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MARCH 1995
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MODEL BUILDER



review:

**The Tiger 2 from
Carl Goldberg
Models**

**review:
Hobby
Lobby's
Skimmer
Electric
Sailplane**



**The
1994
QSAA
Fly-In**



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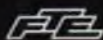
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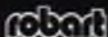
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WORLD'S MOST COMPLETE MODEL AIRCRAFT PUBLICATION

• MARCH 1985
• VOLUME 24
• NUMBER 6



ON THE COVER

One of the best of the rudder/elevator electric motorgliders on the market is Hobby Lobby's "Skimmer," designed to build easily and perform well with inexpensive six- or seven-cell direct-drive motor setups. This particular model is the work of John Lupperger—see his review on page 64. Top inset: Rounding out this month's product reviews is Dave Sanders' evaluation of the Tiger 2 from Carl Goldberg Models, beginning on page 36. Dave discovered that with the right power, this airplane really lives up to its name! Bottom inset: The award for Best WWI Aircraft at the 1994 QSAA Fly-In rightly went to Oregon's Mike Brewer for his exquisitely detailed Nieuport 28, built from the Proctor kit. Eloy Marez reports on this huge meet on page 46.

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Publisher Jack Lewis

Associate Publisher Mark Thiffault

Managing Editor Phil Bernhardt

Assistant Editor Richard Dowdy

Art Director Bradley L. Wood

Artist Jerry Bassett

Advertising Director Robert W. Arseneault

Production Manager Bill Rice

Accounting Manager Jim Lenhart

Office Staff Kay Bastnagel

Brett Thiffault

Tamara Stevenson

Advertising Mark Thiffault

714/496-5411

Contributors Jake Doe

Bruce Edwards

Bill Forrey

Bill Hannan

Roger Jaffe

Eloy Marez

John Pond

Francis Reynolds

Bob Stalick

Art Steinberg

John Thompson

James Wang

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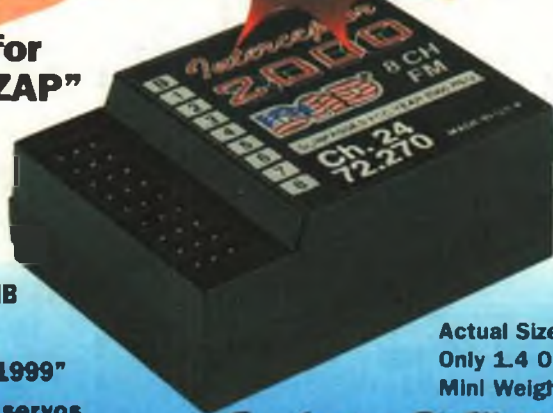


Working on and off for the past 3-1/2 years, master craftsman Bob Upton turned out this gorgeous example of a Byron F6F-3 Hellcat, complete with Byron's Purr Pow'r 4.2 Sachs, three-blade scale prop, etc. Bob writes: "The 'Cat weighs about 30 pounds and is painted with K&B Super Poxy. The stars and bars are also painted in the interest of authenticity. I simulated panel lines where appropriate and also simulated rib stitching on the fabric-covered ailerons, rudder and elevators. The full scale cockpit is complete with gunsight, 'bulletproof' window panel, seat belt harness, night lights, wire harness, sliding canopy, *ad nauseam*. From the comments I get from my peers, it was worth the effort." Bob says he flies the model with the scale prop and, while not exceptionally fast, it sounds and looks just fine in the air. *Bob Upton, 127 Harbour Town Dr., Montgomery, TX 77356.*

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Super Sportster Biplane
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.35-.45 or 4-stroke .40-.70



A classic O.T. rubber ship is Chet Lanzo's 50-inch span Puss Moth, built from *Model Builder* plans by Jim White of Hudson, New Hampshire. Jim went a step further and also built up a set of Hal Cover's Edo-type floats (another *Model Builder* plan); conversion between wheels and floats takes only a couple of minutes. Wings and stab are covered with gray tissue, fuselage and fin are red silk. Flying weight is 11.5 ounces, 3 of which are rubber. Chet designed this model with contest performance in mind, taking more than just minor liberties with the scale outline in the process—still an exceptionally pretty ship, though. *Jim White, 155 Robinson Rd., Hudson, NH 03051.*

Barry Killick has tried his hand at everything from Jetex free flight to 1/4-scale RC over the past 40+ years; his latest project is this attractive Grumman F9F Panther, built from Nick Zirolli's plans and using the available fiberglass fuselage and inlet ducts. Power for the early U.S. jet fighter comes from an O.S. .91 with JMP tuned pipe, driving a Ramtec fan. All-up weight is 18-1/2 pounds. "All paint is automotive lacquer from spray cans," Barry writes. "The paint scheme is atypical of a post-Korean training unit, using gull gray, white and high-visibility orange. As I'm not entering Top Gun or a Masters contest, I took a little license on the color scheme. At least it isn't another midnight blue Panther!" *Barry Killick, 44139 Marlson, Novi, Michigan 48375.*



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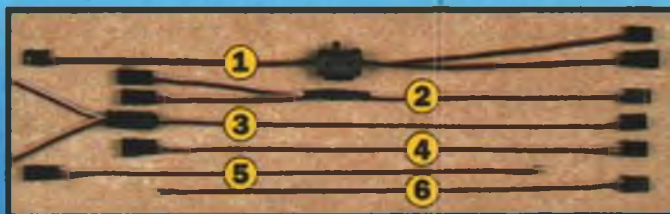
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David Harburg's latest electric project is a mean-looking Mitsubishi J2M3 Raiden, built in what David describes as 1/10 "don't look too close or you'll be disappointed" scale. He laboriously adapted it from a Japanese Marutaka gas model kit and installed an Aveox 1405 brushless motor, running on 10 cells and swinging an 11-inch Kyosho prop. Complete with retracts and Futaba six-channel radio, the Raiden came in at an estimated 3-1/2 pounds. David concludes: "It has yet to be flight tested, as I'm searching for a suitable field, one without power lines or concrete poles—not an easy task here." (We should point out that David is an American currently residing in Japan, where he teaches English.) *David Harburg, 5-3-12 Noda, Kuwana-shi Mie-ken, 7511 Japan.*



Of his 1/4-scale Quickie homebuilt, modified from the Cressline Model Products (414-564-3619) kit, Russell McKenzie writes: "The landing gear at the tips of the canard wing pose a problem on rough fields, but otherwise there are no bad landing characteristics. The plane flies well once you adjust to its unusual shape. Power is a Saito .80 four-stroke turning a 12x8 three-blade prop (for ground clearance). Finish is .65-ounce Dan Parsons glass cloth and K&B Super Pox. The two girls are my daughters, Monique and Kellie." *Russell McKenzie, 4 Briars Knoll Way, Hanover, MD 21076.*

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MODEL DESIGN & TECHNICAL STUFF

BY FRANCIS
REYNOLDS

• Spins Revisited • Gyros • Frank Zaic

This computer is a handy thing. I can store a whole lot of stuff in it, and it doesn't show, so I can forget all about it. This isn't good, however, when the stuff I store is good material from you readers which I promised I would discuss in this column "someday." As you can see from some of the following dates, "someday" has gotten a bit out of hand. My apologies to those mentioned, even though you received personal answers promptly.

• • •
January, 3, 1993; to Will Kuhnle, Richardson, Texas:

I can see now that in the January '93 MD&TS, I did a poor job in writing that "Airplanes with small tails may not spin." You're right, of course. A large elevator with lots of throw (and sometimes a large rudder with lots of throw) is often required for spinning, but many WWI and earlier planes were notorious for spinning because they had "small tails." Their stability margins were small, including, as you say, the CG range.

The term "small tails" is too broad. What I meant to say was that a plane with a small elevator and/or a small rudder may not be able to initiate a spin. Small stabs and small vertical fins reduce stability and make unintentional spins more likely, and small rudders and small elevators make it harder to get out of a spin if it occurs. When we have large fins and large stabs (for stability), we need large rudders and elevators, with lots of throw, in order to overcome that stability for aerobatics, including spinning.

As might be expected, the stability of a flying wing is apt to be even less than that of an airplane with a small tail. Flying wings usually have reflexed airfoils, which provide some longitudinal stability (at a cost in lift). They also frequently have huge fins and rudders (at a cost in drag), since their tail moments are so small.

I once flew an original design flying wing with the fuel tank well forward of the CG. With a full tank it flew OK, but seemed nose heavy and

wouldn't spin. After it had burned off a little fuel, it flew better and spun fine. Still later in the flight it got into a spin by itself, from which I was able to recover. Near the end of the flight, with the tank nearly empty and the CG still farther aft, it entered an unrecoverable spin.

An airplane with a small tail (or no tail) will have a limited usable CG range, which means the balance needs to be pretty close to "right." If the CG is too far forward the plane will require excessive up elevator to hold the nose up, and it won't be able to spin or even flare sufficiently for a good landing. If the CG is a little aft of optimum it will be squirrely to fly; it will probably get into spins easily and may not be able to recover.

Some planes have difficulty recovering because the spin disrupts the normal airflow over certain surfaces. In particular, the stabilizer on some designs tends to block the flow to the vertical fin and rudder during a spin.

A poor design may make recovery from a spin difficult or impossible, but I've never flown a full-scale airplane that didn't come out of a spin by itself as soon as the stick was released. Most of the models we fly also fall into this category. The problem we more often face with RC models is the inability to spin when we want to.

Practically all models will spiral dive (with the elevator stick either full back or full forward), but many won't do a true spin, which can be recognized by a higher spin rate, a shallower nose-down angle, and a lower descent velocity. If you have a model that won't spin or snap roll, or doesn't do them well, try moving the CG back (a little at a time, please!). Try spinning with full aileron as well as full rudder and full elevator. Try it with reversed aileron deflection. Try spinning at full throttle (the propwash over the tail will sometimes make it effective enough to permit a spin). Increase the elevator throw. Increase the rudder throw. Increase the eleva-

tor and/or the rudder area. If the dihedral is high, reduce it. Increase the tail moment. Increase the wing loading. Try another airplane. Take up golf instead.

GYROS

While ordering a copy of my book, in February of 1994, Jimmy Andrews suggested that I write about gyros, and had some ideas of his own. Quoting him in part: "Does it really help to place a gyro near the CG in a helicopter? I don't think so, since the gyro, if it is designed correctly, will only sense angular rate of rotation about one axis. The angular rate of rotation is the same all over the helicopter, therefore it doesn't matter, does it?"

"My on-road RC car used to spin out easily if the road surface was uneven or slippery. I have totally eliminated this problem by installing a rate gyro in the car for the steering. I now have a Sundance solid-state gyro which should work even better for this, but I haven't tried it yet. Why have I never heard of anyone using gyros in cars before?"

"Lastly, I would like to buy, build or design a tandem-rotor model helicopter. Hirobo produces a model of the Vertol, but the linkages are a nightmare. Why doesn't somebody with electrical engineering savvy design an electronic mixer that can be placed on board that helicopter? With three servos per swashplate, connected by short, straight linkages, the mechanics would be as simple as some single-rotor helis."

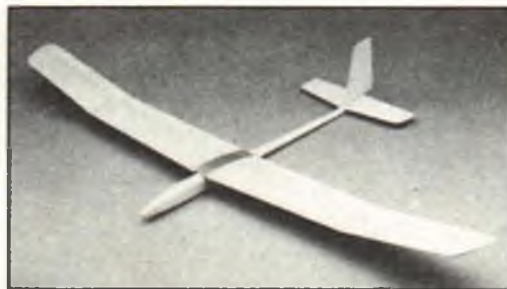
Thanks, Jimmy, for the kind words on my column, and for the gyro thoughts. You've also added to my collection of letters from readers in faraway places. I've heard from India, Italy, Australia, Brazil, Hong Kong, Bangkok, Tokyo, and others, but yours is the first from Singapore.

I agree with you on the helicopter gyro placement question; as you say, the angular rates are the same wherever we put it; but I'm not a gyro expert and there may be some things

continued on page 14

over the counter

All material published in OVER THE COUNTER is quoted or paraphrased from press releases, furnished by the manufacturers and/or their advertising agencies, unless otherwise specified. The review and/or description of any product by MODEL BUILDER does not constitute an endorsement of that product, nor any assurance as to its safety or performance.



GLOBAL'S WHIPIT RCHLG

Serious competition hand-launch fliers will want to take a close look at Global's new Whipit Class A sailplane, produced in Europe by the same folks who turn out the big unlimited class Grifter also carried by Global. By coincidence, we're just finishing up a Whipit for a *Model Builder* review article and can tell you that it's a very high quality piece of work, with pre-sheeted foam wings, pre-painted fiberglass fuselage with slip-on nose cone, and excellent lightweight balsa for the tail surfaces and wingtips. Wing area is 341 square inches, and the airfoil is an SD7037 at the root tapering to a flat-bottom section at the tip. Whipit kits are available at hobby dealers throughout the U.S.; distributed by Global Hobby Distributors, 10725 Ellis Ave., Fountain Valley, CA 92728-8610; (714) 963-0133.

FOR BIG BIRD FLIERS

In response to the demands of the rapidly growing Giant Scale crowd, Du-Bro has come

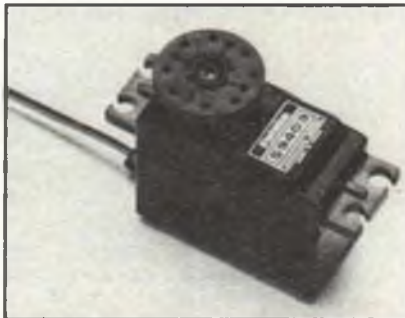


out with three new extra-large fuel tanks—in 32, 40 and 50 fluid ounce sizes, priced at \$7.50, \$9.50 and \$11.50 respectively. Each is supplied complete with fuel stopper, tubing for both glow fuel and

gasoline, and a nickel-plated large clunk. From Du-Bro Products, 480 Bonner Rd., Wauconda, IL 60084.

FUTABA NEWS

A couple of new Futaba servos are the S9304 (replaces the S9301) and S9403 (replaces the S9401). Both are built into the same case, both have a ball bearing supported output shaft, and



both use a coreless motor. The main difference is that the S9304 has higher torque (69.5 ounce-inches vs. 44.5), while the S9403 has a quicker transit time (0.16 second for 60 degrees vs. 0.22 second). Both measure 0.78x1.59x1.40 inches and weigh in at 1.7 ounces. From Futaba Corp. of America, 4 Studebaker, Irvine, CA 92718.

ABOUT THAT STORCH . . .

No sooner had the photo of Louis Hutton's Fieseler Storch appeared in "Plane Talk" (October '94 *Model Builder*) than we got a call from Fred Novack: "Hey, that model was built from my plans!" Fred, of course, operates Vintage R/C Plans, and sent a copy of his illustrated



plans catalog listing some 60 different models, only a few of which are not scale types. The Storch, for example, is a highly detailed 92-inch span, 2"=1' replica of the famous WWII German observation aircraft; the four sheets of plans sell for \$21.95 plus shipping. The 12-page catalog is available for \$2 (\$3 foreign) from Fred Novack's Vintage R/C Plans, 5105 Pine Hill Circle, Howell, MI 48843.

HL'S ELECTRIC HOTDOGGER

One of several interesting new models in Hobby Lobby's just-released Catalog 25 is an electric aerobat dubbed the Brigadier, designed by Bob Sealy of Quality Fiberglass. The Brigadier is perhaps best described as a very clean, clipped-wing electric sailplane equipped with a taildragger gear for normal takeoffs and landings. Sized for 12-16 cell power systems, the model spans 66 inches and features an epoxyglass fuselage and balsa sheeted foam wing and stab. Motor, prop, battery and speed control recommendations are



listed in the catalog.

Hobby Lobby's new 124-page Catalog 25 is now available and contains more than the usual number of new goodies. You can get a free copy by writing or calling Hobby Lobby, 5614 Franklin Pike Circle, Brentwood, TN 37027; (615) 373-1444.

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uted by Horizon Hobby Distributors, 4105 Fieldstone Rd., Champaign, IL 61821; (217) 355-9511.

KYOSHO'S HYPERFLY

One new model that created considerable interest at the recent RCHTA show in Chicago was the Kyosho HyperFly electric helicopter, being distributed in the U.S. by Great Planes. The HyperFly takes RC helicopter flying to its most basic form—only two channels are used (right/left and fore/aft cyclic); there's no throttle and no tail rotor. Simply switch on, launch by hand and land when the batteries say they've had enough. The model comes mostly pre-assembled, only a few hours being needed to fin-



ish it up and install your radio. You'll also need to provide your own six-cell battery pack (1000 mAh recommended). Check it out at your favorite hobby shop. From Great Planes Model Distributors, P.O. Box 9021, Champaign, IL 61826-9021.

ONE HOT-LOOKING TRAINER

Don't be fooled by its racy appearance—Jeff Troy's F-14 Tamecat is actually a very gentle, stable primary trainer, and now Altech Marketing is

offering a pre-built ARC version of the Tamecat that requires only a couple hours of work before it's ready for covering. Designed for .40 power, the model spans 72-1/4 inches and carries a generous 794 square inches, which, at a flying weight of 6-1/2 pounds, gives an impressively light wing loading of only around

19 ounces per square foot. Molded ABS wingtips, cockpit deck and cowl are supplied, as is a clear canopy and colorful



military-type markings sheet. Now available in hobby shops, distributed by Altech Marketing, P.O. Box 391, Edison, NJ 08818-0391; (908) 248-8738.

THE "BIBLE" OF RC SOARING

The dark red and black cover makes it next to impossible to show you a decent

photo of the new Northeast Sailplane Products catalog—but to heck with that, it's what's inside that counts, right? NSP's latest catalog is the biggest yet—200 pages containing de-



tailed descriptions of over 180 different sailplane and electric motor glider kits, a wealth of building tips and several informative articles written by recognized experts in soaring and electric power. Much more than just a catalog, this is a comprehensive reference work that no serious soaring/electric enthusiast will want to be without. Copies are available for \$7.00, shipped first class mail from Northeast Sailplane Products, 16 Kirby Lane, Williston, VT 05495. NSP can also be reached by phone at (802) 658-9482.

BRODAK'S BUSTER

Brodak's Manufacturing and Distributing is offering kits for its new Buster, a 40-inch span control line profile ship said to

be ideal for combat flying or as a stunt trainer. Engine requirements

call for a .19 to .40, and the kit is complete with detailed full-size plans and illustrated step-by-step instructions. Suggested retail is \$44.95, available at



hobby shops or direct from Brodak's Manufacturing and Distributing, 100 Park Ave., Carmichaels, PA 15320; (412) 966-2726.

SCALE DOCUMENTATION CATALOG

The 1995 edition of Bob Banka's Scale Model Research Catalog/Resource Guide comprises 168 pages listing 5,500 Foto-Paaks (350 of which are new), 30,000 three-view drawings and 13 scale-related articles written by some of scale's



top competitors and authorities. We refer to Bob's catalogs constantly when answering readers' "Where can I get drawings for . . . ?" questions, and are usually able to find what they need. Copies of the Catalog/Resource Guide are available from Bob Banka's Scale Model Research, 3114 Yukon Ave., Costa Mesa, CA 92626; (714) 979-8058. Postpaid prices are \$8.00 each, \$9.00 in Canada and \$14.00 overseas.

CHP'S ENGINE MOUNTS

New from Colorado Hobby Products are two sizes of aluminum engine mounts, designed for .90-1.20 (#MM-1) and 1.50 and up (#MM-2) powerplants. Not castings, these are machined from 6061 T-6 aluminum and are anodized for a professional appearance. Prices and ordering info are available from Colorado Hobby



Products, 4635C Park Vista Blvd., Colorado Springs, CO 80918; (719) 522-0935. MB

MODEL DESIGN AND TECHNICAL STUFF

.....

we don't understand about angular rate gyros.

Thanks also for the thought on using a gyro in a model car. I haven't heard of it before, but it makes sense. Car designers are high-tech in terms of mechanical transmissions, differentials and suspensions, but it may be that they're not into the electronic age much yet. Readers: tell us what you are doing with gyros in cars.

I'm not a helicopter modeler either, but your suggestion for electronic mixing on tandems sounds good. Hirobo: Sit up and take notice. Thanks, Jimmy—I like to hear from readers who are thinking.

FRANK ZAIC

Here's a name that's well known to all readers over the age of 50 who made model airplanes when they were young. When I started building models in 1930, probably the first two famous modelers I heard of were Carl Goldberg and Frank Zaic.

