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FLYOFF

Round 27 / Fall 1994

The **SKYSCRAPERS** Quarterly

Edited by Bob Hatschek

What's Up? XXVII

When the old eyeballs really count!

At a meet we attended earlier this summer, Dave Acton overheard a contestant asking the CD for "a timer with really good eyesight," because he had deteriorating vision.

The CD responded with, "Sure. We'll give you old Joe. He has the best eyesight in the club." And when old Joe came over it was apparent that he was at least in his eighties—and he wasn't wearing glasses or even carrying binoculars. But both Joe and the CD insisted that Joe's vision was perfect. So the blurry-eyed contestant fired up his model and launched it into the blue.

"How was the engine run?" asked the flyer.

"Six point eight," said Joe, "I saw it perfectly. Nice pullout, too."

Minutes later, the flyer asked, "Did it dethermalize okay?"

"Just over the max. Stop worrying. I'm telling you, my eyes are 20/20."

And later yet: "Has it hit the ground yet?"

"Sure," reported old Joe. "Soft as a lamb."

"Where did it land?" asked the flyer, as he prepared to retrieve the model..

"I forget," replied the eagle-eyed old Joe.

Calling all contest directors! Now hear this!

Now is the time for all good men to come to the aid of their party! We're talking about next year's contest schedule, of course. Go back and take a look at the Contest Calendar in the Spring issue of *FLYOFF*. There were too many conflicts that could have been avoided—even despite the difficulties of Galeville availability

The weekend of Aug. 20-21 is a good example. Permission to use Galeville had been obtained The Mid-Hudson Modelmasters had scheduled their annual for that Sunday. To avoid a conflict, the Skyscrapers opted to hold their August monthly meet, which is open to all comers, on the Saturday. But the same weekend also included Bill Saunders' Cuckoo Challenge in Virginia.

I spent the weekend at Galeville, as did a goodly number of other free-flighters. I'd also like to have been able to attend the Cuckoo affair. And I heard a lot of other Galeville contestants say the same thing.

Most meet sponsors aim for the same weekend every year. Please take a look at the 1994 Calendar and see if you can't avoid these conflicts next year. It won't be the easiest thing in the world—especially when the Galeville dates can't be sewed up earlier. But even that may happen for 1995.

We do plan to publish a Calendar in the Spring issue, as usual. But you have to tell us when you're meet is planned.

NFFS underachieved on USOC 1994 T-shirts

To get one, you had to order in advance of the USOC, and NFFS (to save money) didn't make up many extras for sale at the Muncie meet. Lots of people were disappointed, including this [geriatric?] editor who forgot that he had pre-ordered one.

Rejoice! Linda Brown writes, "We are having a one time only limited run of the 1994 USOC T-shirts for those of you who missed out. The white cotton T-shirts sport the 1994 USOC red, yellow and blue logo and come in M, L, XL and XXL. T-shirt orders must be prepaid. For each shirt requested send $13 (postage paid) by check by November 15, 1994 to: Linda Brown, 2962 Lexington Trace Dr, Smyrna, GA 30080."

Note: Make checks payable to "Linda Brown."

New tricks for Texas Timers

Hank Nystrom, who bought out Texas Timers from the estate of the late Jim Summersett, writes that he has added a second function (timed for just after engine cutoff and adjustable) to the Texas ABC timer and to the 1/2A timer, now renamed the

[Continued on page 8]

1994 Skyscraper Monthly Meet Results

July 3, Al Abriss, CD
(Hot, overcast, light drift, many flyers on the road to Muncie or preparing for Geneseo)

HLG		NosGas		PW-30	
Greg Abriss (J)	22	Mike Cook	222	Al Abriss	766
Alison Abriss (J)	18	**Moffett**			
		Art Phillips	219		

August 20, Dave Acton, CD
(Warm, moderate breeze, somewhat overcast)

NosGas		Catapult		Moffett	
Jack Rice	197	Vito Gagliano	174	Bob Hatschek	352
F1ABCn		Harvey Poirier	170	Ray Factor	313
Matt Gagliano	3	Vic Nippert	122	Art Phillips	269
1/2A		Ray Factor	117	**HLG**	
Jack Rice	344	**Mulvi**		Vic Nippert	108
P-30		Jack Rice	521	Vito Gagliano	92
Hank Cox	132	Ray Factor	348		

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Adding more fuel to the BOM fire

The previous Round of *FLYOFF* included some very personal feelings of this editor with respect to building models vs buying them. We weren't writing about the Builder of Model rule so much as about the satisfactions of our favorite sport. Nevertheless, there is a fairly widespread controversy about BOM rules going on today. What follows are a variety of opinions on the subject, starting with an item lifted verbatim from Britain's *Free Flight news* (edited by Ian Kaynes).

