Established 1936
SKY-SCRAPERS BKLYN NY
AMA Club Charter 470

FLYOFF

Round 29 / Spring 1995

The SKYSCRAPERS Quarterly

Edited by Bob Hatschek

What's up? XXIX

How's that again?

Well-known Florida free-flighter Ron Sharpton recently noted a radio control model wallowing around the sky in an obviously tail-heavy manner. Being the ever-helpful good samaritan that he is, Ron observed to the model's pilot that the CG might be a bit too far back.

"Oh, no," said the RC flyer, "That's impossible. This kit didn't come with one."

For more on this subject, turn to page 2.

New twists in international competition. . .

The America's Cup Competition has now been expanded by the Southern California Aero Team (SCAT) to include the three mini events: Coupe d'Hiver (F1G), A/1 Glider (F1H), and FAI Mini Power (F1J). We won't say any more at this time, but look for new information in *SCATTER* , and in NFFS *Free Flight Digest.*

. . .and the Skyscrapers accept a new Challenge

FLYOFF recently received the following bulletin from Australia:

1. A postal challenge contest for F1G class models. California (USA); Australia, States of Australia, New Zealand, Skyscrapers—the Right Coast of USA. And anyone else who wishes to gate crash, but must submit why they should be included by February 1995 to the Keepers of the FCCCUP (Former Colonies' Chardonnay Cup)! FAI rules apply.
2. Each organisation submits the total of the five highest individual flight totals flown during a specified period. This must be five separate flyers, not necessarily a team. This period will be over three months (March, April and May).
3. Flight totals must be for not more than five consecutive flights. To determine individual places, additional (Flyoff) flights will increase by increments of one minute. Fly until the contestant fails to max.
4. Scores from any individual contestant may only be counted for one group. That score shall be from the first meet in which that contestant places among the top five.
5. Flight can be made at a sanctioned contest. Sanction must be from the major modeling association of each country participating.
6. Final totals will be submitted to a selected representative from each participating group who will forward them to the Oakland Cloud Dusters c/o Stuart G. Bennett, 1585 Jacob Ave, San Jose, CA 95118, USA. Final results will be published in the Oakland Cloud Dusters Newsletter. All keepers will be sent the final results. This assignment will revolve and always rest with the winning group in successive years (if any).
7. Prize for 1995 will be a select bottle of Chardonnay wine from each of the losing groups with local distribution left to the winner. It will be up to the losing groups to organise the bottle to the winner.
8. Contest dates will be 1 March 1995—31 May 1995. Results must be received no later than 30 days after the close of the contest and published as soon as possible.
9. To facilitate communication, each group shall provide the name and address of a primary contact person to be known as "the keeper of the cup" for that organisation.

Keepers of the Cup:

USA—Norcal (Oakland Cloud Dusters), Stuart Bennett, 1585 Jacob Ave., San Jose, CA 95118.

USA—SoCal (San Valeers), Ralph Prey, 4859 W 97 St, Inglewood, CA 90301.

USA—Right Coast (Skyscrapers), Bob Hatschek, 316 Grosvenor St, Douglaston, NY 11363.

New Zealand, Chris Murphy, 20 Cashmere View St., Lower Cashmere, Christchurch 8002, New Zealand.

Australia (AFFS), Jan & David Thomas, 46 Rondelay Dr., Castle Hill, NSW 2154.

Australia (Queensland), George & Marilyn Baynes, 21 Celadon St., Sunnybank Hills, QLD 4109.

The Skyscraperts accept this challenge with great glee and anticipation. Competition for the Chardonnay Cup will be May 27-28 at the Skyscrapers International Challenge Contest. [Continued on page 3]

Galeville Maintenance Fund, 2/17/95

	Amount	Balance
Previous Contributions		
Skyscrapers	2664.00	
Friends of the Skyscrapers	3954.00	
		6618. 00
Previous Expenditures	—5044.19	
		1573.81
New Contributions		
Skyscrapers		
		1573.81
Friends of the Skyscrapers		
Joe Beshar (2/95)	100.00	
John Davis (2/95)	10.00	
Walt Rozelle (2/95)	25.00	
		1708.81
New Expenditures		
None (as of 2/17/95)		
Current Balance (2/17/95)		$1708.81

Sincere thanks to all donors. All contributions are welcome. Funds are held in a separate account and are fully reported here. Please send donations (payable to "Skyscrapers") directly to *FLYOFF*. Thank you!

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Locating the CG on a rubber model

By Jim O'Reilly

[Editor's note: This article is one of the classics of free-flight trimming. I do not know when or where it was first published, but this version was retyped from *The Thumb Print* of the Thermal Thumbers of Metropolitan Atlanta, whose editor, David Mills, picked it up from *WHAM News, Views & Reviews*, edited by Jim Kutkuhn.—*FLYOFF*]

Locating the CG on a rubber-powered model is a somewhat different proposition than on a gas model. The gas model wants the CG as far aft as possible (up to the point where it starts to do outside loops) as far as climb performance is concerned but there is an aft limit to CG position that yields a very bad transition or a risky glide trim or both. If you try that approach on a rubber model the climb performance will be terrible and you may well explore the risky glide trim.