Frank is about eight years older than I am, which makes him about 83. He was one of the founding members of the AMA. (By the way, the original name of the AMA was The American Academy for Model Aeronautics, or AAMA. The first issue of *Model Aviation*, the official AAMA—later AMA—magazine, was published in June 1936.)

I recently received a book in the mail from Frank; no accompanying letter, just a book he had written. The book, titled *Frankly Speaking*, is essentially an auto-

biography, with a little modeling and a lot of philosophy thrown in. Frank was born in Slovenia, but came to the United States when he was quite young.

In return, I mailed Frank a copy of my book, *Crackpot or Genius, a Complete Guide to the Uncommon Art of Inventing* (available at bookstores or from me at \$13.50 postpaid). Frank, being the competitive person he is, didn't quit while we were even; he mailed me another book of his, this time with a letter.

This second book was the *1934 Junior Aeronautics Year Book*. The contents turned out to be much more than that, however. The book consists of reprints of not only Frank's original 1934 year book, but partial reprints of most of his other year books published intermittently clear through 1968. It also contains reprints of many other articles and plans Frank has published over the years, the works of other modelers, ads for early model products, and the story of Frank's early model mail-order business, Junior Aeronautical Supply Company (JASCO), started in 1933. (The reprints of those old JASCO catalogs are enough to make a modeler cry: "Indoor weight 1/16 balsa, three cents per sheet," etc.) Frank tells me he designed the original AMA emblem, which is similar to the JASCO emblem he designed for his own company.

For many of the early years, during the Depression, Frank's only income came from selling his year books and from JASCO. That is, there was a few dollars income in the years when one or

both of his businesses didn't go in the hole. He states that he would often have to wait for the mail to see if a small order for supplies with money enclosed came in before he would know whether he could go out and spend a few cents for breakfast.

Frank was in the Air Force during WWII, with a B-24 Group in Italy. Later he worked for Litton Guidance Systems, and he was with Disney on the "Pirates of the Caribbean" design. His address is now Box 135, Northridge, CA 91328. His books appear to be available yet, at least in reprint form, but he urges customers to send an SASE and write for the latest prices.

All of Frank's books have been self-published, making him a model author, publisher and model-supply businessman in addition to being a world-class model designer, builder and competitor. Of interest to the readers of this column, Frank is a technical person. He was most interested in understanding the aerodynamics and stability of models, way back in the beginning. He, like Charles Hampson Grant, wrote a great deal on these subjects. Unlike a famous but technically confused old-time modeler and recent writer, Frank usually got his technical stuff right.

Frank, my hat is off to you. Not only were you one of my childhood heroes, you have contributed as much as anyone I know to the development of model aeronautics. Some old modelers never die, they just fly away. **MB**

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HANNAN'S HANGAR

BY BILL HANNAN

"Beauty is altogether in the eye of the beholder."

Our quotation, by Lewis Wallace (1827-1905), applies perfectly to the subject of this month's photographs, the Waterman Mercury Gosling racer. The Gosling can hardly be described as beautiful in the classic sense, and yet, it's been popular among modelers world-wide for many years. Why? Perhaps a little history may help explain the attractions of the machine.

During 1921 an International Air Tournament was sponsored in Beverly Hills, California. Among the scheduled events was the Curtiss Cup Race, limited to aircraft powered by stock Curtiss OX-5 engines, which were plentiful at the time.

Waldo Waterman, sponsored by famed movie producer Cecil B. DeMille, designed and constructed the Gosling in a little more than two months, at a cost of \$2,500 (less engine). His design goals included speed, stability, ease of handling, and safety. Test pilot Eldred Remelin agreed that these objectives had been met, and volunteered to race the craft.

The course consisted of two pylons spaced one mile apart. Five widely assorted entries, including a triplane, were entered. Following a race-horse start it quickly became apparent that only two of the aircraft had a chance of winning, the Waterman Gosling and Otto Timm's Pacific-Standard C-1, which were quickly pulling away from the rest of the pack. Finally, the Timm C-1 flashed across the finish line, followed closely by Remelin in the Gosling, which had averaged 136.2 mph, while the "also-

rans" barely exceeded 100 mph.

After the race, the Gosling was retired to the status of "movie prop" for a variety of studios, until 1925, when Art Goebel bought it for \$50. Art re-engined the craft and named it "Lightning," planning to employ it as an oil company advertisement. Unfortunately, the engine/propeller combination chosen was a poor one, and the machine barely managed to fly. Another motion picture company purchased it (for \$50 again!) and reportedly may have used it in a crash-and-burn sequence. Thus the story of the Waterman Gosling faded to a close.

Well . . . not quite. During 1969, Dave Stott was searching for a suitable Peanut Scale subject and discovered a three-view drawing of the Gosling. The low aspect ratio wing, simple rectangular fuselage, long landing gear and flashy red/black color scheme appealed to Dave, and his resulting model proved to be a fine performer. Soon construction plans for it were published, and before long similar models were flying in various parts of the United States and Europe. Later, different versions of the model were featured in Ameri-



■ LEFT: The start of it all: Waldo Waterman with the one and only full-scale Mercury Gosling racer of 1921. Photo from the Warren Shipp collection. ■ BOTTOM: Beautifully crafted and photographed Gosling Peanut by Bob Clemens, of New York, was built from Dave Stott's plans (available from Peck-Polymers).



Milan Kacha, of the Czech Republic, also built his fine Waterman Peanut from Dave Stott plans.



can and foreign magazines.

Although Waldo Waterman was quite advanced in age by then, he did live to see the re-birth of his racer in model form, and enjoyed knowing that it had brought pleasure to so many modelers. During a San Diego meet he slyly suggested that perhaps he should ask for model design royalties!

By far the majority of our mail is from readers seeking scale information and model construction plans, so here's where to look if the beauty of the Waterman Gosling racer is in eye:

• **Documentation:**

Flight magazine, (England) October 13, 1921.

Historical Aviation Album, Volume 1, by Paul R. Matt (the source of much of our history).

• **Scale drawings:**

Modelar (Czechoslovakia), April 1984.

Model Builder, November 1985 (*Modelar* reprint).

Plans & 3-Views International, 1990.

Paul Matt Scale Airplane Drawings, Volume 2, 1991, reprinted 1992.

(11x17-inch copies of Paul Matt's detailed Gosling drawings are also available separately from Aviation Heritage, Inc., P.O. Box 665, Destin, FL 32540.)

• **Model plans:**

Dave Stott's Peanut: Peck-Polymers, P.O. Box 710399, Santee, CA 92072-0399.

Ken Johnson's Pistachio plans: *Model Builder*, August 1983. (Reprinted in *Peanuts & Pistachios*, Volume 2, 1987).

Don Srull's 21-inch span Gosling: *Model Airplane News*, September 1980.

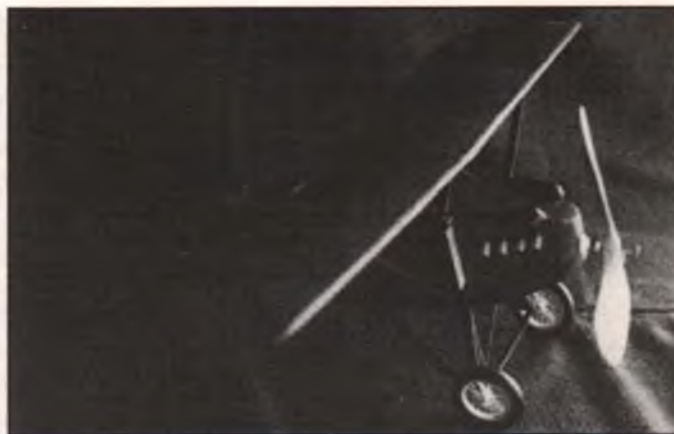
Dave Linstrum's Profile Gosling: *Model Aviation*, May 1990.

Ulises Alvarez' (Uruguay) Peanut: Hannan's Runway, Box 210, Magalia, CA 95954.

CZICH THIS OUT

The Czech Republic is hosting Openscale '95, following last year's popular event for rubber, CO2 and electric powered FF scale models. No FAI license is required, entry fees are low, and everyone is welcome. The ambiance is friendly and low-key, much like the Flying Aces Club meets, with the accent on relaxing fun.

Scheduled for May 27-28, this truly international gathering includes a fine banquet and impressive awards ceremony. Nearby are excellent tourist attractions for the entire family, including ancient cathedrals and castles, and even a boat trip on an underground river! Hotel and hostel accommo-



Nicely built 18-inch span Waterman Gosling by Forest Boeckx, of Texas, features homemade spoked wheels. (Maybe he ought to pick up where Fulton Hangerford left off!)

dations are available, or you may camp on the airfield with your own tent. For complete information, contact Lubomir Koutny, Zahrebska 33, 616 00, Brno, Czech Republic. Our thanks to Clarke Smiley for this information.

MODELS IN THE MEDIA

Herb Kelley sent us a *San Bernadino County Sun* newspaper article about noted indoor flier and former Air Force pilot, Bob Randolph. We particularly enjoyed the opening line, by reporter Gregg Patton: "Loma Linda pilot has spent a lifetime in the skies, but now

he's graduated to a higher plane. He builds model aircraft."

Speaking of indoor, Dr. John Martin, editor of the *Florida Hangar Pilot* newsletter, explains: "The older you get, the better indoor looks to you!"

Meanwhile, Merv Buckmaster, editor of the Australian magazine *Airborne*, asks: "Why was I born so lucky to fall in love with model airplanes?"

PRODUCTS AND SERVICES

Tom Herr, of Herr Engineering, has followed up his Scout rubber-powered sport model

HANNAN'S HANGAR



Virginia's Don Srull campaigned this Waterman racer successfully in Nationals competition. Warren Shipp photograph.



Tommy Westlin, of Finland, is seen here with his Peanut Waterman Gosling and Pistachio Whitman Bonzo racers. Siegfried Blockner photo.

with a 35-1/2 inch span Piper J-3 Cub kit. Like the Scout, the Cub features laser-cut balsa sheet, greatly reducing the time needed for construction. Featured are computer-drawn plans, scale three-views, complete instructions, tissue, plastic propeller and all needed hardware.

Next up in the line will be the Ryan S-T, to be of similar quality. Tom's firm also offers special micro-tip glue applicators, suitable for use with almost any size model. For more information, see the Herr Engineering advertisement elsewhere in this issue.

Vern Clements, well-known for his racing plane scale drawings, also markets shirts, caps and wall decor with racing aircraft themes. His catalog not only describes these offerings but also features racing plane news and reports of racing plane models from various parts of the world. You can get one of these publications by sending \$4 to Vern Clements, 308 Palo Alto Dr., Caldwell, ID 83605.

Mark Fineman, of Aeroindex, P.O. Box 5124, Hamden, CT 06518, offers quite an

assortment of items, including Sling Wing Super Catapult Gliders, Sikorsky aircraft posters, aircraft history books, airplane coloring books and full-color postcards. Drop Mark a business size SASE for illustrated literature.

Frank Pearsall is one of those efficient modelers who manages to keep up with two hobbies. Although his prime interest is in model railroading, he says he'll continue to be "a closet stick-and-tissue guy" forever. Since we know there are others in our audience interested in model trains, we'll mention that Frank has a plans catalog representing 35 publishers. Although he didn't specify the cost of his catalog, a dollar should do it. Order from Underground Railway Press, P.O. Box 11279, Burke, VA 22009-1279.

John Raymond, of Aircraft Research Ltd., is offering unusual aircraft documentation service, as well as custom-drawn three-views at reasonable prices. For more information, contact John Raymond, 68 Gordon Pkwy #2, Syracuse, NY 13219.

Stan Fink has published Number 4 in his

plans packet series, which includes drawings by eight different designers, running the gamut from MiniSticks through Peanuts, interspersed with a hand-launched glider, an indoor duration model, a profile Piper Cub and an R.O.G. Totaling a dozen plans, the packet sells for \$10 including postage, from Stan Fink, 1810 Pine St., Philadelphia, PA 19103.

When contacting any of these sources, please mention *Model Builder* magazine!

SIGN-OFF

Back during 1941, Frank Zaic authored articles for *The Book of Knowledge*. Ever promoting our hobby, Frank noted the following: "... The meets bring out a spirit of comradeship that is not always found in other sports. If the contestants are competing against one another, they are all leagued against old Father Gravity, whom they defy with a clever combination of wood and paper. Hence the success of one is gratifying to all." *MB*



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NEW! PR124 HL/Precedent T240 kit ... \$199.00
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WORKING FOR THE WINNING EDGE

In a continuation of last month's topic, John talks about the importance of practice as it applies to racing, combat, carrier and speed.

The difference between winning and losing in control line competition is often measured in tiny fractions.

A race is won by one second—perhaps a third of a lap. A combat match is won by two seconds of air time, or a kill scored by a flier who appears hopelessly behind late in the match. A carrier contest comes down to the winner's ability to make a landing on the first try. A speed contest is won by the flier who got in his second official flight while his opponent was struggling with a balky engine.

Why does one team win a race by a second? How does a combat flier find his opponent's string in the last few seconds?

Often, it comes down to the contestant who has practiced the most. Practice pays off in reactions that produce wins—reactions often accomplished without much thought in the heat of battle. For example,

a racing pilot finds a way to tighten his circle and prevent one last pass as the faster plane approaches. A pit man saves a second of wasted motion. A speed flier senses a change in air quality that may be worth a couple of miles per hour and signs up for another flight. A combat flier senses the end of the match approaching and tries a new maneuver he's saved for a do-or-



All of this month's photos were provided by Bob Farr, who attended the annual Sig CL contest in Montezuma, Iowa last June. The contest offers several regular competition events, some events just for Sig kit planes, and many fringe benefits such as factory tours and airplane rides—plus great prizes and trophies. Pictured here is Jim Pasco of Independence, Missouri, with his .60-powered Fierce Arrow.



Gary Hebrick of Fremont, Nebraska flew a modified Sig Banshee to 1st place in beginner stunt, winning by a scant 1/2 point. A total of 31 entries in beginner stunt!

die situation. They make decisions because they've been working at perfecting their skills.

Last month's col-

umn dealt with practicing for precision aerobatics and described some of the preparations made by the U.S. team for the recent World Championships in China.

However, practice isn't solely the province of aerobatics. The top teams in all



First place in the special "powder pull" race went to Lyta Lee of Topeka, Kansas, with her Sigroy 35. Her time of 9:34.67 would have been fast enough for 2nd place in the novice division of the open race.

competitive events display a polish in their activities that comes only from practice.

The quest for speed in the air is the consuming passion for most racers, but practice is what often levels the playing field. A slower plane can often come out on top by virtue of superior performance in other aspects of racing, on the ground and in the air. A racing team practices starts, pit stops and piloting, not just with one plane but with all the planes that the team races in the various classes.

Racing practice begins with preparation. The pit crew should have a small pit box or basket with the proper equipment for the race to be practiced. Repeating an admonition from past columns: *The pit box should contain only those items you might realistically need for this race; don't clutter it up with excessive equipment that will just get in the way and slow you down.* Fuel bulb, battery, plug/prop wrench, spare plug, spare prop. That's all!

Starts, restarts and shutdown glide can be practiced through many short flights. The pit crew simulates a countdown, warming the engine at the proper times (this sequence too is figured out through repetition), and starting it on the simulated "go." The plane flies a few laps, and the pilot shuts down and brings the plane in for a

pit stop. On each pit stop, the pit crew hones its skills in fueling, connecting electricity and starting—searching out the most efficient and reliable methods and learning, through the feedback from the engine, the best sequence to produce quick restarts.

Meanwhile the pilot is looking for the best shutdown point, the spot at which the plane can be brought down with the shortest glide possible while still being within the pilot's ability to handle the landing and the crew's ability to make the catch. The pilot also is practicing take-offs, working a tight circle, keeping up with the plane, flying high and low, using one hand and two, simulating passes and all the subtle piloting tricks that can gain laps in crucial settings.

The practice day can finish off with a few simulated heats, possibly with a helper acting as starter and lap

counter. If your time in the simulated heats is a good one, you should be able to reproduce it on race day.

• • •
 Combat is a bit harder to practice in simulated competition conditions, but practice is valuable nonetheless. Solo flying is the most practical for most practice sessions. Each flight should be approached as if it counted in competition. The pit box should be properly prepared, the engine fueling and warming sequence should be followed and refined, and the start should simulate a match start. If it takes more than one flip to get that engine screaming, you need more practice! Many matches are won and lost by the quick start—or lack of it.

The pilot should

simulate actual combat conditions, not just bore holes in the sky. Focus on a target in the sky (a far-off bird or plane is an excellent moving target, or a series of different spots in cloud formations) and try to hit that spot as many times as possible from as many angles as possible. Do this without looking at the plane except when it passes through the target. Make sure your practice takes you upwind and into the sun, to simulate those less-than-desirable conditions.

Actual combat can be practiced with as few as three people. One ground crewman can pit for both pilots in a simulated match. If a group gets together and builds a batch of sturdy 1/2A combat planes or a stack of 80-mph planes (try an O.S. .35 for power), combat can be kept going for an entire afternoon with hardly a break. When one pilot lands, start another plane and send the third guy up against the one still flying. Then the new ground crewman prepares the next plane with fuel, streamer, etc.

• • •
 Practicing carrier flying doesn't necessarily require a deck, but if you have one, all the better. A portable practice deck can be made from a couple of boards with enough eyelets for three or four arresting wires. The boards can be weighted down to the asphalt or anchored to a grass field.

The carrier pilot needs to practice his approach to the flight as well as the flight itself. Getting the plane started and the engine tuned for fast and slow flight should be a well-learned routine. Flying itself is a matter of repeating the important variable portions of the flight. High-speed flight is



A real beauty of a shipper was Wisconsin modeler Jim Krueger's "Miss Anne," powered by an OPS .48 with a Warwage pipe. Unfortunately, the ship was lost on its second flight at the Sig contest due to a mechanical failure.

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relatively easy—just take off and keep a tight circle. Slow flight, however, can benefit from practice, so that's where the most flight time should be spent. Learn to use the wind as an aid to slowing the plane down at all points of the circle while keeping it within the rulebook's angle requirements.

Landing a carrier plane is a relatively elementary skill. A pilot should practice enough so that he virtually never gives away points by missing a landing. To practice as many landings as possible in a short time, chalk a target on the asphalt, leave the hook up and just make touch-and-go landings on that spot as many times in a flight as possible. Save the landing on the deck, if you have one, for the very end of the flight.

speed is testing equipment. With the possible range of engine setups, props and plugs, the hours should fly by almost as fast as the planes do!

Every serious competition team has some tricks it uses to get an edge. A few years ago, your columnist's racing team, the Nitroholics, spent a summer practicing rat racing and Goodyear with the aid of audio recording. We'd leave a recorder running at the circle's edge to tape the sound of the plane and the pitting activity. After a practice session, we'd time the pit stops (the best measure is the time from shutdown to one lap after takeoff), and listen for other clues to our performance. (One of our best times was a Goodyear pit stop that took 14 seconds from point of shutdown to one lap after takeoff. Can you



Todd Lee came up from Florida to compete in expert precision aerobatics with his beautiful take-apart Gemini stunner.

• • •

Practicing for speed competition is a two-fold activity. On the one hand, it's learning to pilot the planes so that you can get smoothly into the pylon and keep the plane on a smooth course, not giving away speed to wild ups and downs. In the proto classes, the takeoff requires extra attention to make it smooth and get smoothly into the pylon.

The second aspect of practicing for

beat that?)

It would be interesting to hear from some competitors their special techniques for practicing. Send in some ideas and we'll pass them along in a future column.

Questions, club news, contest information, technical tips, photos and other items of interest to control line fliers is welcomed. Write John Thompson, 295 W. 38th Ave., Eugene, OR 97405. E-mail at 73473.1407@compuserve.com. **MB**

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BIG BIRD RAMBLINGS

Bruce touches on a number of varied subjects of interest to Big Birds Fliers.



Tony Farnan is the president of Model Engines Pty. Ltd., a major Australian importer and wholesale distributor of hobby goods down under. Along with his Model Builder subscription application, Tony included this photo of his lovely Stearman, built from Nick Zirroll plans. Uses a Hitec computer radio and an O.S. Sirius five-cylinder radial.

This past month has been a busy one around the Big Bird hangar. Balsa chips have been flying as my building partner Ron McKonly and I work our way through a Lanier Laser 200. At the same time, I'm working on a J&K "No Wonder" as well as one of Dave Reid's 8 Ball Specials. I have so many projects to finish that I sent my slightly bent Spacewalker II to a friend for restoration to flying status.