BMFA Builder of Model Rule Proposal

A draft suggestion for a new BOM rule:
The construction of the model shall be the competitor's own work. However, this does not preclude the use of purchased components, including but not limited to:

Engines and engine mounts; propeller assemblies with, or without, propeller blades; propeller blades; towhook assemblies; trim adjustment assemblies; timers; mounting for flying surfaces; fuselage pods; tubes and booms with unmounted parts; wing spars; shells and foam cores.

The builder of the model will be required to certify that the model complies with the BOM rule.

Reasons for reinstatement of the BOM rule:

1. The unique aspect of model flying as a competitive activity is that the model being flown has been built by the competitor.
2. The abandonment of the BOM rule has introduced a possibility of "purchasing" success and may disadvantage the less well-to-do competitor.
3. The development of model design and the flying techniques is intrinsically linked with **individual** development and testing. This is unique in the pantheon of sports and should be encouraged for this reason if no other.
4. "Model preparation" can be extended very easily to cover **repairs** during the contest. It is important that the skills required to carry out this essential component of the sport should be possessed by the competitor. Failure to involve the competitor directly could lead to a "team mechanic" approach, and again negate a central feature of the activity.
5. Development of model design and the necessary structural techniques would be solely in the hands of suppliers, thus removing the aspect of personal innovation from the sport and reducing the diversity of approaches.

FLYOFF comments

The above draft from the BMFA (British Model Flyers' Assn.) states the case well. I would point out, however, that the current non-BOM FAI rules for F1A, B, and C require only that the contestant wind (F1B), start and regulate the engine (F1C), tow (F1A), and launch all three. If the contestant can buy the model and be instructed by an air-picking specialist when to launch, with the perhaps arguable exception of F1A, I cannot believe that we have required sufficient demonstration of skills upon which to base a world championship award, or any other.

I can accept non-BOM RC and control-line events, in which the contestant continuously demonstrates model piloting skills. But free-flight is different. Long live free-flight!

As to the "lack-of-enforcibility" argument that many cite, I firmly believe that the vast majority of free-flighters the world around are true sportsmen. I trust them. If they'll look me in the eye and say they built it, I'll take their word for it.

It's not precisely analogous, but I'll point out that not every rule is written. We have no regulation that prohibits bribing the timer. Does that make the practice legal?

There is one point in the British proposal with which I think I disagree. That is stated in Reason No. 4: the inclusion of field repairs within the definition of building.

What typically happens at a World Championship meet when a flyer damages a model is that his teammates rally 'round and help repair the model while its owner uses a spare to complete the round. I believe this is proper teamwork within the context of team competition.

Rewording reason No. 4 to restrict repairs to members of the team would eliminate the "team mechanic" approach, but would enhance the team aspect of competition.

Some reader letters on BOM

FLYOFF

I always read *FLYOFF* cover-to-cover when it arrives and your comments about the Builder of the Model rule struck me immediately. I had recently spouted off on this in *Windsock*, the very occasional newsletter of the Old Time Eagles (SAM 11), which I edit. In firm support of your editorial, here is a trimmed-down version:

The builder of the model rule is not easily enforceable. It is, however, essential to the preservation of the original spirit of the hobby. AMA was not established to promote competition with ARFs to find the best pilot. It is the Academy of MODEL Aeronautics and I believe this must be interpreted as meaning the modeler as well as the model.

In the good old days, AMA rules required that all models used for competition be built by the person who entered them. At whatever age you began this hobby, you sweated to build from a rudimentary kit and produced something which may have looked tatty but which was all your own. You built, tried to fly, crashed, and built again until, finally, you achieved a flight. You had to learn. We looked down on people who bought or sold models. We knew it wasn't right.

Models that could be bought, complete, were TOYS like toy trains and toy soldiers—or ARFs. Anyone who referred to our arduously crafted models as "toy airplanes" was sharply corrected.

In 1994, even SAM doesn't say you have to build your own models. Nobody appears to care about the personal morality of buying a complete model at a swap meet and going out to compete with it against modelers who have built their entries. Radio Control has produced legions of "flyers" who use a model airplane in the same way as a jockey uses a horse or a gambler uses a deck of cards. Flying is what's important. The model is merely a means to an end.

Free flight is little different. First it was ready-to-use front ends, then complete prop assemblies. Now it's ready-made

variable-surface mechanisms, fuselage tubes, D-tubes, wing skins and complete Wakefields! **Buy one and you can be a competitor...but you're not a modeler!**

I am not a purist. I buy timers and other accessories and I certainly don't build my own RC equipment. But I AM a modeler. I build my models and enjoy the building and then I fly them and enjoy the flying. Anything else, to me, is less than 100%. AMA competition should be among modelers, not professional flyers.

