Established 1936
SKY-SCRAPERS BKLYN NY
AMA Club Charter 470

FLYOFF

Round 14 / Summer 1991

The SKYSCRAPERS Quarterly

Edited by Bob Hatschek

What's up? XIV

See you in Lawrenceville on May 48th

If your only source of information about the 1991 AMA Free-Flight Nationals is the full-page ad on page 167 of the May 1991 issue of *Model Aviation*, you're going to miss what promises to be the best FF contest this year! Right! The mother of all typographical errors in that announcement said, "Practice date is July 17th, Flying is July 18—22."

Don't believe it!!! That's wrong. The numbers are correct, but the month should read JUNE, as reported in the previous issue of *FLYOFF*, and in the June issue of *Model Aviation*. There has been no change in dates! The perpetrator of that blunder has been punished by having all 1991 thermal privileges withdrawn!

Just to reconfirm: the FF Nats will be at Lawrenceville, Ill, on June 18 to 22, with the field available on June 17 for testing. This issue of *FLYOFF* is being mailed early in order to bring you the 1991 Contest Calendar (see page 6) before the season's early start fouls up your planning.

The Russians are coming—probably

Meanwhile, on other fronts, Ron Felix reports receiving a letter from his Russian friend, Vladimir Feodorov, who says (in translation), "Tremendous thanks for the invitation. My friends and I express our gratitude for it so that we can get together with you and discuss all questions about modeling." Vladimir goes on to tell about his new models and his family, and he finishes by saying again that he very much hopes to get together with us in October.

Ron had previously encouraged Vladimir and his colleagues to bring a variety of modeling items for sale to American modelers

[Continued on page 2]

Letter from the co-President

Why Nostalgia?

The United States International Muzzleloading team, combined with shooters from around the world, meets each year to compete in the centuries-old tradition of blackpowder marksmanship. The guns they use were all designed and used during the 18th and 19th Centuries and can only fire one shot at a time. International and local levels of competition in these events are popular all over the world. Why, in an age when we are using infrared aiming devices on our rifles and pistols and can have the capability for large firepower, should so many people revert back to this outdated form of marksmanship?

How about all the thousands of men and women who spend many countless dollars and hours of their time to restore old cars? Why would somebody want to drive around in an old 1957 Chevy when, for presumably the same amount of money, he or she could be the proud owner of a 1991 Chevy?

Do you listen to the old songs on the radio, or do you want to hear the latest "heavy metal" tunes that are performed by very talented but oftentimes misdirected individuals using the latest in advanced electronics to achieve their modern musical results? Why, then, would you opt to be entertained by music that is old and out-dated?

In all these cases the individual has the choice to turn away from the modern world a little, with all its space-age materials and high-tech capabilities, and slow down and relax a little. If you're a modeler and fit into this category, chances are that you are ripe to become involved in the nostalgia movement that is becoming very prevalent in the free-flight world today. The guy who owns the 1957 Chevy probably owns and drives a much more modern vehicle, but his piece of nostalgia is there for him when he needs it.

Most modern free-flighters still fly the AMA type events, but more and more are also taking a step back in time to vary the type of flying that they are involved in. Nostalgia is not trying to improve the product, but rather to improve the way the product is used.

I feel that most free-flighters today are better able to build and trim their models than those of forty years ago. We all have recollections of those long flights which seemed never to end, but the truth is that with the short engine runs like we have today, I really don't think that the times would have been all that great. Challenging our skills with the exact same model and engine of yesteryear is what nostalgia is all about.

The actual flying of the nostalgia era model is also a nice change of pace in the action from the more modern free-flight. I don't dare start any of my modern engines over 1/2A with anything other than my starter, yet rarely use it on my nostalgia engines, no matter what the size.

In fact, using a starter on most of these older engines can cause a considerable amount of wear on the front of the crankcase and also drive the crankshaft into the front of the backplate. I do recommend using a chicken stick whenever attempting to start any engine over 1/2A without a starter.

Flying nostalgia might not be for everyone, and I certainly don't think that it should take the place of our modern free-flight. But if you're like me and let your mind wander into days gone by, maybe you should try Nostalgia, too.

Besides, listening to the latest hit song by Metallica hurts my ears.

Jim Bocckinfuso
Co-President, East
The Skyscrapers

[Continued from page 1]

as a means of helping to finance their trip. [Soviet law prohibits individuals from bringing more than $35 in hard currency out of the country. And that's certainly not much pocket money these days!] Those Russians who attended the WRAM Show in February had a number of FF goodies with them, including some beautifully made F1A and F1B tailbooms, complex F1B front ends, several multifunction timers, and similar items.

If any reader has any specific requests or suggestions about Russian-made modeling items, please let Ron Felix know about it so he can transmit the information back to Vladimir. Or you can contact *FLYOFF* and we'll pass the word along to Ron.

Cottage Communiques—Finding FF Items

The big players in the hobby industry can't seem to make a buck selling to free-flighters. So we've increasingly had to turn to 'cottage industry.' Now, the cottage industry that caters to FFers is primarily FFers who have developed a small sideline. Sig started out that way (with hand-picked balsa), and FAI Supply was another (that now supplies literally tons of rubber annually). Cottage Communiques will be a more-or-less regular feature on suppliers of unique products to the minuscule FF market.—the Editor

Superior Props—really!