The Spacewalker had been my favorite flying machine, and I really regretted the receiver failure that led to its demise. I still have no idea why the receiver quit working. It really irritates me when a piece of equipment fails for no apparent reason—especially when I've used all standard precautions to keep it working.

The sudden onset of aileron flutter on my Stinger remains a mystery too. Perhaps it was the resonant frequency of the big 4.2 cubic inch Walker Sachs I had just installed. The Stinger is an all-out aerobatic performer that I really enjoyed putting through its paces. It is likewise being put back together for me by a flying buddy.

THE CMAA'S JACK MCKNIGHT FLY-IN

On Saturday, August 20, flying buddy Chuck Willcox accompanied me to Snohomish, Washington, where we flew with the CMAA (Cascade Miniature Aircraft Association) at their First Annual Jack McKnight Memorial Fly-In. Jack McKnight was a popular giant scale builder here in Washington state. Jack's grandchildren at-

tended the fly-in and joined the pilots at a very nice free lunch provided by the CMAA. They also enjoyed watching the fly-in by the 35 pilots who participated.

Wendell Ward put in some very impressive flights with Bill Gage's F8F Bearcat. At the end of each flight Wendell would pop down the Robart landing gear for smooth-as-silk landings.

Jim Mineo was flying a Godfrey-designed 1/3-scale Laser 200. His choice of engine was a 3W-70B2 4.2 cubic inch horizontal twin. I had commented on the German-built 3W engines in a previous column but this was the first time I had seen one in operation. The vertical pulling power of the big twin was awesome, and it ran very smoothly. The three-bladed 20x14



Judy Johnston poses with her husband Mike's Liberty Sport at the Jack McKnight meet. The big biplane was built from Wendell MacArthur plans, spans 78 inches, weighs 19 pounds, and is powered by a Saito 270.



At Snohomish, Bruce photographed this example of 3W Modelmotoren's 160-84 horizontal four—a real brute! It displaces 9.8 cubic inches, and it's not their biggest engine either.

The father-and-son team of Jim and Jim Mince put on quite a show with their Laser 200 at the CMAA's Jack McKnight Fly-In in Snohomish, Washington this past August. Flies very well with a 3W-7052 twin-cylinder engine, weighs 3 pounds and spans 98 inches.



prop seemed to be just right for the airplane/engine combination.

BIG BIRDS DOWN UNDER

I received a very nice letter from Neil Hart, who resides in Galton, Australia—or "The Land of Oz," as Neil refers to his homeland. Neil is editor of the IMAA's Southern Cross Squadron's newsletter, *Big Torque*. It's almost as big as IMAA's *High Flight* and is also published quarterly.

Neil puts out a newsletter brimming with interesting articles from various sources around the world, such as articles by Bruce Winch on mufflers, David Boddington on links and hinges, and Tony Bingelis on drills and drilling, to name a few of the subjects covered.

Neil tells me that *Model Builder* magazine and the Big Birds column is well read in Australia. My Big Bird servo round-up was reprinted in the winter issue of *Big Torque*. I know that our friends in Oz are no-nonsense fellows when it comes to Big Bird information, so I was pleased that they found the servo review beneficial.

According to Neil, the Royal Australian Air Force is using Pilatus



Doug Leith enjoys flying his Tiger Moth with the Lockyer Valley RC Club in Australia. Doug modified the original Pilot kit to incorporate a Great X8 wing airfoil.

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PC9s for primary training. The RAAF also uses the PC9 for its aerobatic show team, which is named the Roulettes. Neil says that watching the Roulettes fly in close formation makes you want to rename them the Russian Roulettes. Apparently the USAF is considering using the PC9 to replace some of its aging trainers, but it'll probably be too economical and save us taxpayers too much money to satisfy our military brass. (Remember, "military intelligence" is an oxymoron!)

Neil's friend, Ron Cavanaugh, has designed a 1/5-scale kit of the PC9. The plane has an 82-inch wingspan and is said to be a superb performer with a Super Tigre 3000. If all goes as planned, Century Jet Models Inc. will be distributing the kit in the U.S. in the near future. I'll keep you posted.

ANOTHER GIANT SCALE PC9

Shortly before I started this month's column I came across an ad for a Pilatus PC9 kit made in Quebec, Canada by a company called Paradise Originals.

I called the number given and was greeted by a message in French, which brought a smile to my face because my only F in high school was earned in beginning French. At the beep I left a message in what I laughingly call English, and a little later I received a call back from Gilles Paradis.

Gilles tells me his Pilatus PC9 is built to 22.5 percent size, which gives it a 91-inch wingspan and 1280 square inches of wing area. Like the Australian PC9, it comes with a fiberglass fuselage and balsa-covered foam wings.

Gilles has been flying his PC9 with a Quadra 42. He says several others are flying with a G-62, so it seems the plane will fly well on a wide range of engines. The PC9 is also available in a short kit version. For price and other particulars contact Gilles Paradis at (514) 347-0499, and he'll be glad to fill you in.

continued on page 79

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PLUG SPARKS

BY JOHN POND

Photos by
Steve Roselle,
Jack Jella and
Bucky Walter

•The 1994 SAM Champs

For the first time in 25 years, this columnist has missed a SAM Champs! An operation and stay in the hospital effectively put paid to any ideas of going with some of the boys from SAM 21. However, much to this writer's delight, fellow club member Steve Roselle attended the meet and took several good photos.

It seems only fitting that we start out with Photo No. 1 for the benefit of those modelers who have never visited the AMA's flying site in Muncie, Indiana. The field is actually quite large (by eastern standards) and can accommodate 3-minute FF maxes.



Photo No. 2. Champs reporter Steve Roselle shows fellow SAM 21 member George Joki's Micafil-covered Lanzo Bomber to 2nd place in Electric Texaco.



Photo No. 1. A panoramic view of a portion of the RC flight line activity at the '94 Muncie SAM Champs.



Photo No. 3. The old master, Dick Korda, hasn't lost his touch when it comes to winding a rubber ship. And he does it without a blast tube—a brave soul!

To acknowledge the efforts of our reporter, Photo No. 2 shows Steve Roselle with his successful 2nd place winning Lanzo Bomber in the Electric Texaco event. Steve modestly attributes his win to the fact that the model was originally built by George Joki, a fellow SAM 21 member.

In addition, Bucky Walter of SAM 39, sponsor of the Dick Korda Commemorative, was kind enough to send a short write-up on this sensational event, which drew 65 contestants! CD Tom McCoy showed the boys how to win the event in most convinc-

ing fashion.

Jack Jella, also of SAM 21, took quite a few photos of the Korda Wakefield event. As usual, the honor of taking the first flight was given to Dick Korda, seen in Photo No. 3. Naturally, his first flight was a max. Dick is of the old school; he winds without a winding tube, depending on his long experience to tell just when the rubber is at its maximum stress. Photo No. 4 shows the close attention given to his launching technique.

Everyone built their Kordas in varying degrees of beauty, but the best we picked out was Jack Jella's silk-covered version. Without a doubt, this was an outstanding reproduction, seen in Photo No. 5.

To conclude the report on the Korda event, SAM 100's

John Delagrange, a real Korda devotee, made up booklets based on the clippings from magazines and books of Korda's 1939 Wakefield victory. Custom decals were given to each entrant. To top it off, John made up a "corncob" trophy to be awarded for the most consistent cornfield landings. This trophy, seen in Photo No. 6, was presented to Dick Korda at the banquet on Thursday night.

Adding to the fun events, we received a report and photo of the SAM 4 sponsored Jimmie Allen Races. This specialty event, promoted by Karl Spielmaker, is illustrated in

Photo No. 4. Photographers record the moment as Dick Korda launches for the first official flight of the Korda Wakefield special event, which drew a whopping 65 entries.



Photo No. 5. A beautifully built and sited example of Korda's 1939 Wakefield Winner, as produced by master craftsman Jack Jella.

Photo No. 7. Karl reports at least a half-dozen modelers were very interested but complained they knew nothing of this special event. Evidently they don't read this column, as Karl has received considerable exposure in both in write-ups and photos.

Getting around to some of the RC models and contestants, Eut Tileston produced an outstanding version of the 1937 Ralph Lowe Swallow (Photo No. 8) that was first witnessed at Moffett NAS by those of us who regularly flew there—my-

self, John Drobshoff, Pete Bowers, Charlie Werle, and a flock of others.

Some confusion over the model's design date arose when Frank Zaic published the three-views in his 1934-39 Year Book and marked the plan 1939, as this is when he drew it. This writer received a long distance call from CD Larry Davidson regarding the Swallow's actual history. This was quickly straightened out by a photo appearing in the October 1938 issue of *Model Airplane News*, seen in "Gas

Lines" and described on the rear pages. This writer remembers the fabulous glide of this model at Sunnyvale and it was no surprise to see Tileston's replica float in the same manner. Needless to say, this model won the Brown Junior event.

Another model by Tileston, seen in Photo No. 9,

is the 1/2A Texaco Scale version of the Waterman Arrowbile. This model was not only beautifully built, it knocked your socks off when it came to flying and gliding!

While wandering around the FF flying area, Steve Roselle ran across a gorgeous Goldberg Valkyrie as built and flown by Charlie Bruce. Seen



Photo No. 6. More fun! John Delagrange displays the "Golden Flight Award" trophy he concocted; it was presented to Dick Korda for the most consistent cornfield landings.

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PLUG SPARKS



Photo No. 7. Another special event at the '94 SAM Champs was the Jimmie Allen Races, sponsored by SAM 4 and spearheaded by Karl Spielmaker—that's him in the back row, second from the right.

in Photo No. 10, this model has been carefully built and reproduced, resulting in an excellent Texaco competitor.

Photo No. 11 shows Jim Perssons, of SAM 21/32, with his patriotically decorated Korda 1939 Wakefield Winner. Jim is the MECA District 2 coordinator and has also been a regular member of the SAM Engine Committee, heavily involved in the running and evaluation of engines for Old Timer

classification. It's no surprise to find Jim in the new position of head of the SAM Engine Committee.

We must highly commend the people responsible for such an outstanding meet. Contest Manager, Don Reid, of the Canadian SAM 86 Chapter; with competent Contest Directors, he ran an outstanding SAM Champs. The Bean Feed and Awards Banquet were excellent, with over 500

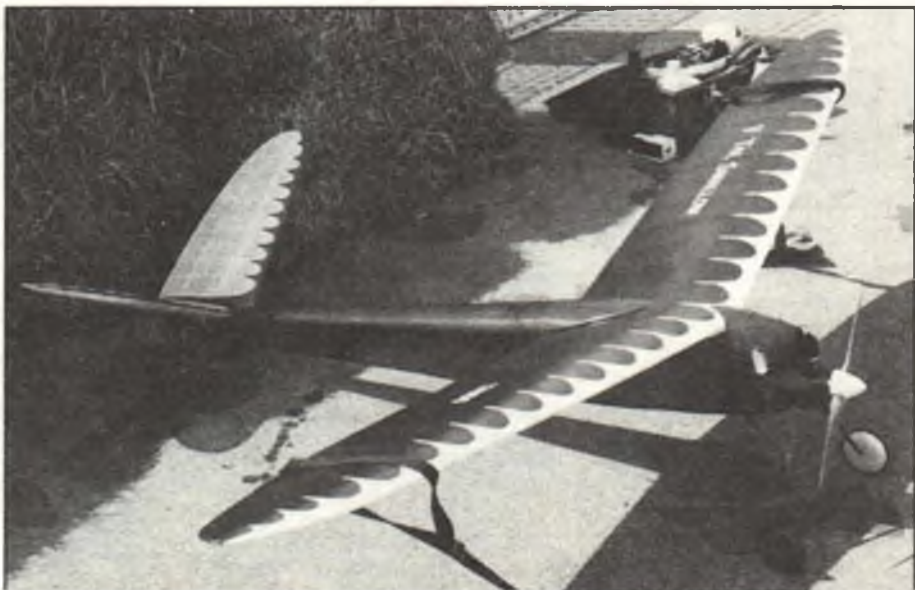


Photo No. 8. Est Thieson specializes in building "sleepers," cleaned up in the Brown Jr. event with this sleek V-Tail Swallow, a Ralph Lowe design. Est almost didn't get to fly it in the contest—see text.

continued on page 78

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WHAT OUR READERS ARE BUILDING AND FLYING

In which our columnist "cleans house" and presents a few of the many reader photos that have been piling up over the past year.

Wow—it's been a year since I last shared photos from fellow electric modelers. Time really flies when you're having fun!

To kick off the second annual Reader's Photos column, let's start with William Whitten's Air Trails Sportster, built from a Midway Models kit. You may remember William's "Delta Vee," featured as a construction project in the January 1993 *Model Builder*, and some of you saw his "Cordless Electric Iron" in the July '93 "Plane Talk" column in *MB*. Midway's Air Trails Sportster kit was originally designed for .10-.15 gas power. William bought the model already built and replaced the engine with an Astro 15 motor, a 2.5:1 gearbox, a Master Airscrew folding prop and a 10-cell, 1400-mAH battery pack. It weighs about 58 ounces and flies like a champ. Building one from scratch would be even better, as the unnec-

essary structure could be eliminated. If you live in or near Birmingham, Alabama, please drop me a note; William says the area is lacking in electric modelers and he'd like to make a few more electric friends.

Next up is Bob Taylor's twin Klingberg Wing. As a glider, the Klingberg Wing is very stable and really isn't hard to fly. (I know—I had one a few years back.) Bob did a fair amount of experimenting with

motor installations to find out what worked and what didn't. He also enlisted the help of electric flight pioneer Keith Shaw, who has much experience with flying wings. His modifications include reducing the wingtip washout and shortening the elevons by one rib bay. Like a true experimenter, Bob first built the model from the kit to get an idea of what he was doing, then built another from scratch using the lightest wood he could find. He employed two 035 Silver Streak motors from Peck-Polymers wired in series with a 12-cell battery pack.

25 geared motor, 16 1400-mAH SCR cells and a flying weight of 92 ounces. By the time you read this, Gene will have also tried 18 cells and some 10-inch props. It's unfortunate that he lives 2,000 miles away because I'd really like to see this one fly in person!

Jim Ruggiero's introduction into electric power was a lot like many of us—he flew gas models for a number of years, saw a few electricians and recognized their potential, so he read everything he could find about E-power. All of his study, combined

with his extraordinary tinkering skills, has led to some really great planes. His original design "Cherry Sundae" has a 60-inch wingspan, a flat-bottom airfoil, and weighs 44 ounces ready to fly. Although this version is only a three-channel model, a later version includes ailerons. Power is supplied by an inexpensive 05 can motor, a Master Airscrew 7x4 prop and a six-cell battery pack. He later

added a 3:1 gearbox and increased flight times from 5 to 7 minutes, as well as a noticeable increase in performance. Adding another cell didn't hurt either!

Steve Gurley sent photos of two of his planes flown in the second annual Electric Fly-In in Mesa, Arizona. Steve reports that although it was only 92 degrees when the fly-in began at 7:00 a.m. and had warmed up to 108 by 10:00 a.m., everyone had a



William Whitten's slick little cabin ship is actually a 1936 design by Ben Shereshaw, called the Air Trails Sportster. Midway Models kitted it for .10-.15 gas power, scaling it up slightly to 50-inch span. William's electric conversion includes a geared Astro 15 running on 10 cells—he says it flies great.

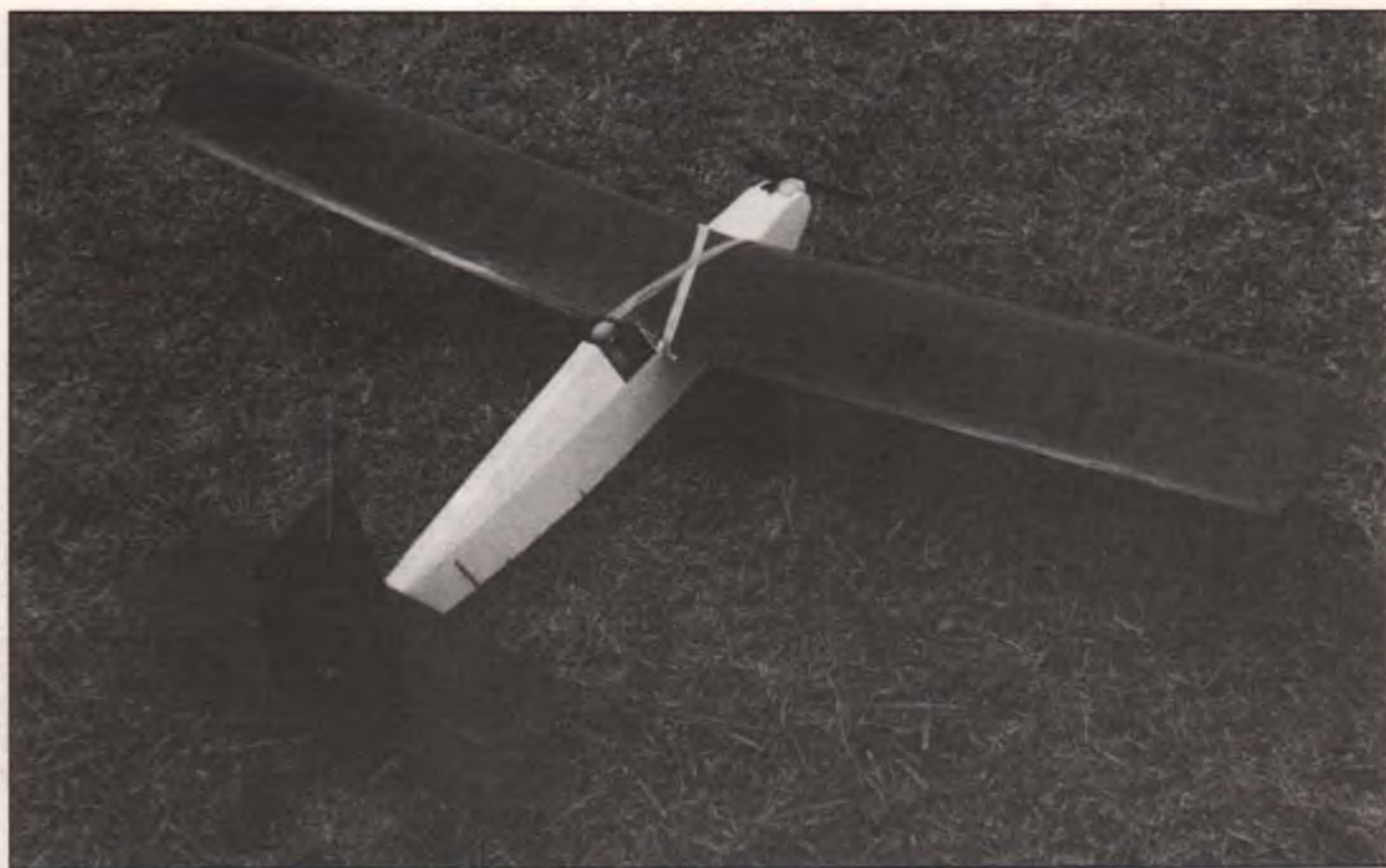
One of the movers and shakers behind Georgia's very successful Southeastern Electrify is Gene Norman. In addition to organizing events for his home club and the annual Electrify, Gene is a fine craftsman as evidenced by the picture of his Hummingbird Mk III. This is the third prototype in his original Hummingbird series. The model spans 57-1/2 inches and features an NACA 2412 airfoil section, Astro



What looks like a Northrop W3M flying wing is actually Bob Taylor's twin electric adaptation of a 2-meter Klingberg Wing sailplane. Uses two Peck-Polymer Silver Streak 035 motors running in series on a 12-cell pack.