On the rubber job, the CG for best overall performance is well forward of where you would locate it on a gas job. If you move the CG either forward or aft from this "best" location, the model's performance will decrease. This seems to run counter to the conventional notion which I see expressed again and again in print when a flyer says, "I decided to improve the climb by moving the CG back." You almost always hear of the CG being moved back, never forward. If moving the CG back improves a model's performance then the CG was mislocated in the first place.

The only possible exception to this rule has to do with a trim change in varying atmospheric conditions. Some flyers utilize a moveable wing mount to shift the CG slightly fore or aft to trim the model closer to the stall in calm conditions and farther away in turbulent conditions. I wouldn't want to argue with success but I prefer to leave the CG alone and change incidence to make the same kind of accommodation.

Note that in the discusion below, each case of moving the CG forward or aft creates a need for the glide to be readjusted. Obviously, moving the CG forward will create a need for more "up" elevator and vice versa.

The fundamental reason that a rubber model's reaction to shifts in CG positiion is so different from that of a gas model is the fact that the rubber model's torque and thrust vary dramatically and continually throughout the climb. The gas model, on the other hand, delivers essentially constant horsepower throughout the climb and the thrust varies only as changes in airspeed cause the prop loading to change, varying its thrust. This variation is a fraction of that of the rubber job.

Any aircraft achieves its maximum climb rate when the ratio of lift to drag is a maximum. The correct CG location accomplishes the task of keeping the model at the airspeed which makes this ratio a maximum at any point in the climb. Note that this is a varying airspeed.

When the model's CG is too far forward it causes the model to seek too high an airspeed early in the climb when thrust is high and too low an airspeed near the end of the climb when thrust is low. Early in the climb the coefficient of lift is too low and the coefficient of drag is too high. Later in the climb it will try for a higher coefficient of lift but the coefficient of drag will be even higher. If the model's CG is grossly too far forward, the model may exhibit a nose-down pitching motion at just about the end of the power burst. Toward the end of the climb it will approach the stall and may even do so. If the model's CG is only slightly too far forward the condition gets hard to spot. About the only indication you may get is that the climb seems to be off a bit.

When the model's CG is too far aft, it has the opposite behavior in terms of lift and drag. That is, it wants to seek the low airspeed early and the higher airspeed later. Typically, such a model will start off steeply and may loop or stall. With right thrust it can be induced to make a "dip" to the right and avoid the stall. It then begins climbing again but finishes the climb at too low an angle. In some severe cases it will finish its motor run just "cruising" instead of climbing.

In fact, the dip to the right is the leading tip-off to the aft CG condition. Its cause is simply that, as the airspeed decreases, the vertical tail becomes ineffective and the right thrust takes over. In view of the fact that the forward CG condition is hard to spot, I generally keep easing the CG aft until the "dip" shows up or it tries to get loopy or stally. When the dip shows up the thing to do is to remove some right thrust and see if that converts the dip to a power stall. If it does, the CG needs to be moved incrementally forward and the glide retrimmed. If removing the right thrust does not cause a power stall, maybe you simply had too much right thrust.

Where do you start on a new model? I use a formula which calculates a CG position which is close enough to get started. It is beyond the scope of this article but I would be happy to get into details if you are interested. Send me a SASE at 4760 N. Battin, Wichita, KS 67220. If math isn't your bag try starting at 2/3 of the way back on the root chord and watch the behavior of the model for indications on how to proceeed.

[Editor's note: Where such things are concerned, *FLYOFF* likes to go "beyond the scope..." So we sent the SASE to Jim and he responded with the following information.—*FLYOFF*]

Here is the formula I use for locating the CG:

$$CG = .29\ Tvo + .17$$

In which CG is found as a decimal fraction of the average wing chord. Tvo is the Tail Volume Coefficient (a fundamental aerodynamic property with no units), which is calculated as follows:

$$Tvo = (S_h \times L_h) / (S_w \times C_{avg})$$

S_h is the stabilizer area in sq. in.

L_h is the stab moment arm in inches, measured from the 25% chord point of the wing to the 25% chord point of the stab.

S_w is the projected area of the wing in sq. in.

C_{avg} is the average wing chord in inches and is calculated by dividing wing area by wing span.

[Editor's note: Since Tvo is a non-dimensional quantity, it's perfectly okay to use metric units. Just be consistent: measure all lengths in centimeters and all areas in square centimeters or square decimeters.—*FLYOFF*]

[Continued from page 1]

The Top Skyscrapers in 1994 were. . .

Those who amassed the greatest number of Skyscraper Club points throughout the past competition season were:

Place	Skyscraper	Total '94 Points
1	Vic Nippert	1602
2	Jim Bocckinfuso	1124
3	Jack Nix	1020
4	Bob Hatschek	792
5	Jean Pailet	535
6	Bill Passarelli	374
7	Dave Acton	320

Congratulations, Vic, Jim, and Jack! Your trophies were scheduled to be awarded at the Annual Dinner, March 11. Thanks for reporting your results, Bob, Jean, Bill, and Dave. And demerits to everyone else for not registering your '94 results with our scorekeeper, Jean Pailet. Do it next time, please!

Oops! Sorry

Following our advice (in *FLYOFF 28*), reader Harvey Poirier sent an inquiry to Aerospace Composite Products about some carbon-fiber rod. It was returned by the Post Office with a new address: Aerospace Composite, 14210 Doolittle Dr., San Leandro, CA 94577-5542. *FLYOFF* regrets the error.