One recent correspondent—he's now a *FLYOFF* subscriber—mentioned that he had purchased "a set of high-aspect blades from Superior to your design and. . . ." Having already noted an ad in the NFFS *Digest* for "hi-aspect blades," I sent a SASE to Superior Props for their product list and asked what they were up to.

I never got back the SASE! Rather, I got back a box (First Class postage totaling $2.36) that included (1) the literature I had requested, (2) a letter, which I will quote below, and (3) a whole bunch of samples that I will describe.

Superior Props is a guy named Ed Wickland. I have never met him face to face, but I now class him among "friends I haven't met yet." He knows props. He didn't say that; I'm saying it—based on his letter and my judgment of his products. What he says, in part, is this:

"When I retired I found I had very little to do, so with a background in machine design and a life-long love of modeling, it was not long before the two came together.

"I designed and built a machine to cut props and prop forms, and Superior Props was born. Props and prop accessories are all we make, but we do try to cover the whole field as you can see from the brochure.

"We don't make molded blades any more, as the cut ones are much better. We cut them from solid stock.

"To me this is much more than a business, as it allows me to make precise comparisons of props I like to fly (Coupe, old-timers, and the like). I feel one cannot make an accurate comparison if he doesn't know for sure what he has and what he thinks he wants. So a machine had to be built that could hold these tolerances and then a comparison could be made."

Ed sent me four props—unsanded, right off the machine. Two are two-bladed "standard" props (8" and 12" diameter); one is a normal 18" prop in two pieces with mating "finger joints" (an excellently fitting untapered dovetail) so it can be glued together to make a free-wheeler as well as a folder; and a pair of high-aspect "Hatschek" blades (as described in Round 7) with reinforced butts and hinge tubes installed at a 20° compound angle to match the hubs he sells.

[Continued on page 8]

ARM SOAR HLG

by Jean Paillet, the Skyscrapers

The ARM SOAR outdoor hand-launched glider originated just prior to the 1975 Lake Charles Nats when my younger son, Barry, in his enthusiastic haste, carved and installed the wing "bass-ackwards" on the Flash HLG that he was readying for our trip south. The tried-and-true Flash, by "Fast Richard" Mathis, has swept-forward outer panel trailing edges, and Barry ended up with swept-back leading edges on his model's outer panels. To this day he claims it was an intentional design innovation. . .and, since he placed fourth with it at that Nats, who am I to dispute it?! In any event, we've gone on improving "his" design ever since.

The evolution into the ARM SOAR shown on the accompanying drawing has involved many changes, so that all that remains of the Flash is the still-apparent similarity of plan-form shapes. Among the differences are: Increased wing and stabilizer spans and areas. Decreased fuselage length, with a shortened nose. Different wing airfoil with a rounded, hardwood leading edge. A symmetrical airfoil on the horizontal tail.

Starting with Barry's fourth at the '75 Nats, the ARM SOAR has accumulated a noteworthy contest record, including first place in Open HLG at the '85 Nats (which contributed towards our New York team winning the HLG Team event that year, too) and third at the '90 Nats. In between, it has placed well at most of the major northeastern free-flight meets, including the various Eastern Championships held at Galeville and at Johnsville.

Construction of the ARM SOAR should be easy and essentially self-evident with the accompanying full-size drawing. However, a few comments are probably in order to call your attention to some of the details. For instance, note that the stabilizer should have a symmetrical airfoil, and that it continues to use the same 1/4" of anhedral as its ancestor, the Flash.

The 1/8" spruce leading edge on the wing is a great durability asset, and please note that the airfoil has a rounded (not sharp) leading edge. The airfoil can be carved using a template of the shape on the plans. Note that the inner wing panels are of constant thickness, while the outer panels taper to 1/16" at the tips. Also note that the trailing edge should not be thinner than 1/32".

Needless to say (I hope), the fin uses a symmetrical airfoil.