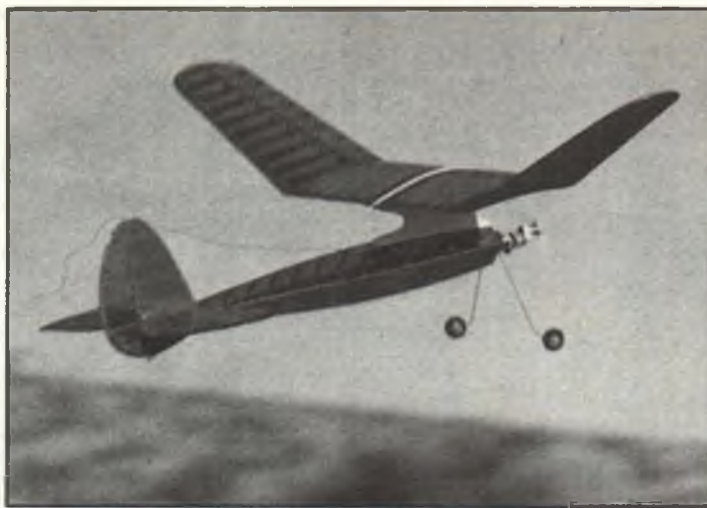
■ ABOVE: The Hummingbird Mk III is the latest in Gene Morman's series of original electric designs. Geared Astro 25, 16-18 cells. Base is obviously a fine craftsman and has turned out a very nice looking and sporty design. ■ BELOW: Jim Ruggiero turned out this simple original design shoulder-wing job, dubbed "Cherry Sandae." Pictured here as first built, Jim later added a 3:1 gearbox so as to be able to swing a much larger prop, resulting in a considerably faster climb as well as a longer overall motor run.



good time. The only organized competition was an all-up, last-down event run in two heats (now that's funny!). The photo shows Steve's Lanzo Bomber climbing out. Power is a geared Astro 05 cobalt, and the model appears to be covered with orange and transparent green MonoKote. Steve says the plane flew great despite the high heat and humidity. This plane took 2nd place in the second heat with a time of something over 37 minutes. Steve says he could have won, but he lost the plane in a thermal, had to spin it down, saw the wing shimmer in the sun and regained control, but couldn't find the thermal again.

Steve also sent a picture of his immaculate Partenavia P-68 twin. Built from the Graupner kit (imported by Hobby Lobby), this model weighs only 50 ounces ready to fly. The model is powered by a pair of direct-drive Graupner Speed 400 motors wired in series, which give a static thrust of 2.2 pounds. Steve also found that Cox gray 6x3 props work better than the recommended Graupner 6x4s.

I now have the



On its way to a flight of 37+ minutes and 2nd place in the all-up, last-down event at the second annual Electric Fly-In in Mesa, Arizona is Steve Gurley's Lanzo Bomber, probably built from the old Leisure kit. These big, stable foalers make excellent subjects for RC electric flying.



Another of Steve Gurley's projects is a Partenavia P-68 twin kit from Graupner, available in the U.S. from Hobby Lobby. Thrust is provided by two inexpensive Graupner Speed 400s turning Cox 6x3 props.

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same feeling I had last year when I wrote the "Reader's Photos" column. It's a mixture of desire and jealousy—the desire to see all of these models fly and then build them myself, yet I'm jealous that there are so many E-modelers out there with more talent in their little finger than I'll ever hope to have! Well, back to the workbench!

Thanks for all your letters and photos. You can write to me at 6462 Sunny Brae Dr., San Diego, CA 92119, call me at (619) 463-4453 (Monday through Friday between 8 a.m. and 5 p.m.), or send e-mail to 74164.3237 for CompuServe subscribers and 74164.3237@compuserve.com for Internet users. **MB**

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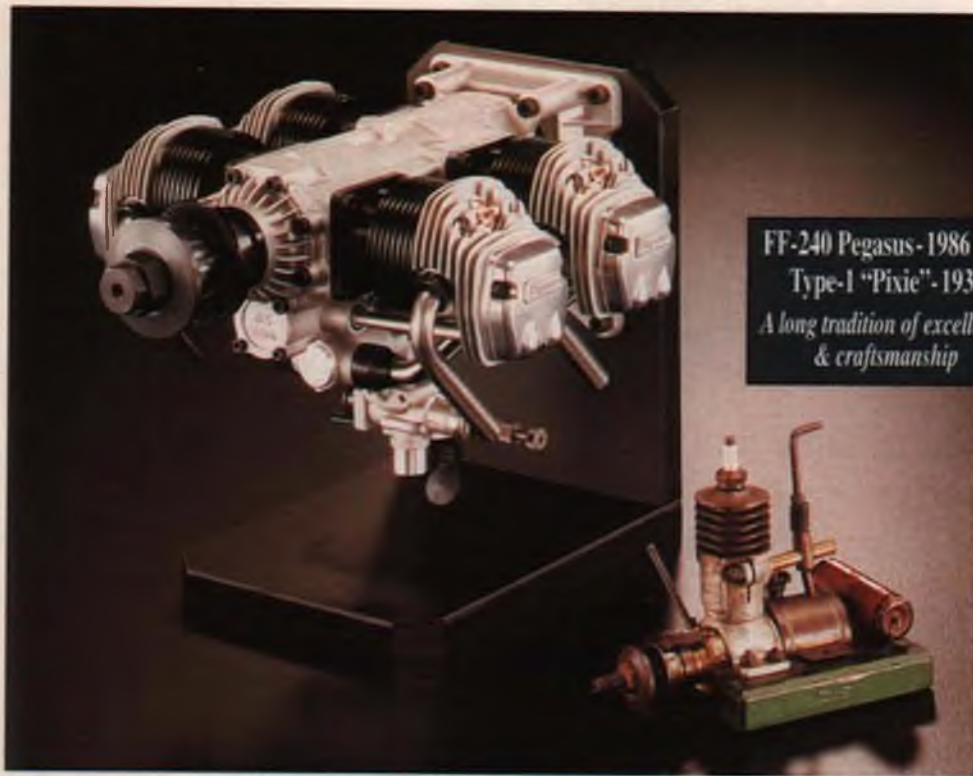
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PRODUCTS IN USE

■ By David M. Sanders

The Tiger 2 From Carl Goldberg Models

“A Tiger that's easy to tame and playful as a kitten” is how the designers characterize this trike-gear low-winger—and as our reviewer discovered, it's an apt description.

THE FOX .45

Here's American know-how at work. This engine is a ringed piston, ball bearing supported, overbore type, which is a bit unusual today due to its higher production cost, but in some ways may be far superior to the currently popular ABC designs for sport flying. The piston is aluminum with a cast iron ring running in a steel cylinder. The crankcase and cylinder are a single casting, which helps keep the weight down.

This engine was fitted with the Fox Quiet Muffler, which is indeed very quiet, and Fox's E-Z Carb. The carb has an idle air mixture screw which makes it very simple to tune the engine to a reliable idle. After break-in, the idle was completely reliable even at 1,500 rpm. With a 10x6 Master Airscrew prop it topped out at 14,100 rpm—100 rpm higher than advertised!—using Fox's own Duke's Fuel, which is 10 percent nitro. It provides a very respectable pull for its size and has proven extremely reliable in all flight attitudes.

Best of all, it's easy to start. There is no electric starter in my field box. If an engine won't start in a few hand flips, it's not running right or not designed right, and this engine will start faithfully in just four or five flips every time. I highly recommend this engine for user-friendliness and reliability. *MB*



Goldberg's Ultracoin and Color Stripe tape provide an exceptionally beautiful and easy-to-apply finish. Decals supplied in the kit look sharp and add a nice finishing touch.

T rue confession: I'm primarily a glider driver. Here in Southern California we have a wealth of flying sites for powerless people. On occasion, however, I get the craving to burn some nitro, and I've got a few power planes in my stable that I take out on those days. Most are of the "high stress" variety—mostly WWII scale jobs—so a low-stress plane of decent size and capable of good aerobatic performance is something I've wanted for a long time. Goldberg's Tiger 2 is a bird that has it all—easy construction, good geometry, sensible power requirements, the sexiness of a low-wing design and a sharp, non-trainer look.

THE KIT

Everything comes neatly packed with all hardware and small wood components in sealed poly bags. Closer inspection revealed very high quality balsa and ply materials, many of which are pre-shaped. Included in the kit are a very complete hardware package, pre-formed wire landing gear and a universal-type engine mount. About the only items necessary to complete the airframe are wheels, engine and fuel system.

Also supplied are a very detailed 31-page instruction manual and a 19-page general information booklet with instructions rel-



A lean, mean flying machine! She literally blasts off the runway with that powerful Fox .45 supplying the pull. Dave found the Tiger 2 to be fun to fly and easy to land perfectly every time due to its very predictable power-off approach characteristics.

evant to adhesives, covering, radio setup, pre-flight procedures and even basic aerobatics. Having become used to rolled plans in kits, I was a bit disappointed to find folded plans in this one and had to iron out the creases before I could start building.

CONSTRUCTION

The empennage is of lightweight built-up truss construction; as the Tiger 2 has a fairly long tail moment, this makes a lot of sense, besides being typically Goldberg. Parts fit was very good with the exception of the stabilizer doubler, which required significant trimming. I was careful to use the stiffest pieces of wood for the stab and fin trailing edges, which would later receive the control surface hinges. A nice feature was the supplied sanding jigs for beveling the control

surfaces and rounding the leading edges, which will save a novice builder lots of frustration.

The wing features a symmetrical airfoil. To enable building it on a flat board, the designers conceived an effective method of built-in jiggling using "tabbed" ribs, three on each wing panel. The tabs act as stand-offs from the bench to insure parallel alignment of the spars and leading and trailing edges. The wing is constructed upside down directly over the plan.

The 3/8-inch square basswood main spars in my kit were slightly bowed (as wood is wont to do), so be sure to lay the

THE TIGER 2

WINGSPAN	61 in.
WING AREA	680 sq. in.
FLYING WEIGHT	4-3/4 to 5-1/4 lbs. (5-1/2 lbs. as tested).
WING LOADING	16 to 18 oz./sq. ft. (19 oz./sq. ft. as tested).
OVERALL LENGTH	54 in.
ENGINE35-.45 two-stroke; .40-.50 four-stroke.
RADIO	Four channels required.
SUGGESTED RETAIL	\$114.99.

Produced by Carl Goldberg Models, Inc.,
4734 W. Chicago Ave., Chicago, IL 60651
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Dave reports his Tiger 2 kit contained very nice materials and instructions; his only real gripe was the folded plans, which had to be ironed flat before he could begin construction.

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The Tiger 2's basic fuselage structure is die-cut 1/8-inch lite-ply with interlocking tabs and slots. Here the parts have been rubber banded together and are ready to be glued up with thick CA. This method of construction allows everything to be aligned properly before anything is glued in place. All assembly was done with Goldberg epoxies and Jet CAs.



Beginnings of the wings. The tabs on the trailing edges of the ribs assure a straight and true wing (assembling your workbench is straight and true!). The pre-notched sub-trailing edge makes a really strong joint at the aft ends of the ribs.

flattest surface against the bench; the additional wing structure will straighten them out fore and aft.

The remainder of the wing construction is pretty standard. The leading and trailing edges are sheeted top and bottom with 1/16 balsa and the ribs get capstrips top and bottom. Be careful to install the sheeting and capstripping very neatly, as the 1/16-inch material doesn't leave a lot to sand off in case of a poor fit.

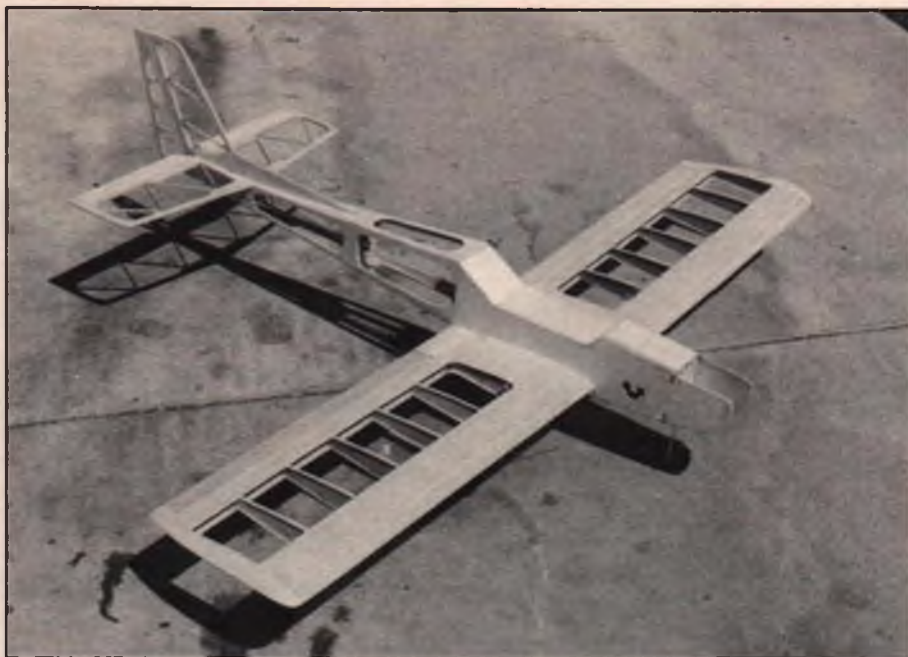
Also provided is die-cut shear webbing, which is interesting in that it falls about 3/16-inch short of the rib at each end. In my view this is fine, as the basswood spars are plenty stiff enough to not collapse onto one another over such a small span.

The die-cut center sheeting is broken down into three separate pieces on each side of each panel; the center piece is supposed to wedge the other two against the leading and trailing edge sheeting. This proved mildly problematic, but with some careful trimming everything fits up nicely.

The instructions state to "glue" the plywood dihedral braces in, but these should definitely be installed using epoxy! When in doubt, use the tough stuff! The landing gear mounts should also be installed with epoxy, which isn't stated in the instructions.

The fuselage is a jig builder's dream. It's constructed entirely of 1/8-inch lite-ply with judiciously placed lightening holes on all sides. Goldberg's interlocking design in this area makes it very easy to build a super straight fuselage. In fact, the structure is almost entirely together before a single drop of glue touches it.

The wing mounts to the fuselage with a 1/4-inch dowel at the front and two 4-40 Allen bolts at the rear. The rear wing mount plates lock into the fuselage, making a very strong joint. Again, epoxy should be employed here to assure a no-failure joint! The servo tray is made of 1/8-inch lite-ply, which I felt was inadequate to accept the servo mounting screws, so I added strips of 1/8-inch aircraft ply at the front and rear



Framed up and ready to cover. Plane's "sit" on the deck and overall appearance are very pleasing. The radiused corners at the corners of the cutouts in the fuselage give a nice professional look after covering.

to give the screws something solid to bite into. Be sure to use epoxy to mount the servo tray, too.

All control surfaces were hinged with the supplied nylon, barb-type hinges—a wicking-type CA hinge called the Jet Hinge is available upon request. I also used the supplied .072 piano wire pushrods running in nylon housings. These were a little stiff at first, but have loosened up with use. One item I did elect to replace were the nylon clevises; my aircraft are worth the extra couple of bucks spent on metal clevises. I also used a Z-bend at the servo end of the pushrods instead of the supplied EZ type connectors, which I've never trusted.

After a thorough finish sanding, everything was covered with Goldberg Ultracote, which I use on all of my film-covered models. The red pinstripping is Goldberg Color Stripe—it's easy to apply, looks great and doesn't start falling off after the third flight!

The radio used is a JR Max W4C-3SN AM four-channel system with an NER-854X receiver, 600-mAH on-board battery and four NES-507 standard servos. I have quite a few JR radios in my hangar and this one, as with the others, proved to be easy to use and trouble-free. The transmitter provides servo reversing on all four channels right on the front of the box. I particularly like JR's servos, as they are very smooth and fast.

My Tiger 2 balanced within the range specified on the drawings without having to add ballast. The final dry weight came to 5-1/2 pound—about 4 ounces over the upper range stated in the factory specs, yielding a wing loading of 19 ounces per square foot.

FLYING

The first day out was not an ideal one for test flying, so the plane got a sort of

baptism by fire, which it tolerated with aplomb. There was about a 15 mph breeze blowing all day, which made things really interesting. The plane handles well on the ground, and once you pour on the throttle, she picks up speed and jumps off the deck when you tell it to.

The takeoff run is predictable and the plane stays on the ground until you're good and ready to pull on the stick. As I climbed out I quickly discovered that the Fox .45 was plenty of power for this plane—I seldom fly it to this day past about 60 percent throttle. A little up trim, a couple clicks of right aileron and my Tiger 2 was tracking straight and level hands-off.

I pulled a few rolls and discovered the airplane's very pleasing roll rate. Inverted, the Tiger 2 behaves very well with its symmetrical airfoil. Climb performance is pleasing even at the mid-throttle range. Two problems encountered on this first flight were a too-lean needle valve setting (the engine quit after about 5 minutes) and some aileron flutter in high speed dives. For the next flight I re-tuned the engine and gap-sealed the ailerons, which solved both problems.

On subsequent flights I put the airplane through every maneuver I'm capable of (a paltry handful) and the bird didn't gripe once—neither did the engine. One thing that really thrills me about the Tiger 2 is the landings. The glidepath is really predictable—it slows down and just kisses the runway like silk. My friends (who know me for my Navy carrier-like landings) were amazed at my new-found landing acumen. The stall speed is extremely slow, and the airplane has no bad habits at low or high speeds. At this writing I've logged about 20 flights, and the more I fly it, the more I like it! **MB**

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THE WICKNER WICKO GM-1

Who says you have to stick with basic popular name designs to be assured of good scale flight performance? Walt also fills us in on some good sources for scale documentation drawings. Reprinted from the June 1974 *Model Builder*.

■ BY WALT MOONEY



The model in these photos was built by Doug Mooney, Walt's son. Pictures were taken inside one of the huge blimp hangars at the Marine Corps Air Station in Tustin, California.

The Wicko was a pre-WWII British lightplane of simple construction. The fuselage was essentially a plywood box. This makes for a simple model fuselage; except for the nose, the fuselage has a simple, square cross-section. The inline engine, with its relatively high thrustline, allows the use of a large propeller without having

to extend the landing gear beyond the scale length. The high wing allows a stable flying model with only a modest amount of dihedral.

The model uses standard construction techniques all over, so we'll not go through a detailed construction article. Somewhat out of ordinary is the fact that the Wicko had stream-

lined fairings on the roots of the struts, and the landing gear leg fairings were rather thick in cross-section. These details, if you intend to put them on the model, will have to be carved from small blocks of balsa. For simplicity, my son Douglas elected to omit them, using a simple sheet balsa landing gear fairing instead. From the pho-

tos, it doesn't seem to hurt the appearance of the model too much.

Doug used a Sleek Streak propeller that just clears the ground when the model is in the three-point position. This is fine for hand-launched flights (legal under Peanut rules, although the author believes all scale models should be required to R.O.G.), but makes takeoffs a chancy thing. The model flies quite well. Best flight indoors has been an official 58 seconds, with many flights of more than 45 seconds. The model is covered in yellow superfine Japanese tissue with red tissue letters, and weighs 1/2 ounce without the rubber motor.

Doug used rather light wood in his model—highly recommended if your model is to be flown indoors only. However, try to get relatively firm sticks for the longerons. Doug's were a little on the soft side, and you may see in the photos an extra set of fuselage uprights and cross-pieces he added after some handling damage to the longerons. The model is drawn with a sheet balsa cowl top wrapped over three formers; if desired, the cowl top can be carved from a solid balsa block and then hollowed out for motor clearance.

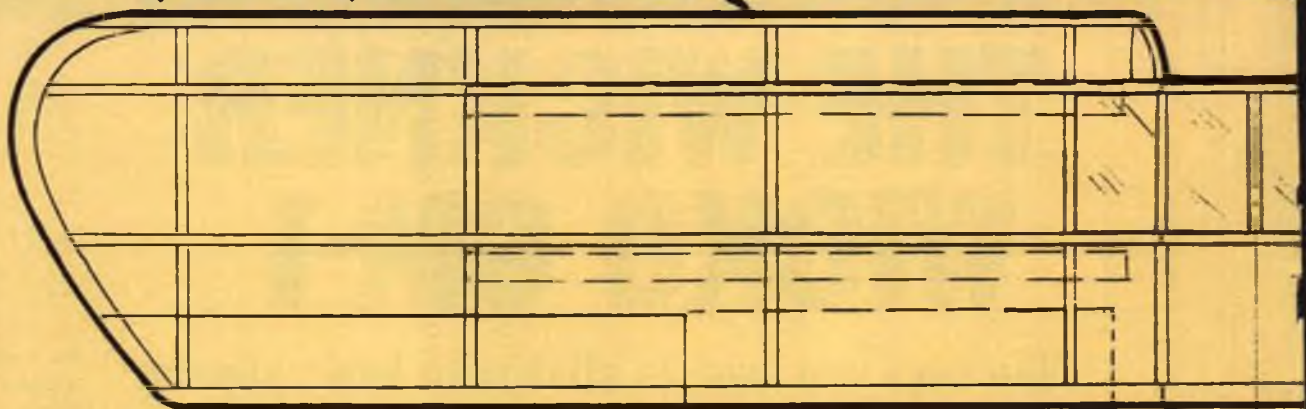
SCALE DOCUMENTATION

One often-asked question which needs answering in some detail is "Where can I find a three-view of my model?" I'll try to cover the answer as well as possible, but of course, it all depends on the airplane being modeled.

