Beginner's column • R/C Pattern plan

flying models

1928-1978 flying models 50 FLYING ACES

OCTOBER 1978
47506
$1.00

Cadet
a FLYING ACES reprint

PHOTO: DICK SARPOLUS

Anderson Kingfisher

Excaliber outboard

0 71896 47506 10

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Behind the Scene

Had a good contest season? A trophy or two, a couple of kits, some good times with your friends? Lots of exercise and a few flights for the memories?

Well, that's nice, fun is what it's all about. Made possible by a few dozen dedicated people that think the meet up in the first place, arrange a sanction date, plan it all six months in advance while they're still ankle deep in slush and run around from shop to shop trying for a kit or prize donation. It's made possible by a few wives who work all day under a broiling sun staffing a picnic for you, by some kids on motorbikes retrieving hi-start lines, by a modeler friend who arranged for the restroom facilities, by the guys who wrestled the snow fencing into place, by the timers who manned the watches until specks in the sky danced in their eyes. And then you've got to remember the scorekeepers, the tabulating machines, and how the generators got on the field.

A contest is a fun thing. For the flyer. Everyone wants it to be, that's why 63 people worked so hard in the first place. A real effort in time and space and logistics. That takes real dedication on the part of a club or sponsoring organization, grueling hours under a summer sun, judging, processing, arranging, smoothing out the flaws. And when it's over, the same folks who worked so hard are the last ones to go home. One last look around the site, to pick up the soda cans, the prop blades, the papers and debris.

One thing you can do is to wave a "thank you" to them all. It's all the pay they get. The contest staff get their jollies out of doing the best they can. And when you can, it's nice to

flying models including FLYING ACES est 1928

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r/c model boating

departments

on the cover

Champion Models' Anderson Kingfisher is the subject of an FM Product Review that starts on page 25 of this issue and the Excaliber outboard is the subject of a Dry Dock Review on page 61.

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help. Got an idle hour or two? They need more timers, a driver to haul errands, another experienced judge, whatever you can do.

Funny how you see the same faces in the field tents year after year. Some folks never get a chance to get out and fly, they're too busy helping you do it. Place to start is at your club meeting. Maybe your club is one of those that goes to all the meets but never puts one on. Even just a little one. Invite a neighboring club. Might have a few rough spots, but the year after you'll be doing it better. Might even get to know that feeling of satisfaction that comes from a job well done. "Time one, fly one", the golden rule. It's how contests go on forever, for one and all.

Air Mail

readers' forum

Looking for oldies

I would like to know if any of your readers could help me find the following items. First is a Cleveland model kit of the P-39 Bell Airacobra of the late 1930's or early 1940's and second is an A.J. Hornet. A small rubber powered model kit that sold for $.50 in the mid to late 1950's. I think it was manufactured by Jim Walker in New England. Any information concerning the above items and prices would be appreciated.

JOHN R. COOK
RD 2, Box 205
Halifax, PA 17032

Memories and a new modeler

As a former subscriber to FLYING ACES (1938-46) I am delighted to see the reprints that you have been running recently.

I saved each and every one I bought and waited for the day I could share them with a son. I married late but was lucky enough to have a son who is only now reaching the age where plastic models no longer are a challenge, so I brought out the FLYING ACES.

We will build the "Moth" first then who knows. With 71 issues to choose from we should stay busy for a long time.

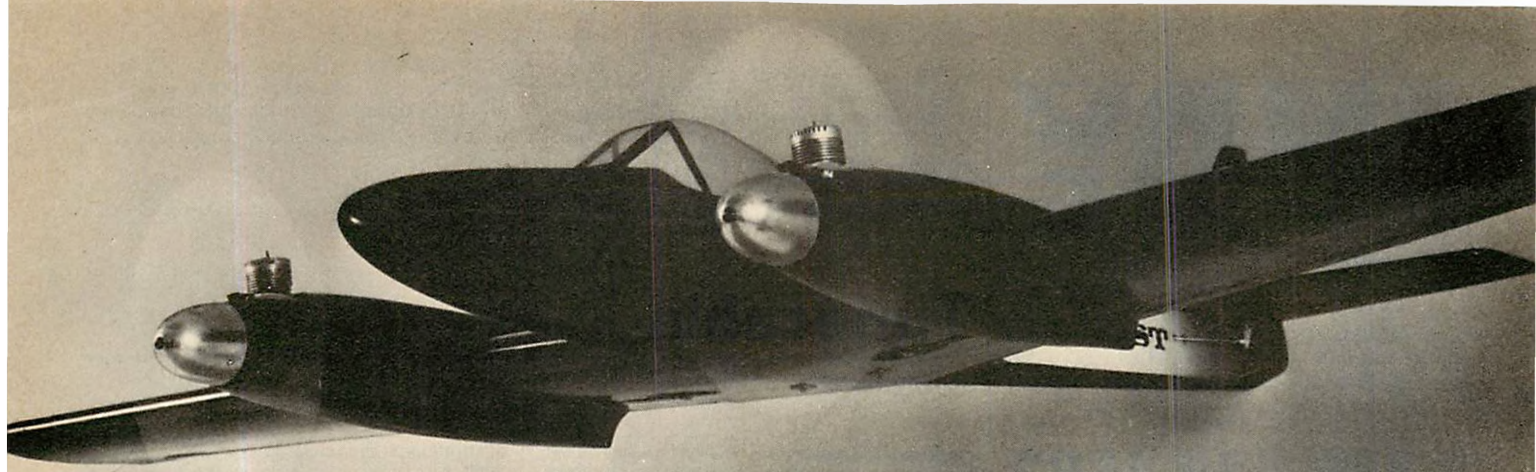
I would like to see some complete reprints of the early issues (from 1928 through 1937) which I do not have access to, or perhaps you could microfilm these rare issues and offer them on 33mm film.

It would be nice to read some of the old "Griffon", "Dick Knight", "Phillip Strange" and, of course, "Phineas Pinkham" stories from the early FLYING ACES too.

ALFRED J. CANNON
Clear Lake City, Texas

LI Gas Monkeys

I couldn't resist a brief comment after seeing a note by Jerry Murphy, which appeared in the *Air Mail* section (July 1978 FLYING MODELS). Like many modelers I started with free-flights. The year for me was 1950 while still attending 8th grade elementary school. We flew out of the old Curtis Airport at Valley Stream, New York (just over the Queens, N.Y.C. border). The predominant club in my area (eastern Queens and Nassau County) was the *Long Island Gas Monkeys*. I joined this club in 1951 and remained with it until I went into the service. To bring back further memories for Jerry Murphy, and others, I recently took the enclosed photograph of the "Gas Monkeys" famous logo. I have saved this cloth emblem for over twenty years. Although the club is no longer in existence as we knew it, it's memories continue with many former members, many of who are still flying throughout the country. My good friend and flying buddy, Don Martin, designed the Fokker T-2 R/C scale model which was featured last year in FLYING MODELS (July 1977). Don has recently moved out to Tucson, Arizona. My teenage



WE'RE TAKING OFF IN NEW DIRECTIONS.

First off, we've changed our name. Dave Platt Models is now called Pica Products. That in itself is significant, but the big news here at Pica is the excitement of all the new ideas and products we're introducing.

Pica is improving and updating our existing line of kits. The Waco, the T-28, Spitfire and FW-190, all proven flyers and consistent contest winners, are undergoing renewal to keep them on top of advancing R/C technology.

We're expanding our line. Pictured above is the flagship of our new fleet of kits, the Duellist 2/40. The Rapier, an exciting new pattern ship, is just now coming off the drawing boards. Plus a whole series of new medium-sized kits is planned.

We've added a superior new fast drying glue and a revolutionary new type of filler. And we're going to introduce a group of custom R/C accessories in the near future.

We've got a new name and fresh new ideas. Now we're Pica Products, and we're taking off with innovations in modeling.

Duellist 2/40

Wing span: 67"
Wing chord: 14"
Total wing area: 795 sq."
Fuselage length: 54"
Stabilizer span: 27"
Verticle fin: 10-1/4"

Rec. engine: .23-.40
Rec. fuel tank: 8 oz.
Gear: Fixed or retract.
Channels: 4 (5 w/ret.)

Control functions: Ailerons, Elevator, Throttle, Rudder.

Construction: Balsa
Plan sizes: 35"x 67"
Instruction manual and construction photos included.

Kit includes: Die cut balsa, shaped parts, hardwood, plywood, aileron torque rods, hardware and sample fillit.

Flying weight: 6-8 lbs.

The Duellist 2/40 has been designed as an easy-to-fly and safe handling twin engined R.C. model. Combining elegant appearance with simple structure, it's ideal for the modeler who has progressed through the usual trainers and pattern or low wing sport ships. As such, it offers a further level of enjoyment in the R.C. hobby, and a new accomplishment in flying skills to the builder.

pica

Pica Products
Innovations in modeling
2657 Northeast 188 St.
Miami, Florida 33180

Turn the page for more Pica Products...

free-flight contest rival, Larry Davidson, owns a major hobby shop (Larry's Hobbies) in East Northport, New York. Bob Geyer is an active R/C'er flying at the Cedar Creek (Nassau County Park Facility) on Long Island. Time wouldn't permit the mention of anymore. But rest assure, Jerry, most of us are still flying, even though many have traded their track shoes for an R/C transmitter.

BOB ABERLE
Hauppage, N.Y.

Timetable

coming events

CLUB SECRETARIES: Items for the FM Timetable are welcome. Submit items typed, double spaced and with necessary information plus contact for complete data and entry blank. Specify AMA, FAI, NAMBA, IMPBA, AMYA, ROAR, etc. Include information on rules and classes to be run. Items will not be picked up from club bulletins to be run, they must be sent to this column.

R/C BOAT CONTESTS

COUNTRYSIDE, ILLINOIS—September 2. IMPBA record trials hosted by the Minute Breakers at Lake Ida. Contact: Gary Preusse, 17 W. 323 Sixteenth St., Oakbrook Terrace, Villa Park, IL 60181. 312/279-2451.

FARMERS BRANCH, TEXAS—September 2, 3. IMPBA heat racing, deep vee hosted by the Dallas R/C BC at Lake Nitro. 1st Annual Dist. 7 Championship. Contact: Dave Edmondson, 5946 Ross, Dallas, TX 75206. 214/827-4502.

PORTLAND, OREGON—September 2, 3. NAMBA Dist. 8 Champ's, enduro, heat racing, deep vee hosted by the Rose City MYC at Lake Force, Delta Park. Contact: Dave Blacksten, 880 N.W. 6th Ave., Canby, OR 97013. 503/266-4185.

SAN DIEGO, CALIFORNIA—September 2, 3. NAMBA Dist. 9 points, heat racing hosted by the San Diego Argonauts at San Diego Model Yacht Pond. Contact: Dean Hughey, 9933 Paseo Montalban, San Diego, CA 95129. 714/484-1518.

BATAVIA, ILLINOIS—September 2, 3. NAMBA heat racing, deep vee hosted Fox Valley R/C BRC at the Batavia Boat Club on the Fox River. Contact: James Fraser, 423 W. Van Buren St., Batavia, IL 60510. 312/879-8139.

CHICAGO, ILLINOIS—September 3. IMPBA heat racing hosted by the Marquette R/C BC at Marquette Park. Under 95db. Contact: Randy Vitek, 5850 W. 55th Chicago, IL 60638. 312/735-5405.

COUNTRYSIDE, ILLINOIS—September 9, 10. IMPBA Class racing 96db limit hosted by the Midwest Council at Lake Ida. Pre-registration, free cocktail party. Contact: Gary Preusse, 17 W. 323 Sixteenth St., Oakbrook Terrace, Villa Park, IL 60181. 312/279-2451.

FLINT, MICHIGAN—September 9, 10. IMPBA Multi race (Can-Am) hosted by the WMRBA at Thread Lake. Contact: John Ford, 1761 Shawner Rd., Winsor, Ont., Canada. 519/735-3500.

EDMONTON, ALBERTA, CANADA—September 9, 10. NAMBA Dist. 16 points, heat race, deep vee and scale hosted by the Edmonton MBRA at Edcon Pond. Contact: Louie Omerzu, 15710-89th St., Edmanton, Alberta, Canada. 403/489-3494.

MELBOURNE, FLORIDA—September 9, 10. NAMBA Dist. 3 points, heat racing hosted by the Rudder Busters at the lake on Sarno Rd. Contact: James L. Green, 2680 Boyd Ave., Melbourne, FL 32935. 305/254-9653.

PALISADE PARK, NEW JERSEY—September 9, 10. NAMBA Deep Vee Classic hosted by the Racing Association of New Jersey at Overpeck Park. Contact: William M. Rausch, 1348 Belmont Ave., No. Haledon, NJ 07508. 201/427-8109.

SAN DIEGO, CALIFORNIA—September 16. NAMBA Scale hydro racing hosted by the San Diego Argonauts at the San Diego Model Yacht Pond. Contact: Todd M. Larsen, 5711 Water St., #3, LaMesa, CA 92041. 714/463-4725.

KENT, WASHINGTON—September 17. NAMBA deep vee and heat racing at Kent Lagoon hosted by the Seattle Model Yacht Club. Contact: M-errily Hornell, 2533 N.E. 24, Renton, WA 98055. 205/226-7454.

SPRING, TEXAS—September 16, 17. IMPBA heat racing, deep vee hosted by the Lone Star Model Boat Club at Spring. Contact: Scott McGuffin, 813 S. Pruett, Baytown, TX 77520. 713/427-5359.