If we must provide for those whose enjoyment is purely in competing and who have selected a model airplane to compete with instead of a bicycle or tennis racket, then create a PRO division where anything goes. It appears that we have several of these already: RC Pattern, for example, and perhaps the international classes.

Mike Cook
Wayne, NJ

FLYOFF,

Read your "personal feelings about the BOM rule," but don't know you a lot better. The article was more of an autobiography than an address to the issue. I, like you, grew up in that period of personal pride, dignity, discipline, honesty, blah, blah, and a lot of that still exists, but technology has changed everything regarding our hobby (?), sport (?), or whatever. Wire cutters, file, hacksaw, pliers, soldering iron, etc, can't get the job done, particularly in FAI competition. With your background you know that what is needed today is an NC machining center. I don't have one or access to one, but obviously many European flyers do. Cheaper labor costs and access to the necessary equipment results in these people producing the best models and the cheapest parts. So the problem with BOM requirement is where does it start and where does it end. Impossible to draw up rules indicating what you can buy and what you have to build. Technology, world markets, economics, etc have changed our hobby/sport. We have to accept it and go on about our business. Enforcing BOM is impossible—always has been and always will be.

Model meets are intended to produce the best flyer/competitor, not the best builder. I wonder what success A.J. Foyt, Arnold Palmer, etc. would have achieved with builder-of-equipment rules. Please don't say, "That is different." It is exactly the same. Times have changed and so must we.

I think I would know you better if you took a position on the Junior FAI program. Your ideas there could be more workable to produce perhaps better men or women. If BOM is impossible in the junior ranks, so be it. But let's try to produce better people. A junior competitor doing nothing but launching a model is ridiculous. Make the juniors do more, perhaps traveling alone, no adults helping, etc. Anything that might produce better men and women. Enough for now.

Bill Kozak
Edgewood, Ky.

FLYOFF,

I read with interest your personal feelings about BOM. As you might know from our similar beginnings, my feelings are much the same as yours. I guess we will just have to face up to the fact that not everyone is turned on by the creative juices. At least the rules don't require the use of purchased models—yet. Perhaps the existence of single design contests will eventually lead to that in the hopefully far distant future.

Dick Quermann
Huntington Sta., N.Y.

FLYOFF,

Concerning your article "Personal Feelings About the BOM Rule". . .Your model aviation background and the sources of satisfaction involved are very similar to my own. The thought of allowing daddy-built or store-bought models in national or international competition riles me as much as you. But your article, and our mutual feelings, have little to do with the BOM rule.

The key word to the BOM rule is enforcibility. Laws, rules, whatever that cannot be enforced work to the advantage of the unscrupulous (those who violate the rules) and to the disadvantage of the conscientious (those who abide by the rules). The BOM rule is not enforcible. I am opposed to any rule that rewards the unscrupulous at the expense of the conscientious. Therefore I am opposed to the BOM rule.

Bob Meuser
Oakland, Calif.

FLYOFF,

Round 26 was good as usual, but especially your article (opinion) on BOM. I will be publishing my sentiments on the issue in the Sept/Oct *Domeduster.* My position is basically the same as yours and I was especially distressed that the USA did not support the BOM at the 1994 CIAM meeting.