If the model is a common production airplane that had a large production run, or is still in production, writing to the manufacturer will often get you

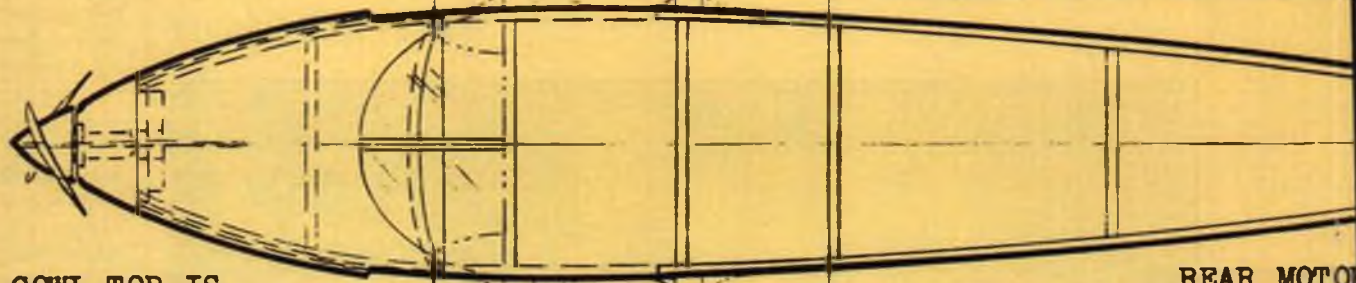
1/16TH BY 1/8TH LEADING EDGES

CUT RIBS AND TIPS FROM 1/16TH



NOTE: FOUR WINDOWS IN TOP OF WING

NOTE: ALL PARTS ARE Balsa UNLESS OTHERWISE NOTED.
USE THIN CLEAR PLASTIC FOR WINDSHIELD AND WINDOWS
USE 1/32ND DIA. OR THINNER PLANO WIRE FOR LANDING GEAR WIRE
AND FOR PROPELLER HOOK
FUSELAGE LONGERONS, UPRIGHTS, AND CROSS PIECES ARE 1/16TH SQUARE
UPRIGHTS 1/16TH BY 1/8TH



COWL TOP IS
1/32ND SHEET OVER
THREE FORMERS, OR

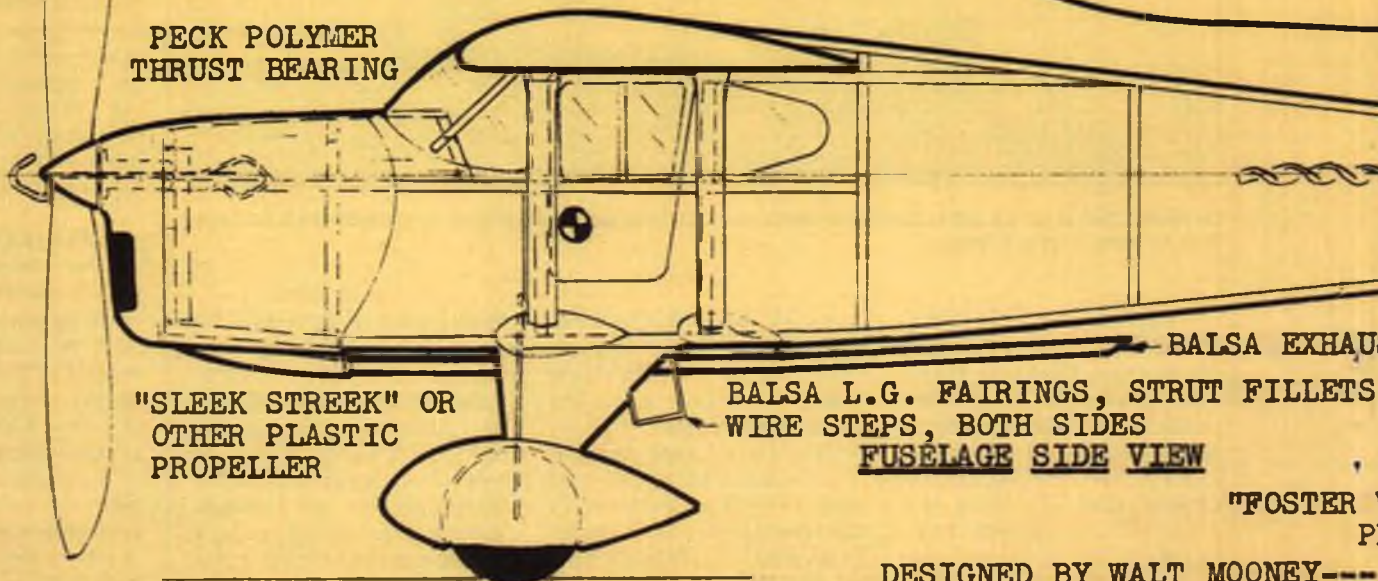
IT CAN BE CARVED FROM BLOCK Balsa
AND HOLLOWED OUT FOR RUBBER CLEARANCE
COWL SIDES ARE COVERED WITH 1/32ND SHEET Balsa
COWL BOTTOM IS COVERED WITH 1/32ND SHEET Balsa
CARVE NOSE FROM BLOCK Balsa

FUSELAGE TOP VIEW

REAR MOTOR

HORIZONTAL AND
BE SHEET Balsa

PECK POLYMER
THRUST BEARING



"SLEEK STREEK" OR
OTHER PLASTIC
PROPELLER

Balsa L.G. FAIRINGS, STRUT FILLETS,
WIRE STEPS, BOTH SIDES

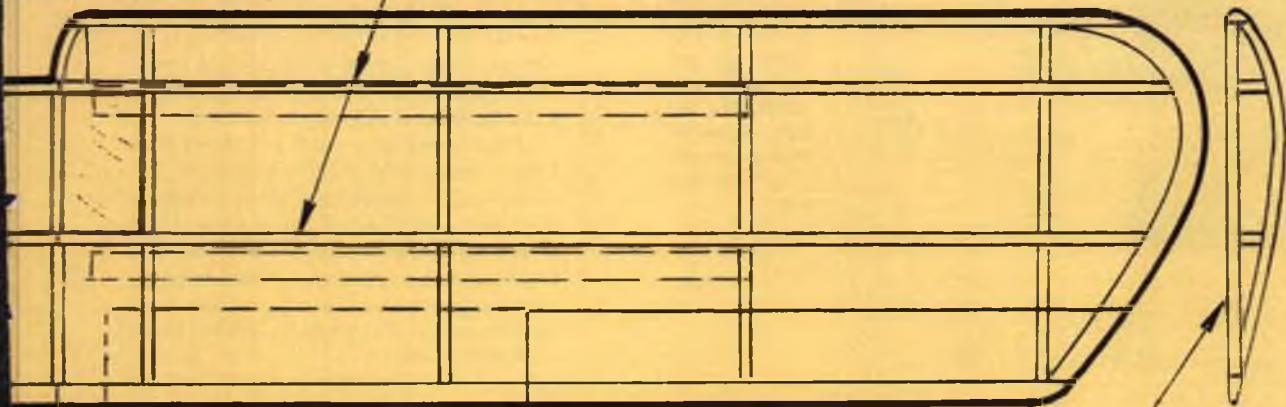
FUSELAGE SIDE VIEW

Balsa EXHAUS

"FOSTER W
PE

DESIGNED BY WALT MOONEY---

1/16TH SHEET Balsa SPARS ARE 1/16TH SQUARE

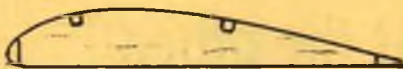


DRAL BREAKS 1/16TH BY 1/8TH TRAILING EDGES
SLICED RIBS MAY BE USED IF DESIRED

RE EXCEPT AS NOTED
AT REAR MOTOR PEG



ALL TAIL PIECES ARE 1/16TH THICK Balsa



WING RIBS



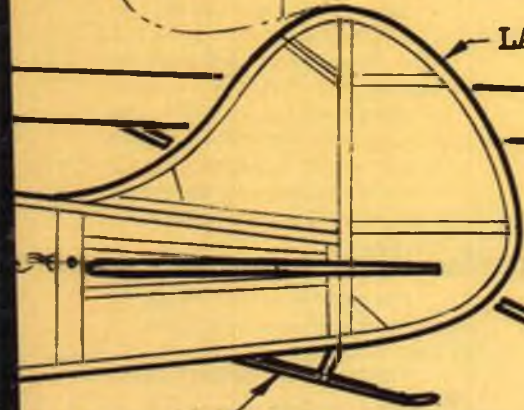
CENTER SECTION
NOSE RIBS



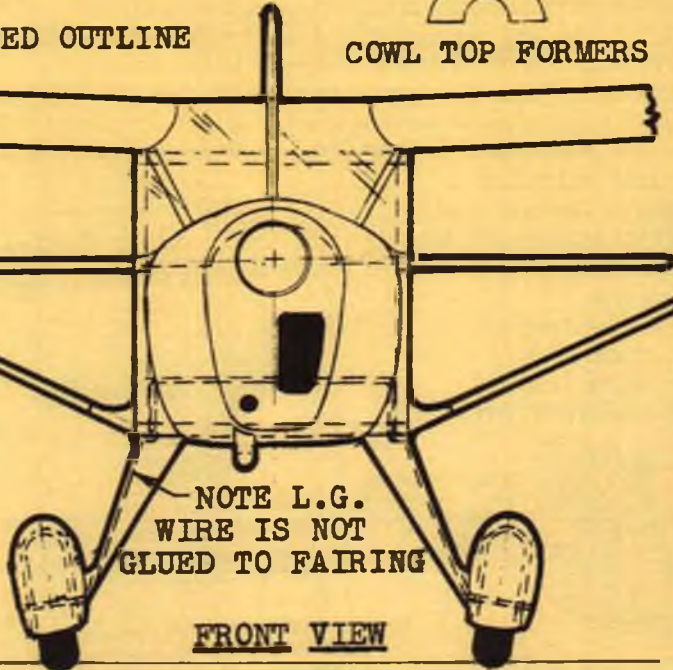
COWL TOP FORMERS

LAMINATED OUTLINE

VERTICAL TAILS MAY
IF DESIRED



T STACK WIRE AND Balsa SKID
AND WHEEL PANTS



NOTE L.G.
WIRE IS NOT
GLUED TO FAIRING

FRONT VIEW

WICKNER WICKO GM-1"
1/2 INCH SCALE
MODEL BY DOUG MOONEY



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the info you need. Some of the larger manufacturers have a public relations department which tries to take care of these kinds of questions. Factory three-views can sometimes be disappointing, however. Full-scale designs often change after the first three-view is drawn and it isn't always profitable to bring the drawing up to date.

Three-views have been published from time to time in almost every model and full-scale airplane magazine. Collect enough of them and you'll have a rather good library of designs to choose from. Most of the avid scale builders I know can't resist hitting a used magazine shop in any city they visit. Sometimes this also works in antique stores in smaller towns.

Large city libraries usually have an aviation section. With modern copy machines, it's easy to obtain a copy of any three-view found in any of their books.

Jane's *All the World's Aircraft* has been published every year since 1909. It is the "bible" of scale modelers. Most large libraries have a copy or two. The best issues, in my opinion, were 1909, 1919, 1936 and 1945. The 1909, 1919 and 1945 issues were re-printed by, and may still be available from, ARCO Publishing Co. Inc., 219 Park Ave. S., New York, NY 10003.

Another source of information is a series written by Kenneth Munson. These go by the title of *The Pocket Encyclopedia of World Aircraft in Color*. These small books, of which there are several, cover classes or ages of aircraft. Each aircraft is shown in a colored two-view (no front view, but the plan view is half top and half bottom view), with a summary of its important data. In the last section of each book is a capsule history of each type, including such things as the number produced, famous flights and famous pilots. A partial list of titles in this series, published by the MacMillan Company, 866 Third Ave., New York, NY 10022 is as follows:

Pioneer Aircraft 1902-14 Fighters and Bombers 1914-19 (two volumes).

Fighters and Bombers 1919-39 (two volumes).

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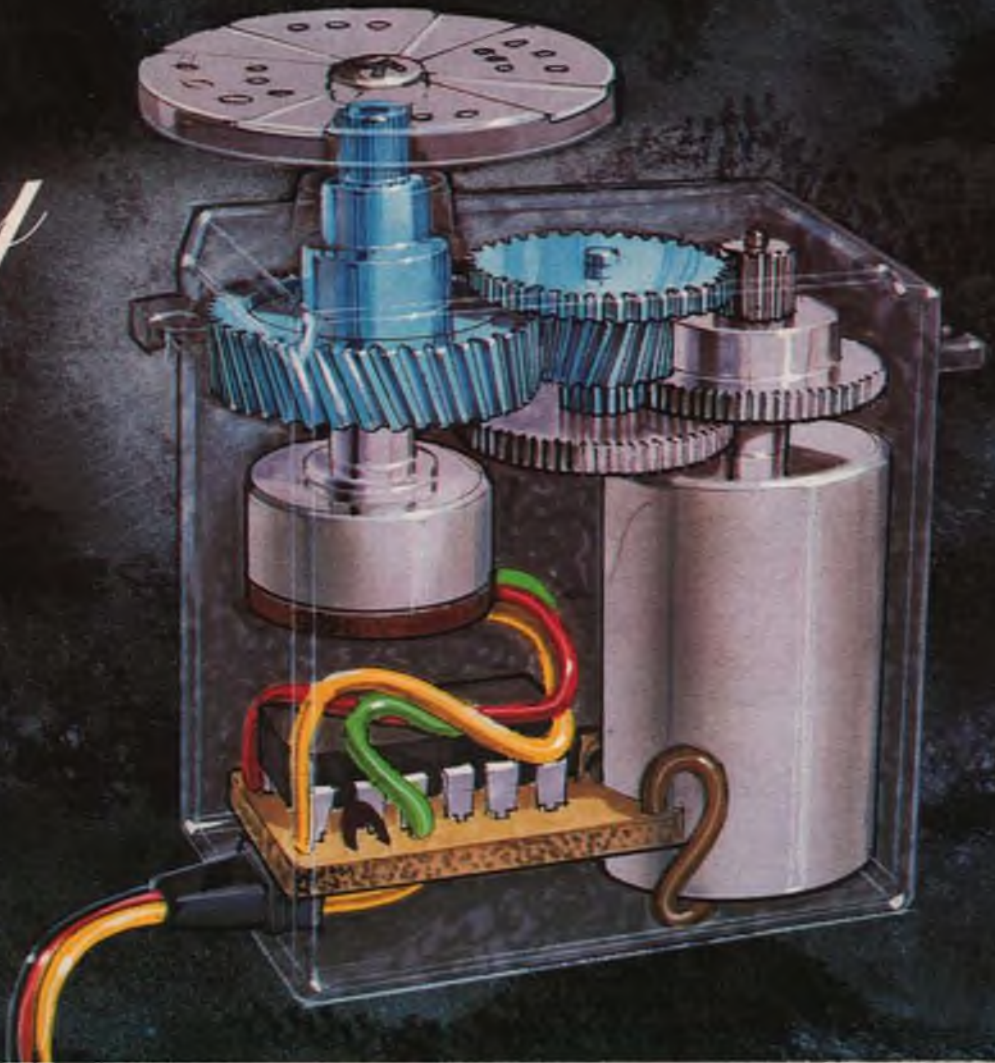
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HS-101 HS-101MG*	Mini servo Metal gear	24 oz/in 24 oz/in	.20 sec .20 sec	NONE	1.3x0.6x1.2	.93 oz 1.07 oz	RCD920 3 servos
HS-205BB HS-205MG	Super mini Metal gear	44 oz/in 44 oz/in	.20 sec .20 sec	TOP BALL BEARING	1.3x0.6x1.3	1.1 oz 1.3 oz	none
HS-300	Std. Sport	42 oz/in	.19 sec	TOP NYLON	1.6x0.8x1.4	1.57 oz	RCD905 4 servos
HS-422 HS-425BB*	Std. Pro Ball Bearing	43 oz/in 43 oz/in	.20 sec .20 sec	DUAL OILITE DUAL BB	1.6x0.8x1.4	1.55 oz	RCD910 4 servos
HS-605BB HS-605MG	Ultra Torque Metal gear	77 oz/in 77 oz/in	.16 sec .16 sec	DUAL BALL BEARING	1.6x0.8x1.5	1.73 oz 2.12 oz	RCD605 3 servos
HS-615MG	Super Torque Metal gear	107 oz/in	.21 sec	DUAL BALL BEARING	1.6x0.8x1.5	2.12 oz	none
HS-700BB HS-705MG	Giant scale Metal gear	133 oz/in 161 oz/in	.22 sec .27 sec	TOP BALL BEARING	2.3x1.1x2.0	3.5 oz 4.0 oz	RCD915 3+1 servos
HS-75BB	Retract servo	90 oz/in	.50 sec	TOP BB	1.7x0.9x1.0	1.3 oz	none
HS-725BB	Sail Winch 4 Turns	161 oz/in	1.62 sec 360 deg	TOP BALL BEARING	2.3x1.1x2.0	3.8 oz	none

*Denotes servo only available with Hitec/JR connector. All other servos available with FUT "J", AIRT and Hitec/JR connectors. Please specify connector type when ordering. All servo packs come with switch harness.

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THE 1994



OSAA



ANNUAL FLY-IN

BY ELOY MAREZ



■ ABOVE LEFT: Had there been an award for Weirdest Aircraft, Willie Gardner's Transavia Airtruk would have won it hands down. As it was, the model wasn't quite ready for flight and so was given the award for Best Static Display. ■ LEFT: This beautiful Stinson SR-8 from an Ikon N'west kit earned builder Dave Lane the Best Civilian award. It has a 100-inch span, weighs 25 pounds, is powered by an Eya VT-240 twin and is guided by an Airtronics radio.



■ **LEFT:** The award for Best Finish rightly went to Gerald Scheuerman for his flawless Byron Sukhol Su-26M, finished with automotive lacquer. Model spans 82 inches, weighs 24 pounds, packs a Zenoah G-62 under the cowl. ■ **BELOW:** Even though it didn't win an award, Carl Hansen's well-detailed 133-inch Boeing P-28 is still a remarkable piece of work. If it's not half-scale, it must be darn close. Model is finished in auto enamel, weighs 70 pounds.



Perpetual QSAA winner Neal Hess did it again, taking the award for Best Scratch Built with his magnificent Douglas C-48A. Spans 110 inches, weighs 37 pounds, took him 10 months to build—time well spent!



Junior Achievement winner Mark West poses with his caller and his scratch-built Yak-55; 86-inch span, 23 pounds, and a Zenoah G-62.

Deadline: Las Vegas, Nevada, October 20-22, 1994. The time has come again for one of the premier RC events in the western United States, the Quarter Scale Association of America's annual fly-in. Event headquarters was again the Nevada Palace Hotel and Casino, which played host to the 167 registered fliers and an unknown but large number of spectators and supporters. As in the past, the flying was at El Dorado Dry Lake, located southeast of the city.

This is basically a fun-fly, with no formal judges; the pilots themselves vote for their favorite in each category. However, there are rules—strict rules. Each aircraft has to pass a safety inspection, be certified as having flown twice previously, and tight

frequency control is in effect during flying hours.

Some will ask just what constitutes a "Quarter Scale" model airplane. If I choose to build a B-36, does it really have to span 57+ feet? Well, not really, and just in case you'd like to be contestant number 168 next year, here is a condensed version of the model rules:

- A. Models may be scale or stand-off scale, the latter being described as a readily identifiable model of a man-carrying aircraft.
- B. Models must be no smaller than one-quarter scale plus or minus 5 percent of the defined scale.
- C. If it's not feasible to build the model in true quarter scale, as in the case of the

B-36, it must have a span of 96 inches or more.

D. Jet aircraft must be quarter scale or have a fuselage length of 96 inches or more.

E. Biplanes that are quarter scale may have a wingspan of less than 96 inches.

This year the desert gods favored us with some of the best weather I've seen at this event—warm, sunny, and with no serious dust-raising winds. I won't even begin to guess at the spectator count, though the flight line started off with a mile-long line of motorhomes, and vehicles were lined up at least ten deep behind them. A lot of people!

And a lot of flying—there were always at least three airplanes in the air, except

Though down in entries from the previous year, the QSAA Fly-In remains one of the biggest and most popular events in RC scale modeling.