Compufoil Professional (airfoil software)

By Bob Lipori, the Skyscrapers

Building tapered wings has always been labor intensive. Accurate rib templates have to be plotted, cut out, and filed to shape. The last tapered wing I built required 14 templates to cover root, dihedral, and tip ribs. Left and right templates were needed since a bevel wears on one side from stacking ribs between templates. An additional eight templates were needed

[Continued on page 7]

Total Point Scores, 1994 Monthlies

Individual meets reported in *FLYOFF 26, 27, 29*

See *FLYOFF 4* for point system (10,7,5,4,3,1).

Ties broken by contest times

HLG (10)		Cat G (6)		ABCD (3)	
Vic Nippert	27	Al Vollmer	20	Clark Darling	17
Al Vollmer	17	Vic Nippert	19	Dennis Phillips	10
Greg Abriss (J)	11	Harv Poirier	12	Mal MacLean	7
Andras Vig	10	Vito Gagliano	10	**NeoGas (3)**	
Vito Gagliano	7	Andras Vig	5	Mike Cook	10
Alison Abriss (J)	7	Ray Factor	4	Mal MacLean	10
Jean Pailet	4	**Multi (6)**		Jack Rice	10
Joel Schlosberg (J)	4	Ray Factor	14	**F1ABCn (2)**	
John Barron (J)	3	Jack Rice	10	L. Pelatowski	10
Peter Barron (J)	1	Bob Hatschek	10	Matt Gagliano	10
PW-30 (3)		Hank Cox	5	**P-30 (7)**	
Al Abriss	20	John Barron (J)	4	Bob Hatschek	20
Dave Acton	7	Peter Barron (J)	3	Hank Cox	14
Dick Delinski	5	**1/2A (4)**		Vic Nippert	7
Moffett (3)		Jack Rice	10	J. Schlosberg (J)	7
Art Phillips	30	Larry Davidson	10	L. Pelatowski	5
Ray Factor	14	Jean Pailet	10	John Barron (J)	3
Bob Hatschek	10	John Carbone	7	Bob Hudson	1

Here's a Sneaky PeeWee

By Dave Acton, the Skyscrapers

This Sneaky PeeWee-30 was conceived in defiance of the "You-Can't-Do-That" crowd. Inspiration came while admiring a Wakefield boom rolled out of 1/32" sheet on a pool cue. At 24 inches, it was just a bit too short to make a 1/2A, but it was just right for a PW-30. Having thus designed a round body, I further opted to make it as "F1C-like" as I could—hence the low pylon and tapered V-dihedral wing.

But what about the required "landing" gear? PeeWee-30 rules demand a pair of real 1-inch wheels. I decided to fulfill that obligation with a pair of rolling sub-rudders. But, to make certain that the rotational position wouldn't affect turn like some random rudder, it was obvious that wheels had better be enclosed in fixed wheel pants.

Other requirements of the PeeWee rules include: No dimension may exceed 30"; power must be a Cox PeeWee .020 (not the TeeDee); engine run must be limited by an eyedropper, not a timer; no programmed gadgets other than a dethermalizer are permitted; the model must weigh at least 100 grams; and at least one of the three official flights must ROG (rise off ground). Scoring is based on the ratio of total flight time to engine run—a very slight complexity that sidesteps the need for pinpoint accuracy in engine runs and engine-run timing.

There's nothing sneaky about building this Sneaky PeeWee. As noted above, the 24" (firewall to aft end) tapered tube is typical of many rubber model booms. And although this one was formed on a pool cue, exact diameters and taper are not critical, so a table leg or other conical form would suffice.