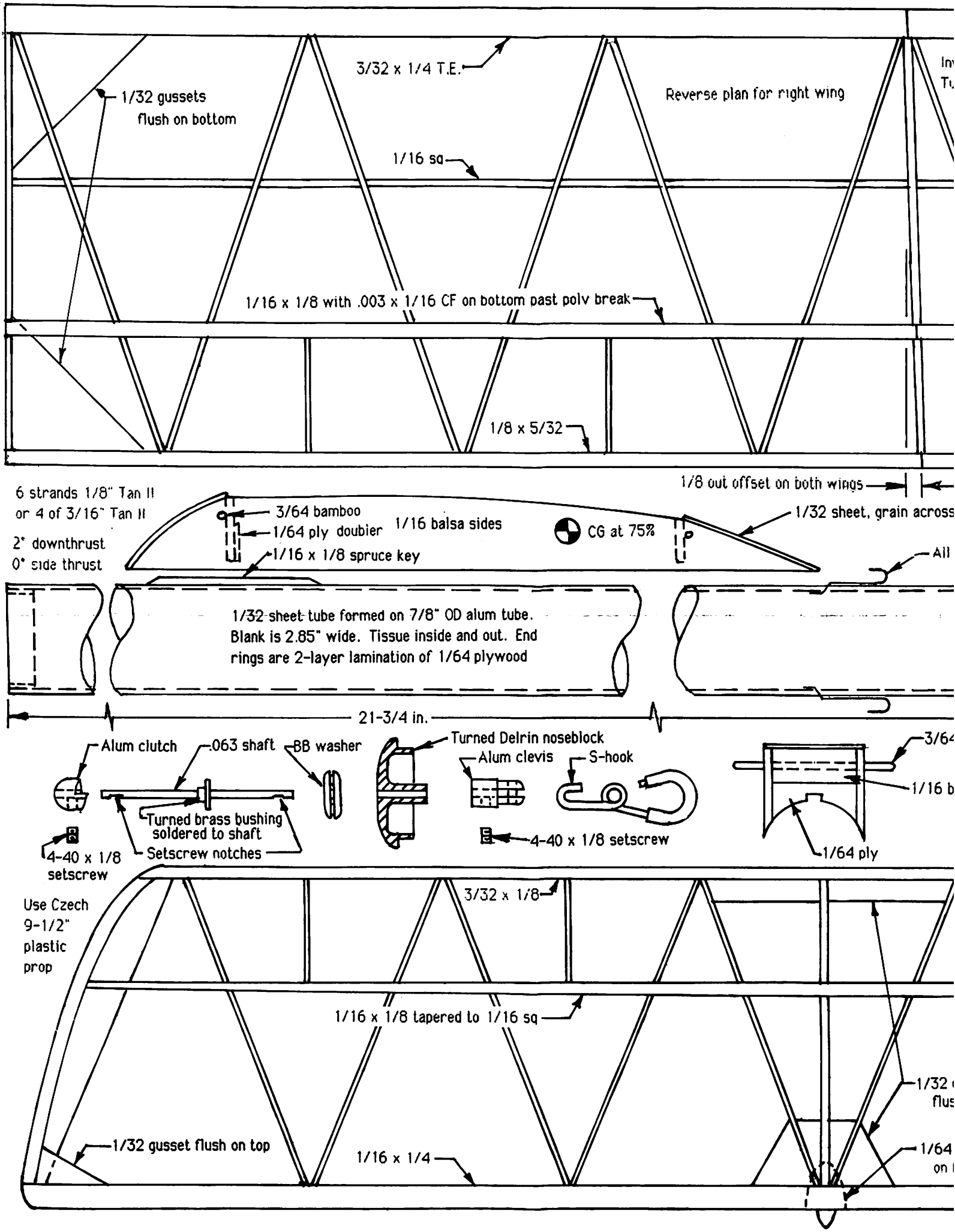
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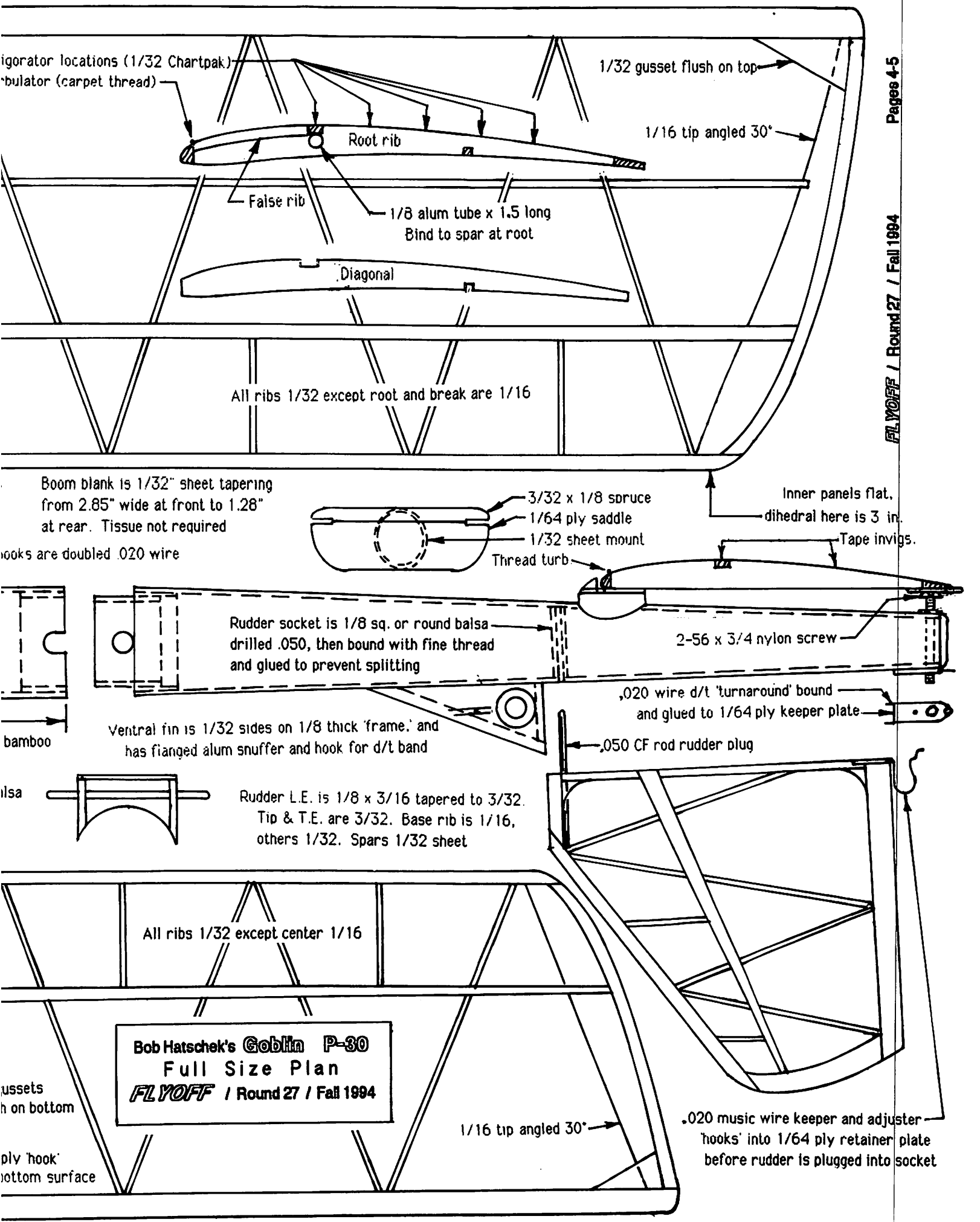
What we said before