Even the ladies fly at the QSAA Fly-In and have their very own award, the Powder Puff trophy. Prior winner Ruth Sharp did it again with her Pilot kit DeHavilland Tiger Moth.



Mike Brewer, who hails from Astoria, Oregon, flew his Nieuport 28 to a Best WWI victory. Model was built from a Proctor kit, is finished in latex paint, is equipped with an Enya VT-240 twin and JR radio.



during the noon break when some individual flights of unusual aircraft were permitted. Unfortunately, some beautiful airplanes were lost for one reason or another, and again, no exact count was made, but it seemed to me that more disasters occurred than in previous years.

The QSAA fly-in starts with a static display and social Thursday evening at the Nevada Palace Hotel, and the flying starts promptly the next morning at 8 a.m. Flying continues on Saturday with dinner and awards presentation back at the hotel that evening. Perpetual trophies are awarded, being engraved with the winner's name for each respective year; each winner is given a plaque to keep. Sunday's activities involve only the winners, and consist only of posing with their trophies for some of the photos you see here. Notice that most of them have a few buttons missing on their shirts—all well deserved and recognized!

The 1994 winners:

- Longest Distance Traveled: Dr. Michael Hawkins, Bangkok, Thailand; 8279 miles.
- Best Multi-Engine: Nick Rivaldo, Long Beach, CA; B-25.
- Best Biplane After 1918: Ken Perkins, Lakeside, AZ; Curtiss P9C Sparrowhawk.
- Best WWI (before 1919): Mike Brewer, Astoria, OR; Nieuport 28.
- Best Finish: Gerald Scheuerman, Prescott, AZ; Sukhoi.
- Best of Scale: Ken Reed, Orange, CA; Pitts.

■ ABOVE LEFT: There was no question that Dean Lassek's A-10 Warthog outflow all the ducted fan competition to win Best Jet. Model is scratch built, spans 18 feet, weighs 46 pounds. ■ ABOVE RIGHT: Best Mechanical Achievement went to John O'Brien for his Waco B50. It is scratch built, uses a DeVries five-cylinder four-stroke engine, spans 90 inches, weighs 47 pounds and is JR controlled.

- Best Military: Dennis Verrill, Oceanside, CA; F4U Corsair.
- Best Stand-Off Scale: Judy Grigsby, Santa Barbara, CA; Fairchild F-22.
- Mechanical Achievement: John O'Brien, Kingsland, TX; Waco B50.
- Powder Puff: Ruth Sharp, Hesperia, CA; Tiger Moth.
- Junior Achievement (under 18): Mark West, Murray, UT; Yak 55.
- Best Scratch Built: Noal Hess, Salt Lake City, UT; Douglas O-46A.
- Best Glider: Glenn Bennett, CA; DG-500.
- Best Static Display: Willie Gardner, Van Nuys, CA; Transavia Airtruk.
- Best Civilian: Dave Lane, Wickenburg, AZ; Stinson SR-9.
- Best Homebuilt: Jim Slocum, Hesperia, CA; Spacewalker.
- Best Madera Style Racer: Woody Sims, Wildomar, CA; P-51D.
- Best Jet: Dean Lassek, Littleton, CO; A-10 Warthog.
- Best (Worst?) Crash: Dennis Rollins, Billings, MT; Weeks Special.
- Best of Show: Walt Moucha; Beech D-18.



Declared Best Biplane After 1918: Ken Perkins' Curtiss P9C-2 Sparrowhawk, a flawless reproduction built from Cleveland Model Co. plans. Spans 70 inches, weighs 22 pounds, uses an Airtronics radio.

In conjunction with the QSAA fly-in, a long-distance Marathon of Flight is conducted every year, the task being to fly the longest distance over the California/Nevada desert. This year, the winner was Bob Sloan, of Santa Barbara, California, who flew his Schweizer 1-30 237.3 miles on a half-gallon of fuel.

That was it for the 18th QSAA Annual Fly-In, but it's not too soon to make your plans for next year or even for the year after, which should be special, as it will commemorate that 20 years previously, a young Eddie Morgan invited some of his friends to El Dorado Dry Lake and in the process started what has become a tradition for those who insist that "Big is Beautiful"!

If you'd like 1995 info when available, contact Tom Gill, QSAA Fly-In Secretary, at 625 Sixth St., Boulder City, NV 89005. MB

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5.7 X 3	1 - 1.59	8.5 X 7.5	5 - 3.95	11 X 5	2.49	12.5 X 12	7 - 7.95	14.4 X 10.5	10 - 12.95	20 X 8	12 - 25.00	22 X 16	45 - 45.00		
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7 X 5	15 - 1.59	9 X 8	1.99	11 X 12	7 - 7.95	13 X 13N	9 - 7.95	15 X 14N	10 - 12.95	22 X 16	31 - 31.00				
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7 X 7	15 - 1.59	9 X 10	1.99	11 X 13	7 - 7.95	13.5 X 9	7 - 12.95	16 X 8	12 - 12.95	24 X 12	38 - 38.00				
7 X 8	15 - 1.59	9.5 X 6.5N	5 - 3.95	11 X 14	7 - 7.95	13.5 X 10	7 - 12.95	16 X 10	12 - 12.95	24 X 14	38 - 38.00				
7 X 9	15 - 1.59	9.5 X 7.0N	5 - 3.95	11.5 X 4	8 - 2.89	13.5 X 11.5N	7 - 12.95	16 X 12	12 - 12.95	24 X 16	38 - 38.00				
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8 X 7	4 - 1.79	10 X 4	2.29	12 X 12	7 - 7.95	14 X 12	17 - 12.95	11 X 6P Pusher	3.95						
8 X 8	4 - 1.79	10 X 5	2.29	12 X 12.5	7 - 7.95	14 X 12	10 - 12.95	11 X 7P Pusher	3.95						
8 X 9	4 - 1.79	10 X 6	2.29	12 X 12N	7 - 7.95	14 X 12W	10 - 12.95	14 X 6P Pusher	12.95						
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DEAR JAKE:

Hi, it's me, Tommy Smith.

I haven't written in a while because it's hard to hold a pen when your fingers are stuck together, especially the thumb.

I'm in hot water again because my mom thinks I put cyanoacrylate accelerator in my sister's hairspray bottle on purpose. It was an accident, I swear. The spray bottle my accelerator came in stopped working and the only other one I could find was my sister's non-aerosol hairspray bottle. It was mostly empty, so I dumped it out and used it to spray my zip-kicker.

How was I to know she would find it and take it back to her room and spray it on her head after her shower? By the way, do you happen to know what kind of stuff there is in shampoo residue that would react with whatever's in bond accelerator? There was a lot of smoke and large patches of her hair turned a lot of different colors. Her whole hair-do also seemed to expand and sort of kinked up. Now she looks like that weird guy on TV who used to show up at sporting events holding the "JOHN 3:12" sign.

Anyhow, my mom thinks I did it to get even with my sister for dropping her curling iron on my Peanut scale model. I wish I had, but I didn't. It really was an accident. Do you think you can get me ungrounded?

Your Friend, Tommy Smith

Dear Tommy:

I think I saw your sister on TV. I was watching a golf tournament and there was this young woman in a crowd of spectators behind the 18th tee. She had multi-color hair about the size of a rose bush and was holding a sign that said, "TOMMY: 20 to Life."

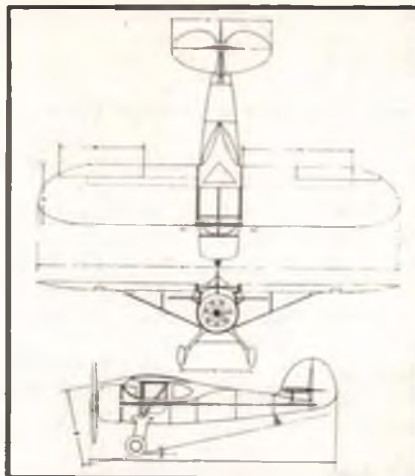
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DEAR JAKE:

The jig is up! Your identity is a secret no more.

While judging the Sport Biplane category at a major West Coast modeling show

continued on page 68



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● Campbell's Fortastrop Kits

● The Upstart for Nostalgia Competition

I first heard of Hot Stuff cyanoacrylate adhesives during a conversation with Vic Cunyningham Jr. on a flight to Chicago for one of the last Navy Nats. It wasn't called Hot Stuff at that time, of course, but Eastman 910. Vic was very graphic in his endorsement of this new product. The cost, however, was discouraging—around \$20 for a small bottle.

Then Satellite City, kit makers extraordinaire, brought CA to the model marketplace at a more reasonable price—\$8.25 per bottle. I bought some and began using it for field repairs and other quick fixes. It was magic stuff. In my free flight club, CA glue is still called Hot Stuff, even though many of us also use other brands. "Hot Stuff" became a generic name, not unlike Xerox. The prime movers behind Satellite City, as you know, were Bob and Bill Hunter.

Bob Hunter was always looking for a better way to build and fly free flights. I recall that when FAI Power (now called F1C) was new, Bob showed up at the field with an FAI ship powered by three Holland Hornets. I wasn't there, but I can imagine the sound those engines made! His Satellites, in all sizes, were and still are one of the standards by which FF competition ships are judged. These developments have affected all of us who fly free flight.

On September 30, 1994, Bob Hunter passed away at the age of 68. Too young! His influence will live with us for years to come.

MARCH THREE-VIEW: THE THRUSH PENNYPLANE

John Lenderman is a free flyer's free flyer. He builds models that others can replicate and successfully use in competition. John once held the Coupe d' Hiver record with 16 consecutive max flights, cut short only because of darkness. The model he used, the Lenderman Coupe, has been built and flown by many others—including the present AMA record holder, Fred Guilfoyle.

More recently, John has turned his attention to indoor free flight, and can be seen at nearly all of the meets in the northwest, including last summer's big Northwest Annual at the Kibbie Dome. John bested a strong contingent of contestants, including Britain's Bernard Hunt, and won with a flight of 15:10. I don't think John has any secrets to his building and flying. He builds his models well, flies them often and trims them for competition. His models are easily built and competitive.

The drawings here should give you all the information you need to build one. Full-size

plans are not available, but you can contact John for further details by sending an SASE to him at 17066 Hall Rd., Clatskanie, OR 97016.

MARCH MYSTERY MODEL

This month's Mystery Model was found in a pile of loose pages from a semi-disintegrated magazine. It peeked out at me and beckoned. It was perfect—weird looking, distinctive, obscure—all the features I was looking for. So, here it is, a Nordic A-2 (now called F1A) for your perusal. It was designed by a free flyer who at the time was probably better known for his power models than his gliders.

The rules to this feature are well known now. If you know the name of the model, send it in to *Model Builder*. If your letter is the one drawn at random from among the correct entries, you win a free one-year MB subscription. Do it now! Win big!

DECEMBER MYSTERY MODEL WINNER

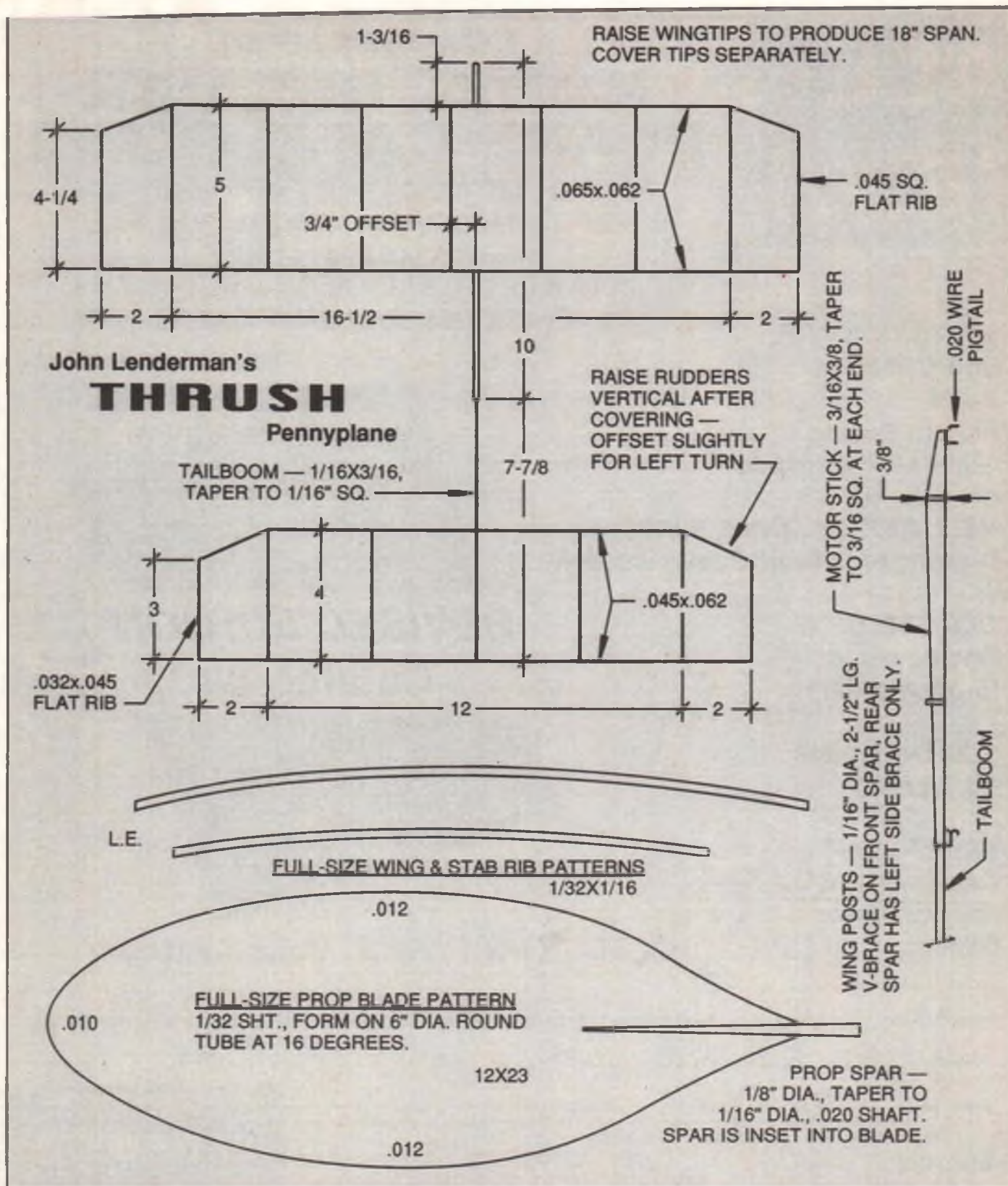
The full-size fold-out plan in the March 1963 issue of *Aeromodeller* was the source of December's MM, an .010-powered canard design by James McCann called the McCann-ard 27. Several of the 13 readers who responded reported they had built a McCann-ard at one time or another—Bud Vanderlinden of Glendale, California says he lost three of them at nearby Sepulveda Basin; Barry Killick of Novi, Michigan still has the basically intact airframe of a McCann-ard he built when he lived in England; and Richard Drake of Garden Grove, California, who has over 36 flyable .010 ships in his stable, built a McCann-ard about five years ago. The one-year MB sub goes to Jay Hicks of Orlando, Florida.

U.S. WINS INDOOR WORLD CHAMPS

The U.S. indoor team swept the 1994 Indoor World Champs in Romania. All three

Phil Krahl's Upstart, as rendered for Class C Nostalgia by columnist Bob Stalick. He's most impressed with the performance of this little-see design. Site is Harb Lake Prairie in Washington.





team members scored flights in excess of 40 minutes and placed 1, 2 and 3—Steve Brown, Cezar Banks and Bob Randolph respectively. The manager for this unprecedented effort was Bud Romak. Nice going, guys!

THE FORTASTROP

I recently built a Midwest Fortastrop for 1/2A Nostalgia. My ship has been variously powered by a Holland Hornet, an Atwood Wasp, and an Atwood Signature. The Hornet

was too much power, the Wasp too little and the Signature just about right. As with all models with too little fin area, the Fortastrop is prone to Dutch-rolling under power, and if pointed in the wrong direction, it can hit the ground at a good

rate of speed. I did that to my ship.

Now Campbell's Custom Kits has brought out a kit of the Fortastrop. Lee Campbell has been true to the original design but has made a few modifica-

continued on page 55

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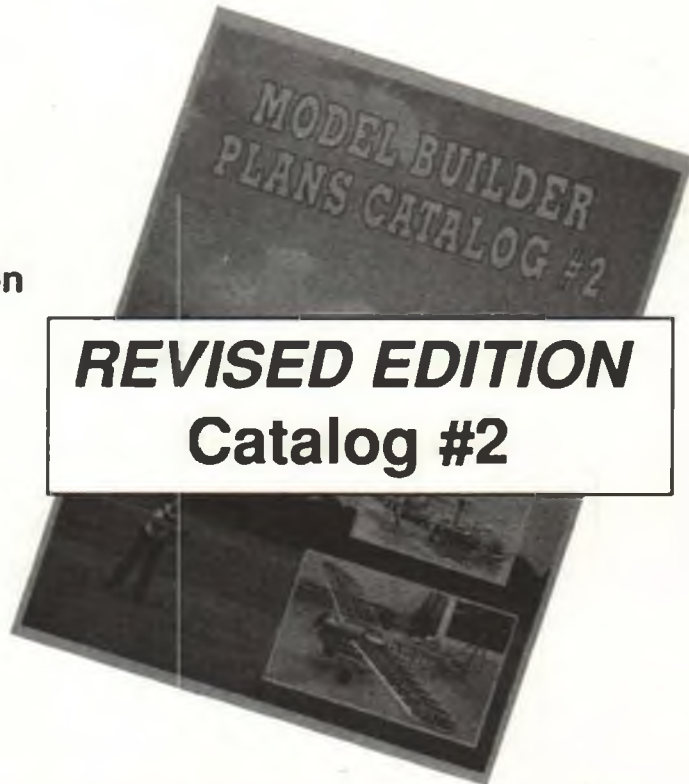
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tions in order to produce a better flier. It's still Nostalgia legal. Typical of Campbell's kits, it is also well engineered, with selected balsa and precut parts all sorted out and placed in plastic bags. The kit comes with very nice Japanese tissue, full-size plans, and building instructions. It's a nice size for a Cox reed-valve .049 or the aforementioned Atwood Signature. I think the Hornet is too much for it, unless you slow the engine down during flight trimming.

If you're intrigued by this model, you can order your own from Campbell's Custom Kits, 4402 Weddel, Dearborn Heights, MI 48125. Cost is \$29.98 plus \$4.50 S&H.

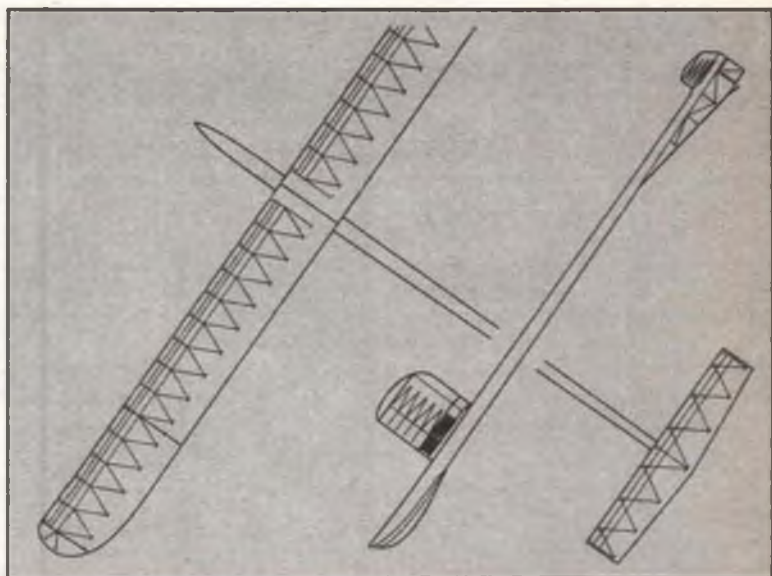
PHIL KRAFT'S UPSTART

Several years ago I was given a set of Upstart plans, which I recently built. This mid-thrustline Nostalgia model has just under 800 square inches of wing area, the fuselage is a profile type of construction, and mine is powered by an old K&B .32. Last month I had the chance to fly it for the first time, and I was impressed with its performance. It climbs better than any other Class C Nostalgia model in my area and has a superb glide. The ship trimmed out in just three flights. John Pond has full-size plans for \$7.00 plus \$1.40 S&H.

