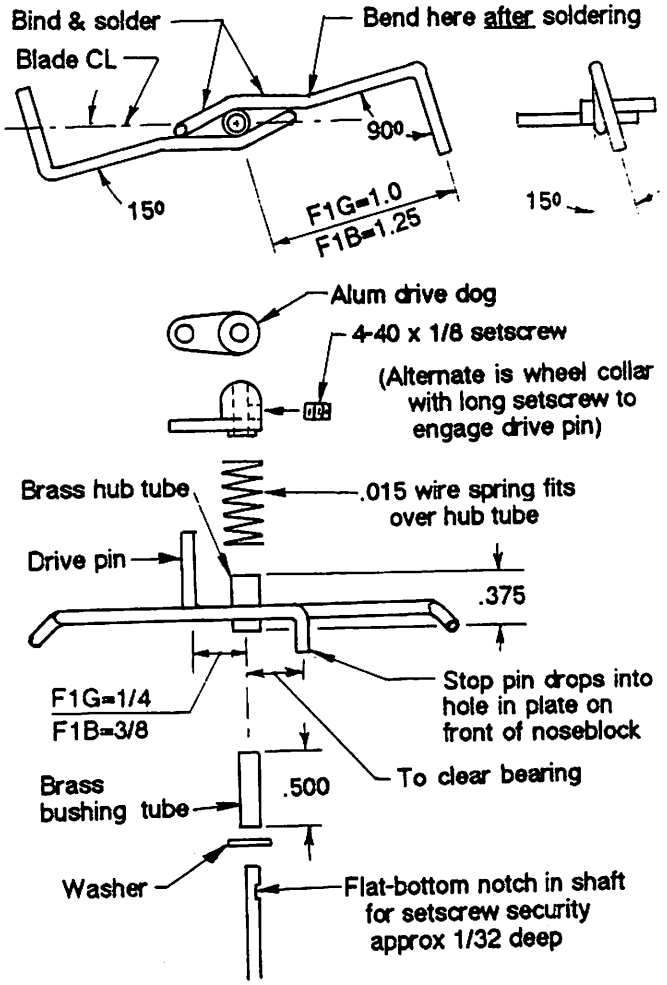
F1B / Mulvihill – 32 dia x 40 nominal pitch

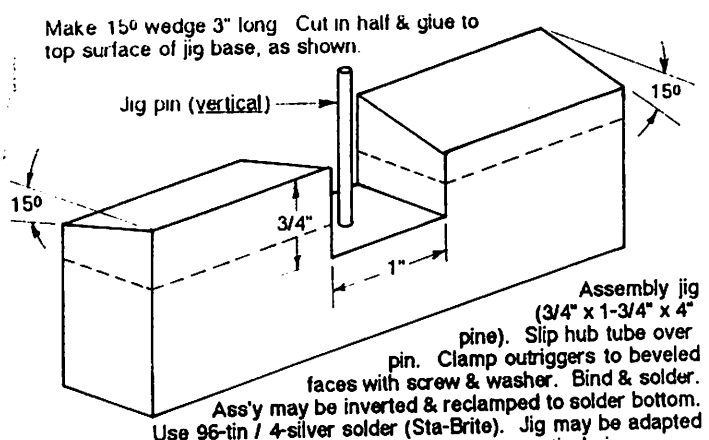


HIBORKS Hub
by Hatschek Inspired By O'Reilly, Kendy & Schandel

Function: Reverse Montreal type. When torque drops, spring forces hub to rear & stop pin engages. Note that stop pin is also hold pin; pull hub forward for launch.

Size	Use for	Shaft	Hub tube	Bushing tube	Jig pin	Out-rigger
A	F1G	1/16	1/8	3/32	3/32	1/16
B	F1G, Mulv	5/64	5/32	Special	1/8	1/16
C	Mulv, F1B	3/32	5/32	1/8	1/8	5/64
D	F1B	1/8	3/16	5/32	5/32	3/32





pleased with the big prop and makes the following points:

1. The prop theory is on the right track (with tan rubber).
2. Blades have to be THIN, with a good airfoil.
3. A positive stop must be used because the blades tuck under the wing on folding.
4. Rudder area seems to be more importannt because of the "gyroscopic" torque of the large diameter blades.
5. A model with the high AR prop seems to be easier to adjust initially. In limited experience with the prop, there were no "white knuckle" flights.

Beyond Joe's experience, I also built a 245-sq-in. Mulvihill (very close to the size and flying weight of a Wakefield) during 1990. This model also has a 32 x 40 prop, but with pitch distribution like Liberty III (see drawing for layout, outline, and other details). Power is 12 strands of 1/4" FAI gray about 30" long (60-65 grams), which produces a maximum torque of approximately 100-105 oz-in. at 600 turns.