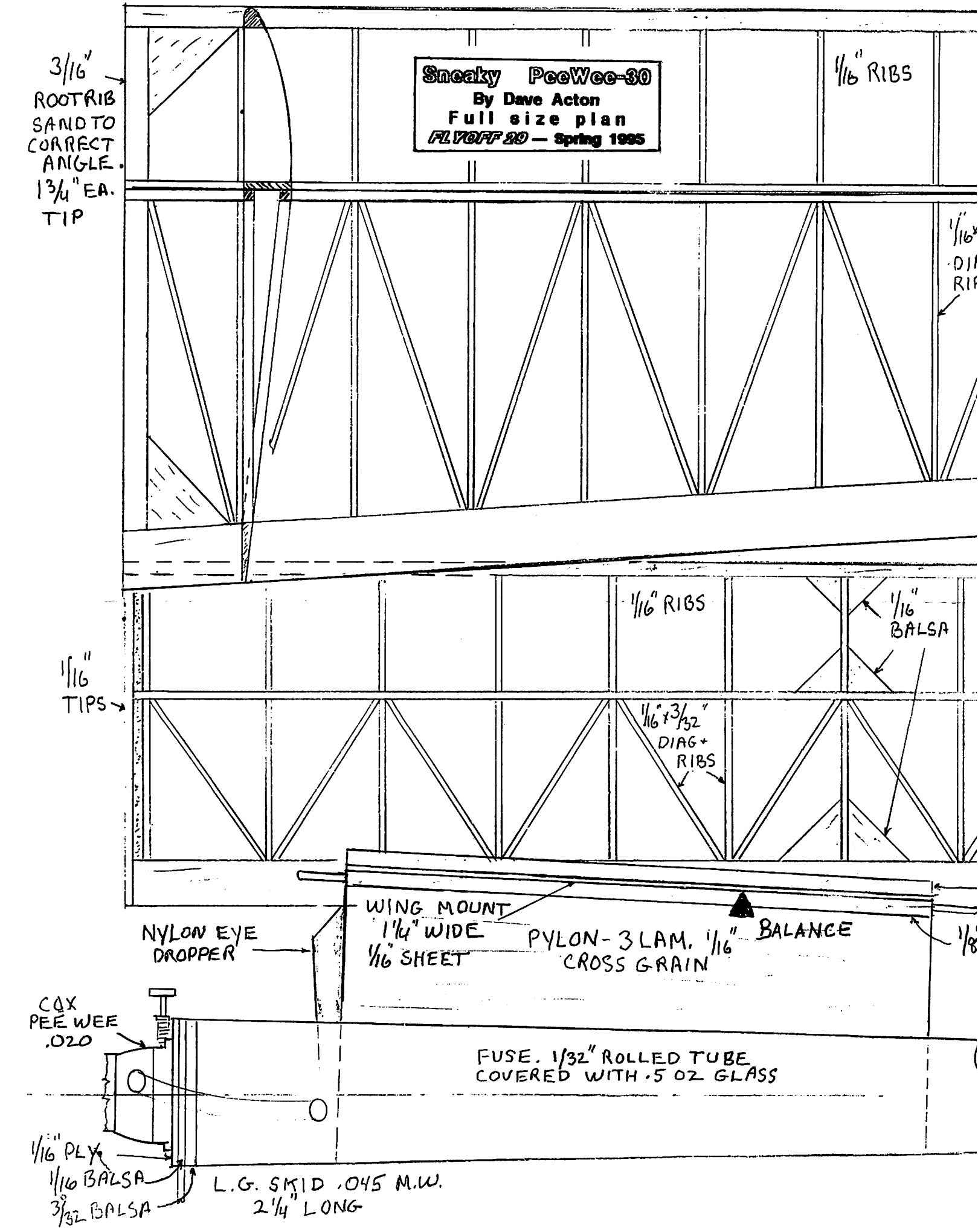
Neither are wing and tail construction tricky, except to note that the diagonals are only on the bottom surface. It is important, however, to key the wing and tail to their mounts.

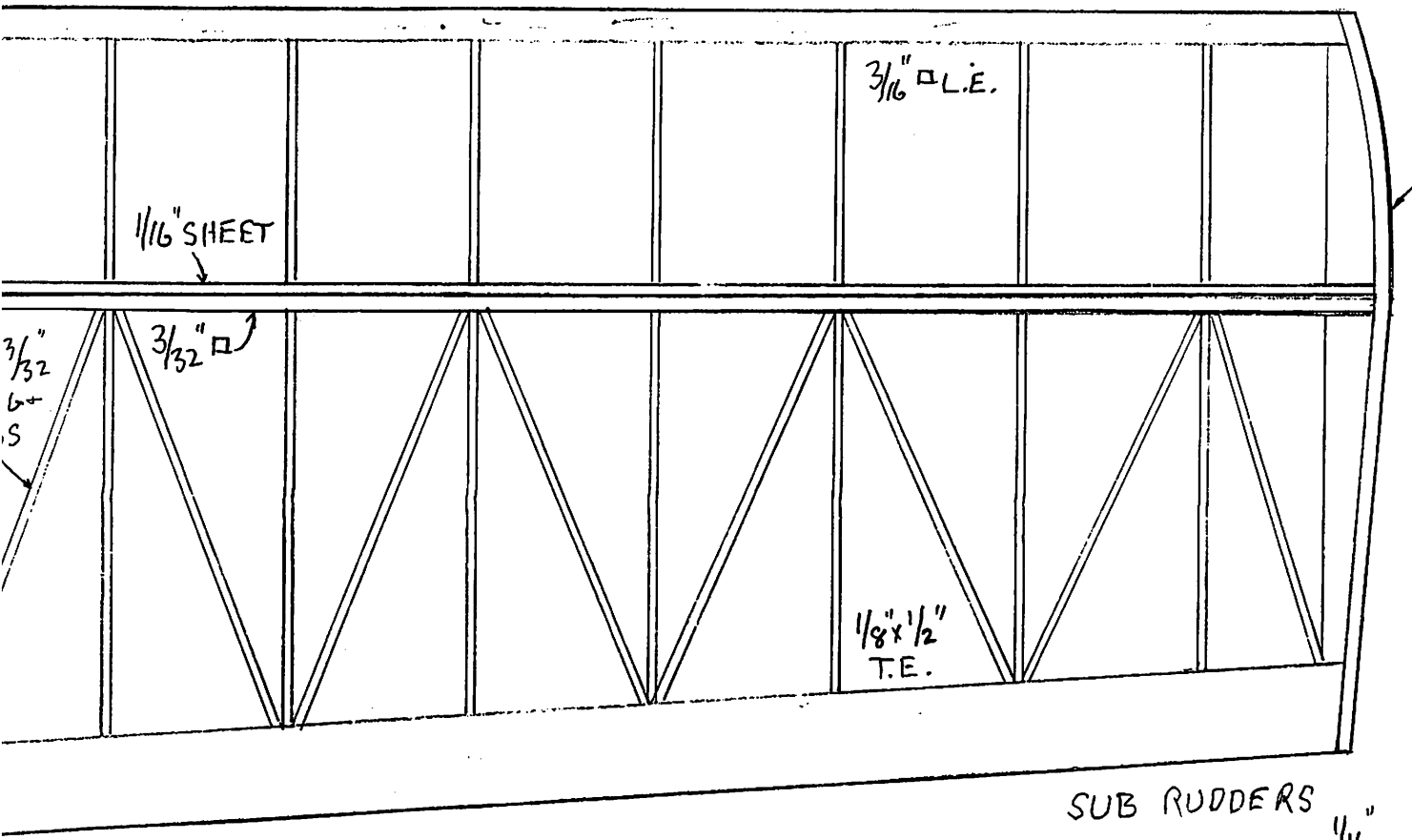
About the only unusual feature is the wheels. The central core of each is a disk of .009" aluminum (from a printing plate, I believe) with several 1/4" lightening holes punched in it with a paper punch. This is sandwiched between a pair of 1/32" balsa disks (using CyA) and a 1/16" hole is drilled in the center for the 1/16" OD aluminum tube hub. One end of the hub is left long enough to chuck on a Dremel tool, electric drill, or lathe, and the wheel is contoured and finished with sandpaper. Then the excess hub tubing is cut off.