INDIANAPOLIS, INDIANA—September 16-17. IMPBA Scale hydro heat racing and Class B outboard hosted by the Indy MBC at Dandy T Lake. Contact: David Lee, 4456 Beauvoir, Indianapolis, IN 46236. 317/898-7899.

COUNTRYSIDE, ILLINOIS—September 23. IMPBA Record trials for all boats hosted by the Minute Breakers Inc. at Lake Ida. Contact: Gary Preusse, 17 W. 323 Sixteenth St., Oakbrook Terrace, Villa Park, IL 60181. 312/279-2451.

COUNTRYSIDE, ILLINOIS—September 24. IMPBA Scale hydro race "Silver Cup 1978" hosted by the Minute Breakers, Inc., at Lake Ida. Contact: Bob Preusse, 432 Emery Lane, Elmhurst, IL 60126. 312/279-0124.

BUFFALO, NEW YORK—September 23, 24. IMPBA heat racing hosted by the Buffalo MPC at Delaware Lake Park, NY 198 and Elmwood Ave.

HAGERSTOWN, MARYLAND—September 23, 24. NAMBA Dist 1 points, heat racing hosted by the RCMB of B at Greenbriar State Park. Contact: Arlie Cooper Rt. 9, Box 129, Hagerstown, MD 21740. 301.797-0096.

SPOKANE, WASHINGTON—September 30, October 1. NAMBA heat race, deep vee, Sat. mono, Sun. hydro and deep vee hosted by the Lilac City MBC at Riverfront Park. Contact: Lloyd Peters, E. 628 Crown, Spokane, WA 99207. 509/489-4667.

FLINT, MICHIGAN—September 30, October 1. IMPBA Record trials (Sept. 30 10% only) hosted by the WMRBA at Thread Lake. Contact: Lou Torovich, 17641 Rowe, Detroit, MI 48205. 313/526-6909.

SPITFIRE MK-9

Still the best combination of looks & performance you can buy. Nobody ever designed a more elegant ship than the Spitfire. The model flies superbly and has won countless stand-off scale contests. The standard kit builds into a Mk. 9. Plan includes details for other Marks, like the beautiful Mk. 22. Kit features: Machined and diecut balsa, formed LG, nylon fittings, metal parts & mouldings. Two full-size plans: complete radio & retract gear installation shown. Isometric diagram & illustrated instructions make building easy and fun. Six-color accurate decals. Span: 65", Area: 714 Sq.", 4 to 6 channel, Engine: .40 to .60

T28-B

Plenty of dihedral (7°) for lateral stability. Radial cowl prevents speed buildup in a dive. Large stabilizer and long tail moment give wide CG position tolerance. Special airfoil and washout maintain stability down to a very low speed. Tricycle LG makes good rough-ground handling and easy landings. Bright color schemes help pilot orientation in flight. Large flaps incorporated in basic design. Over 700 sq. ins. for light wing loading even when loaded with options. Kit features: Our now-famous detailed plans (2 sets) showing flaps, retracts, RC equipment, etc. Beautiful 3-sheet detailed fuelproof decals. Machined & diecut balsa, formed wire Nylon fittings (flap hardware included), canopy and the best cowling ever put in a kit. Span: 65", Area: 710 sq.", 4 to 6 channel, Engine: .60

FW 190 D-9

The qualities that make a model a NATS winner are the same ones that Sunday sport-scale fliers look for. Exceptional appearance to start with, of course. The FW 190's stark and sinister shape has always excited modelers. But even more important are friendly flying qualities. Our designs have always emphasized safety at low speeds, and the FW 190 has inherited the ability to fly from 80-90 mph right down to a near-hover for landing. The wide-track gear makes it an ideal first "tail-dragger." Kit features: Full-size plans showing radio and retracting gear installation. Color schemes (and decals) for THREE different FW 190's. Separate 16-page instruction booklet with cutaway diagrams and in-depth flying hints. Diecut and machined balsa, nylon fittings, formed wire cowl, canopy, etc. Span: 65", Area: 730 Sq.", 4 to 6 channel, Engine: .60

THE WACO

We chose the Waco F-3 as our biplane flagship because it best represents the "Golden Era" of the 1930's, when flying was an adventure. Add to this, easy, snag-free building and safe, gentle flying—the result of the thorough kit engineering and careful prototype development that are features of all Pica Kits—and you have a satisfying building and flying experience ahead of you. Kit features: Top-quality diecut and machined balsa and plywood. Full size plans. Separate instruction book with isometrics. Decals. Injection-moulded (Not vacuum-formed) plastic cowl, cowl blisters, and wheel pants. Nylon fittings. Formed wire landing gear & struts. Span: 60", Area: 950 Sq.", 4 to 6 channel, Engine: good .40 to .60

GLUIT

Answers the need of builders for a fast-drying aliphatic glue that is truly sandable. Gluit dries in an average of 10 to 15 minutes, depending upon the thickness of application. The result is a strong bond, easy to sand, making it perfect for butting balsa sheets and planing wings. Wood joints are stronger when made with Gluit than with epoxy.

FILLIT

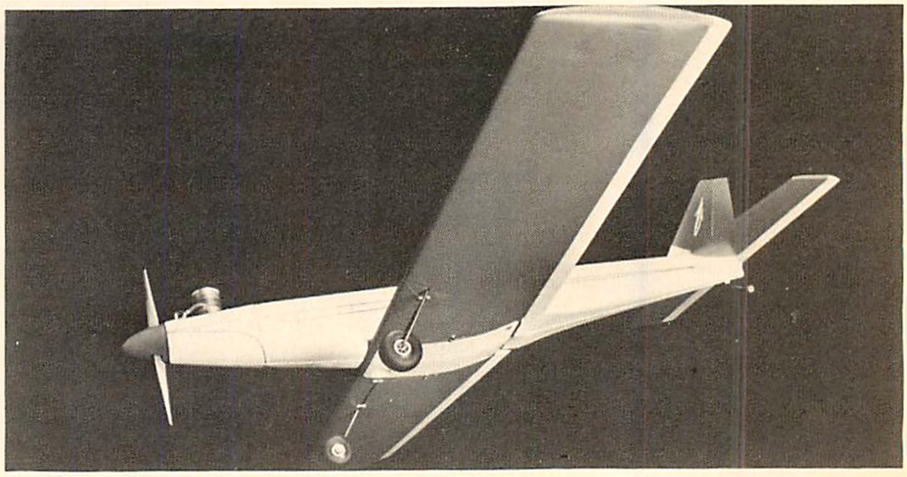
A brand new form of micro-balloon filler. It's concentrated, not "puffed-up," enabling it to be poured from a nozzle. This system allows you to accurately measure the portions to the precise density you desire. Fillit mixes readily with epoxies, polyesters, aliphatics, cellulose cements, in fact, use Fillit with any glue you wish. It forms a strong, ultra-light sandable solid. Even large wing fillets will cut down easily, quickly and smoothly.

pica
2657 N.E. 188th Street
Miami, Florida 33180
Telephone 935-1436

PICA PRODUCTS. INNOVATIONS IN MODELING.

Flying Report

news and comment



DELTA PRODUCTS INC., *1 Delta Way, Grand Junction, CO 81501* has introduced two new model airplanes designed for over-the-weekend assembly and operation. The Skyhawk, features molded fuselage, wing and tail sections of exceptional strength, and uses no stiffeners or supports. The Delthon, features hot-molded wing and tail with a smooth, integral vinyl finish and a molded fuselage to equal or exceed the finest hand-made fiberglass fuselages. Both planes have been engineered to provide precise maneuverability, and to satisfy the needs of those who enjoy both assembly and problem-free flying. Delta Products, Inc. is a long established manufacturer of automotive accessories and security alarm systems.

AMERICA'S HOBBY CENTER, INC., *146 W. 22nd St., New York, NY 10011*, After 47

THE LARGEST SELECTION OF AAA AIRCRAFT BALSA AVAILABLE ANYWHERE

STICKS
36" Lengths

1/16 x 1/16	.08
1/16 x 1/8	.09
1/16 x 3/16	.11
1/16 x 1/4	.14
1/16 x 3/8	.16
1/16 x 1/2	.19
1/16 x 3/4	.26
1/16 x 1	.31
3/32 x 3/32	.09
3/32 x 1/8	.10
3/32 x 3/16	.11
3/32 x 1/4	.13
3/32 x 3/8	.17
3/32 x 1/2	.21
3/32 x 3/4	.27
3/32 x 1	.35
1/8 x 1/8	.11
1/8 x 3/16	.13
1/8 x 1/4	.17
1/8 x 5/16	.18
1/8 x 3/8	.20
1/8 x 1/2	.24
1/8 x 3/4	.34
1/8 x 1	.39
3/16 x 3/16	.16
3/16 x 1/4	.19
3/16 x 3/8	.22
3/16 x 1/2	.27
3/16 x 3/4	.36
3/16 x 1	.42
1/4 x 1/4	.23
1/4 x 3/8	.28
1/4 x 1/2	.31
1/4 x 3/4	.44
1/4 x 1	.55
5/16 x 5/16	.27
5/16 x 3/8	.36
5/16 x 1/2	.41
5/16 x 5/8	.51
5/16 x 1	.60
3/8 x 3/8	.41
3/8 x 1/2	.47
3/8 x 3/4	.54
3/8 x 1	.65
1/2 x 1/2	.52
1/2 x 3/4	.70
1/2 x 1	.87
5/8 x 5/8	.64
5/8 x 1	.94
3/4 x 3/4	.88
3/4 x 1	1.00

36" BALSA TRIANGULAR CUT

1/4 x 1/4	.31
3/8 x 3/8	.37
1/2 x 1/2	.45
3/4 x 3/4	.58
1 x 1	.76

BAGS OF BALSA

Bags of Balsa	1.98

STICKS
48" Lengths

1/8 x 1/8	.14
1/8 x 1/4	.20
1/8 x 1/2	.29
3/16 x 3/16	.19
3/16 x 1/2	.37
3/16 x 3/4	.44
1/4 x 1/4	.30
1/4 x 1/2	.39
1/4 x 3/4	.51
5/16 x 5/16	.39
3/8 x 3/8	.49
3/8 x 1/2	.55
3/8 x 3/4	.72
1/2 x 1/2	.64
1/2 x 3/4	.88

48" AAA SHEETS

1/32 x 3	.84
1/16 x 3	.89
3/32 x 3	1.06
1/8 x 3	1.21
3/16 x 3	1.48
1/4 x 3	1.74
3/8 x 3	2.20
1/16 x 4	1.32
3/32 x 4	1.49
1/8 x 4	1.70
3/16 x 4	1.96
1/4 x 4	2.32
3/8 x 4	2.98
1/16 x 6	2.45
3/32 x 6	2.60
1/8 x 6	2.84
3/16 x 6	3.20
1/4 x 6	3.82
3/8 x 6	4.40

ROUNDED EDGE AILERON & ELEVATOR STOCK

1/4 x 1	.70
3/8 x 1	.82
1/4 x 2	.95
3/8 x 2	1.08

LEADING EDGE
36" Lengths

1/2 x 3/8	.54
3/4 x 5/8	.82
1 x 3/4	1.10

TAPERED CUT
36" Lengths
Tapered to 1/16" Edge

1/4 x 3	1.33
1/4 x 4	1.80

SHEETS
18" Lengths

1/32 x 2	.22
1/16 x 2	.25
3/32 x 2	.28
1/8 x 2	.31
3/16 x 2	.40
1/4 x 2	.51
3/8 x 2	.55
1/32 x 3	.30
1/20 x 3	.32
1/16 x 3	.33
3/32 x 3	.40
1/8 x 3	.46
5/32 x 3	.52
3/16 x 3	.58
1/4 x 3	.64
5/16 x 3	.74
3/8 x 3	.83
1/32 x 4	.49
1/16 x 4	.53
3/32 x 4	.61
1/8 x 4	.71
3/16 x 4	.79
1/4 x 4	.93
3/8 x 4	1.18

SHEETS
36" Lengths

1/32 x 2	.44
1/16 x 2	.51
3/32 x 2	.56
1/8 x 2	.63
3/16 x 2	.80
1/4 x 2	1.02
3/8 x 2	1.10
1/32 x 3	.61
1/20 x 3	.64
1/16 x 3	.66
3/32 x 3	.79
1/8 x 3	.93
5/32 x 3	1.05
3/16 x 3	1.16
1/4 x 3	1.28
5/16 x 3	1.49
3/8 x 3	1.65
1/32 x 4	.98
1/16 x 4	1.16
3/32 x 4	1.21
1/8 x 4	1.40
3/16 x 4	1.57
1/4 x 4	1.84
3/8 x 4	2.37
1/16 x 6	1.94
3/32 x 6	2.15
1/8 x 6	2.37
3/16 x 6	2.50
1/4 x 6	3.15
3/8 x 6	3.70

ODDS & ENDS PACKAGE OF BALSA

Package	1.59

BLOCKS
3" Lengths

1 x 1	.12
1 x 2	.22
2 x 2	.30
1 x 3	.30
2 x 3	.40
3 x 3	.59

BLOCKS
6" Lengths

1 x 1	.23
1/2 x 2	.29
3/4 x 2	.36
1 x 2	.41
1-1/2 x 2	.48
2 x 2	.55
1/2 x 3	.38
3/4 x 3	.47
1 x 3	.56
1-1/2 x 3	.65
2 x 3	.75
3 x 3	1.16
1/2 x 4	.55
3/4 x 4	.63
1 x 4	.70
1-1/2 x 4	.88
2 x 4	1.07
3 x 4	1.54
1/2 x 6	.79
3/4 x 6	.92
1 x 6	1.07
1-1/2 x 6	1.33
2 x 6	1.50
3 x 6	2.32