Experience with this model is also limited, but it climbs with a mere 50 hand-wound turns. Fully wound, the climb is excellent and the prop run is approximately 90 sec. Using a 40-gram F1B motor (12 strands of 1/4", approximately 20" long), prop run would be about 60 sec.

A reliable hub

Unless your model is a very long nosed Mulvihill, the folded prop blades will tuck under the wing. The prop stop must engage on the first shot every time! Any front end mechanism that works with such 100% reliability can be used. The Hiborks Hub, which is a "reverse Montreal stop," does so. (The name is an acronym for Hatschek Inspired By O'Reilly, Kendy & Schandel, indicating its ancestry). The design (including a modified version for use with a spinner) has previously been published in *FLYOFF* and in the *NFFSDigest*, but is repeated here in the interest of making this a complete propeller description.

The drawings are essentially self-explanatory. I have made B, C, and D sizes, all on the same jig (as illustrated), but with a variety of slightly different shafts, drive-dogs, and S-hook attachments. Whatever is practical and suits your equipment and techniques is fine. The jig can be made in several ways, as well. Just be sure the two top faces are angled at exactly the same angles (I use 15°) and that the central pin is very precisely vertical. The central notch gives your fingers working space while you are binding the parts, so be generous with its size.

Bend the two outriggers accurately, but leave the drive pin and the stop pin (bent in opposite directions, of course) at least 1/4" longer than necessary, and grind them to precise length after the hub and noseblock are both finished. For assembly, just follow the notes on the drawings and do a good soldering job, but with a minimum of solder. And be sure to use a silver-tin solder (such as Sta Brite), which is considerably stronger than tin-lead solders.

The final bend in each outrigger, which the drawing notes is to be made after soldering, is only to align the opposite blades. This will be approximately 15°, but is not critical and will probably vary somewhat from prop to prop. This bend can also be varied later to perfect the alignment of the folded blade along the fuselage (be sure to match both sides so the open blades are aligned with each other). Also, if the blades do not track properly, this is the place to bend the outriggers fore or aft to coorect that mismatch.

The finished hub should slip back and forth easily on the shaft with a total travel of about 1/8" to 5/32". Rotation clearance for the stop pin should be about 1/16", and engagement in the noseblock should be about the same. The spring is quite "soft," and does not seem to be critical.

Producing the blades

The two props detailed on the layout drawings are not precisely identical. Although the pitch distribution is the same, the larger version has a slightly higher aspect ratio and the blank layout has been adjusted to "fit" within 1/2" sheet. Nevertheless, the procedures are identical and the same adjustable jig (which I originally built about 25 years ago) is used for both. Just follow the instructions on the drawing, with the following notes:

Template offsets for leading and trailing edges are given to 0.001". That's at least 10 times as accurate as I can carve. If you can produce blades with 0.010" accuracy, be satisfied—that will be a very accurate prop.

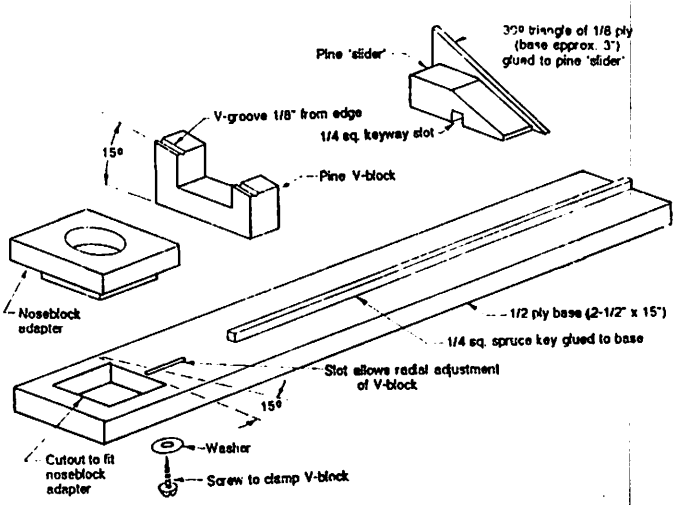
Incidentally, I prefer to carve my blades because I haven't enough patience (A) to wait for the Postal Service to deliver cottage-industry blades or (B) to wait for formed blades to dry and the laminations to cure one blade at a time. If you prefer these methods, you can make a form block out of any easily carved wood (balsa, white pine, bass, mahogany, etc). Just wrap the template around the front of a 1"- or 1.30"-wide block that's more than 1/2" thick, trace the curves, and carve it straight across as described for the rear face of the blades.