The wheel pants/subrudders are built as shown on the plan and a short length of .025" wire axle is inserted. Great ruggedness is not necessary in this assembly as it doesn't take heavy landing shocks. But light weight is highly desirable.

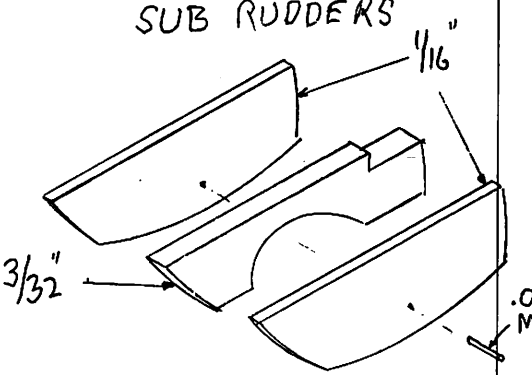
The model has a relatively steep and fast glide, but it climbs very high for a PeeWee. Balance point is 1-5/8" ahead of the trailing edge at the root. There are no intentional wing warps. The engine is mounted with 2° downthrust, 0° side. Prop is a standard Cox 4-1/2 x 2 gray and fuel is Cox Racing (Red Can). Pattern is straight ahead almost vertically under power, then a right-turning glide adjusted with stab tilt (about 6°, right tip high). The transition is better in a wind than calm—Sneaky is definitely a windy-weather flyer.

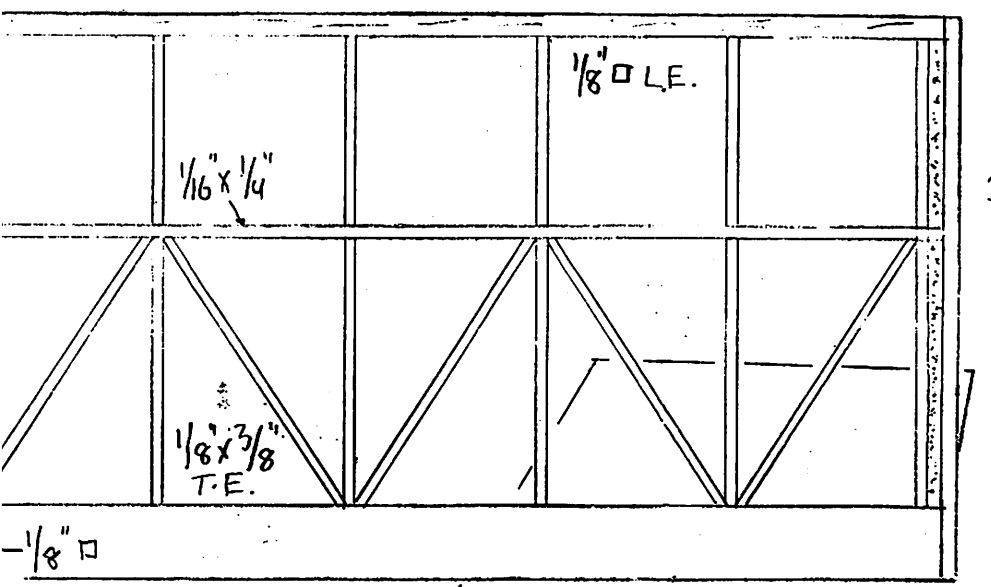
Sneaky has done well in competition, winning or placing in most of the local contests entered. Perhaps its best showing to date was second at the 1993 USOC in Muncie.