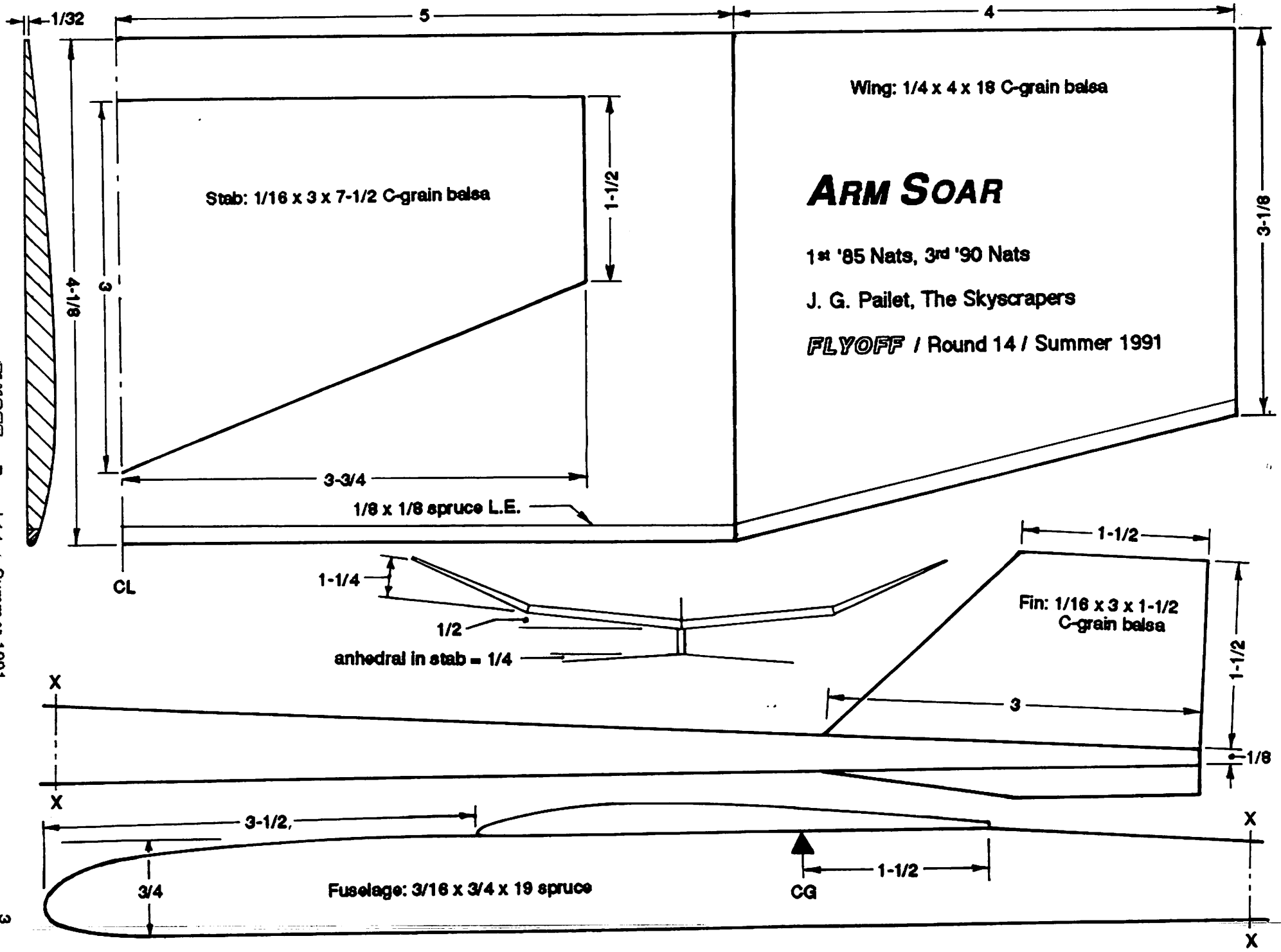
I generally use a 1/4" thick finger-rest at the wing-fuselage intersection and a couple of sandpaper "grips" glued to the fuselage sides at comfortable locations to improve the ARM SOAR's launchability.

Center of gravity is noted on the plans.

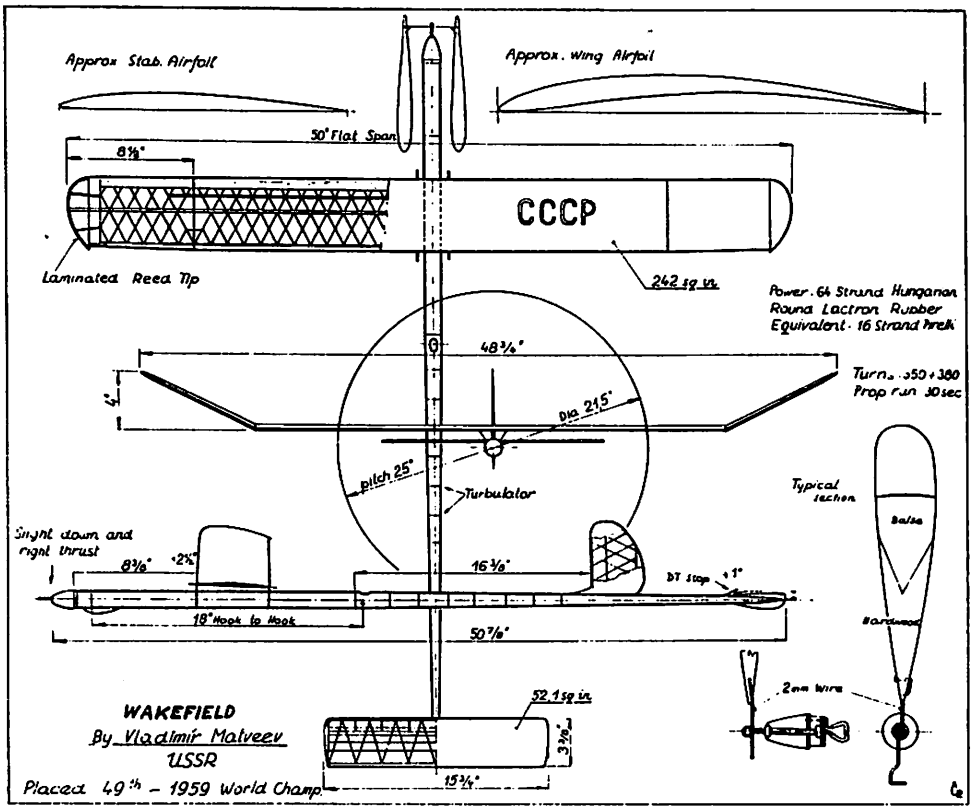
My dethermalizer preference is a swinging weight attached about halfway between the wing and tail. Since it is always necessary to add nose ballast to balance a glider, it doesn't make sense to me to add the unnecessary weight of any other d/t type.