[The following is an excerpt from an editorial in *FLYOFF 1,* Spring 1988, opposing the CIAM's dropping of the BOM rule.]

"Ultimately the result would be commercially developed or 'state' developed models 'factory' built and put in the hands of competitors to launch when ordered by a team manager under the advice of expert air picking specialists using the latest in micrometeorological instrumentation. Little is left to the competitor. Consider this especially in the context of juniors and the Junior World Championships. Although this might seem alarmist and exaggerated, it is certainly the direction we would be heading. Even if one accepts 'impossibility of enforcement,' continuation of the builder rule at least discourages its individual violation and, we believe, prevents national violation. FF competition does not entail the constant demonstration of piloting skills that is typical of some of the RC and CL events. The builder of model rule must be retained."

We lost that one. And we certainly couldn't then foresee the disintegration of the communist states and the entrepreneurship of their top modelers, both of which we applaud. But we still believe that the purchase of competition components should stop considerably short of complete, trimmed models.


3/32 x 1/4 T.E.
1/32 gussets flush on bottom
Reverse plan for right wing
1/16 sq
1/16 x 1/8 with .003 x 1/16 CF on bottom past polv break
1/8 x 5/32
1/8 out offset on both wings
6 strands 1/8" Tan II or 4 of 3/16" Tan II
2° downthrust
0° side thrust
3/64 bamboo
1/64 ply doubler
1/16 balsa sides
1/16 x 1/8 spruce key
CG at 75%
1/32 sheet, grain across
1/32 sheet tube formed on 7/8" OD alum tube. Blank is 2.85" wide. Tissue inside and out. End rings are 2-layer lamination of 1/64 plywood
21-3/4 in.
Alum clutch
.063 shaft
BB washer
Turned brass bushing soldered to shaft
Setscrew notches
4-40 x 1/8 setscrew
Turned Delrin noseblock
Alum clevis
S-hook
4-40 x 1/8 setscrew
1/64 ply
Use Czech 9-1/2" plastic prop
3/32 x 1/8
1/16 x 1/8 tapered to 1/16 sq
1/32 gusset flush on top
1/16 x 1/4


igorator locations (1/32 Chartpak)
bulator (carpet thread)
1/32 gusset flush on top
1/16 tip angled 30°
Root rib
False rib
1/8 alum tube x 1.5 long
Bind to spar at root
Diagonal
All ribs 1/32 except root and break are 1/16
Boom blank is 1/32" sheet tapering from 2.85" wide at front to 1.28" at rear. Tissue not required
ooks are doubled .020 wire
3/32 x 1/8 spruce
1/64 ply saddle
1/32 sheet mount
Thread turb
Inner panels flat, dihedral here is 3 in.
Tape invigs.
Rudder socket is 1/8 sq. or round balsa drilled .050, then bound with fine thread and glued to prevent splitting
2-56 x 3/4 nylon screw
.020 wire d/t 'turnaround' bound and glued to 1/64 ply keeper plate
.050 CF rod rudder plug
bamboo
Ventral fin is 1/32 sides on 1/8 thick 'frame,' and has flanged alum snuffer and hook for d/t band
lsa
Rudder L.E. is 1/8 x 3/16 tapered to 3/32. Tip & T.E. are 3/32. Base rib is 1/16, others 1/32. Spars 1/32 sheet
All ribs 1/32 except center 1/16
Bob Hatschek's Goblin P-30
Full Size Plan
FLYOFF / Round 27 / Fall 1994
ussets
h on bottom
ply 'hook'
ottom surface
1/16 tip angled 30°
.020 music wire keeper and adjuster 'hooks' into 1/64 ply retainer plate before rudder is plugged into socket