BLOCKS
12" Lengths

1 x 1	.42
1/2 x 2	.55
3/4 x 2	.70
1 x 2	.82
1-1/2 x 2	.92
2 x 2	1.07
1/2 x 3	.68
3/4 x 3	.86
1 x 3	1.07
1-1/2 x 3	1.28
2 x 3	1.53
3 x 3	2.31
1/2 x 4	1.07
3/4 x 4	1.23
1 x 4	1.45
1-1/2 x 4	1.72
2 x 4	2.07
3 x 4	3.06
1/2 x 6	1.48
3/4 x 6	1.72
1 x 6	2.03
1-1/2 x 6	2.61
2 x 6	3.05
3 x 6	4.52

BLOCKS
18" Lengths

1 x 1	.59
1 x 2	1.23
2 x 2	1.51
1 x 3	1.51
2 x 3	2.31
3 x 3	3.47
1 x 4	1.97
2 x 4	3.13
3 x 4	4.62
1 x 6	3.10
2 x 6	4.50
3 x 6	6.77

BLOCKS
24" Lengths

1 x 1	.81
1 x 2	1.62
2 x 2	2.13
1/2 x 3	1.30
1 x 3	2.13
2 x 3	3.06
3 x 3	4.62
1 x 4	2.66
2 x 4	4.16
3 x 4	6.10
1 x 6	4.10
2 x 6	6.10
3 x 6	9.00

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3/16 x 3 x 36	1.24
1/4 x 3 x 36	1.40
1/4 x 4 x 36	1.90

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1/8 x 1/2	.31
3/16 x 3/4	.40
1/4 x 1	.51
5/16 x 1-1/4	.63
3/8 x 1-1/2	.72

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3/16 x 3	(10)	.84
1/4 x 3	(10)	1.04
3/8 x 3	(10)	1.28

PLANKS
36" Lengths

1 x 1	1.16
1/2 x 2	1.60
3/4 x 2	2.05
1 x 2	2.38
1-1/2 x 2	2.72
2 x 2	3.05
1/2 x 3	1.92
3/4 x 3	2.49
1 x 3	3.07
1-1/2 x 3	3.77
2 x 3	4.51
3 x 3	6.82
1/2 x 4	3.18
3/4 x 4	3.63
1 x 4	3.93
1-1/2 x 4	5.10
2 x 4	6.14
3 x 4	9.20
1/2 x 6	4.35
3/4 x 6	5.10
1 x 6	6.10
1-1/2 x 6	7.65
2 x 6	8.97
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8 - 12 LBS.

1/32 x 2	.50
1/16 x 2	.56
3/32 x 2	.62
1/8 x 2	.68
3/16 x 2	.85
1/4 x 2	1.07
3/8 x 2	1.16
1/32 x 3	.65
1/16 x 3	.72
3/32 x 3	.85
1/8 x 3	.98
3/16 x 3	1.21
1/4 x 3	1.33
3/8 x 3	1.71

VH - VERY HARD

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3/32 x 3	.85
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1/4 x 3	1.32
3/8 x 3	1.71

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Very Light

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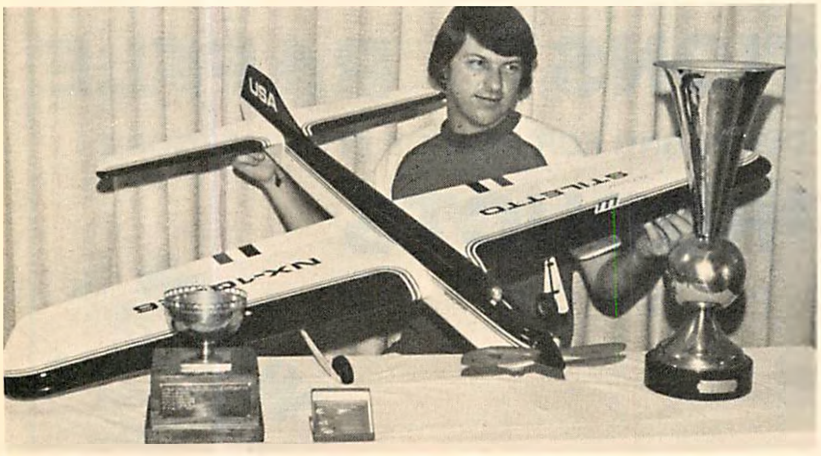

Years of experience go into the making of a World Champion. Sig is proud to feature here one of the best. Les McDonald (Miami, Florida) and his beautiful Stilleto are pictured with the awards that accompanied their winning the 1976 World CL Aerobatics Championship. The trophies are, from left to right: the Steve Wooley Cup, the FAI Gold Medal, and the World Cup. Read what Les had to say in a recent letter about one of our most unique products.

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Les McDonald

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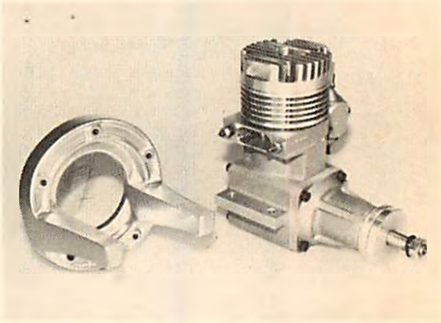

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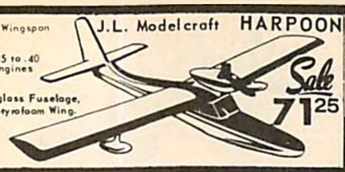

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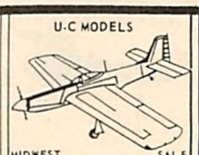

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VACO PRODUCTS, CO., *1510 Skokie Blvd., Northbrook, IL 60062*, has recently introduced the Convertible Super Tool Set. The set will contain 45 of the most popular professional tools including handy, interchangeable 90-series screwdriver, nutdriver and hexdriver blades and handles, plus pliers, screwdrivers and electrical tools. All these tools are mounted on an attractive deluxe pallet which can be hung near a workbench or placed in an attractive Vaco attache carrying case. A great addition to your field box or home workshop.

DAMON CORPORATION, *115 Fourth Avenue, Needham Heights, Mass. 02194*. As President Carter, Congress and the Department of Defense discuss funding of the Boeing ALCM Cruise Missile, a scale model rocket kit is being introduced here today by Centuri Engineering Co., Inc.

The Cruise Missile is just the first in Centuri's new arsenal of Tactical Missile - three additional models, to be released soon, will make up the Century "Strike Force".

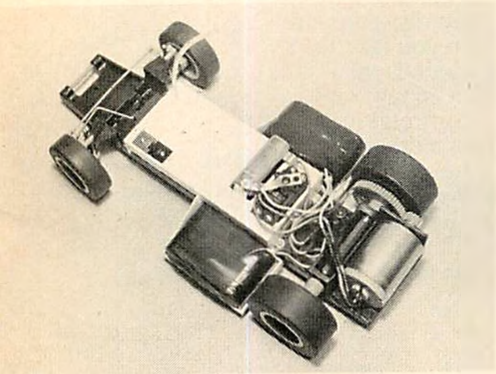
Centuri's flying model of the U.S. Cruise Missile features plastic parts—unusual in a model rocket kit—which make construction easier for hobbyists.

During rocket launch, a special lug/wing interlock prevents the folded model wings from being extended. Like the real Cruise Missile, the Centuri model does not glide without power, but is recovered after flight ascent by the popular parachute method.

The Cruise model measures 12 inches long, with a body diameter of 1.5 inches.

When wings are extended for display, they span 7.5 inches. A giant four-color decal sheet, official Boeing specifications, bonus display stand and full color packaging are included in the Cruise model rocket kit. The model is skill level 3 and will be available in late March. Suggested retail price is $6.50.

JOMAC PRODUCTS, INC., *12702 NE 124th St., Kirkland, WA 98033.* Model Racing Products, a division of JoMac, manufacturer of many national winning gas and electric cars, releases it's new economy Challenger kit, a 30 m.p.h. competitive ROAR Legal electric R/C car complete (less radio) with: 05 ROAR Legal race motor, 6 GE fast charge nicad batteries, assemble controlled flex chassis with independent front suspension, molded body and decals no painting required, mag type wheels and foam rear tires, exclusive one piece "shaker plate", radio, resistor battery, mounting plate—fits 95% of their radios available, charger for nicads and ribbon wound high current resistor. All Jerobee/MRP racing bodies and accessories will fit. Available for under $90.00.



BOLINK INDUSTRIES, *P.O. Box 80653, Atlanta, GA 30341* has announced their newest electric car that has gone electronic. BoLink combines that famous BoLink quality with JoMac's electronic speed control and radio for an unbeatable duo. The car features wide racing slicks, D.C. charge cord, painted Tuffak body, powerful 05 motor (ROAR Class D legal), Lexan chassis, Kydex full protection plate, quick charge GE batteries, injection molded front and rear wheels, speeds up to 30 m.p.h. Radio features full proportional speed and steering, 1000 M/W transmitter, adjustable torque and braking, changeable crystals. Radio and speed control made for BoLINK by JoMAC.

FM Clinic

tips from the staff

Washout in a Wing

S.L.: Often washout is recommended for a wing tip to keep the tip from stalling too soon. Can you recommend some ways to build it into the aircraft?

ANSWER: Some builders try to warp the washout into the already covered wing, and generally this can be done on Free-Flight or slender sailplane type wing structures. Twist in the desired amount, and a little extra (to allow for spring-back) and allow the dope to dry, or the iron's heat to cool off. It may also be anticipated and built into the structure as you assemble the wing. Some builders prefer to shim up the aft end of the outer tip ribs about an ⅛" or so, while others may think in terms of half slicing through the bottom surface of the trailing edge a few rib bays from the tip, cracking in a tiny bit of dihedral in the trailing edge only, causing a just visible amount of washout. Other designs have the washout already jigged into the aligning feet of the outer wing ribs. Plan notations may call for an ⅛" shim of wood at this point or that under the tip of the trailing edge. The amount of washout generally desired is just about a visible amount, and the same in each wing panel. Full scale aircraft usually have washout too, though some aircraft prefer to rely in a change in the airfoil

toward the wingtip to achieve the same result with minimum drag. Washout is trying to forestall a sudden violent tip stall when your aircraft is in a steep bank at a low speed. Don't rely on washout to cure all your sins, better to realize the need for more than adequate airspeed in steeper turns.

Your Own Balsa Wheelpants

D.H.: Is it difficult to build up a set of wooden wheelpants?

ANSWER: No, it just takes a little time at the bench. Make a good drawing of the side, top and front view of the size wheelpant you would like. Draw in the wheel, the exact width and position. Now swing a compass arc indicating reasonable internal clearance. If your wheel measures ¾" in tire and hub width you may feel the need of 1" of airspace within the pant, and two half inch wide laminations of sheet balsa may prove ideal. Two outer caps of ⅜" sheet may form the sides of the pant and the four laminations may be cemented together with model aircraft cement. Mark and accurately drill the axle location. A little rough whittling and course, medium and fine sanding treatments will quickly produce a wheelpant you can be proud of. Once filled, doped and given a proper finish, the pant will rival anything you could buy.

If you really apply yourself on the initial drawing of the wheelpant, you may be able to make thinner and more numerous laminations of sheet, each more exactly tailored to the exact contour required, not unlike the contour lines that appear on some maps indicating terrain elevations. The advantage of this is that you will end up with a

minimum of balsa to trim away, and the very edges of the laminations become visible in the carving down process, serving as an aid to your eye and sanding block in achieving a more symmetrical finished carving.

As a final thought, do allow some kind of attachment point to secure the pant to the gear leg, otherwise it will rotate on the axle.

Control Sensitivity

F.L.: How do you determine how much movement you will get on the elevator of a Controline model? Do the holes drilled into the elevator horn vary the up and down movement?

ANSWER: Yes the three holes that appear on many elevator horns will vary the elevator throw. The hole furthest from the elevator will give you the least motion, the nearest hole the most. Beyond this there are many other variables you should know about. Extra holes often appear on the bellcrank, here the outermost pushrod hole will offer you the greatest throw to the elevator horn, which means the most movement possible. Also, the width of the fuselage, if it limits the bell crank swing will serve to limit the throw fore and aft of the pushrod to the elevator horn. Bellcranks should be large enough so that the leverage is to your advantage. Too small a bellcrank will cause you some problems. On the handle end, line spacing is important. Lines set further apart will give you increased motion input to the bellcrank, while spacing the lines closer on the handle will give you a finer degree of control to the bellcrank for a given wrist motion. It takes a little getting used to, but most flyers soon master more sensitive aircraft and can handle the more spirited responses of a fast and agile aircraft such as a Combat type model. An old trick for test flying an aircraft of unknown performance is to kind of straight-arm the control handle, raising your arm for up, lowering your arm for down. This gives a much finer degree of elevator motion when you are a little out of practice, nervous or inexperienced. Imagine a handle in your hand, then raise and lower your arm and observe the small degree of motion this would impart to the bellcrank. It works.

Center of Gravity

C.L.: Can you suggest any methods to better help position the Center of Gravity on a Free-Flight pylon ship?