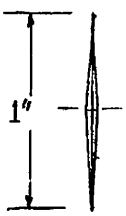

Sneaky PeeWee-30
By Dave Acton
Full size plan
FLYOFF 29 — Spring 1995
3/16" ROOTRIB SAND TO CORRECT ANGLE. 13/4" EA. TIP
1/16" RIBS
1/16" RIBS
1/16" BALSA
1/16" TIPS
1/16"x3/32" DIAG. RIBS
WING MOUNT 1 1/4" WIDE 1/16" SHEET
NYLON EYE DROPPER
PYLON-3 LAM. 1/16" CROSS GRAIN
BALANCE
COX PEE WEE .020
FUSE. 1/32" ROLLED TUBE COVERED WITH .5 OZ GLASS
1/16" PLY
1/16 BALSA
3/32 BALSA
L.G. SKID .045 M.W. 2 1/4" LONG



SUB RUDDERS



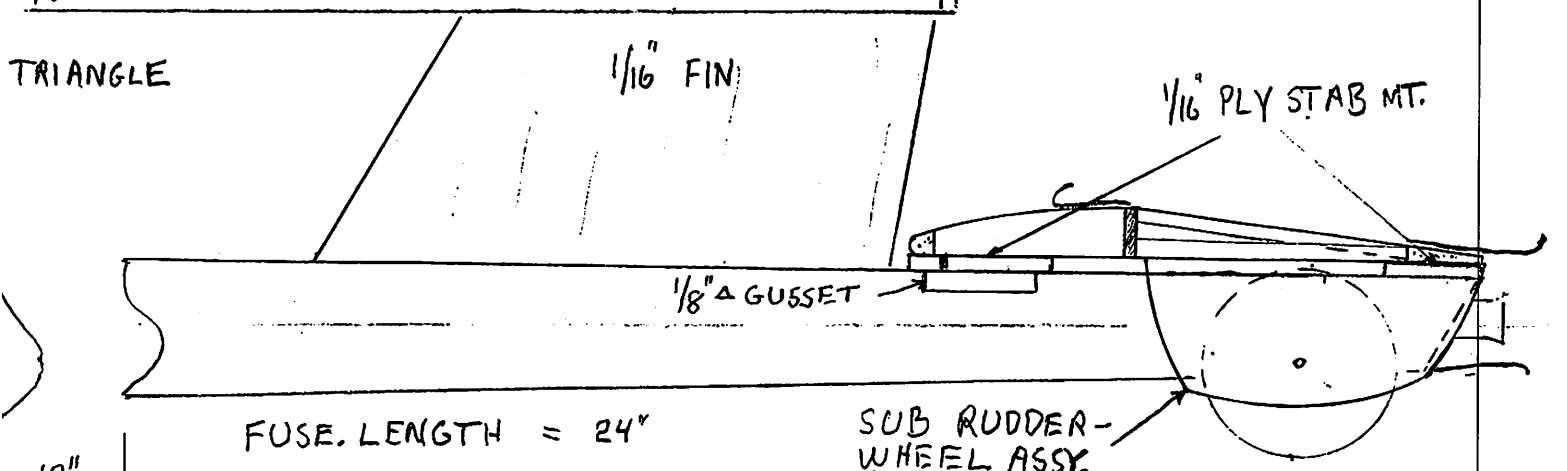




WHEELS
.009 ALUM. CORE
1/32" BALSA SIDES
ALUM. BUSHING

TRIANGLE

1/16" FIN



FLYOFF 1995 FF Contest Calendar for the Northeast, TENTATIVE (As of Mar. 15, 1995)

At presstime, use of Galeville is still tentative for 5/11, 8/5-6, 8/26 & 9/16. Approval is expected, but confirm before you drive to meet. List may not be complete. We regret any errors. Confirm all info. Galeville will also be available for testing on: Apr 9, 16, 22-23, 29-30; May 13-14, 20-21; Jun 3-4, 17-18, 24-25; Jul 2-4, 15-16, 22-23; Aug 12-13, 19-20; Sep 2-4, 24; Oct 1, 8, 14-15, 22, 28-29.