Goblin P-30, winner of 1992 USOC

By Bob Hatschek, the Skyscrapers

I was just about ready to admit defeat! My first model after retirement in 1984 was a P-30. It was my return to rubber power after 15 years of virtually nothing but Nordics. It was a flop! So were my second, third, and fourth P-30s. Oh, they flew reasonably well—but not the way I wanted them to, which was right-right.

Interestingly, one (No. 4) was later converted to P-30U—with a folder and lots of rubber. It flew right-right fine! It continued to do so even when it was several years old and suffering the warps, twists, rust and fading of several months in the elements before being found.

The difference? The prop, of course. The explanation? Right in front of my eyes—in Bob Lipori's Icer P-30 article in *FLYOFF 1*: The airstream from a free-wheeler continues to rotate after power is used up—affecting the glide as well as climb pattern. Lipori's very successful fix on the Icer was to switch from a single rudder to twins.

But I hate twin rudders. They require a stronger, heavier stab. They demand keying the stab, which I prefer to avoid. And they just can't be packed compactly into a model box! So I used an underslung fin. Yes, it is more vulnerable to damage. But being removable, it's easily repaired or replaced—as well as easily adjustable.

The Goblin proved a snap to trim for a right-right pattern. And its other characteristics made it a hot machine. Oh, it won't do the still-air time of a Window Plane (see *FLYOFF 21*, Spring 1993), but either of the two Goblins I've built will max with fair consistency. Starting early in the morning, Goblin II won P-30 at the 1992 USOC with a 358-sec total—dropping only 2 sec when it flew behind the mid-field rise at the AMA's Muncie site. Both models have experienced a number of flyoffs since.

Construction is reasonably straightforward. but it does incorporate some unusual features that make it highly practical—and especially enjoyable to fly! The remainder of this article will stress those aspects of the Goblin that make it unique.

Fuselage— Perhaps the most unusual feature of the body is that the 3/16 aluminum tubing rear motor peg is fixed not in the motor tube but in the tail boom. A long hook, or even a string, is all that's needed to install a motor. But more important: Removing a broken motor is made simple and easy. And if you don't break motors at least occasionally, you're not getting all you can out of the rubber.

The motor tube is straightforward. Cut a blank from 6- to 8-pound stock to the dimensions indicated. Cover one side with tissue and give that side a couple of coats of nitrate dope. Let it dry thoroughly. Soak it in water, wrap it around the 7/8" tubular form, and again let it dry thoroughly. Remove it from the form, glue the seam with CyA and the end rings (see below). Make sure the rear end is square and you can now add 2° downthrust at the front end. Sand the seam, then the whole tube, and cover it with tissue and dope it.

Rings at both ends of the motor tube and the rear peg anchor are laminated from 1/64" plywood. These are made on a round form such as a piece of aluminum barstock or tubing or a wooden dowel (built up to the right diameter with masking tape, if necessary). Because so-called 1/64" ply varies anywhere from .016" to .022" in thickness, selecting the diameter of the form is the trick. Cut and try seems to be about the only way, but for the motor-tube rings, start with 3/4" stock and build it up with a couple of layers of masking tape. This allows you to use 3/4" tubing for a winding tube later. The rear-peg anchor ring, obviously, must be smaller.

Wrap the form with plastic film (kitchen wrap is fine) to prevent adhesion. Cut a strip of 1/64 ply about 5-1/2" long and 3/4" wide with the outside grain across the 3/4" width. Feather one end down to zero with medium sandpaper. Now, starting with the feathered end, wrap the plywood strip tightly around the form one time, plus. Holding this with a piece of plastic film to protect your fingers, squeeze a bit of CyA into the overlap. Now add some more CyA and wrap the plywood farther around. When you get about 1/4" past two full layers, quit and cut off any excess ply. Then feather the final edge, pull the ring off the form, and make sure it fits what it's supposed to enter. It's tougher to describe it than do it. Again, the most difficult part is determining the proper form diameter.