ANSWER: It is always hard to come up with a perfect C.G. position while building the model as it changes weight as you finish it. For this reason some builders prefer to cover the tail, fuselage and wing structure, applying all the dope and trim details before determining a final position for the wing pylon. If it is to be mounted in a slot, a small fore and aft movement can be allowed and after the aircraft is completely finished in all other respects the model can be balanced and a final wing pylon position may be determined. It is then epoxied in place.

Fuel in the tank a prop, spinner, change of a wheel, DT fuse, hooks, rubber bands and all the like little items can throw your estimated C.G. ideas right out the window. Try to anticipate all such equipment and materials to come when guessing where the model will finally balance. R/C models usually have the option of shifting some battery

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weight around, a servo or two, and all models as a last resort can be trimmed to balance with a little lead or clay in nose or tail. This is dead weight however, without any redeeming value in improving the structural integrity. A shifted battery is still supplying the necessary voltage, but lead does nothing for the flight. It is important however to achieve the exact balance point with lead or not. Performance will suffer drastically if it is not properly trimmed. Better to be an ounce overweight than mushing along in flight.

Rudder Placement

G.L.: I notice a wide variety of rudder designs and positions on model aircraft designs, yet full scale airplanes seem to be more conservative. What reasons do model designers have in mind for their choices?

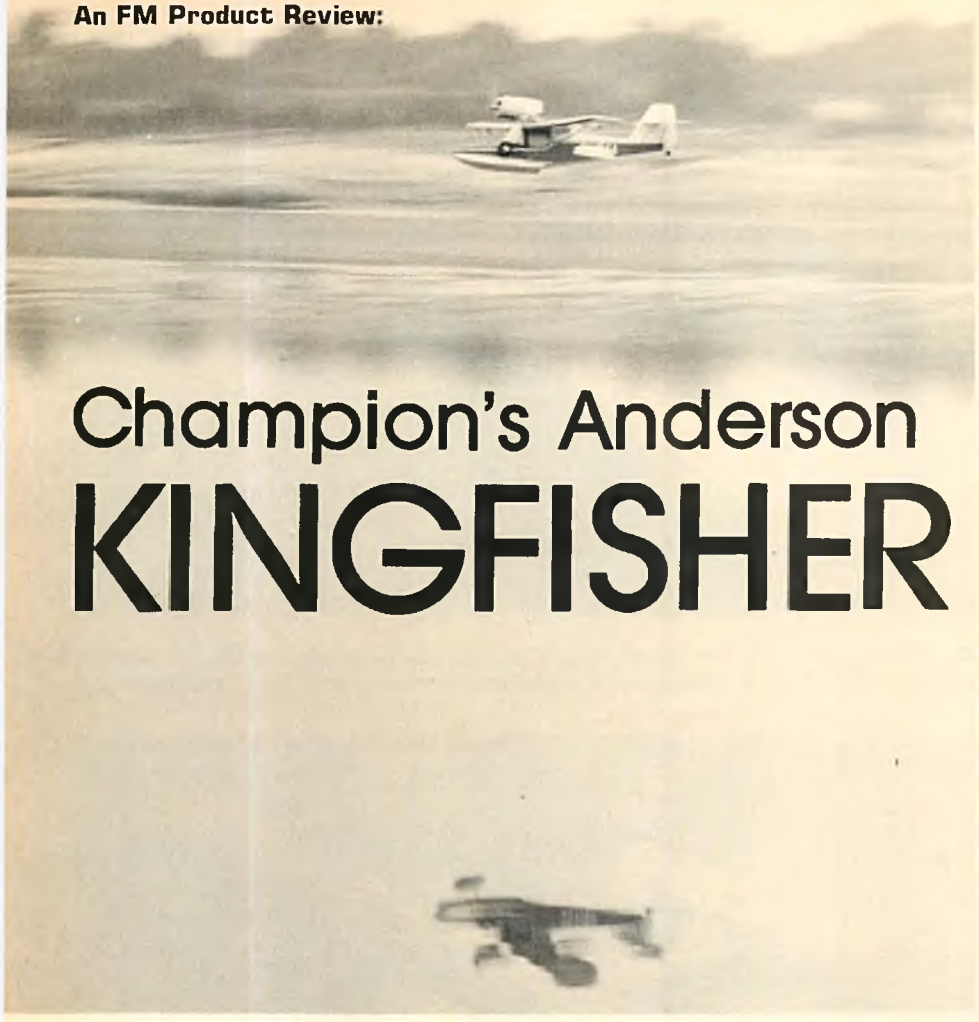
ANSWER: There are many. An underslung rudder fin position may be to get it out of the turbulence caused by the wing and pylon, a rudder fin forward of the stabilizer is usually so positioned to allow the stabilizer to pop-up 40 degrees into the dethermalizing angle. T-tail configurations are popular with both models and some full scale aircraft, Piper's new Tomahawk for instance, as well as Nimbus and other soaring gliders. Full scale aircraft have to be more conservative than a model, as ground clearance and rotation angles may preclude some of the placements modelers prefer. We often hand launch, or touch down in dense vegetation, whereas the full size counterparts might not do well with an underslung fin arrangement. There are exceptions of course, but generally a more standard tail arrangement will be found on larger aircraft. They think twice too of extending fuselage booms too long for reasons of cost and hangaring considerations.

Stacks of Rib Blanks

H.A.: Is there a convenient way to stack blanks of wood for jigsawing ribs without tack-cementing the balsa?

ANSWER: Two, three or more pins can be used. First thought is to press the pins downward, top to bottom, but this does not work as well as the other way around. You can just drive the pin points into the bottom rib blank this way, and at that the tip of the point ends up scraping and catching on the saw table, the last blank or two always on the verge of dropping off. Better to drive the pins clear through from the bottom of the stack. Press in until the pin head is countersunk flush into the balsa, enough to clear the jigsaw's table without snagging it. You will have a few annoying pin points protruding through the top most rib blank and paper pattern, but a pair of dykes can snip them off, or a short length of 3/16" square balsa can be pressed down over them as a temporary guard for your fingers. Do use enough pins to hold the blanks firmly. If they start to shift in the sawing process you'll have a batch of deformed ribs. I do not like to saw a stack of ribs more than three fourths the rib camber dimension, otherwise you start getting into a top-heavy condition and end up with too much deviation in the saw's cut. I usually rubber cement a paper tracing of the rib pattern onto each stack of blanks to be cut. It takes only a few minutes to make the half dozen required tracings, and the rubber cement allows them to be peeled off after the saw work without any trace of the cement remaining. It rubs off with a little finger motion.

An FM Product Review:



Champion's Anderson KINGFISHER

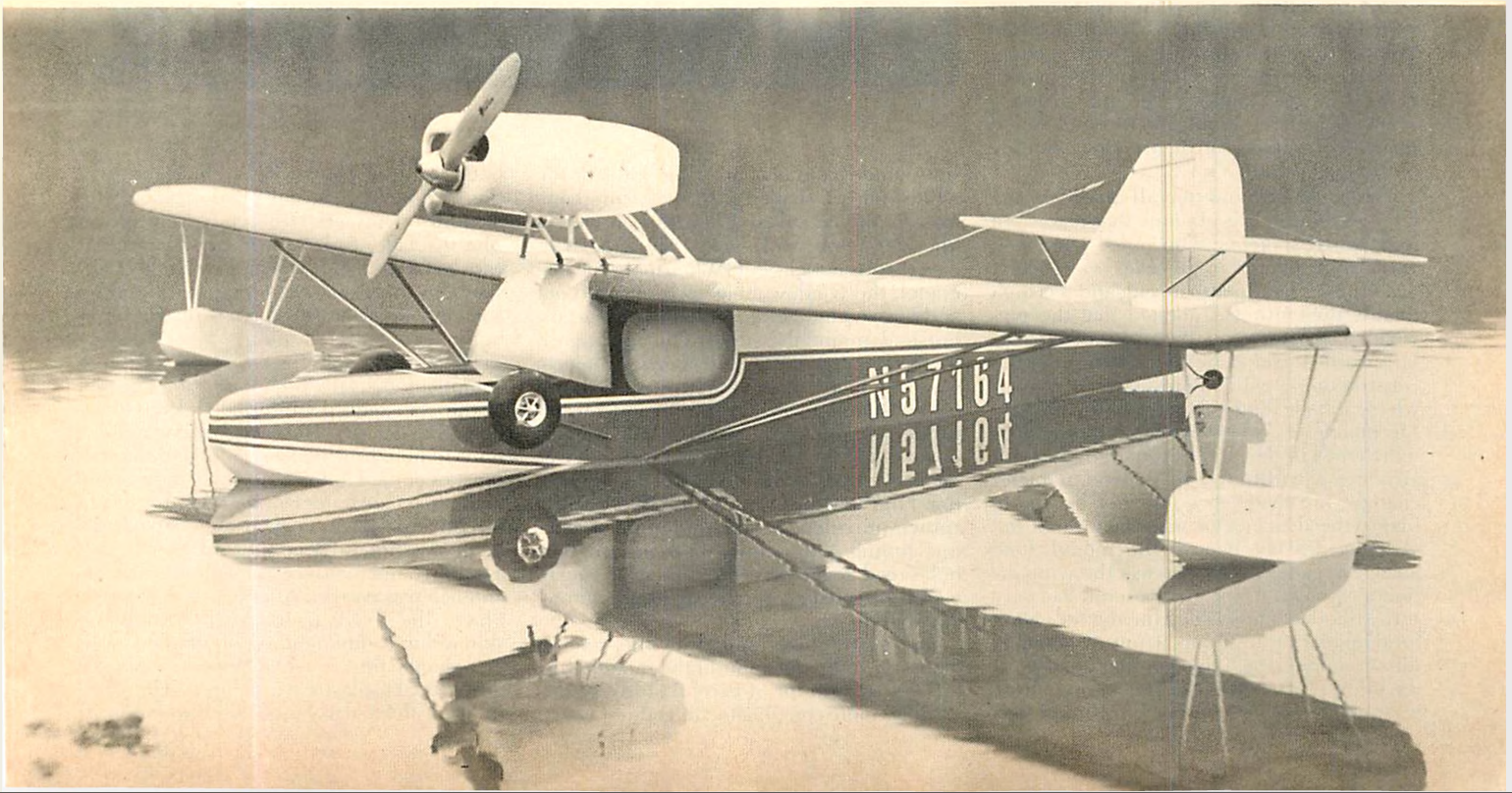
PHOTOGRAPHY: DICK SARPOLUS

A big and beautifully executed kit of the homebuilt Anderson Kingfisher. 72" in span for .60 engines/**Russell Zubach**

Seaplanes are the only way to fly. I decided this years ago, for many reasons. I have always lived close to the water, near Raritan Bay, across from New York City. Years ago, to get some R/C flying in before and after work in my father's boatyard, the only place to fly close by was over the water - so it had to be seaplanes. There were always boats handy for any necessary chasing after the airplane, and the water seemed to be kinder to the model than the hard ground when something did go wrong. Flying in the early mornings and the evenings meant there was usually little wind and the bay water was usually calm enough for takeoffs. It was all salt water of course, but at least at that time the hazards of salt water corrosion did not worry me.

To go back in time a little, of the many R/C seaplanes I did fly, two of them stand out in my memory. One was a Sterling Monocoupe, on twin floats, flown single channel/rudder only with escapement control. The radio equipment was tube type with its associated expensive set of batteries. In the nose was a reliable McCoy .29 which powered that Monocoupe on many long and enjoyable flights. One other old timer, possibly the King of all Seaplanes, was my 9½ foot span Custom Privateer—designed by FM's editor Don McGovern and kitted by Berkeley. This behemoth was also rudder only single channel escapement, but had the marvelous addition of a quick-blip escapement throttle control on the powerplant, an early Fox .59. The big Privateer would takeoff majestically after a very long, maybe 700 foot run across the water and a lot of urging as I followed it in an outboard powered rowboat.

Enough reminiscing—possibly Don let me write this Kit Review because I told him of my admiration for his Custom Privateer design. I still look back on it as the most complicated, time-consuming model I ever built; but it was worth it. I still have a com-



plete kit for another one; someday, I'll build it. Now, I still live near the water, radio equipment is better than ever, and I continue to feel that seaplane flying offers more enjoyment than land flying. In this area, there are more ponds to fly from than normal flying fields so I naturally want to fly seaplanes.

There really are very few seaplane kits on the market to choose from; Champion's new Kingfisher offers a large sized model (72" wingspan) and a scale appearance. It is set up to be convertible with very little effort for water or land operation and would appear to be a good choice for a competitive sport scale model. It is a fairly complicated project, definitely not one for a beginning modeler. Being a seaplane enthusiast, it appeared to be a welcome change from twin float equipped conventional models, and when I first saw it advertised, I couldn't wait to get hold of one.