Ask for plan #34G7.

Phil Kraft, better known for his later work in radio control, was an expert free flihter at the time this ship was published in *Model Airplane News* (October 1957). In the article, Phil noted that he had built the model in other sizes, but a scaling chart did not appear in the magazine. I've since run the numbers for an A-B size and a 1/2A size. For the A-B, a scale factor of .86 produces a wing area of 565 square inches, while a scale factor of .58 produces a wing area of 260 square inches for the 1/2A model.

MYSTERY MODEL



THAT'S IT DEPT.

This is the time that you should be thinking about the upcoming outdoor season. Clean up those old models, check out those engines and timers, patch those wings and stabs. The outdoor season is just around the corner! MB

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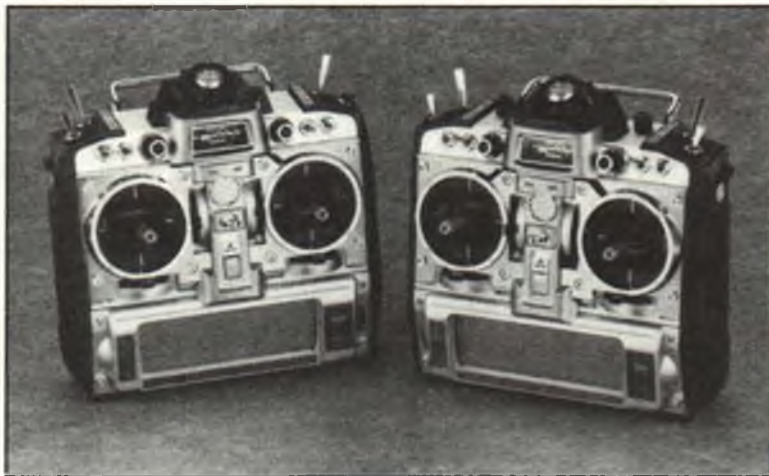
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ELECTRONICS CORNER

BY ELOY MAREZ

• Ace Datamaster Mods

• PCM and Electrics



"New and Improved" is an overused term, and not always true, but in this case it is actually so; the JR PCM-10SX RC system is definitely improved over the original 10S version. With helicopter input from Curtis Youngblood and airplane info from Chip Hyde, the 10SX incorporates all the refinements most asked for by experienced competition fliers. The functions are many—ask Horizon Hobby Distributors (4105 Fieldstone Rd., Champaign, IL 61821) for a 10SX "Product Focus" sheet which includes all the details.

Ace RC's Datamaster is a handy device that plugs into your receiver and allows you to read the control pulse length. Effectively, it brings you one of the most useful features of today's so-called "computer" radios: it allows you to set control throws without guesswork, and to very close tolerances.

Just recently, during prolonged use of my Datamaster, I found it to be getting quite warm—too much so for my liking. The heat was obviously due to the large number of LED digits being lighted, and with that in mind, I decided they were much brighter than necessary for indoor use. (If you use yours outdoors, you might prefer it as is.) The simple change described here will not only increase the life of the LEDs, it also reduces current consumption by some 40 percent; from 250 mA to 150 mA.

The schematic supplied with the Datamaster shows three transistors—Q2, Q3 and Q4—which provide a ground path for each LED display at the appropriate time. The emitter is tied directly to ground; inserting a transistor here will reduce the current through the transistors, and thus through the LED. This requires cutting the land between the emitters and ground and inserting the resistor as shown. I found that a 10-ohm resistor reduced the LED brilliance to a point that did not

reduce the readability but did reduce the heat produced to a more acceptable level. You may want to adjust this value up or down to the point that suits you best. Radio Shack has some 10-ohm 1-watt resistors (271-152) that fit the bill perfectly.

ELECTRIC FLIERS CHALLENGE

In the December column, I queried those who write about electric powered airplanes about why they often criticize us who don't. As I write this in November, I haven't heard from any of these gentlemen, however, I did hear from a reader in Eugene, Oregon, who wrote in part:

"I see in your column in the December *Model Builder* that you take exception to the constant sniping directed by some Electric columnists toward those fiends in human form, 'wet' modelers. Please do nothing to stifle them; it would take all the fun out of reading their columns.

"I guess I must be counted as a 'wet' modeler—I always put too much lube on the rubber—but I find electric columnists a remarkable clan. Double-jointed, the lot of them, from all that patting themselves on the back. All that self-congratulatory, holier-than-thou ranting of theirs can be interpreted as whistling in the dark.

We are, in the words of an engineer flying buddy of mine, two, maybe three technical revolutions away from electric modeling being a practical proposition, and the Ayatollahs of Electric know it, but they can't admit it, can they? So leave them alone until they get around, as I am sure they will, to denouncing some poor devil who has put a gas engine in an electric kit, forcing him into hiding like Salman Rushdie."

*(Editor's note: If anyone cares to address this subject further, be our guest. But let's get something straight right now: Such a discussion is going to be done in a reasonable, adult manner, without name calling or resorting to the sort of infantile drivel expressed above by our Eugene correspondent, or it won't be done at all. We only ran his letter because, instead of making any valid points, he succeeds merely in demonstrating the colossal depth of his ignorance—as well as that of his "engineer flying buddy"—regarding the current state of the art of electric flight, and everyone has the right to make a fool of themselves from time to time, I guess. Rest assured you won't see that sort of crap in *Model Builder* again, here in EC or anywhere else.)*

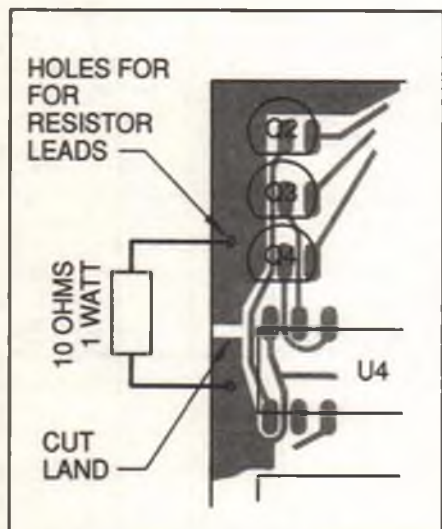
PCM—BLESSING OR OTHERWISE?

Actually I did hear from one electric flier, though on a completely different subject. Arthur Thoms, of Berkeley Heights, New Jersey, writes:

"I've just heard about PCM lock and wonder whether it caused the crash of my four-motor electric model. I had two low pass filters on each motor—Astro cobalt 05s running on nine cells per motor. I had 18 previous flights without a twitch. The flight battery was OK and I was not shot down.

"If PCM is not safe to use with multi-motor electrics, what type of radio system would you recommend?"

Most often this phenomenon is spoken of as "failsafe lock-out," but it means the same thing—the receiver suddenly stops



This minor mod to Ace R/C's Datamaster will lower its operating temperature by reducing LED current. Brightness is also reduced, but not to a critical viewing level (at least for indoors).

"listening" to its companion transmitter, goes to failsafe position, and the end is completely predicabile, except for the exact time and place! Some seem to think this happens due to some electronic idiosyncrasy within the receiver and it goes into failsafe on its own. I will get to all of that in a bit, but first there are a couple of points that I feel need clarification.

First of all is the seemingly obvious thing—blame the radio. I can't say this was actually the case, since our New Jersey friend did not offer any details about what actually transpired, but RC airplanes do crash due to airframe failure—that is, something comes loose or breaks, rendering the airplane uncontrollable. I have yet to meet the person who can pinpoint why a model may be out of control. Whatever the fundamental reason may be, the bottom line is "I ain't got it!"

By the same token, I have to take ex-

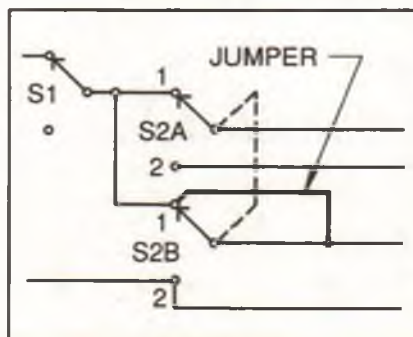
ception to the phrase "I was not shot down." Again, without a monitor on the frequency at the exact time the out-of-control happens, there's no way to know this without a doubt. Could have been your own friend in the pits!

I'm not defending the radios or their makers. Radios do fail. Most electronic equipment fails sooner or later, even military and commercial aviation systems, which are manufactured to far tighter specs than our stuff. And let's face it, our airborne equipment is often called upon to operate in a most unfriendly environment!

Now let's take a close look at Art's problem—and bear in mind that without having actually autopsied the remains, all I can do is fly on theory. The fact that the airplane had previously successfully flown 18 times rules out all possibility of equipment incompatibility—*unless something changed*. As I said before, radio systems do fail, and we don't know whether the one in question was working after it met terra firma. But something could just as easily have failed in the electric motor system in such a way that would create a higher-than-normal electrical noise level which would drive the receiver into failsafe. For instance, the motors create some extremely high voltage peaks, which have been known to "blow" noise suppression capacitors, which would render the low pass filters mentioned inoperative.

Another not-often-read-about fact is that

continued on page 58



IS OUR FACE RED!

In the November '84 *Model Builder* we ran an article by Jose Tellez on building a constant current charger with built-in electronic timer. A wire jumper was inadvertently omitted from the schematic; without it, the charger will work only in the manual mode, not on automatic. The missing jumper should go on the B section of switch S2, and connect the moving arm with contact 1 (see drawing). Also, the switches were left out of the parts list and should be as follows:

- S1 Single pole on-off
- S2 Double pole double throw (toggle or slide)
- S3 Single pole five-position rotary
- S4 Single pole five-position rotary

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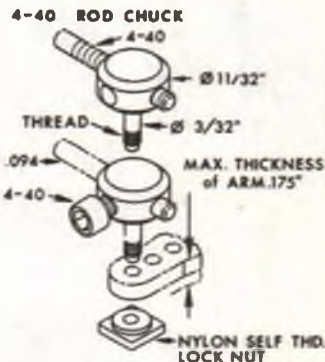
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ELEC. CORNER *cont. from page 57* • •

as the brushes and armatures wear, they generate more and more noise, which can build to an intolerable level. Another possible failure is in the wiring. Whenever a solder connection is made, solder will always creep up the wire under the insulation. The point where the solder ends is therefore inflexible, and time and vibration can cause it to part. This is a bad kind of break; the two ends are held together by the insulation, and the constant make-and-break, at the very heavy currents involved, will create a noise envelope that few receivers can work through. Such a situation would definitely drive a PCM receiver into failsafe.

A lot of knowledgeable fliers have reverted back to plain FM systems, or if they're using one of the so-called "super-radios," are doing so with it switched to what is erroneously called "PPM," which is the RC industry's way of referring to normal ordinary FM.

In Art's case, I wouldn't junk anything before a thorough investigation. An antenna-less test with different motors and/or different combinations of motors running might be all it takes to pinpoint the culprit, if one exists. *MB*

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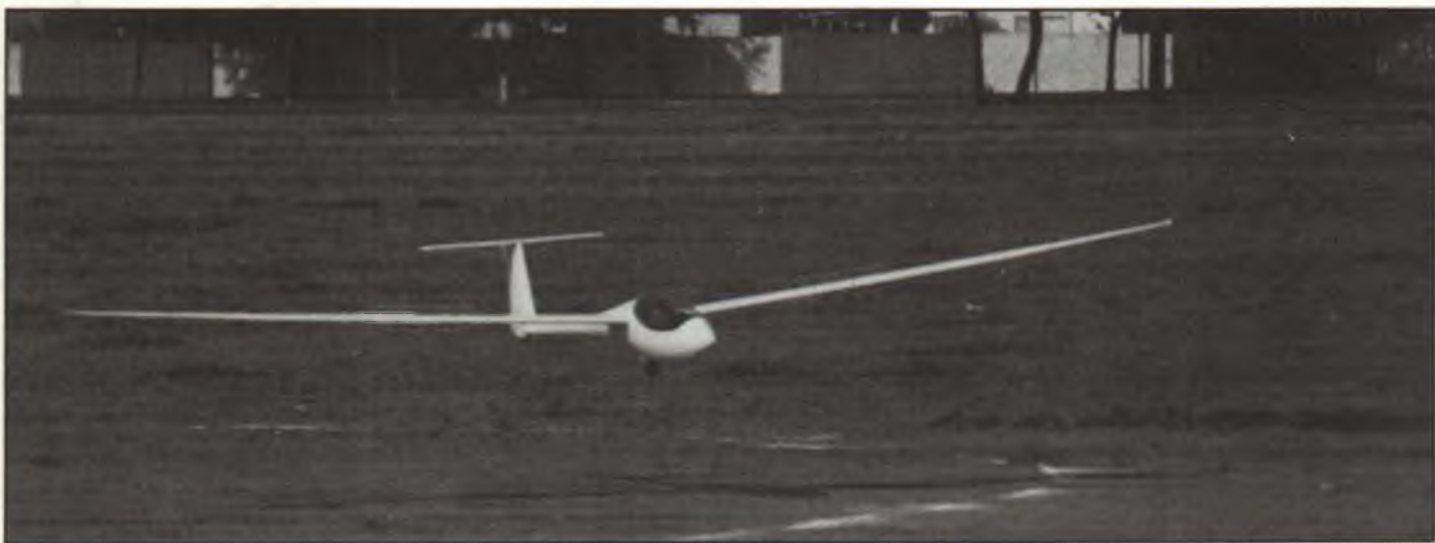


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AFFORDABLE LARGE SCALE SAILPLANES

Many of us have lusted after those big, beautiful—and usually frightfully expensive—molded fiberglass scale ships from Europe. This month, Bill talks about a U.S. source of high-quality scale sailplanes but at much more reasonable prices.



■ TOP: At a recent mini-gathering of scale sailplanes in southern California, Mark Foster displays a Multiplex Ka-6 (left), Thermofugal AS-W 24 (which he imports), and the Inhoff AS-W 24 (right). Nothing like big "glass clippers" like these to make one want to fly nothing but scale from now on! ■ BOTTOM: The Inhoff AS-W 24 about to touch down after another smooth but rather short flight—the Fitz airfoil and high wing loading make it better suited to slope flying.



Thermal competition and F3B fliers these days no longer balk at spending hundreds of dollars for a quality, prefabricated, high-performance competition sailplane. Most often these ships are very beautiful, and sometimes they merely look functional, but they always look like models.

By contrast, scale sailplanes look like the "real thing." There's no such thing as an ugly scale sailplane. I'd bet that in a word association game among model sailplaners, the word "beauty" would come up right after the words "scale sailplane" or "glass slipper" more often than any other word. Most of the molded scale sailplanes are produced in Europe, and are very expensive—which explains why you don't see them more often.

A few weeks ago I attended an informal mini-meet of scale sailplaners at the SULA club's field at Cal State Dominguez Hills, just south of Los Angeles. What I learned there is that you can get a really nice, big scale sailplane for about the same money as a molded fiberglass TD competition ship. Beauty and performance can be bought at a competitive price.

One source is a guy named Mark Foster, who personally imports the Thermoflugel line of "fine quality German RC scale and competition sailplanes." Compared to most major mail order or main line distributors, Mark brings in small

■ ABOVE: Mark Foster's Ka-6 rotates into the typical 45-degree launch angle of a too-far-forward lowhook. Better too far forward on first launches to be safe—nobody wants a stall 20 feet up!

■ RIGHT: Interior shot of Dennis Brandt's Thermoflugel AS-W 24 shows the radio installation (got any P-O-O-M in there?) and one of Bill Liacovich's heavy-duty aluminum retractable wheel mechanisms.

numbers of each model. He also likes to place orders with Thermoflugel when he knows there is a demand. If you can stand a possible wait for something that might not be in stock at the time you order it, the savings are great.

I got a chance to fly two of the three scale sailplanes at Dominguez that overcast and patchy-skied Sunday morning. The Thermoflugel AS-W 24 owned by Dennis Brandt was one and the now out-of-production Multiplex Ka-6 owned by Mark Foster was the other. (The third ship was an Inhoff AS-W 24 also belonging to Mark Foster.) What was amazing was the difference in the way these two aircraft flew.

The Ka-6 flew easily, like a big trainer. It climbed well in light lift and could be turned in big, flat thermal turns using rudder and elevator alone. Ailerons were very useful to initiate steeper banks and controlling tighter turns. With the rudder electronically coupled to the ailerons, all turns were easy and quite well coordinated. The Ka-6 has an NACA airfoil of unknown type



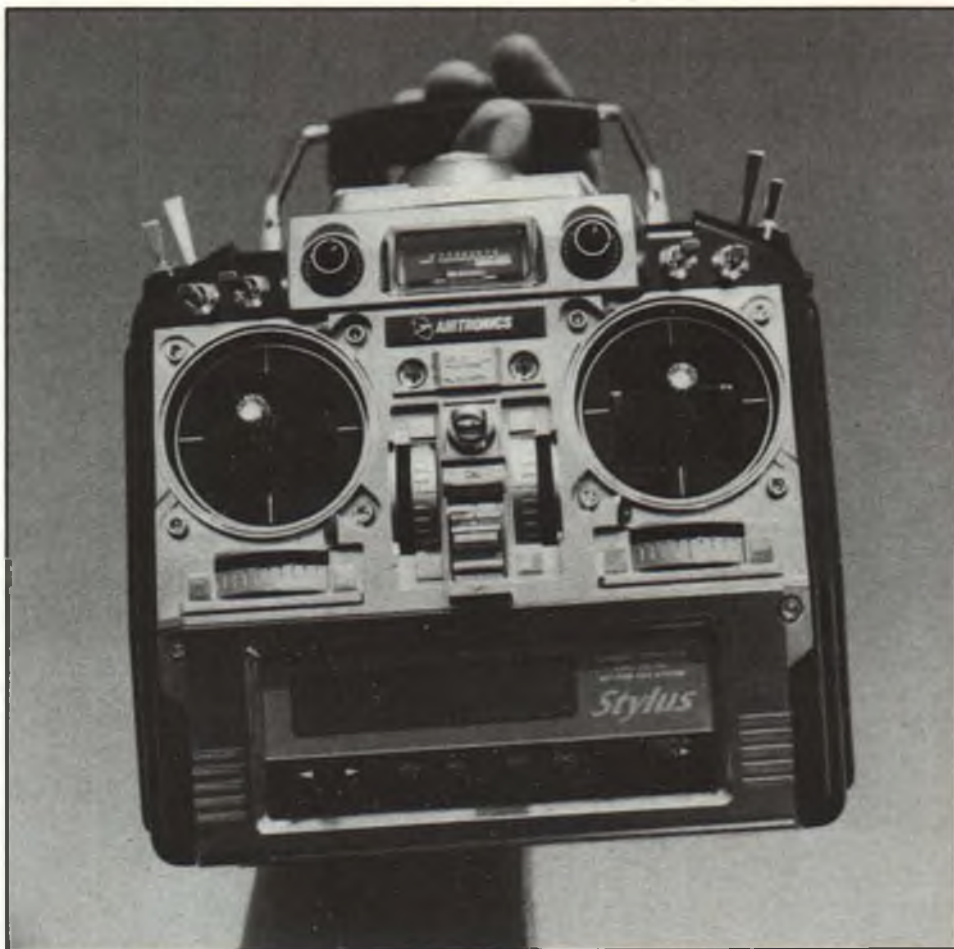
(probably a 2412). Its 4-meter wings were obechi sheeted white foam with a root chord of 9.4 inches and a tiny tip of only 3.4 inches. Even with this much taper, tip stalls were not a problem.

The Thermoflugel AS-W 24 uses an Eppler 203 airfoil and was set up by Dennis Brandt to handle more like a big competition glider. The roll rate was much faster, and the big ship had a more responsive, "racier" feel. Its 9.75-pound flying weight gives a 20-ounce wing loading—not exactly your typical TD contest ship loading, but not bad considering the 4-meter span. Climb rate and handling were likened by Larry Jolly to that of a cross country ship, i.e. it takes more than a light thermal to get up and out, and you'd better fly deliberately and smoothly to make the most of it.

The third scale ship on the field was an Inhoff AS-W 24 belonging to Mark Foster. It was identical in size to the Thermoflugel, but several pounds heavier. This model had what Mark thought was one of the Ritz airfoils, which are more typically found on slope gliders, fast flying wings and electric models. They tend to be faster and have a higher sink rate than more common flatland airfoils. Sure enough, even considering the too-far-forward position of its towhook and the resultant low launches, the Inhoff AS-W 24 was always down in 2 minutes or less. It would be more at home at Torrey Pines, Eagle Bluff or the Wasserkuppe.