Trimming is reasonably conventional. Since I am right-handed, launch is to the right and glide to the left. Glide turn is accomplished with a combination of stab tilt and very slight differential elevator (up-left/down-right). This "tail twist" also helps in the transition from launch phase to glide. Any tendency to spin during the glide can be counteracted by warping down the trailing edge of the inboard wing (preferably the inner panel only).

There you have it: a competitive glider that doesn't need a world-class athlete to be successful. In fact, I think its major attribute is that it has done so well being flown primarily by a weak-armed old man in his 50s. My 1985 Nats win at age 54 speaks volumes for its performance. And, so long as I can still pick an occasional thermal, I refuse to "retire" to Catapult Glider, as so many of my peers have done!

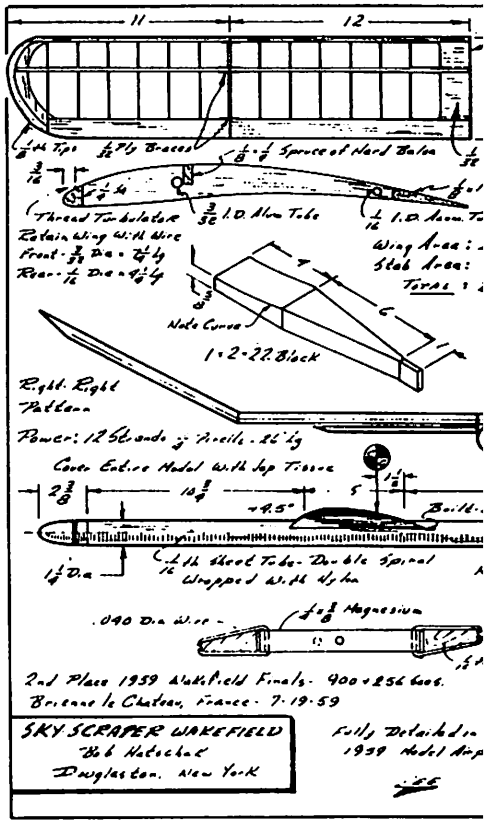

1/32
5
4
Wing: 1/4 x 4 x 18 C-grain balsa
Stab: 1/16 x 3 x 7-1/2 C-grain balsa
1-1/2
3-1/8
4-1/8
3
ARM SOAR
1st '85 Nats, 3rd '90 Nats
J. G. Pailet, The Skyscrapers
FLYOFF / Round 14 / Summer 1991
3-3/4
1/8 x 1/8 spruce L.E.
CL
1-1/4
1/2
anhedral in stab = 1/4
1-1/2
Fin: 1/16 x 3 x 1-1/2
C-grain balsa
1-1/2
3
1/8
X
X
3-1/2
3/4
Fuselage: 3/16 x 3/4 x 19 spruce
CG
1-1/2
X
X

From Frank Zaic's 1959-61 Yearbook, drawn by Radoslav Cizek



Matveev's original 1959 model is now on display at the AMA Museum in Reston, Va

From Frank Zaic's 1959-61 Yearbook, drawn by Lee



USA won top team prize in '59: Hatschek 2nd, Joe

The Skyscrapers and the Soviets, 1959

In the light of the Skyscraper invitation to the Moscow Aeromodeling Club, the following may be of interest or amusement. At the end of the 1959 Wakefield World Championships in France, your editor swapped his Skyscraper Wakefield for one flown by Vladimir Matveev, a member of the Soviet team. The USSR model was flown and analyzed by Bob, who wrote an evaluation for Model Airplane News *(Feb. 1960). Bill Winter, then the enterprising editor of MAN, sought a parallel article on the Skyscraper (which had been published in MAN in Dec. 1959) from the Russians. What follows is a verbatim copy of what he received through official channels. It has never been published before.*

Doves of Peace

This tall, well-knit man of thirty is rarely seen alone, for he is constantly surrounded with children whether at home, in the streets, or at tha Baku Palace of Young Pioneers where he directs the aircraft modelling laboratory.

The children are very fond of Vladimir Matveyev, and he is no less fond of them.

Vladimir's story is not without interest.

He first appeared at the Baku Palace of Young Pioneers in 1938 when he was a fifth form pupil, and he quickly took to the hobby of aircraft modelling. Every one of his creations was a startling success, and his teachers and schoolmates often said that Volodya had real talent in this field. He had evidently inherited his taste for form from his mother who was an artist, and his skill as a mechanic from his father, a handicraftsman.

Vladimir finished secondary school in 1943 when the second world war was at its height. Aircraft modelling receded into the background in those difficult years, and Vladimir matriculated at a dental college. But when he had graduated and received his diploma, he found himself longing for his old hobby, aircraft modelling, the construction of such craft that could dart to the blue sky, or soar over the ground like doves.

And so Vladimir once more returned to the Baku Palace of Young Pioneers, this time not as a schoolboy novice, but as a teacher of aircraft modelling. He began to direct the work of several groups of young aircraft modellers, pupils of the fourth to the eighth forms.