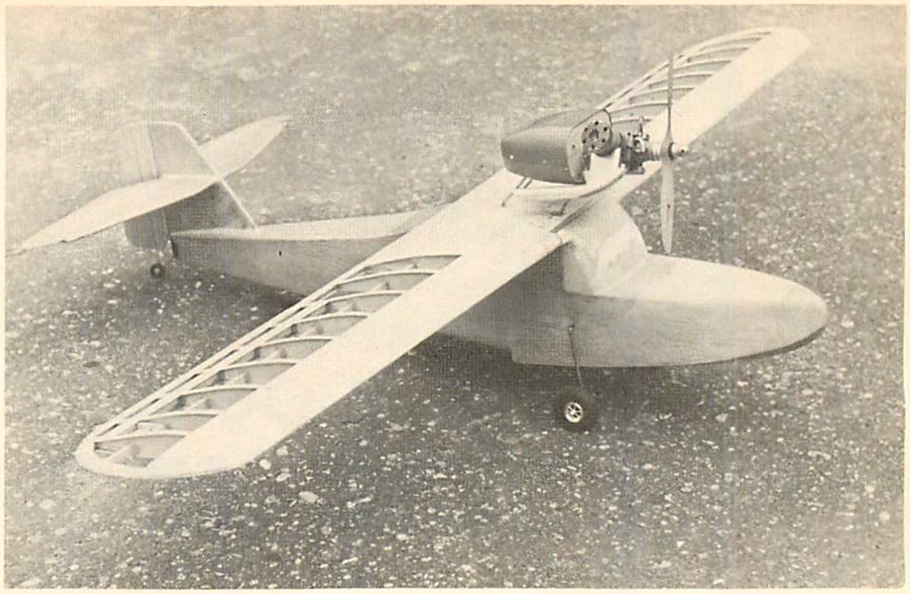
The kit is not cheap; its list price is $120.00, but when you feel the weight of the kit box and get a glimpse of its well packed contents, the price is understandable. The model is of completely balsa built-up construction, and the individual balsa parts are extremely well finished. The fuselage formers are all built up, and the fact that those parts are plastic bagged for each former simplifies their fabrication. The hardware furnished is impressive; due to the design features of the strut-mounted engine nacelle, the retractable (really rotating up above the waterline) landing gear, and the strut mounted tip floats, much wire forming is necessary. All the wire parts are preformed, brackets for the firewall are brazed on, and the metal and machined wood parts for the unusual landing gear configuration are all very well done. My only criticism of the hardware furnished, and there are a lot of items there, is that a few more clevises and bellcranks would have made it really complete.

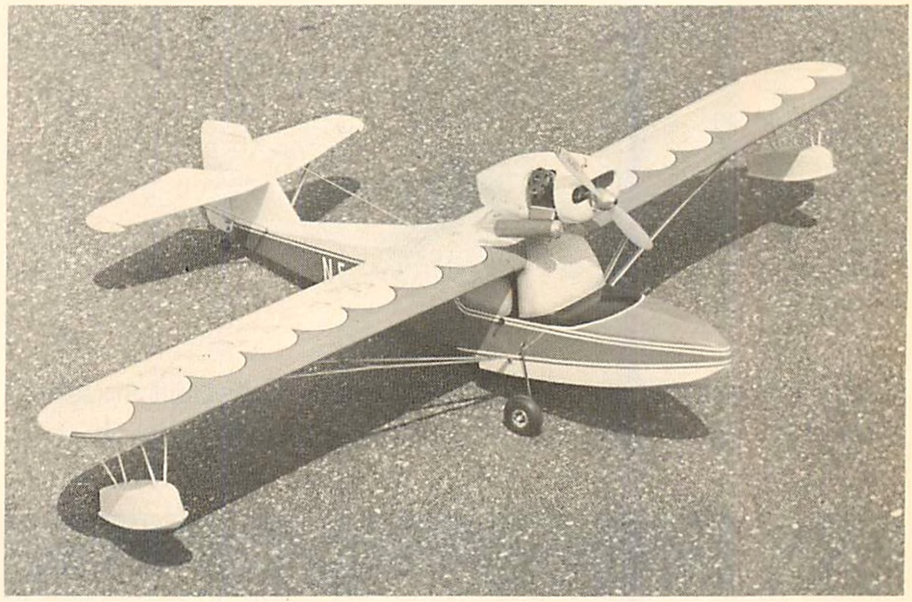
There are several formed plastic parts supplied which save a lot of carving. The tip floats are in two parts, joined at a flange, and appear well designed to do their job. The engine nacelle has a top and bottom cowl which serve to hold the fuel tank in place behind the firewall, and a front section, made from two pieces which must be joined, to enclose the engine. The plastic used seems to be substantial, can be sanded and painted, and epoxy can be used for assembly of the plastic parts.

The packaging and overall quality of the kit is excellent; it is obvious that it was put together by someone who cares. The wood was very good and in all cases was cleanly machined. The ribs are die cut, and it is high quality die-cutting. I noticed that the plywood and hardwood parts were particularly well finished. Before getting into the construction I will mention several areas where I made slight changes to the aircraft. Most modelers have certain features or ideas which they prefer, and can change a kit built airplane accordingly; of course, if major changes are made it would not be fair to blame the designer or manufacturer if the changes did not benefit the model. One change I made was to increase the wing dihedral slightly; the original aircraft had very little dihedral, and to keep the model's wing from appearing to droop, I put in about 1" dihedral under each tip. Another change, in the interest of extensive off-water operation, was not to use the plastic windshield and side windows as shown in the kit. For the windshield, I shaped a block of urethane foam to fit and covered it with lightweight fiberglass cloth and epoxy. The side windows were not cut out. When painting the model, the window areas were masked out and sprayed light blue, with darker blue airbrushed around the edges. The appearance is good and there are no worries about a wave of water knocking the windshield loose. One more change was to add a water rudder of aluminum sheet which swings down out of the rudder for water use; it was felt a water rudder would be needed for taxiing. For the wing struts, rather than use the spruce provided, I used aluminum streamline tubing with aluminum mounting tabs heli-arced together. The spruce of course would be satisfactory; the struts are merely decorative.

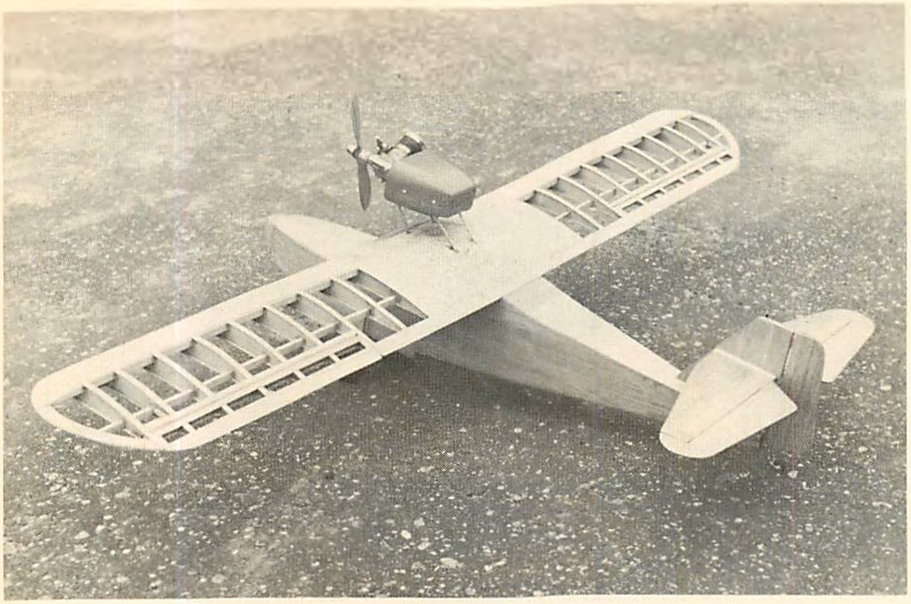
The instructions and drawings on the plans are sufficient to build the model; they did get quite a bit of careful study as this model is more complicated than those I have been used to. The basic fuselage construction is more like a boat than an airplane, with its built-up formers, stringers, and planking. The fuselage itself is not bad to build, but care must be taken not to let it twist out of shape as the planking is applied. I built up sort of a jig to hold things in place, which helped.

The fin and stabilizer assembly is quite complicated, as the high mounting position of the stab requires internal linkage to actuate the elevator. The fin uses plywood sections to hold this linkage and it and the stab must be joined before adding that assembly to the fuselage framework. To be able to add the fin and stab, I blocked the fuselage at a level position so I could add the fin/stab assembly and measure to insure the stab incidence was correct. After it was epoxied in place, the fuselage framework could be skinned to complete it. As mentioned earlier, a shaped urethane foam block was substituted for the plastic windshield. The landing gear must also be installed as the fuse-

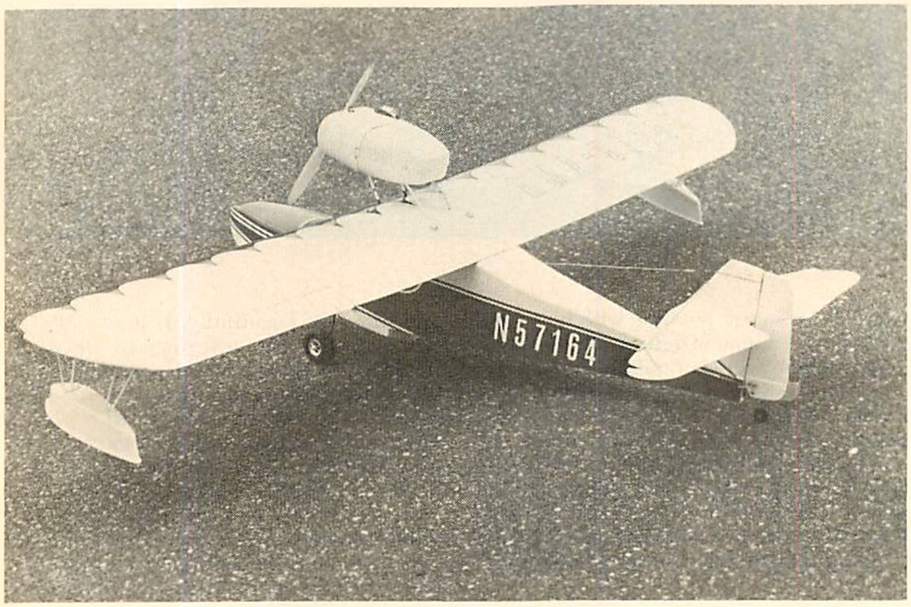




It's a six-footer, ailerons, rudder, elevator, engine. Seen here unskinned, and in a like shot **(below)** in painted splendor. Scale-like performance, a real fun ship for those vacation lakes. Worth building!



The engine nacelle sits on a wire birdcage. Strong enough? It is very rugged, handles the .60's roars with no problems at all, simulates full scale steel tubing mounts. **Below:** For land or sea, nice option.



lage is being built; if the model is to be used strictly for water flying I would recommend leaving the landing gear off entirely for less weight and complication. Again for water use, I covered the entire fuselage and tail assembly with lightweight fiberglass cloth and resin, scraping the resin to keep the amount used to a minimum. This adds tremendous strength and insures a watertight hull. Also important for use in the water is keeping the lower fuselage edges, or chines, as sharp as possible—don't round these edges off. There is enough room in the fuselage for several radio installations, so there is no problem putting the gear in.

Going on to the wing, the construction isn't difficult, there is just a lot of it. It is flat bottom, which makes it easy to build directly over the plans, without getting any warps into it. It is somewhat unusual in that it is built in three sections, the flat center-section getting the engine nacelle mounts. Addressing the center-section first, it is a rugged assembly, as it must be to hold the nacelle. The nacelle mounts are formed of 5/32" dia. steel wire, with mounting brackets brazed on to mount the ¼" plywood firewall. These mounts are clamped and bolted to the plywood wing spar doublers, and the drilling guide for the holes in the plywood spars are shown on the plans. Here I did find an error on the plans—the hole spacing for the nacelle mount clamps is incorrect. I spoke to the Champion people and they advised that a plan correction sheet would be furnished in all subsequent kits.

I had some doubts about putting a .60 engine, on a radial mount, on a ¼" plywood firewall held to the wing only by wire struts. When completed, my doubts left—that engine nacelle is strong, and it is rigid. I would say it is very well designed. The rear portion of the nacelle, made up of a top and bottom piece of vacuum formed plastic, serves only to contain the fuel tank. A 10 ounce tank appears to be the maximum size that will fit; 10 ounces will suffice, for a mild .60. In this plane, full power is not even needed for realistic flying. The front half of the cowling encloses the engine; it is made of two pieces which must be joined. The two piece construction provides a reinforcing flange which makes the cowling quite sturdy, but it is a bit more work to fill in the seam. I mounted the engine, an OS .60 gold head, at a 45 degree angle to put the Semco muffler well clear of the wing; I feel the 45 degree mounting is more convenient than a side mounting, and certainly is better looking than a vertically mounted engine.

Getting back to the wing, the three wing panels are joined together with the plywood dihedral reinforcements; as mentioned earlier, I added about 1" dihedral under each wing tip to prevent a sagging appearance. The built-up tip ailerons are a little more work; when installing the pushrods for the aileron control, block the holes in the ribs for a close fit to the pushrod to prevent flexing of the pushrod. I covered the wing and ailerons with Super Coverite which adds considerable strength to the structure. For the wing struts, spruce strips are furnished with the kit which can be sanded to a streamlined cross-section. The struts are for appearance only—they are not needed for strength so they can be retained to the fuselage and wing with small screws when desired. The wing is mounted to the fuselage with two locating dowels in the leading edge notch and two ¼" dia. nylon bolts at the trailing edge. It should be fitted closely to the fuselage; with soft foam wing rest tape on the fuselage, when the wing is bolted on it should be quite watertight.

The tip floats are formed plastic, two halves to be joined together along a flange which can be trimmed down. They are mounted to the wing by formed wire pieces and are easily detachable from the wing. In their scale location, they are far out on the wing, close to the tip. I had some thoughts of moving them in closer to the fuselage so they would be less likely to spin the plane around if they caught the water during a takeoff run—however they do clear the water by quite a bit and the float bottoms are correctly angled up and quite wide, so I did install them as called for.