Make the boom in much the same way as the motor tube (on a tapered form, of course) but out of lighter wood and without the internal tissue. Also, make it about an inch longer than shown. This allows you to cut off a short "doubler" ring from the big end so you can adapt it for the rear peg anchor ring and another short ring off the little end on which to mount the stab saddle. Just glue the saddle to the mount ring, wrap the boom form with sandpaper, and sand the bottom of the stab mount to fit the round boom. Then glue it to the boom and reinforce the area by covering it with a 2" band of lightweight glass cloth from behind the stab mount to ahead of the ruddermount.

Wing— There are two reasons for the two-piece wing with the single joiner rod (3/32" carbon fiber rod): It fits in my model box. And it's possible to shim left and right halves independently for precisely the "washin" you want in the right wing (or washout in the right). Tip washout is achieved by the skewed joints at the poly breaks. Thus you can build all panels flat, which is the easiest to check for warps.

One of my Goblins has an all tissued wing; to reduce weight, the other has tissue-covered inner panels and 1/4-mil Mylar on the tips

If you prefer, you can obviously build a one-piece wing and twist a little washin into the right inner panel. You'll save a bit of weight and a bit of construction time. But it won't fit in my box.

Tail— Stab and rudder structures are simple enough. Both are built with rectangular ribs sanded to airfoil shape after the frames are complete. Rudder airfoil is symmetrical, about 5/16" thick at the root and tapering to the 3/32" tip.

I make the rudder socket simply by chucking a piece of 1/4" sq. medium balsa in my lathe, drilling it axially to .050" ID, sanding down the OD until it's about 1/8", then wrapping it with fine thread and coating it with CyA. I drill through the top and bottom of the boom, fix the socket with CyA, and sand top and bottom smooth. A piece of 1/8" sq. drilled axially and wrapped would be as good.

Either Japanese tissue or 1/4-mil Mylar can be used to cover both stabilizerandrudder.

Prop unit—The nose unit is pretty well detailed on the drawing, but it still requires a bit of emphasis. No rubber tensioner is used. The soldered bushing—which takes all the tension of the wound motor—is positioned to allow the prop to slide back and disengage from the aluminum clutch and thus to freewheel. An alternate scheme is to use a wheel collar instead.

Don't ever allow the prop to disengage when the motor is wound!

The clutch is made of 1/4" aluminum rod. Chuck an inch or so of this in your lathe and drill it axially about 3/8" deep for the shaft. You can pretend your electric drill is a lathe by mounting it on the bench and manually feeding a drill in a hefty pin vise. Now clamp the rod vertically in a vise and file the clutch face on the end. Then rechuck the piece and "neck it down" with a spinner-like contour before finally cutting it off. Now you can drill and tap the side hole to clamp it on the prop shaft.

Note that, because a taut motor is used, no stop is required. There is no rotary impact that usually accompanies prop-stop actuation.

And as long as the noseblock is true (the shaft is perpendicular to the flange), no key is required—whether you make a turned Delrin noseblock or a balsa one.

Rigging— Note that there's no hook on top of the stab for the rubber band that anchors it and tips it up for dethermalizing. This allows stabs to be packed together without any special cautions to prevent the hooks from tearing the covering of adjacent stabs. I normally stack as many as 8 or 10 stabs together in no more than a couple of inches of space. My "hook" is a thin ply peg sticking straight back from the trailing edge. The rigging consists of 10- to 12-lb braided nylon fishline that runs through a wire eye (the 'turnaround' on the plan) at the rear end of the boom. The upper end of this line is tied into a 2-1/2" loop (use a bowline knot). The single strand then goes through the eye and about 3" below the knot is tied a very light S-hook. A No. 8 rubber band (two for redundant safety) is hooked on one end of the stab saddle, then passes through the 2-1/2" loop, and is hooked into the slot at the other end of the saddle. Slip the stab under the line, pull the loop back and hook it over the peg at the stab's trailing edge, and the stab is mounted. Now put another No. 8 band (these are about 1" long) in the S-hook and pull it forward to hook it onto the hook in front of the snuffer in the ventral fin.

These overly detailed instructions on how to mount a stab and hook up a dethermalizer are presented because the method is not conventional, but it has many practical advantages that I've been enjoying for many years on many classes of models, including Nordic A/2 gliders and 1/2A power models. Try it. You'll like it.

The plug-in rudder is another innovation that I've now standardized on for both "fixed" (but easily adjustable) rudders as on the Goblin and for autorudders on larger rubber jobs and even A/2 Nordics. It gives me a one-piece all-moving vertical stabilizer, which I find is much less sensitive than a fixed fin and movable rudder tab. And it provides easy removability for repair or replacement.

In my experience, pylons are only required on short-nosed rubber jobs to raise the wing clear of folding prop blades. Goblin's lightweight saddle just provides a flat top on the round body. (It also provides a place to install a tracking radio.) It's held on by rubber bands from the bamboo pegs around the motor tube, so it can be shifted fore and aft for optimum CG. The spruce key prevents unwanted tilts from affecting trim, although (because there are no prop-stop impacts) such tilts can also be avoided by eyeballing alignment before each flight or simply "fixing" the saddle with masking tape.