Dates	Site	Meet Name or Sponsor	Event guide	Info contact (Phone or send S.A.S.E.)
4/29-30	Cuckoo, VA	CAAMA Spring Meet	A,N,O	Dave Lacey (703/548-9058), 510 Tennessee Ave, Alexandria, VA 22300
5/6-7	Muncie, IN	Kirkwood Thermaleers (FF)	A,O,N,Fm	Bob Johannes (314/441-3945), 5117 Silverlake Dr, St Charles, MO 63304
5/20-21	Petersburg, VA	Brainbuster Spring Meet	A,F,Fm,N,O,+	A. Van Dover (804/877-2830), 112 Tillerson Dr, Newport News, VA 23602
5/20-21	Muncie, IN	Jim & Dale FF Meet	A,N,O,+	Jim Haught (317/378-6879), 4629 East 150 North, Anderson, IN 46012
5/27-28	Galeville, NY	Skyscrapers Int'l Challenge	2, F,Fm,+	Dave Acton (914/628-0526), RD#3 Box 302, Lakeview Dr, Mahopac, NY 10541
5/28	Westover AFB, MA	SAM 7 Spring Rally	O,N,A	Carmen Botticello (203/568-5733), 30 Bluefield Dr, East Hartford, CT 06118
5/31-6/4	Johnson City, TN	USIC	In	Howard Henderson, 444 Bryan, St Louis, MO 63122
6/3-4	Muncie, IN	COFFC Spring Meet	A,N,O,Fm,+	Larry Willis (614/745-2327), 10303 Peat Moss Rd, Utica, OH 43080
6/10-11	Galeville, NY	EFFC Championships	2, A,F,Fm,N,O,S,+	Bill Poythress (914/246-8850), 2 Hemlock Ct, Saugerties, NY 12477
6/10-11	Gananoque, Ont	SAM 86 Spring Warmup	O,M,S,+	Hal Lorimer (613/342-6561), 307 Anchorage Bay Rd, Elizabethtown, Ont, K6V 7C8 Canada
6/10-11	Sturgis, MI	Mich Antique Modelers	O,A,+	Karl Spielmaker (616/538-3077), 4690 Burlingame, SW, Wyoming, MI 49509
6/11	Durham, CT	Glastonbury FAC meet	S	Gil Belanger (203/229-9044), 63 Wood Rd, New Britain, CT 06053
6/26-30	Muncie, IN	Combo AMA FF Nats & USOC	A,F,Fm,N,O,S,+	Steve Kaluf, AMA Competition Dept (317/287-1256), 5151E Memorial Dr, Muncie, IN 47302
7/2	Westover AFB, MA	SAM 7 Summer Outing	O,N,A	Tom Lucas (203/875-5293), 18 Burke St, Rockville, CT 06066
7/8-10	CFB Borden, Ont	Canadian Nats	C,F,O,N	Jim Moseley (416/743-0145), Apt 406, 2000 Sheppard Ave W, Downsview, Ont. M3N 1A2, Canada
7/15-16	Geneseo, NY	Flying Aces Meet	S	Lin Reichel (814/833-0314), 3301 Cindy Ln., Erie, PA 16506
7/15-16	Muncie, IN	Intercity FAI Meet	F	Jerry McGlashan (see 8/26-27, below)
7/22-23	Wright-Pat AFB	CIA OT & NosGas Meet	A,N,O	Harry Murphy (317/642-7377), 3824 Oakwood Blvd, Anderson, IN 46011
7/22-31	Hungary	FF World Champs	F	AMA Competition Dept (317/287-1256), 5151E Memorial Dr, Muncie, IN 47302
7/30	Galeville, NY	Mid Hudson Modelmasters	A,N,S,+	Vic Nippert (914/382-1967), 6 Douglas Dr, Lake Katrine, NY 12449
8/5-6	Wright-Pat AFB, OH	NOFFA FF Meet	A,N,O,+	Marge or Warren Weisenbach (216/671-8623), 4568 W 146 St, Cleveland, OH 44135
8/5-6 (?)	Galeville, NY	SAM 75	O (FF & RC)	Larry Davidson (516/261-1265), 1 Salisbury Dr N, E Northport, NY 11731
8/6 (?)	Westover AFB, MA	SAM 7 Summer Rally	O,N,A	Al Vollmer (203/933-4400), 14 Check Point Ln, West Haven, CT 06516
8/9-11	Gananoque, Ont	SAM 86 Great Grape Gathering	O,N,S,+	Noel Kirby (613/592-5744), 5 Tiffany Crescent, Kanata, Ont, K2K 1W1 Canada
8/11-13	Fayette, NY	Empire State FF Champs	A,N,O,Fm,S,+	Bill Prensky (716/385-7939), 30 Larchwood Dr, Pittsford, NY 14534
8/19-20	Cuckoo, VA	Cuckoo Scramble	A,N,O,F,Fm,S,+	Bill Saunders (301/593-7196), 11613 Le Baron Terr, Silver Spring, MD 20902
8/19-20	Wright-Pat AFB	FFMAS FF Meet	A,N,O	Marty Richardson (513/236-4058), 7130 Claybeck Dr, Dayton, OH 45424
8/26-27 (?)	Galeville, NY	Skyscrapers Annual	A,Fm,N,O,+	Dave Acton (see 5/27-28 above)
8/26-27	Gananoque, Ont.	Eastern Canada Open	C,N,F,Fm,O,S,+	Jerry McGlashan (514/695-7415), 170 Fairhaven Ave, Pointe Claire, Que, Canada H9S 4A7
9/2-3	Westover AFB, MA	SAM 7 EC OT Champs	O,+	Nick Notte (203/236-5144), 382 Bloomfield Ave, West Hartford, CT 06117

Dates	Site	Meet Name or Sponsor	Event guide	Info contact (Phone or send S.A.S.E.)
9/9-10	Durham, CT	Glastonbury FAC	S	Ed Novak (203/238-9066), Cutlery Ave, South Meriden, CT 06450
9/10	Galeville, NY	Bath BAM Bash	A,F	Clay Ott (215/837-7757), 6018 Nor-Bath Blvd, Bath, PA 18014
9/10-15	Colo Spgs, CO	SAM Champs	O	Art Hillis (303/693-4616), 18107 E Mansfield Ave, Aurora, CO 80013
9/16-17 (?)	Galeville, NY	FAI Team Semifinal	F	Aram Schlosberg (718/479-0478), 79-02 212 St, Bayside, NY 11364
9/23-24	Muncie, IN	CIA Annual FF Champs	A,O,N,+	Harry Murphy (see 7/22-23 above)
9/23-24	Cuckoo, VA	CAAMA Fall Contest	A,O,N,+	Jim Coffin (701/256-3865), 4604 Hillbrook Dr, Annandale, VA 22003
10/1	Westover AFB, MA	SAM 7 Fall Rally	O,N,A	Jack Chilmark (203/874-8795), 10 Wepawaug Rd, Milford, CT
10/8	Petersburg, VA	Brainbusters Fall Meet	A,F,Fm,N,O,+	Abram Van Dover (see 5/20-21 above)