The entire model was assembled, checked for alignment and control surface throw, then taken apart for finishing. The complete fuselage and tail assembly had been covered with light fiberglass cloth and resin, and the wings had Coverite ironed on. I sprayed on K&B Superpoxy primer, several coats with a good sanding between coats. I feel an epoxy paint is the best choice for any seaplane since its sealing and waterproofing qualities are so good. Considerable masking was done to put the orange and black trim over the base color of white. The window areas were masked off and sprayed light blue, with a darker blue fogged around the edges. All masking was done with plastic electrical tape, stripped to ⅛" width for some of the trim lines and the curves.

The radio equipment used was my trusty single stick Kraft with KPS-11 servos. This radio had survived several active boat racing seasons, with at least a few dunkings, and had then been checked and turned by the factory. Its reliability has always been excellent, and I wanted a radio I could trust in this model, after all the work invested in it. Another important thing to do is to check the balance, before flying—I had to add quite a good sized piece of lead up in the nose (bow?) to get a nose-heavy balance. This

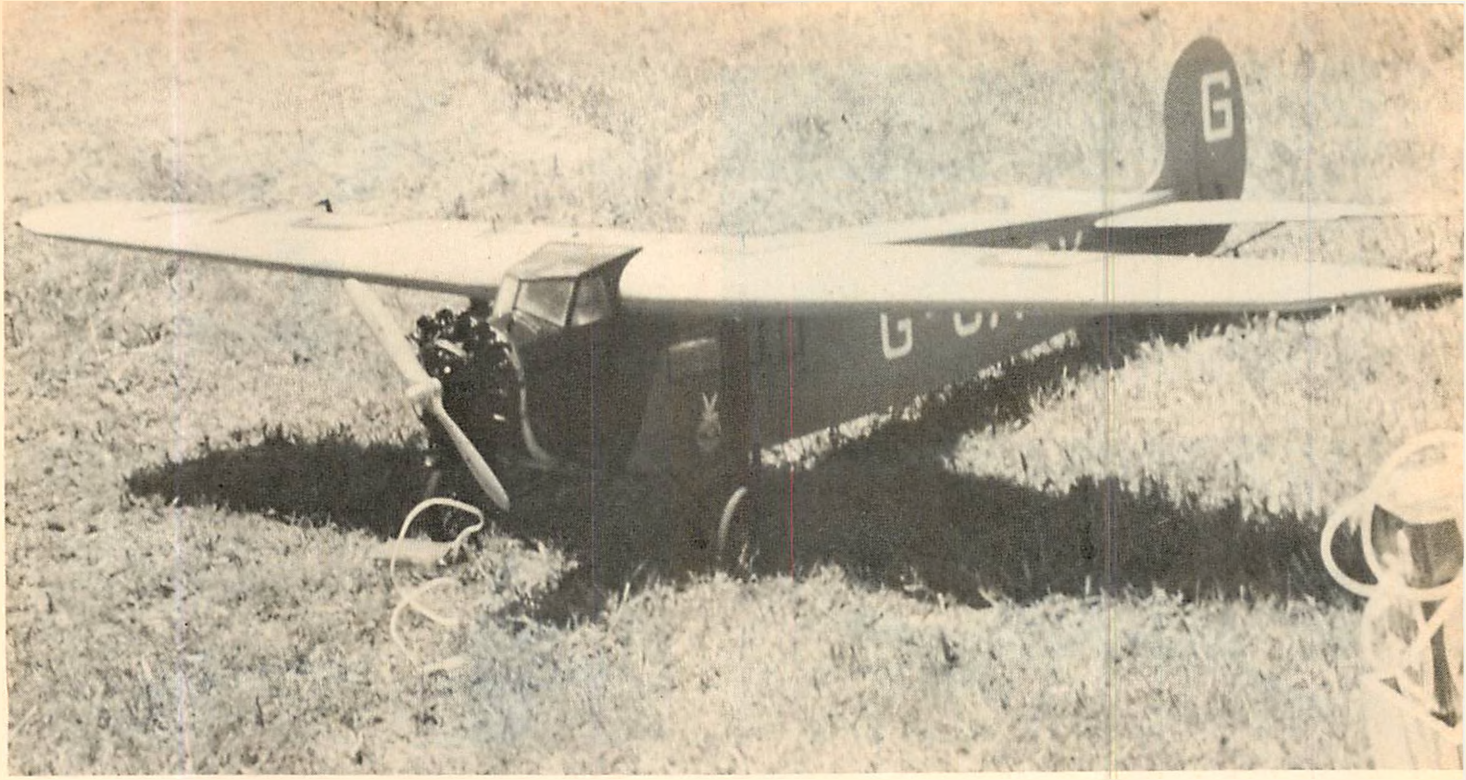
brought the weight up to about 8½ pounds, but it's better to have a heavier plane that balances than a tailheavy plane that crashes. I also assembled the plane in the back yard and ran the engine; I'd rather adjust the carburetor at home than out on the field, before the test flight. I even set the plane in the swimming pool, and it looked good!

For test flying I called on the services of a good friend, Dick Sarpolus. With his years of flying every type of model, I felt the plane would be as safe as possible with him. I did take the precaution of getting all the photographs before we went out for the test flying. We postponed the first flight for a number of weeks, waiting for some reasonably good weather. I finally couldn't wait any longer, and the first flight was made in very windy conditions. We had decided to fly it off the ground first; on the take-off run it tended to nose over forward (later cured by bending the landing gear forward slightly) and lifted off beautifully. It flew well, but we did find the ailerons to be quite ineffective—typical of a large, flat bottom wing aircraft—so the rudder was used frequently. Later, freeing-up the aileron hinges and moving the horns to get differential throw (more up movement than down) increased the aileron control.

Next was the off-water flying. The first water taxiing showed that I had added so much weight to the nose (not really needed) that we could not get it up out of the water, on plane. The excess weight was removed and it handled fine on the water. When taxiing, up elevator and part throttle will keep the nose high; it rides on the rear portion of the hull. With more power, the elevator can be returned to neutral, and the plane rides on the forward portion of the hull—it rides smoothly, and lifts off easily. It is the most realistic model I have had; when throttled back and flown in a low fly-by, or for a touch-and-go on the water, it looks just great! No aerobatics have been tried; that's not my interest, I'll stick with the straight and level. The water take-offs and landings provide plenty of pleasure and excitement.

To sum up, I found the aircraft quite a bit of work to build—but the kit is well done, the parts fit, and with careful work, the end result will be a beautiful model. The scale appearance, to me, is well worth the work involved. It flies fine, looks extremely realistic, and of most concern to me, off-water operation is completely practical. My dependable Kraft radio continues to perform well, the OS .60 engine provides plenty of reliable power, and this whole project was certainly enjoyable.

At the shoreline. Calm water is always an invitation. When starting flying boats remember where your prop arc is! **Top photo:** Wheels make it an amphibian, they rotate forward manually for water operations.



PHOTOGRAPHY: FRANK TIANO

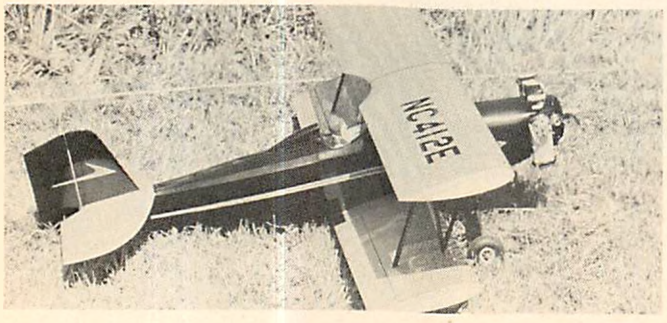
RHINEBECK CLASSICS

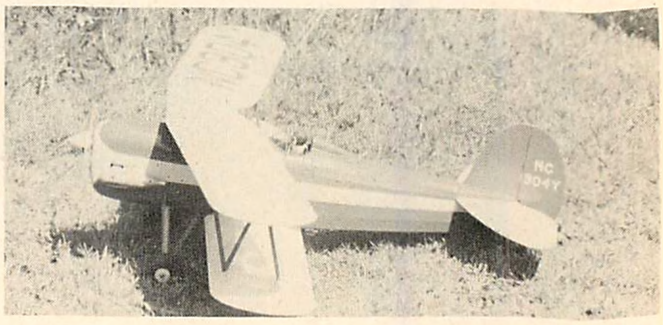
For the second year the Mid-Hudson club paid homage to the Golden era of aviation with this meet that's destined to become another classic at Rhinebeck/ **Frank Tiano**

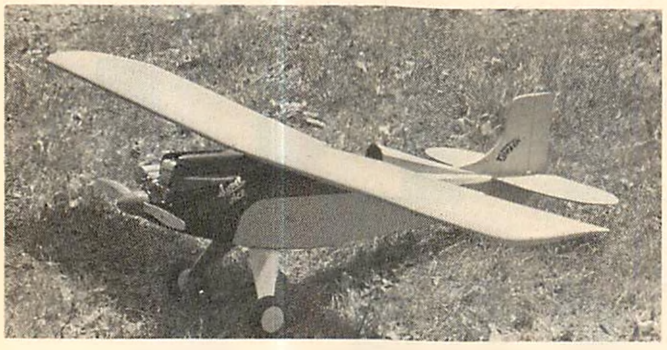
This year on June 24th and 25th, The MidHudson RC Society, long noted for their fantastic WW I Jamboree in September, hosted their second annual Rhinebeck Classics meet. The site was Cole Palen's Old Rhinebeck Aerodrome in Rhinebeck, New York. Needless to say, the contest turned out better than last years affair since all the bugs were worked out. The contestants totaled 40 this year and something over 160 flights were completed. On the first day three flightlines were used and this was reduced to two lines on Sunday since many ships failed to fly after Saturday's grueling competition. The runways at Palen's Aerodrome are grass affairs with very few rocks or obstructions anywhere. The MidHudson club members made sure that the field received an extra close cropping before the contest. With over 2000 feet of runway there was plenty of room between flight lines and the excellent control of the Society prevented any frequency problems. In fact, all weekend I don't believe there was one problem of any kind. I did here some talk of ways to make the contest an even smoother running event but these small items will be discussed later on. All in all, I must say that the Mid Hudson RC Society is still one of the most polished, well-organized and knowledgeable group of modelers anywhere in the country. The attendance at their WW I Jamboree proves that. If this Classic event keeps growing at the rate it seems to be, within the next couple of years Rhinebeck will host the Country's two largest scale contests every year.

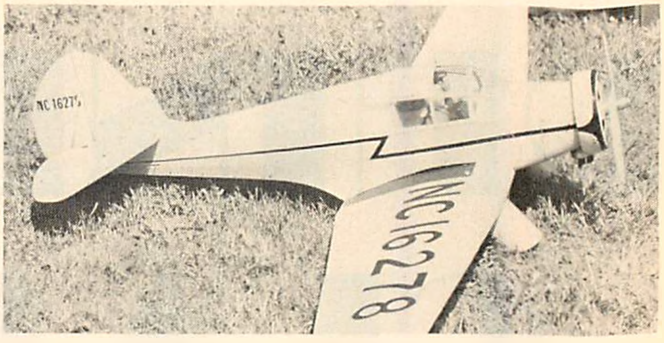
For those of you who don't know, The Rhinebeck Classics is intended for model aircraft patterned after real airplanes built between Jan. 1st, 1919 and Dec. 31, 1937. Any aircraft that was used in WW II is automatically barred from the contest. This rule applies regardless of when the prototype was first flown. Because of these rules, contestants must provide proof of when his airplane was first flown. Obviously, most entrants are of the biplane variety with the exception of the single winged racers.

There are three, no, actually four, different categories a person may enter at the Classics. First there is Sport Scale which usually receives the most entries. Next is AMA scale which usually receives the fewest contestants. Then there is Barnstorming and Time Trial events. The barnstorming is simply a predetermined group of manuevers that must be done while flying against a stopwatch. The clock is punched as soon as the model starts its takeoff run and then the flier must complete three spins or spirals, a bomb drop, three loops and a spot landing in that order. For missing the target the flier is penalized by having some additional time added to his score. The lowest time for the day is the ultimate winner. For the time trial event, the models must be models of real aircraft that participated in a race of some kind at some time during the specified years. Three upwind and three down wind passes are made through the timing traps and the average of each two way pass is the subtotaled score. For the final score, the models static scale score is added









ALLEN SPIEVACKS Stinson Trimotor with three OS rotaries is on the preceding page. The top two photos are of Walt Moucha's R/C Cub and Stanley Segalis' full size Cub doing maneuvers and landing together. The two center photos are of a Concept Models modified Barnstormer and a Great Lakes Trainer respectively. Dave Jaggie flew this beautiful Corben Ace (**above left**) The Cessna low winger (**above right**) was a really different airplane.