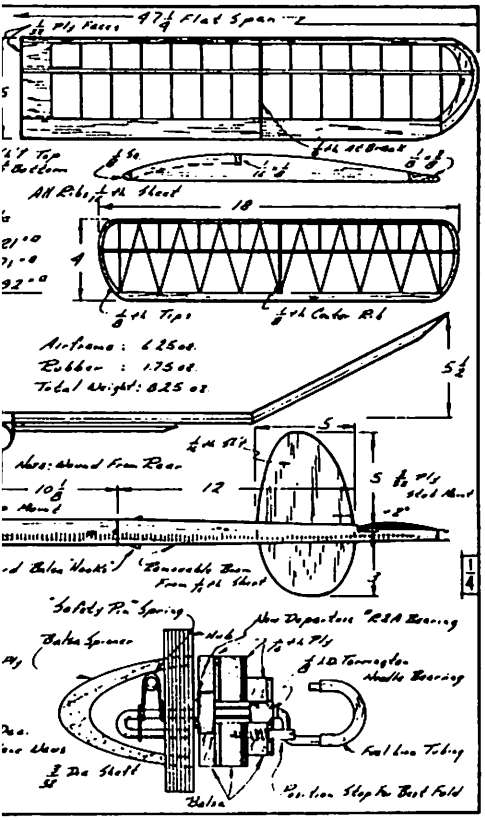
"I find my work very attractive," says Vladimir. "The youngsters just love it. They turn out fairly good models themselves and also direct the work of their aircraft modellers' circles at school. We are now preparing for a contest of indoor models. In the spring we hope to arrange a city-wide contest of 'lunik' and 'sputnik' models. Each member of our circle will train 20 to 30 youngsters at school: and I think the contest ought to be an exciting one."

Talking about himself, Vladimir Matveyev admitted he had achieved some good results himself. At the world contest of rubber propelled models in Moscow in 1954 he won the second place. Within a year he took part in an international contest of aircraft modellers in Czechoslovakia as a member of the national team of the USSR. The Baku modeller won first place on that occasion. And at the international contest of 1956 in Hungary the second prize went to Vladimir Matveyev. In the same year Vladimir went to Sweden as the coach of the Soviet team. There, however, the Soviet modellers won only the second place, losing to Sweden

This year Vladimir Matveyev took part in the world aircraft modellers' contest in Paris where the Soviet sportsmen suffered a setback emerging on the eighth place. Vladimir Matveyev's pupil, Champion of the USSR Vladimir Zapashny, won fifth place in the singles.

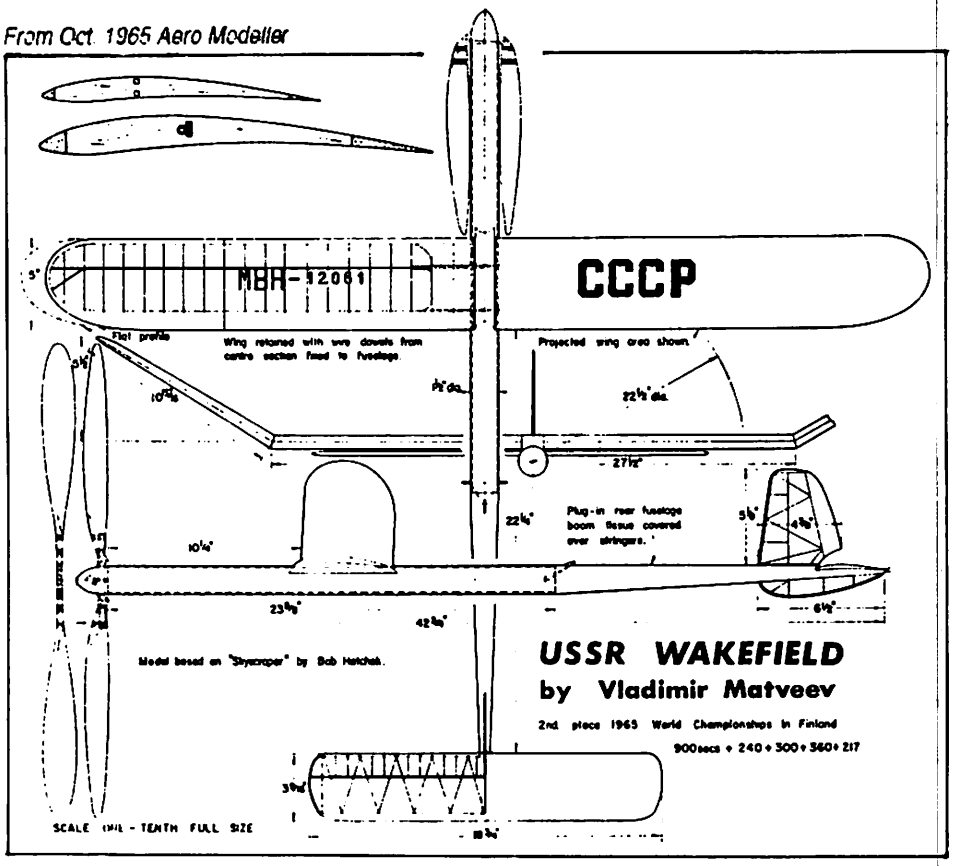
"Our showings were not so good in Paris," says Vladimir Matveyev. "But we made many friends. There was a tall, thin

Renaud



Bilgri 8th, Herb Kothe 10th

From Oct. 1965 Aero Modeller



Matveev's 1965 Wakefield could have been named the 'Soviet Skyscraper'

modeller in the national team of the United States whom I liked very much. We got acquainted later. He was the very cheerful and sociable Bob Hatschek who won not only my sympathy but that of our entire team. I presented my American friend with my model; and he reciprocated by giving me his.