Mark currently offers the Thermoflugel AS-W 24 in 3.5 and 4.2-meter spans; a 3.5-meter AS-H 26E; a 3.5-meter DG-500; a 4.4-meter DG-600; a 3.5-meter aerobatic Pihatus B4; a 3.5-meter AS-W 20; and a 4-meter Salto. Prices range from \$415 to \$595. If you're into competition ships, Mark also sells the 3.5-meter Cobra in sailplane and electric motorglider versions for \$455—no waiting, it's in stock. Then there's the big Amiga 4-meter TD competition sailplane that features the HQ 3.0/12 airfoil and a whopping 1,255 square inches of wing area. The Amiga runs \$650 and is also in stock as of this writing.

Contacting Mark Foster is as easy as



Shown at Visalia was the new Airtronics Stylus radio, an eight-channel 1824 PCM computer radio that has "3-in-1" capability: aircraft, sailplanes and helicopters. Plug-in type software cards afford feature upgrades and memory for 50 model aircraft setups. All programming is done by a large LCD display, pushbuttons, and a simple menu structure. Basically, if you want it, this baby has it. Should be available this spring. Also new is Airtronics' 8455 micro servo, basically identical to the popular 84501 but with an aluminum output gear—great for flaps and other high-stress applications.

dropping him a line at 826 Oneonta Dr., South Pasadena, CA 91030, or calling him at (213) 257-4573.

VISALIA REVISITED

So much was seen, heard and done at the last CVRC Fall Soaring Festival (see last month's *MB*) that it literally could take a year's worth of columns to do the meet justice. Presented this month are more pho-

tos from the world's biggest soaring meet.

On behalf of the CVRC and the hundreds of grateful participants in the \$15,000 (estimated) raffle at this year's FSF, we offer the following list of sponsors and benefactors. First is a list of those who, in addition to their donating to the raffle, also participated in the industry "midway" where

continued on page 76



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PRODUCTS IN USE

■ By John Lupperger

HOBBY LOBBY'S SKIMMER ELECTRIC SAILPLANE



Named after a graceful North American seabird, this motorglider is designed to build easily and perform well with low-priced electric power systems.

The author and his new electric sailplane. Model was covered entirely with Oracover film (a Hobby Lobby import); the bottom of the wing and stab are solid black for good visibility at high altitudes. For those whose building time is at a premium, Hobby Lobby now offers a framed-up version of the Skimmer, priced at only \$99.



The Skimmer slows down nicely on the landing approach and can be brought in fairly nose-high without the fear of suddenly dropping in.

■ SPREAD PHOTO: With its straight V-dihedral arrangement, the Skimmer has a distinctly European flair and will stand out in a crowd of more common polyhedral ships.



The Skimmer's nose fits cleanly into the Graupner Scimitar folding prop; the blades fold nicely against the fuselage no matter where the motor stops. The blades of the supplied 723 prop were replaced with 8x4-1/2 blades (available separately) to achieve better climb performance. That "canopy" is actually a hatch for the compartment behind the motor, which contains the receiver and speed control.

HOBBY LOBBY'S SKIMMER

WINGSPAN	70 in.
WING AREA	532 sq. in.
FLYING WEIGHT	42 oz. as tested.
WING LOADING	11.3 oz./sq. ft.
OVERALL LENGTH	40 in.
AIRFOIL	Selig 3021.
RADIO	Three channels required (rudder, elevator, motor).
PRICE	\$48 (kit), \$99 (framed up).

Distributed by Hobby Lobby International,
5614 Franklin Pike Circle, Brentwood, TN 37207;
(615) 373-1444. Free 124-page catalog
available on request.

MOTOR EQUIPMENT USED	Graupner Speed 600 7.2V, seven-cell, 900-mAH battery, and 8x4-1/2 Scimitar folding prop.
RADIO USED	Airtronics Vanguard VG-4R-FM, 92765 receiver, two 94401 mini servos, and MA-6 electronic speed control with BEC.



Although not part of the kit design, the author added a hatch on the bottom of the fuselage for easy access to the servos and linkages.

HOBBY LOBBY'S SKIMMER

The Skimmer gets away on its first flight on a beautiful November morning at the Harbor Soaring Society's field in Costa Mesa, California. Despite the direct drive setup and inexpensive ferrite magnet motor, the rate of climb is quite good.

The Skimmer is an electric glider designed for sport thermal flying with inexpensive direct drive electric power systems. The structure is quite simple, easy to build, and rugged, almost to a fault (more on this later). With a 100+ watt "can" motor and an efficient prop, climb performance is excellent. The Selig 3021 airfoil yields a broad speed range and the ability to produce long soaring flights.

The V-dihedral wing gives the Skimmer a European flair. This dihedral arrangement does require a bit more finesse in flying than a polyhedral model, but shouldn't present any major hurdles to fully enjoying the Skimmer's performance.

THE KIT

Although the wood in my kit was relatively light and of good grain selection, the milling was rather rough and required some extra sanding before assembly. Die-cutting was above average.

Anyone, even an absolute beginner, will find the kit easy and quick to build. My only criticism of the Skimmer's design is in the size of some of the wood used. This airplane could be built a couple of ounces lighter (and its performance therefore enhanced) simply by substituting smaller stock in the tail surfaces and the wing. This would be OK for an experienced pilot, however, a novice flier will find that the stock Skimmer's extra-rugged construction will pay off during the "hard knocks" bound to be encountered.

The wing is an I-beam sparred, tubulated, open structure. The spars are 1/8x3/8 spruce with 1/16 balsa shear webs, and the tubulators are 3/16 square balsa—very strong. Because of the wing's taper, the aft part of the ribs naturally become thinner out towards the tip; however, the supplied trailing edge stock does not. One way to approach this is to block-sand the top of the T.E. to match the profile of the ribs; another is to raise the aft end of the ribs so that their upper surface is flush with the top of the T.E. stock. I opted for this second method. Later I added a strip of 1/16 balsa to the bottom of each rib from about half-span out to the tip, from the spar back to the T.E., then used the spar and T.E. as guides to sand the bottom of the ribs flat. This does change the airfoil slightly, but since we're dealing with an open structure wing that doesn't hold a true profile when covered, this will have little if any effect on performance.

The fuselage is a simple, very strong box with plenty of room for equipment. It's designed with a bottom hatch for battery access. The plans call for the servos to be mounted just behind the wing and then sealed in the fuselage by the top and bottom sheeting. I didn't like the idea of not having ready access to my servos, so I made

a second removable hatch on the bottom of the fuselage and mounted the servos upside down in this area.

The vertical and horizontal stabs are built up from 5/32x1/2 stock. The elevator and rudder are both 5/32 balsa sheet.

POWER SYSTEM

For this review, Hobby Lobby supplied a Graupner direct drive power package (catalog #GR297, only \$33), consisting of a 100+ watt Speed 600 ferrite magnet motor, 7x3 Scimitar folding prop, prop adapter, wiring, capacitor and tools. For much-improved climb performance, you'll want to substitute a set of 8x4-1/2 blades (catalog #GPE0804B, \$5.80 per pair).

Most of the batteries I use for gliders are matched, 900-mAH seven-cell packs. During this review I used two of these packs plus a matched and pushed pack of 1700-mAH Panasonic P-170s. Might mention that Hobby Lobby can supply you with ready-made seven-cell packs of from 800 to 1700 mAH capacity, if you don't already have something on hand.

FLIGHT PERFORMANCE

As is often the case, the day I chose for the test flights was less than ideal. Although there appeared to be plenty of lift about, there was also a fairly strong breeze. I started out with one of my 900-mAH packs, faced into the wind, advanced the throttle and gave the Skimmer its first taste of airborne freedom. The climb rate was good for a direct drive system, but not quite what I had expected from the claims made in the ads. After reaching about 400 feet I cut the power and checked out the Skimmer's handling characteristics.

Stalls were straight ahead, with no tendency to drop a wing. Slow flight showed that the Skimmer remained responsive to the rudder almost right up to the stall. In straight and level flight the model enters a turn quickly but requires a lot of opposite rudder to pull out. I believe this could be corrected by either increasing the dihedral a bit or by decreasing the height of the vertical stabilizer. If banked over in a turn and left alone, the Skimmer has a tendency to tighten up in the direction of the turn.

The second flight also used a 900-mAH battery, and this time an effort was made to locate and work lift. Because of the wind, thermals were difficult to locate and hard to stay with. As before, three climbs were made on the 900-mAH pack and the flight



lasted over 15 minutes, even though only one decent thermal was encountered.

While thermalling the Skimmer, I found it climbed best when kept in a shallow banked turn with the speed kept up. It tends to fool you; it doesn't seem to be doing much, when all of a sudden you realize that you've gained altitude and have been up for several minutes. The one thermal I snagged dragged me quite a way downwind, and I was really pleased at how well the Skimmer penetrated back to the field without giving up all of its altitude.

On the third flight I used my matched and pushed P-170 pack and was really surprised at the difference in the climb. This pack has exceptional power and capacity, and the moderate increase in rpm made a significant difference in the power-on performance. I believe the best way to get the full potential from the Selig 3021 airfoil used on the Skimmer is to keep the nose of the model down a bit more than usual during climbout. This allows the Skimmer to pick up extra speed and gets the airfoil "on step," thus producing more lift.

With this P-170 pack, the climb performance on the Speed 600 motor is quite good. I'd even go so far as to say that it may be the best I've seen with a low-powered flight system. Because of the better climb rate, and the pack's higher capacity, I was able to get seven full climbs on this one flight. Even though it had gotten quite windy and lift had become scarce, the flight lasted almost 25 minutes.

CONCLUSION

If you're looking for a seven-cell sport electric sailplane with better-than-average climbing ability, decent thermalling capabilities, and all at a reasonable price, the Skimmer is an excellent choice. The cost of the kit is reasonable; the cost of the flight system is reasonable; and you don't need an expensive computer radio to enjoy it to its fullest. Overall, the Skimmer is a great Sunday sport model for the beginning to intermediate builder and pilot. **MB**

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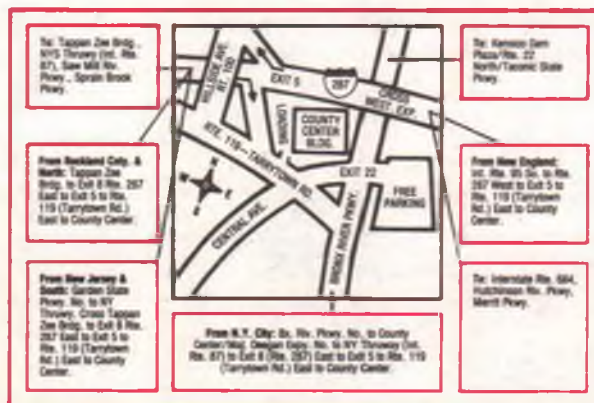
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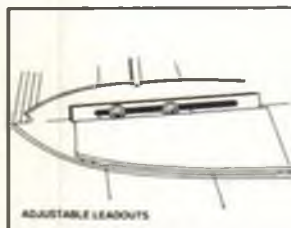
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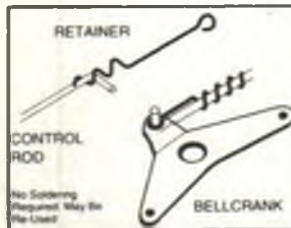


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DEAR JAKE cont. from page 51

this summer, I noticed one of the entries was from a Mr. Jacob Pfannenschloss of Sherman Oaks, California. The biplane displayed by Mr. Pfannenschloss was an original design of oddly mismatched curves, straight lines, and angles, and was finished in a ghastly combination of green MonoKote with brown and orange paint.

The model's name is what convinced me I was looking at a Jake Doe original. It was called "Something The Dog Threw Up."

So admit it Jake, we now know who you are.

Herb in Hermosa Beach

Dear Herb:

Sorry. I did have a Ukie stunter once that was called "Look What The Cat Hocked Out," but never a biplane such as you describe.

Sounds like your Mr. Pfannenschloss is just another Jake wanna-be.

Jake

DEAR JAKE:

I am building a Precision Scale F-4U Corsair for RC competition. It is quarter scale and will feature folding wings, a sliding canopy, and a working tailhook.

I would also like to build a quarter scale aircraft carrier flight deck to land my Corsair on, but that would be impractical due to the size. So the next best thing will be to line off a flight deck on the runway at the contest site and lay out a cable system for the tailhook to catch. I think all this would really add to the realism of my scale flight presentation.

I'm going to need some help with the design of the landing cable system, however. Especially with some sort of energy absorption devices at the ends of the cables. I'm considering several alternatives which include inertia reels, sandbags, and water pistons.

Do you know anything about arresting systems?

Scale Modeler in Scioto, OH

Dear Scale Modeler:

I don't quite make the connection between your project and your question, but as it happens, I do know something about arresting systems.

I am intimately familiar with the arresting system employed by the Chicago Police Department. In fact, I have made several friends in their many fine holding facilities. I also have personal experience involving the arresting systems in use in New York, Los Angeles, and Boca Raton.

Don't get me wrong, though. While I may have extensive knowledge of the arresting systems in these major metropolitan areas, I have always paid my fines, and therefore, have little or no knowledge of their judicial systems.

Jake

continued on page 74

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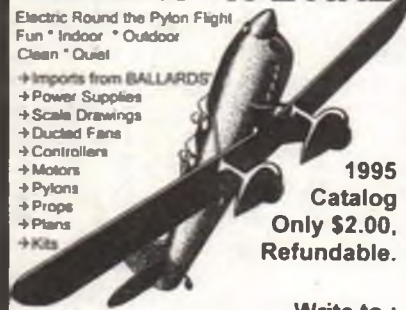


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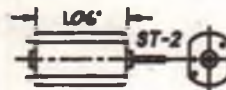
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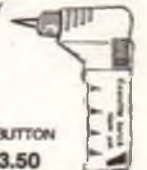


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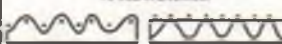
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DEAR JAKE cont. from page 68

P.S. If you want that Corsair of yours to be able to land on a scale-sized, simulated carrier deck, you're going to have to figure out some way of stopping it after it touches down.

Jake

DEAR JAKE:

My radio glitched the other day. The brief uncommanded up elevator input folded the wing and the airplane crashed in a sewage treatment facility.

The same day, Lance Boyle, who has a gorgeous blond wife and an imported sports car, had his radio go completely dead. His plane went to idle and drifted down to a soft landing just inside the edge of a wheat field.

Can you explain why some guys have all the luck?

Abe in Lincoln, NE

Dear Abe:

Honestly, Abe, I can't, but do you really think somebody with the name "Lance Boyle" is lucky?

Jake

DEAR JAKE:

I just bought a U-Control stunter at a garage sale. It's not in the best of shape, but it will fly if I put a new .35 in it.

My problem is I'm stuck for a name. It appears to be an original design, so I don't have a clue what to call it. I've tried your system of staring at it until a name pops into my head, but all I draw is a blank.

Maybe you can help. It's got a tapered wing and tail with rounded tips. The engine is inverted with a stubby plastic spinner. The fuselage is a little on the boxy side, but has a nice bubble canopy. The whole thing is a sort of reddish-yellow color and there are lots of old repairs in evidence everywhere.

Got any ideas?

George in Cicero, IL

Dear George:

How about Patchwork Orange?

Jake

DEAR JAKE:

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Matsuda in Monroe, MI

Dear Matsuda:

Why would you, or anyone else for that matter, want to put a radio control system in a spaghetti sauce spice?

Jake

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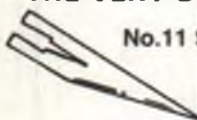
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SOARING *cont. from page 62*



Everett Smiley of Irving, Texas holds the only flying example of an Allen Development Sky Hawk at the '94 Fall Soaring Festival (see last month's column). The Sky Hawk is Mark Allen's latest unlimited class thermal duration ship, available through Slogers International (201-368-0880). Spans 110 inches, 900 squares, SD 7037 airfoil, obochi sheeted foam wing, carbon/Kevlar reinforced glass fuselage.



Joan Nolte is no stranger to the FSF—she and hubby Neil have been attending for many years. The good news about the Sagitta 900 that Joan flew is that Airtronics may be once again offering this famous design as a kit, thanks to new developments in CNC laser wood cutting techniques. We'll keep you posted.

booths were made available on a reservation basis for those wishing to have displays of wares and to do on-site business: Aerospace Composite Products (George and Barbara Sparr); Airtronics (Bob Renaud); Airtronics Specialty Division (Tim Renaud); Chuck Anderson (of computer software fame); High Country Soaring (full-size sailplane instruction, Tom Stowers); Kennedy Composites (Barry Kennedy); Steve Lewis; MM Glider Tech (Merrill Farmer and Margaret Newhouse); Cody Robertson; The Bag Lady (Christine Cassidy); TEKO, The Center of Design (Roger Chastain); TACA Airlines (Team TACA, the Guatemala guys); Spectrum Enterprises (Ron Vann); Urwyler & Layne (Peter Urwyler and David Layne); and Woodlogic (Skip Miller).

These are the raffle donors who didn't have booths, but sent prizes anyway: Pro-Case (Henry Bostic); Composite Structures Technology (Matt and Gail Gewain); CR



Rich Spicer (one of the Rs in RnR) holds his latest all-molded hollow-wing 2-meter, the Evolution. The name is significant because the design has been evolving since the last Two Meter World Cup in 1983. Specs: 78 inch span, 650 square inches, 41 ounces flying weight. Fuselage has room for a full-size battery pack and receiver. Custom colors are available on request. Contact Rich for more details at (408) WINGS-51.



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Thanks to one and all for helping to make the Fall Soaring Festival the biggest soaring meet in the world. I've been told that next year, 265 entries will be accepted, the largest number ever accepted anywhere in the world for a single soaring event. Be there! To get on the invitation list, you must have participated in a past FSF, or you may send a letter of inquiry to the CVRC care of Steve or Chris George, P.O. Box 115, Sultana, CA 93666. MB

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PLUG SPARKS *cont. from page 30*



Photo No. 9. Here's a rare one: a Waterman Arrowbile as flown in an easy 1st place win in 1/2A Texaco Scale by Eut Thiesler.



Photo No. 10. A Forster .90 powers Charlie Bruce's big free flight Goldberg Valkyrie. Charlie didn't cheat on the wing and tail construction, used the original multiple spars and built-up truss ribs.



Photo No. 11. Jim Parsons, the newly appointed SAM Engine Committee chairman, with his 6th place winning Korda 1830 Wakefield Winner.

people being fed. Not enough kudos can be given to Reid and his group.

In closing out this column, this writer wishes to thank all who signed the gigantic "Get Well" card as dug up by Don Bekins and for all the well wishers who have called following my operation. Also, without the help of Steve Roselle, Bucky Walter, Jack Jella and Karl Spielmaker, this report on the SAM Champs would not have been possible.

We'll see you all at the Colorado SAM Champs next year! **MB**

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BIG BIRDS *cont. from page 26*

U.S. 1000 FOLLOW-UP

I hope you enjoyed my Great Planes Ultra Sport 1000 review in the October '94 issue. As it's my only flyable plane at the moment, I've pressed it into heavy use, and it's been giving good service.

The Irvine 1.20 two-stroke in the 1000 is an excellent performer and just keeps getting better with use. I've been running it with a 16x8 Zinger and plan to try a 16x10 next.



If all goes according to plan, Century Jets will soon be distributing this Pilatus PC-9 in the U.S. Designed by New Zealander Ron Cavanaugh in 1/5 scale, it spans 82 inches, and a Super Tiger 3000 is said to be ideal.

Some problems later arose with the nosegear steering but were eliminated by installing a better fairlead at the end of the outer sheath of the pushrod. Additionally, I replaced the ball socket on the steering arm with a nylon clevis.

The addition of a Fults nosegear eliminated any further problems. I can now use the U.S. 1000 on any type of runway because the main gear is well enough designed to do the job, and the Fults double-spring nosegear is trouble free.

REQUIRED READING

When I saw Dick Phillips at the 1994 IMAA Festival of Giants, he was kind enough to give me a copy of the latest V.I.P. publication. *Double Menace: P/F-82 Twin Mustang* was written by David R. McLaren and certainly clears up a lot of the mysteries behind the F-82.

The book covers the plane's activities and development through its service life and final retirement from the USAF inventory. The Library of Congress number is ISBN #0-934575-12-6, or write V.I.P. Publishers Inc., P.O. Box 16103, Colorado Springs, CO 80935. *MB*

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