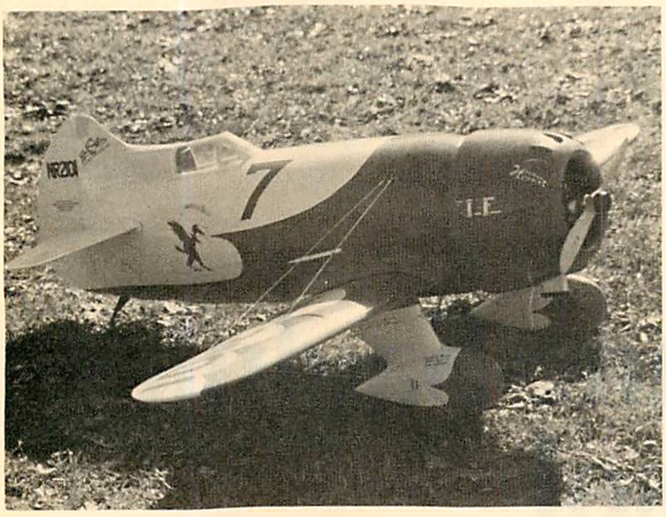
to the speed for a final tally. In other words, if a ship ran a two way average of 90 m.p.h. and had a 72 static score, his final score would be 162 points. Steve Buso, the club's president handled lining up the contestants while the C.D., Vance Sutton, took care of making certain every flier received the proper score. While all this was going on, D.J. Amodeo, the clubs attorney made sure that no airplanes were swiped by Steves dad, George Buso. Many ships cracked the century mark with three fliers hitting 113 m.p.h.

A relaxing break in the competition came on Saturday at 2:30 when Cole Palen put some of his Golden Age full scale aircraft through their paces for all the contestants and spectators. The show finished at 4:00 and flying resumed until about 7:30. There was no way in the world that anyone could say they didn't have enough flights!

Almost every model entered was high caliber. However, a few examples really stuck out as excellent examples of craftsmanship and ingenuity. For instance there was a gorgeous De-Havilland Moth entered by a modeler whose name I didn't catch. This Moth was ¼ scale and scratch built to boot. Power came from an MRC Swavia engine and the ship performed flawlessly throughout the entire weekend. I doubt if anyone could tell it was a model from any of the pictures that were taken. Walter Moucha Jr. redesigned a portion of a Nosen J-3 Cub to come up with a J-2 and flew it in sport scale. The ship was powered by an OS .80 and handled very realistically. Another fine ¼ scale entry was a scratch built Fairchild 24 built by Jerry Kelly of Landsdale, Pa. This ship was powered by a Roper 140 engine and flew very well also. Walts Cub flew so well that he was invited by Cole Palen to put on a show for the crowd along with Stanley Sagalis and his full scale Cub. The ships did a series of manuevers in unison including a spectacular one wheel landing at the finish. Both Walt and Stanley received a standing ovation for their efforts which was well deserved, especially considering that the routine was never rehearsed!

Another beautiful model was entered by Dr. Allen Spievack from Cambridge, Mass. The Stinson Trimotor featured three OS Wankel engines. I think that Al should have received some sort of award for just owning and syncronizing those three mills. The engines ran almost flawlessly throughout the competition but a log finally got in Al's way and made a shambles of the fuselage, thus taking the ship out of competition. The owner of Aero Tech, Lou Perretti, presented a very nice Boeing P-26A Peashooter in AMA scale and flew it like a pattern ship. The ship seemed very docile and tracked straight as an arrow. Lou eventually took 3rd in AMA scale with it. Lou must have been very happy because his Pete racer kit grabbed 1st, 2nd, 3rd and 5th in the barnstorming event. The notorious Henry "Hands" Haffke made believers out of us all by flying his Gee Bee R1/R2 Barrel racer. The ship actually flew very well and went on to receive a 4th in Sport Scale. Even though it appears very hairy, Henry says the ship is so docile that you can fall asleep while flying it. Yeah, I bet! Henry's eyes were so wide open that he needed two pairs of sunglasses to keep the sun out of them.

One of the prettiest scale models entered in sport scale was the Royal Spirit of St. Louis built by Pete Jakab of New Brunswick, New Jersey. The ship flew just like the real one and Pete was able to keep it all together and capture a 1st place win with it. The static score for this ship was an unreal 94! Pete's total scores for the event were so high that 1st place was really a run-away for



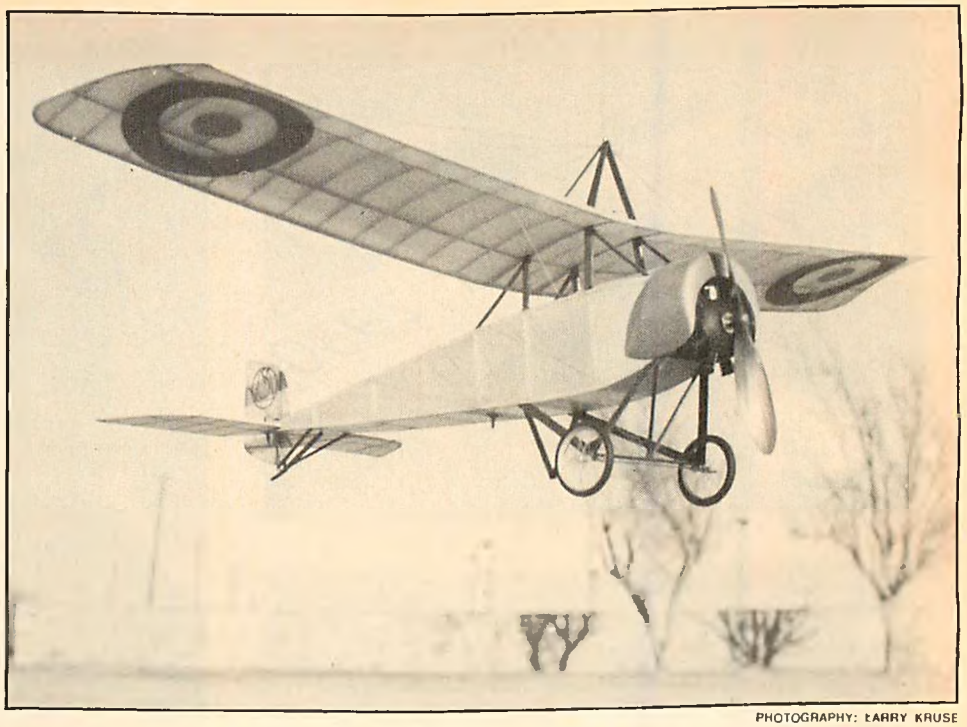
GEORGE ROSE'S JEEP (top left) eventually won the Time Trial portion of the contest with OPS Big Red power. The line-up of the racers for the Time Trial event is shown at top right. Graham Ireland of Ottawa, Canada scratch-built this Fokker Universal (**above right**). Henry Haffke's Gee Bee R-1/R-2 racer will be the subject of a FLYING MODELS construction article, complete with plans, in an upcoming issue. Henry's GB Sportster was on the July 1978 cover.

him. Second through seventh places in sport scale were mere points and half points apart. George Rose of Lakewood, N.J., kept on with his winning ways by placing 1st in AMA scale with his beautiful Curtis P6E Hawk. George really has his act perfected now and this ship will be one to watch for the years to come. I say years because George is known to keep a plane for a long time; his P-51 Mustang for Sport Scale has been around for about 7 years. Johnny Ballenbach from Plainfield, N.J., finished 1st in the combination of events to garner the special Cole Palen Award. Besides a huge trophy, John received a 20 minute ride in a Pitcarn Mailwing biplane as part of his prize. And speaking of prizes, there were many awards down to 5th place in all classes except Sport Scale where they went to 7th. The prizes were well worth competing for since they were of the expensive variety. For instance, first place winners in all classes received Super Tigre Blueheads with Perry porting and 2nd-4th place winners got kits and lots of good hardware. Even the 7th placed contestant in Sport Scale won about $25 worth of merchandise for his efforts.

Of course, many other aircraft were present but the accompanying photographs should give you a better idea. They say that one picture is worth a thousand words so let your eyes do the walking.

I realize that I have been quite high on this contest and the Mid Hudson RC Society but rightly so. However, I will share with you the very few comments I heard as far as how to make the Classics an even better contest. First, the Sport Scale judges sheets should be of the more conventional variety, not the AMA scale type that was used. Sport scale was originally intended to be low key so why let judges pick apart every individual part of the model? The three categories listed in the AMA rule book are definitely sufficient for judging. There was no need to judge the models tail sufaces, cowlings, landing gear, wings, rudders, etc. individually. This was the opinion of most contestants and I guess I have to agree with them. The other point brought out was the amount of time used for judging each Sport Scale entry. Almost 20 minutes per plane was spent and in some cases the time exceeded a half hour. This is a little too long for a Sport Scale airplane. What the contestants were afraid of is that by the time the judges were towards the end of their allotment of aircraft to be judged, they were getting tired and therefore gave out a possible wrong score in their desire to keep the vent moving along on schedule. I really don't know if I'm in total agreement with that thought, but I do know that, for whatever the reasons, a Sport Scale ship should be judged for outline, finish-color-markings and craftsmanship only. How long it takes is really up to the C.D. I believe that the Mid Hudson club will take some of these criticisms seriously and try even harder to offer an even smoother running operation next year if that's possible. Sometimes I think back at all the really bad contests I've been to this year and realize that this is still the best around. I also think that Ed Lorenze should be congratulated for doing a great job of making those beautiful trophies and that he and Bill Lawrence deserve even more credit for the fine job they did constructing the accurate timing devices.

Well, that tells the best of it. There just wasn't any bad! But that's those MidHudson guys; they probably don't know how to do anything the wrong way. Almost everyone I talked to is going back next year for one reason or another and I bet I know what one of the reasons are: Fun! ⇐



PHOTOGRAPHY: LARRY KRUSE

1913 Morane-Saulnier Parasol

Little CO_2 powerplants inspire scale projects. This pre-WW I machine performs well/**Larry Kruse**

The Morane brothers, Robert and Leon, along with their associate Saulnier, became famous just after the turn of the century for their monoplane designs. The 1913 "Parasol" was one of their early successes, and, in its type "L" variation, was even credited with shooting down a Zeppelin.

Powered by an 80 horse Gnome rotary engine, the Parasol featured the trademark aluminum "horseshoe" cowling and wide chord wings with pleasantly raked tips. Lateral control was by means of wing warping. Control wires ran over and under the wing surfaces and were supported by pylons. Through a system of cranks and pulleys the warping wires were connected to the control stick in the cockpit. The fuselage itself was a tapered box girder with plywood front covering and fabric over the remainder. Tail surfaces were moveable and amazingly small in proportion to the wing area.

According to *Fighter Aircraft of the 1914-1918 War*, L-type Parasols were responsible for numerous victories early in the war and were flown extensively by the British Expeditionary Force in France, to some degree by the R.N.A.S. in the Aegean, and even by a few Russian units.

The model presented here was developed from Bjorn Karlstrom drawings which appeared in a 1973 NASA magazine. Specifically, the rudder and stabilizer were enlarged 20% to compensate for the aforementioned tiny surfaces of the full-size aircraft. Other than that enlargement and the addition of dihedral (since the model was designed to fly in windy conditions), no other scale deviations are incorporated.

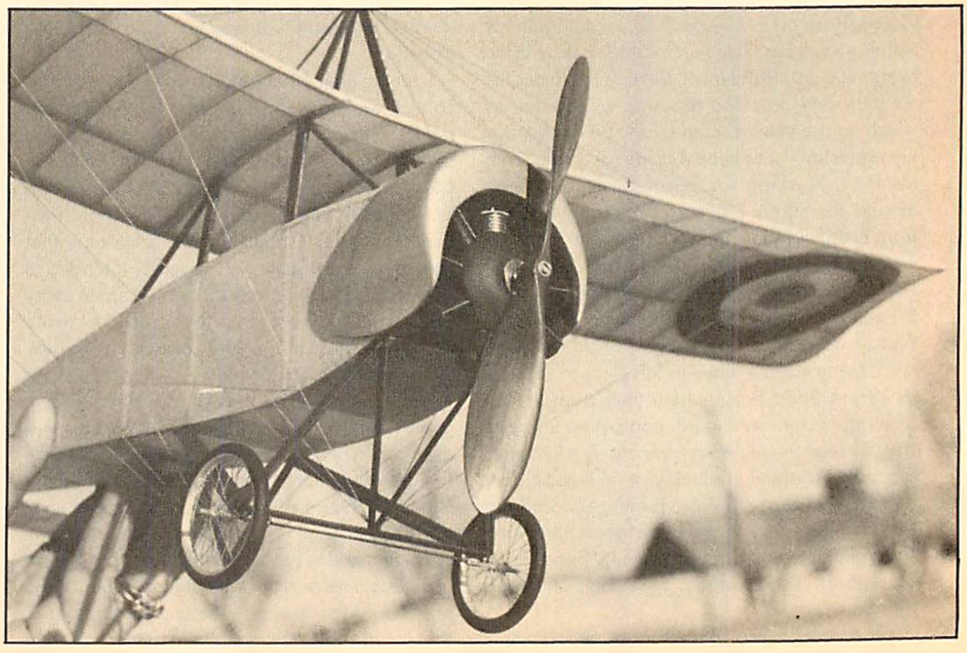
Structurally, the model duplicates rib-for-rib, longeron-for-longeron, and upright-for-upright the craft depicted in Karlstrom's drawings. Again, the only deviation evident is in the structure of the stabilizer for the sake of strength and warp resistance.

Construction

Basswood plays an important part in the structure of this aircraft. So that you don't get stalled during any phase of the building process, you may want to pre-form the basswood tips of the wing, stabilizer, and the rudder outlines.

Soak 3/32" wide strips of 1/32" basswood in hot water for about 30 minutes. Draw these strips around previously prepared balsa wood templates covered with Saran wrap. As each strip is drawn around the form it should be coated with an aliphetic glue like Sig-Bond and held in place with your fingers. When the last strip is in place, the entire lamination can be held tightly with pins spaced closely around the outside until it dries. Usually overnight is best.