"When I later heard that my friend had won second place in the singles, I congratulated him with all my heart."

Vladimir Matveyev thought that Bob Hatschek's model was excellent.

"It's a successful design," he said. "The scheme is simple and easy to build. Especially original is the solution of the screw-motor complement. I tested the model under Baku conditions, and found that it did very well."

Many Soviet aircraft modellers soon learned that Vladimir had received Hatschek's model as a gift and asked him so many questions about it that he had to make a diagram of the thing and distributed it among his friends.

"I certainly won't forget Bob Hatschek!" he said. Like the American people, the Soviet people want nothing so much as peace. And let us not compete in the manufacture of aircraft armed with death-dealing bombs, but in the flying of our wonderful aircraft models, the 'doves of peace' "

Vladimir drew a stack of letters from his desk.

"I correspond with Wu Cheng-hsung in China, with the Stefan brothers in Rumania and Hungary, with Livke of Czechoslovakia and many other aircraft modellers abroad," he said. "And now I have a new friend on the American continent. I should like to know how Bob Hatschek is getting on and what new successes he's had in aircraft modelling."

There's a good bit of truth in that ineptly written piece of cold-war propaganda. And the main reason it was never published before is that it didn't do a good job of answering the questions Bill Winter asked. I heard much later that the Sky-scraper Wake even got into a Moscow wind tunnel. And it's certain that Matveev was impressed by it; he copied it. And with it he started a new chapter in Soviet F1B development. What follows are a few excerpts from a Ron Pollard article in the1985 Free-Flight Experts' Forum *(published in England).*

Development of Russian Wakefield Designs

Of the Soviet efforts at the 1959 Wakefield WC, Pollard wrote, "What was more significant than the team placing [8th], or perhaps because of it, an exchange of models took place. This was between Vladimir Matveev and Bob Hatschek of the US, who had taken second place. This was to radically change Russian Wakefield designs for over ten years."

". . . In 1965, at Kau Harva in Finland, a historic Wakefield event took place. In one of the most famous wins in free-flight history, 18-year-old Thomas Koster beat Matveev in the fourth fly-off to lift the coveted Wakefield Trophy. The model that Matveev flew was, superficially at least, very similar to the Bob Hatschek design of 1959. He [Matveev] also placed third in 1967—with Koster fifth, incidentally—and with Melentiev fourth and Boldin 23rd, the team had their first win in Wakefield.

"This design was to be the standard Russian Wakefield design for years to come. In 1969 it was good enough to produce another team win, this time with Zilberg 3rd, Melentiev 7th, and Yurov 8th. Then it appeared, in result terms, that the team was slipping. In 1971 the team was 3rd, with individual places of 9th, 14th and 29th; in 1973 it was 11th, with 26th, 27th and 56th; and in 1975 18th, with 38th, 40th and 66th. The design, which by now was at least 16 years old, just was not 'producing the goods'."

Younger modelers—notably Sergei Samokish and Alexander Andriukov—then began to exert influence, and more recent trends have been toward increasingly sophisticated, mechanized trim and propeller control

FLYOFF 1991 Free Flight contest calendar for the Northeast (As of May 7, 1991)

Any sponsor of a FF meet (unrestricted entry) within 500 miles of NYC is urged to notify *FLYOFF*. Listing depends on space. Priority is: "Modern" (AMA, FAI, MAAC); NFFS NosGas; SAM FF; FAC; Indoor.

List is not complete and is subject to change. We have no information on some meets. See footnotes for details. Confirm all data with sponsor and ask for any last minute changes.