Notes: FF events only. Most meets similar to '94. 1 = World Cup. 2 = Americas Cup. 3 = Selected contest for '97 Team. "Event Guide" indicates type of events or source of rules (Example: CdH, P-30, HH Cat would list as Fm,A). May not include all such events (check info sources for specifics). Codes are: A=AMA gas/non-gas; C=MAAC gas/non-gas; N=NosGas; O=Old-Timer gas/non-gas; S=Scale; F=FAI (F1A,B,C); Fm=FAI mini (F1G,H,J); In=Indoor; +=Special added events.

[Continued from page 3]

to create a building board. Making the templates could take weeks of spare-time work.

Once the templates are done, the balsa ribs are easily made by stacking and carving between two templates. The method works well, but has drawbacks. The root rib becomes smaller while the tip rib becomes larger unless the template sizes are compensated. Even so, all ribs will have tapered edges.

All this time and effort has a way of stifling development, since even small changes may require a new set of templates.

I thought there had to be an easier way, so I decided to try Eric Sanders' Compufoil Professional airfoil software. After a few hours of getting to know the program, I was able to generate templates for double taper wings. With different airfoils at each end of a wing panel the software generates all the ribs at any spacing desired. It has a full screen edit, where additional coordinate points can be added. All points including the originals can be graphically manipulated to eliminate flat spots and/or change contours. Airfoils can be thinned, cambers can be changed, and the upper curve of one foil can be combined with the lower curve of another.

Airfoils may be printed out on dot matrix or laser printers—with the latter preferred for speed and resolution.

Although the program has foam cutting as its main objective, it does have a function for creating ribs with any number of spars either perpendicular or tangent to the rib surface. A foam block template can be printed under the foil with any degree of washout. These block templates can be used to create a building board by gluing several templates to a flat board. Another method would be to cut a foam board using the templates as a wire guide.

In the early Seventies, when hand calculators became readily available, I wondered how we ever got along without them. I'm getting the same feeling about Compufoil. At $65.00, this software is a bargain. Eric even offers free upgrades. He can be reached at 513/299-7684. For further details, see his ads in *Model Aviation*.

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Don't you hate it when . . .

by Grant Carson

[We can't recall ever meeting this Carson fellow, but he sure knows us—all of us. We found this item in the Feb. '95 *BFT Trashmover*, edited for the Bakersfield Flying Team by Roger Coleman.—*FLYOFF*]

Don't you hate it when the plans show only one wing? And don't you hate it even more when you realize you've built two right wings?

When you're designing your own, don't you hate it when you realize that you've put more panels in one wing than the other? Or too few panels in both? Or too many in both?

Don't you hate it when you study the plans of an Old Timer like a Korda or Twin Cyclone and realize that there really is no convenient solution concerning the dethermalizer?

Don't you hate it when, after carefully gluing in the landing gear wire and wrapping it with thread to make sure it's secure, you realize that it's one fuselage station away from where it's supposed to be?

Don't you hate it when you damage an airplane just so much that it's borderline between repairing it and building a new one? I don't know about you, but I don't mind destroying airplanes, and I don't mind building them, but I hate those borderline cases.

Don't you hate it when you're carving a prop, and the carving blade gets caught in the grain of the wood, and you just sliced off a quarter of one blade, and you can't decide whether to glue the piece back or start with a new block? I just hate that.

Don't you hate it when you've taken all the precautions but the tissue and dope has shrunk enough so that your elevator has turned into a pretzel, and you realize that no warp-removing technique is really going to work, and that you'll have to build two elevators before the airplane has been flown even once?

Don't you hate it when your motor blows when winding, but you feel good because you used a blast tube, but the motor holds so tightly to the peg that getting the peg out destroys about as much of the fuselage as the motor blowing would have done if you hadn't used a blast tube?

Don't you hate it when you're preparing your models the night before a contest, and you try to inflate your Trexler air wheels, and you find about a hundred pinholes, and you don't have any spares, and takeoff is required for the event?

Don't you hate it when you've designed and built a new P-30, and you realize that you've made the length between the hook and the prop too long, and the rubber will be so stretched that the prop won't free-wheel, and you'll have to make a prop shaft about four inches long, and that will probably upset the balance?

Don't you hate it when you've lost a model overnight at Taft, but you feel good because somebody returns it the next day, but when you examine it the rabbits have nibbled it, and all the trailing edges look scalloped?

Don't you hate it when you arrive at the flying field and realize you've left at home your winder (or stooge, or lube, or blast tube, or motor stuffer) and you have to annoy your friends all day borrowing, and they are always using whatever you need just when you need it?

Finally, and you can all relate to this unless you're different from everyone I know, don't you hate it when you are test flying a new model with only a few hand turns, and you don't bother lighting the dethermalizer, and guess what?