A sharp knife with about a 3" blade is fine for carving balsa blades—take off shavings more than chips. But for carving a laminating form block, I recommend a sharp chisel anywhere from about 5/8" wide to 1". Also I find a slightly convex sanding block (about 1/8" camber in a 2" width) is best for the rear face of the blades or the front face of the form block—the flat surface.

An outline reinforcement of nylon monofilament (0.020"-0.030" diameter), or music wire (0.008"-0.012"), or carbon fiber is a good idea (which I usually omit). If used, add it just before final sanding.

Finally we come to the pitch jig. Mine was built about 25 years ago and it could go on another 25 years if I had only made it a few inches longer (it's only 12" long, and the slider-triangle had to overhang the end for the 32 x 40 prop). I have two V-blocks (with different angles) and a few different noseblock adapters.

The slider is rubber-banded to the base at the desired radius. The V-block is clamped to the base by a screw up from the bottom (the screw should be 1/8" from the edge, aligned with the V-groove). The V-block is skewed by exactly the same angle as the V-groove is angled (15^0, or whatever compound angle you use).



The noseblock adapter just plugs into the base, and is used primarily for setting pitch on fully assembled nose units with adjustable-pitch hubs.

To install hinge bushings in the carved and sanded blades, set up the jig as described above. Position the blade on the jig, blocking it in position and holding it with rubber bands. (It's a good idea to tape or spot-glue the blocks in place so the setup is identical for the second blade.) Now drill a bushing hole through the blade in approximate alignment with the V-groove. This hole should allow a little "slop." Insert the bushing (or tube) in the hole, slide a 4" length of music wire (outrigger size) through the bushing, and "clamp" the wire into the V-groove with a rubber band around the base. Undo the blade rubber band and make sure the assembly rests easily at the proper angles.

"Fix" the bushing in place with a small drop of cyanoacrylate and remove the blade from the jig. Now fill all voids around the bushing with baking powder and hit it again with cyano. It will turn into a piece of granite, virtually unsandable, so be careful to form nice little fillets before the final cyano application. Reinsert the wire, place the blade back on the jig to make sure nothing moved. And do it all over again for the second blade.

Balance, cover, finish, assemble. You're done!

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is further reported that SAM 57 and the FAC will host their specialties concurrently. But even this welcome news comes with a note of unfortunate news:

There's apparently no room at the inn! It seems that Vincennes will also host the convention of the Volunteer Firemen's Assn. during the same week. Once initial confirmation of the Nats dates was received, a few of us were able to confirm reservations at the Executive Inn. Within a week or so, however, other Skyscrapers calling for rooms found none available at either Executive Inn or the Holiday Inn.

NFFS President Tony Italiano reports that some 130-150 rooms should still be available at smaller motels within a 20-mile radius. and that the local Chamber of Commerce is preparing a list. The list will presumably be available by the time AMA mails out entry forms and other meet documents.

AMA Executive Director Vince Mankowski also notes that dormitory space for as many as 800 people will be available at the University of Vincennes. Indeed, Nats HQ will also be at the dorm, and both SAM's "bean feed" and the USOC/Nats banquet will be held in University facilities.

It's quite possible that earlier official decision-making on the free flight Nats might have avoided this "inconvenience," but it seems more likely that the basic problem was caused by airport scheduling. After all, the site's the most important consideration.

Thus, the third full week of June shapes up to be pretty much a repetition of last year's USOC/Nats — but with a somewhat dispersed set of "extracurriculars" and at a time of year when the weather should be better than the '90 USOC/Nats even though the crops could be more of a problem. Please be considerate of the crops. Future use of the Mid-America site could depend on it!

Once again the Skyscrapers have been asked to assist in running the meet, and we have accepted the responsibility. The Brain Busters will also be handling one day, but we do not know which other clubs will be involved. Nor do we yet know which day we'll be in the barrel.

Vic Nippert is Skyscraper 1990 Champ

It comes as no surprise that Vic Nippert, the 1990 National Free Flight Champion, scored enough points throughout last season to top all Skyscrapers for the 1990 Club High-Point Award. Point totals for the top five Skyscrapers were as follows:

Vic Nippert	1566
Jack Nix	922
Jean Pailet	640
Bob Hatschek	554
Jim Bocckinfuso	546

The Skyscrapers' point scoring system was described in *FLYOFF*, Round 9, and is administered by Jean Pailet—you could call him "our point man." Club members are urged to reread the system, to keep records of their own scores, and to report the season's total to Jean by not later than January 31, 1992. Permanent trophies are awarded each year to the club's top three scorers, who automatically become the committee that determines the awarding of our two perpetual trophies: The Outstanding Skyscraper of the Year, and the Royal Order of the Purple Shaft. All awards are presented at the Skyscrapers' annual dinner.