Dates	Site	Sponsor / Meet	Notes	Info contact (Phone or send S.A.S.E.)
5/25-26	Galeville, NY	Skyscraper Spring Meet	2, 10	John Carbone, 394 Oakwood Dr, Huntington Sta, NY 11746 (Tel 516/271-5548)
6/6-9	Johnson City, TN	USIC/Nats Indoor	1	USIC, 1655 Revere Dr, Brookfield, WI 53005
6/15-16	CFB Borden, Ont.	Canada Spring Cup	0, 4	Tony Mathews, 12 Bideford, Apt. 3, Toronto, Ont, M5M 4C1, Canada (Tel 416/322-9943)
6/16	Galeville, NY	Skyscraper June Monthly	9	Dave Acton, RD #3 Box 227, Mahopac, NY 10541 (Tel 914/628-0526)
6/18-22	Lawrenceville, IL	AMA FF Nats	1, 2	AMA HQ, 1810 Samuel Morse Dr, Reston, VA 22090 (Tel 703/435-0750)
		NFFS NosGas & special events	1	A. Van Dover, 112 Tillerson Dr, Newport News, VA 23602 (Tel: 804/877-2830)
		SAM 57 Old-Timer Meet	1	Don Sachajen, RR 5, Box 56B, Bloomfield, IN 47424 (Tel 812/384-3102)
		Flying Aces Club events	1	Lin Reichel, 3301 Cindy Ln, Erie, PA 16506 (Tel 814/833-0314)
6/29-30	Galeville, NY	EFFC Champs	1, 2	Bill Poythress, 2 Hemlock Ct, Saugerties, NY 12477 (Tel 914/246-8850)
6/29-30 (Note new dates)	WPAFB, Dayton	Intra City FAI	0, 2, 7	Joe Macay, 22278 Prosper, Southfield, MI 48034 (Tel 313/356-4091)
7/6-7	Bong (Brighton), WI	IMAC/Bong Eagles	0, 2, 7	Mitch Post, 6801 N Waukesha, Chicago, IL 60646 (Tel 312/763-6577)
7/14	Galeville, NY	Skyscraper July Monthly	9	Dave Acton (see above)
7/17-19	Gananoque, Ont	SAM 86 Great Grape Gathering IV	0, 11	Don Reid, 7 Pinepoint Dr, Nepean, Ont, K2H 6B1, Canada (Tel 613/828-2467)
8/3-4	CFB Borden, Ont	Ontario FF Champs	0, 2, 4, 7	Doug Rowsell, 448 Cranbrooke Ave, N. York, Ont 5M5 1N7, Canada, (Tel 416/785-0323)
8/10-11	Fayette, NY	Empire State FF Champs	1	Bill Burns, 209 Hamilton St, Penn Yan, NY 14527 (Tel 315/536-9479)
8/11	Galeville, NY	Skyscraper August Monthly	9	Dave Acton (see above)
8/18	Galeville, NY	Mid Hudson Modelmasters	0	Vance Sutton (Tel 914/679-2152)
8/24-25	CFB Borden, Ont	Canadian Unofficial FF "Nats"	0, 12	Peter Allnutt, 2460 Weston Rd, Apt 1707, Weston, Ont, M9N 2A4, Canada (Tel 416/249-0032)
8/25	NAS Johnsville, PA	Delaware Valley Federation	1	Jim Van Sant, 337 Parkview Ave, Penndel, PA 19047 (Tel 215/757-2513)
8/31-9/2	Galeville, NY	FAI FF Team Semifinal	7	Dave Acton (see above)
9/7-8	Gananoque, Ont.	Eastern Canada Open	0, 6	K.B. Condon, 254 Westercroft Rd, Beaconsfield, Que, H9W 2M4, Canada (Tel 514/695-9877)
9/15	Galeville, NY	Bath BAM Bash	1	Clay Ott, 6018 Nor-Bath Blvd, Bath, PA 18014
9/22	Galeville, NY	Skyscraper September Monthly	9	Dave Acton (see above)
10/5-6	CFB Borden, Ont	Canada Autumn Cup	0, 2, 5, 7	Leslie Parkes, 21 Misty Moor Dr, Richmond Hill, Ont L4C 6P9, Canada (Tel 416/731-2585)
10/6-11	Jean, NV	SAM Champs	1	Mike Granieri, Dreyden Rd, Box 78, Pottersville, NJ 07974 (Tel 201/439-2933)
10/12-13	Galeville, NY	Skyscraper Intl Challenge	2, 3, 8	Vito Gagliano, 104 Cherry St, Floral Park, NY 11001 (Tel 516/488-4217)
10/27	Galeville, NY	Skyscraper October Monthly	9	Dave Acton (see above)
12/27-30	Palm Bay, FL	King Orange International	0, 2, 7	FAI events: Jim Bradley, 1337 Pine Sap Ct, Orlando, FL 32825; (Tel 407/277-9132)

Notes: All meets include FF (AMA, FAI, MAAC, SAM, or NFFS). As of this date, NAS Johnsville and Wright-Patterson AFB are again available. Westover AFB is not. Safest is to check info.

0. Specific events not known.
1. Similar to 1990
2. Americas Cup points.
3. Selected contest, '93 Team.
4. Open events Sat; FAI Sun.
5. F1G, H, J Sat; F1A, B, C Sun
6. Old-Timer Sat; FAI & Open Sun
7. F1A, F1B, F1C
8. F1A, F1B, F1C, F1G, F1H, F1J, German HLG
9. 1/2A, ABCD, F1ABC, PW30, NosGas, .02Repl, HLG, Cat G, P30, P30U, Mulv — Category III
10. Sat—PW30, P30, F1A. Sun—Dawn Mulv, 1/2A, F1B, F1C, HLG, NosGas. Category III
11. Dates are Wed-Fri. SAM events only (Gas, Rubber, HLG; & RC)
12. No FF at Canadian Nats (7/1-7, Huron Park) except Rub scale, Peanut; Indoor. Unofficial FF "Nats" is not MAAC sponsored

Maintain CG when changing engines

by Walt Rozelle

[This article is not about NosGas. It's not even about power models. It's about the use of some very simple math to keep a modified model airplane in trim. And it's just as useful when you build a better front end for a Wakefield or when you add a beeper to your best Nordic.—the Editor]

I recently had occasion to try a newly acquired OS 29 in my "mature" Spacer 600, which has been flying for a couple of years with a clunking McCoy 29 Super Stunt. The model was pulled down from the attic after a 20-year hiatus, recovered, and despatched to fight the Nostalgia Gas wars. The model hasn't done all that badly, considering its vintage, including a place in the top five at USOC 89 and at USOC 90.