Trimming— Both prototype Goblins climb in a steep, tight-right spiral with no side thrust and only slight right rudder offset (about 1/8"). And both glide in fairly small thermal-riding right-hand circles—just as they were designed to, I'm proud to say! Thank you, Bob Lipori, for the enabling theory.

If you haven't done so yet, add the carpet thread turbulators on the wing and stabilizer and the invigorators made of 1/32" Chartpak tape (available in art and drafting-supplies stores). These enable the model to fly at a higher lift coefficient and will definitely affect the trim of any model flying in the low Reynolds number regime of a P-30 or a Coupe d'Hiver. Believe me!

Trimming sequence is simply as follows: With the model completely assembled (including a 10-gram motor made up of either 6 strands of 1/8" or 4 strands of 3/16" Tan II) slide the wing mount fore and aft until the model balances approximately 1" ahead of the wing's trailing edge (75%). Hand-glide the model (over that proverbial tall grass, of course) and adjust the stab incidence screw until it glides reasonably close to properly. At this point a slight tendency to glide steeply is preferable to a stall.

Adjust the rudder, if necessary, for a straight-ahead or slightly right turning glide.

If you didn't sand off the front of the motor tube for 2° downthrust when you built it, do it now. Or add a shim at the top of the nose about 1/32" thick. Glue this onto the motor tube, not the unkeyed noseblock.

Now put in a few hand turns in the motor, say 100-150, LIGHT THE FUSE, and launch it with the nose a bit above level. Goblin should climb right and glide right, without stalling under power or in the glide. Observe the power pattern for safety but the glide is what you really want to perfect first since its adjustments will also affect the climb trim.

When you're happy with the glide and the climb seems safe, double the winds and go again. As long as the glide is correct, you're now trimming for climb and your major tool is offset thrust—in no more than 1/64" increments: down to kill any power stall, side to modify the circling habits of your model.

But don't forget the option of differential incidence shimming in the two-piece wing if at any time under power or in the glide the model seems close to a spiral dive.

With Tan II rubber, I've been able to wind more than 1000 turns into a P-30 motor—with torque values approaching or sometimes even exceeding 10 in-oz. Go for it!

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[Continued from page 1]

"Texas Mini." The second function can be used to trigger auto-rudder and/or autostab, or just a quick DT for testing the power pattern. The ABC weighs 16.6 grams and has a 1.12" x 2" faceplate. The Mini weighs 15.5 grams and the faceplate is 0.76" x 1.9". Both typically run 25-30 sec, but Nystrom also offers a "custom tuning" service for $5 to adjust (up or down) the maximum running time of either timer. Both timers are priced at $27.50 plus $2 per order for postage and handling.

Nystrom also offers a new Fuel Off (pinch off) timer for $18.95; a remote pinch-off device for $6; and a new 17-gram DT timer (for $24.50) that runs up to 8 min at an accuracy of ±5 sec in the under-5-min range. Assorted other goodies include "tough surgical grade, thin wall latex" material for fuel bladders ($1 per foot); and polypropylene bladder fittings for $0.50. Hank says he and his cronies have been using these bladder systems, which weigh about 1.1 grams, for the past three years in 1/2A and larger models. Write to Texas Timers, 3317 Pine Timbers Dr., Johnson City, TN 37604.

Campbell's Custom Kits moves to Michigan

If you want to get a copy of Lee Campbell's newly revised 48-page catalog of free-flight kits and goodies, you'll have to write to Campbell's Custom Kits, 4402 Weddel, Dearborn Heights, MI 48125. And slip a couple of bucks into the envelope to help take care of Lee's printing and postage bills. Most important: Write down the address; it's a new one!

Galeville Maintenance Fund, 8/24/94

Previous Contributions	**Amount**	**Balance**
Skyscrapers	2554.00	
Friends of the Skyscrapers	3803.00	
		6357.00
Previous Expenditures	—4414.19	
		1942.81
New Contributions		
Skyscrapers		
Tom Waddington (6/94)	100.00	
Aram Schlosberg (8/92)	10.00	
		2052.81
Friends of the Skyscrapers		
Christian, Tom & Bill Fox (6/94)	20.00	
Fred Blom (7/94)	25.00	
John Stott (7/94)	25.00	
Joe Macay (7/94)	6.00	
John Oldenkamp (7/94)	10.00	
SAM 7 / C.M. Botticello (8/94)	50.00	
		2188.81
New Expenditures		
Mowing (6/12/94)	—630.00	
Current Balance (8/24/94)		$ 1558.81

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