The model is in "perpetual" trim, and I didn't want to disturb this by messing up the CG when I repowered it. The OS 29 weighs 243 grams, compared to the McCoy's 205 grams. How could I switch engines and still maintain the CG trim without numerous additional trimming flights?

Grammar school playground to the rescue! Remember the old fulcrum principle as it applies to the see-saw: Weight A times its distance from the balance point equals weight B times its distance from the balance point. ($W_1 \times L_1 = W_2 \times L_2$)

The object of this exercise is to determine how much weight to add, and exactly where to add it at the rear of the fuselage so that the CG (the balance point, or fulcrum) will remain exactly at the same position with the OS 29 bolted in the same engine bearer holes.

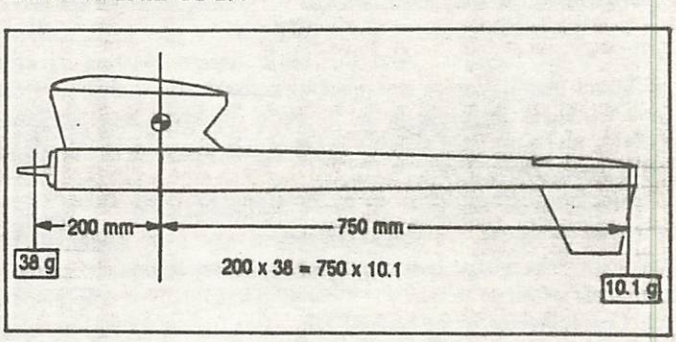
First I had to determine the balance points of the two engines (the CG of the "iron"). I simply tied a miniature alligator clip to a length of string and moved the clip along the mounting lug of each engine until it balanced with the shaft horizontal. Then I measured from the rear lug hole to this point on each engine. As it turned out in this case, both measurements were the same: 10 mm from the center of the rear mounting hole.

Next I checked the rear of the Spacer fuselage to determine where I should attach the new weight. As far to the rear as possible, right? Then, measure the distance L_1 from the engine balance point to the Spacer's CG location and L_2 from the CG to where the lead will be affixed. As it turned out, L_1 = 200 mm; L_2 = 750 mm.

It doesn't matter whether you measure in millimeters or inches or even microfurlongs—as long as you use the same units for both measurements. The same is true, of course, for the weights—grams, ounces, or kiloscruples. Just be consistent!

How much lead? Well W_1 is the difference between the "new" OS and the old McCoy: 243 grams – 205 grams = 38 grams, so we go to the formula ($W_1 \times L_1 = W_2 \times L_2$) and we put in the numbers: $38 \times 200 = W_2 \times 750$. Then we solve the equation for W_2, as follows: $(38 \times 200) / 750 = 10.1$ grams.

So I cut a block of lead weighing 10.1 grams, epoxied it into the fuselage at a point centered 750 mm behind the CG location, and bolted in the OS 29.



To meet the required power loading, this model has to weigh 29.9 oz, or 848 grams. When powered by the McCoy I had to add weight at the CG to bring it up to minimum. Now I have added another 48 grams ($W_1 + W_2$), so I was able to remove most of the ballast at the CG.

And what do you do when you change to a lighter engine? If you had to add tail weight due to a nose-heavy condition with your first engine, you can use the above formula to determine how much weight to remove. Or you might try to find a spinner that weighs what the formula tells you will be needed at the front of the engine to return the model to proper balance.

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[Continued from page 2]

These are not finished blades. The bottom surface is flat (which I prefer) and would require only fine sanding unless you want to sand in some undercamber—and there's enough wood in the unfinished blades for that. The upper surface is also flat, and must be sanded to an airfoil (your choice).

All four props are excellent balsa, although they are not quarter grain. Wickland offers to supply blades in the customer's choice of soft, medium, or hard balsa. And his basic price is 50¢ per inch of diameter for two bladers (3- and 4-bladers cost $1 per inch).

Ed's package included a sample of his new Coupe-sized Montreal-stop front-end assembly (priced at $24.50). Functionally, it's a conventional, unreversed Montreal stop—probably the most widely used type in the world today. But its design details are not at all conventional and offer significant advantages both for the manufacturer and for the user. I won't go into a detailed description of the unit, which weighs 7.5 grams, but both the drive pin and the hold pin are exceptionally easy to set—even without needle-nosed fingers. And the basic design concept greatly facilitates installation in any noseblock you'd care to make. This guy Wickland understands both model building and machine design! His letter also informs me that he's planning to introduce a Wakefield-sized version "soon."

I'll be honest with you. At first I doubted that I'd ever use any of these products. I have developed my own easily made hardware, which suits both me and my support equipment. And I have little patience to wait for the mailman to deliver prop blades that I can produce in an hour or two. But I recently had an idea for a new prop setup and my time was otherwise occupied. So I phoned Ed and asked him to make me some blades. They were delivered in less than a week! You'll see them on my new Coupe. And if they work out as well as I hope, I'll be ordering some Wakefield blades later.

If you have any reservations about making your own props and front ends, I would certainly recommend the products of Superior Props. Send an SASE for information on the full product line to: Superior Props, 2412 Tucson Ave, Pensacola, FL 32526. Or phone Ed Wickland at (904) 944-1972.

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