The wing tips present special problems, since they employ a compound curvature. When they are dry, unpin them and sand them carefully. Now, here's a part you'll like. To get the airfoil curvature, use your tongue and gently wet the top side of the lamination while applying pressure to the underside with your thumbs. Go at the process slowly and carefully. There is a chance to crack the lamination if you're too rough with



it. When you've obtained the proper curvature, pin each tip upside down on the workbench and block up both ends until it is once again dry.

Wing ribs can be stack-sawed from 1/32" contest balsa. Ribs to accept the cabane struts are of firm 1/16" C-grain. Tip ribs are identical to main ribs, except that they are merely moved back with excess material being cut from the rear of the ribs. It's probably best to shim up the rear of the leading edge and the front of the trailing edge 1/32" and glue the ribs in place with Sig-Bond. An aliphetic or cellulose glue is necessary here because there is so little gluing surface available. After the rib and LE/TE framework is dry, turn the wing over and install the spars. Hot Stuff is good in this instance if the spar slots are relatively snug.

Saw the spars off at their correct length and install the tips. The total wing structure can then be sanded gently and the dihedral installed. Bracing anchors are glued in place with Hot Stuff and then pre-drilled to accept the bracing thread. The wing can then be covered with white tissue, shrunk with rubbing alcohol, and given three thinned coats of nitrate dope. Roundels are made of tissue, also.

Tail surfaces present no real construction problems; however, you should note that the rudder is formed as one outline, totally constructed, and then separated to allow for hinging and installation.

The fuselage sides are built over the plans and then built into the usual box structure by the addition of cross-pieces, fillers, and formers. Maintain alignment throughout the construction sequence by constantly checking and re-checking the overall shape as you add each crosspiece. The landing gear is sandwiched between formers first, then bound and soldered to the axle.

The engine installation is next. The spacer-block shown is necessary if you're using a Telco CO_2. It may have to be modified if you go with a Shark or Brown. The tank cradle is adequate unless you opt for a 6 cc tank or larger. Beef it up if you think it necessary.

The filler is fitted into an 1/8" balsa "box" which is adequate to withstand the pressure of the filler gun. I considered just hanging the filler outside the cockpit, but I think this is a much better, and, above all, a much neater installation.

Cover the nose area with 1/32" balsa and then cut out the cowl pieces. The cowl itself is made of 1/8" formers and then wrapped with 1/32" A-grain dampened on the outside to negotiate the curvature.

Slip-fit it into position. It should have a slight friction fit. Carve out the back former to clear the engine and tubing and carve the side filler blocks to shape. The cowl surface was given four coats of sanding sealer and then sprayed with Aero-Gloss silver to simulate the aluminum cowl of the full-scale ship. Set it aside until test flying is completed before you install it permanently. The same holds true for the dummy engine. I carved the crankcase from balsa and fitted William's Brothers cylinders to it. It, too, is a slip-fit over the CO_2 engine and is held in place with small dowels on both sides. Two coats of Floquil "Grimy Black" simulate the engine color very well.

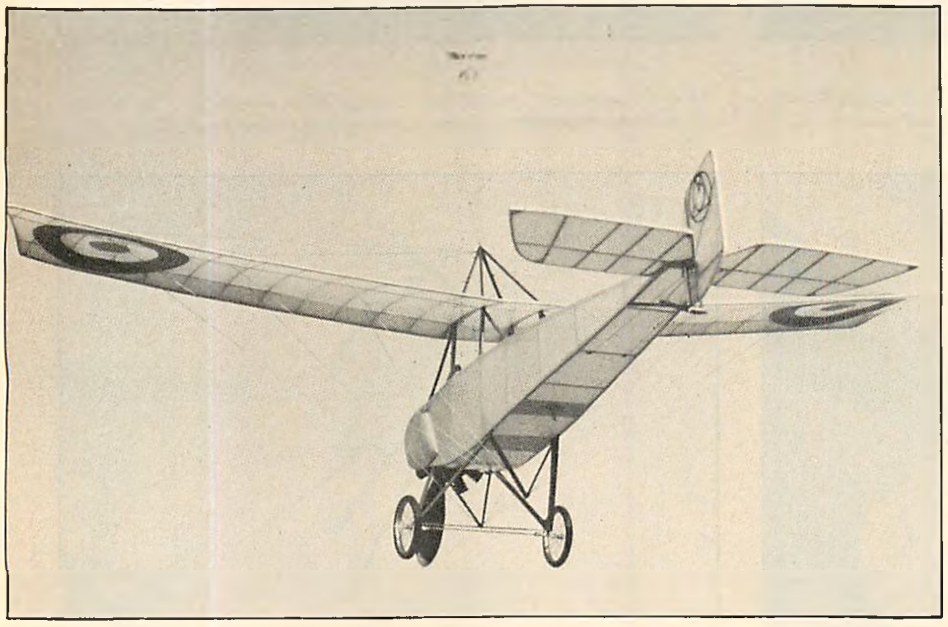
Having completed the fuselage main structure, cover it with white tissue, shrink it with alcohol, and dope it as you did the wing. Tail surfaces are treated the same way, but don't forget to install the wire hinges before covering. Obviously, pinning the tail surfaces down while they dry is a good precaution. One coat of thinned dope is sufficient.

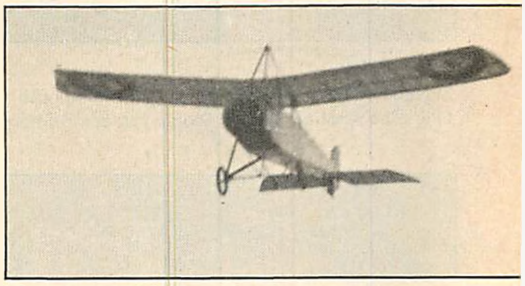
The cabane struts and landing gear struts are all made of basswood. I'm rather pleased with the way they turned out. The wood grain showing through gives a very realistic appearance and is quite easy to accomplish. Cut appropriate widths from 1/16" and 1/32" basswood, sand all edges round, and then using a clean, soft, rag wipe on one coat of Glidden Spred Interior Latex Walnut Stain. Rub it in thoroughly, removing any excess by buffing with a clean cloth. All cabane pieces and struts can now be cut to length and epoxied to the fuselage. Note that the landing gear struts do not come in contact with the landing gear, but serve only to hide the wire from view. Give the basswood pieces four to seven coats of dope, or until a sheen develops that brings out the grain.

Attach the wings to the fuselage by using epoxy in the cabane slots. Auxiliary struts and wing warping pylons are next. Drill out the pylons with a pin drill to accept the silk thread wing bracing.

Starting with about 15 feet of silk thread, tie it to the bottom wing warp pylon and then begin a methodical under/over sewing of the rigging, moving from the front bottom pylon, up through the pre-drilled anchor holes in the wing, through the top pylon, through the top of the other wing and back to the rear bottom pylon. Adjust the tension of the rigging as you go. Once all twenty-four wires are installed, a drop of Hot Stuff at each rigging point and pylon will suffice.

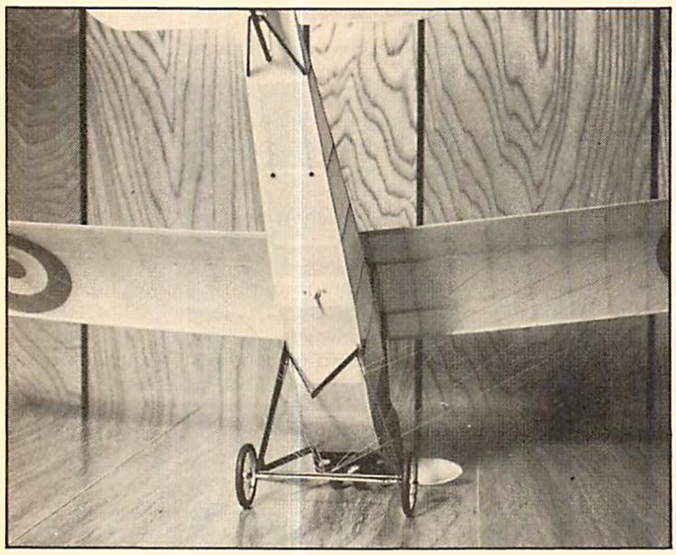
Tail surfaces can now be attached. Begin with the front position of the rudder and epoxy it into the slot at the rear of the fuselage. Install the stabilizer by inserting the hinge wires into their pre-drilled holes and Hot Stuff them into position. Don't be



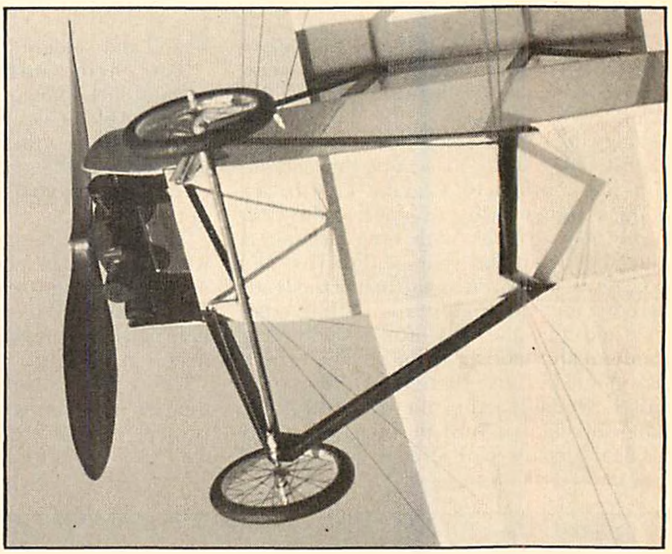


Alone in the blue. CO_2 thrust tapers off slowly for a realistic idling approach. **Left:** Strung on a sky hook here we'll admit, but nevertheless the photo gives a good idea of the ship in flight. An old bird, with all the rigging of a clipper ship. Tail surfaces enlarged slightly, simple to frame. **On facing page, top:** In a flight-like attitude, a modeler should find this ship hard to resist. The design recalls the early roots of aviation, state of the art before hostilities. Not often seen as a model, overshadowed by the later fighter types. **At bottom:** Close-in look at the tiny Telco motor.

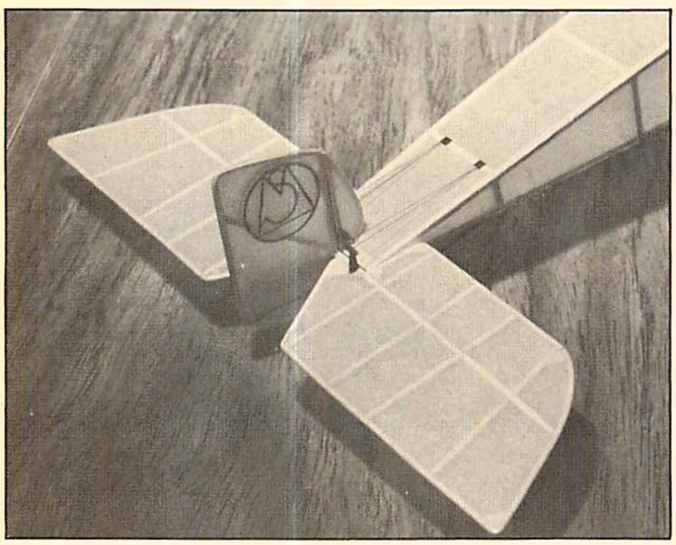
1913 Morane-Saulnier Parasol

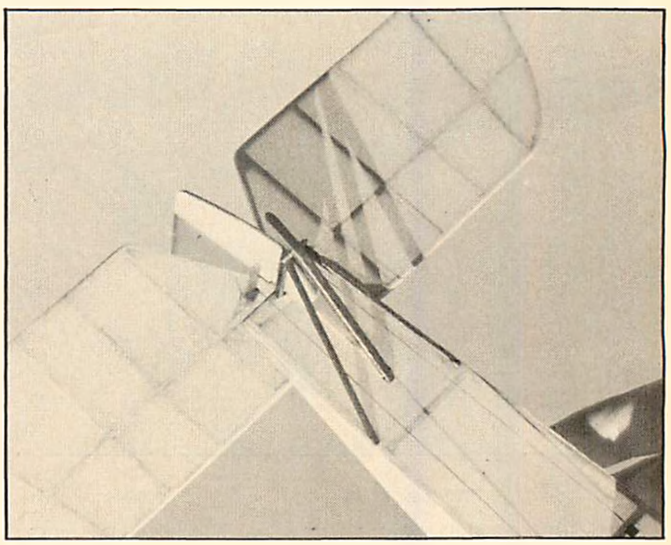


Average 1913 landing. Spies will find this photo helpful to locate the CO_2 filler tube position. **Below:** Rigging to control horns. Build it neatly.



The undercarriage in greater detail. Hungerford's wheels add the antique touch. **Photo beneath:** Note the working tailskid and the rigging.





sloppy with the Hot Stuff. You will want to make adjustments later. Treat the rear portion of the rudder the same way.

The working tailskid is made from basswood, aluminum tubing and shirring thread. All pieces can be assembled using Hot Stuff, but need to be pre-stained in the manner of the cabane and landing gear struts before assembly. Once basswood has absorbed any type of glue, it will not accept stain.

Final items include basswood horns for rudder and stabilizer and silk thread rigging for the tail surfaces. A Williams Brother's propellor painted flat brown will serve well for scale judging purposes, but the Telco prop furnished with the engine is a better choice for actual flight. Hungerford wheels are the crowning touch that makes the little bird really come to life.

Flight Procedures

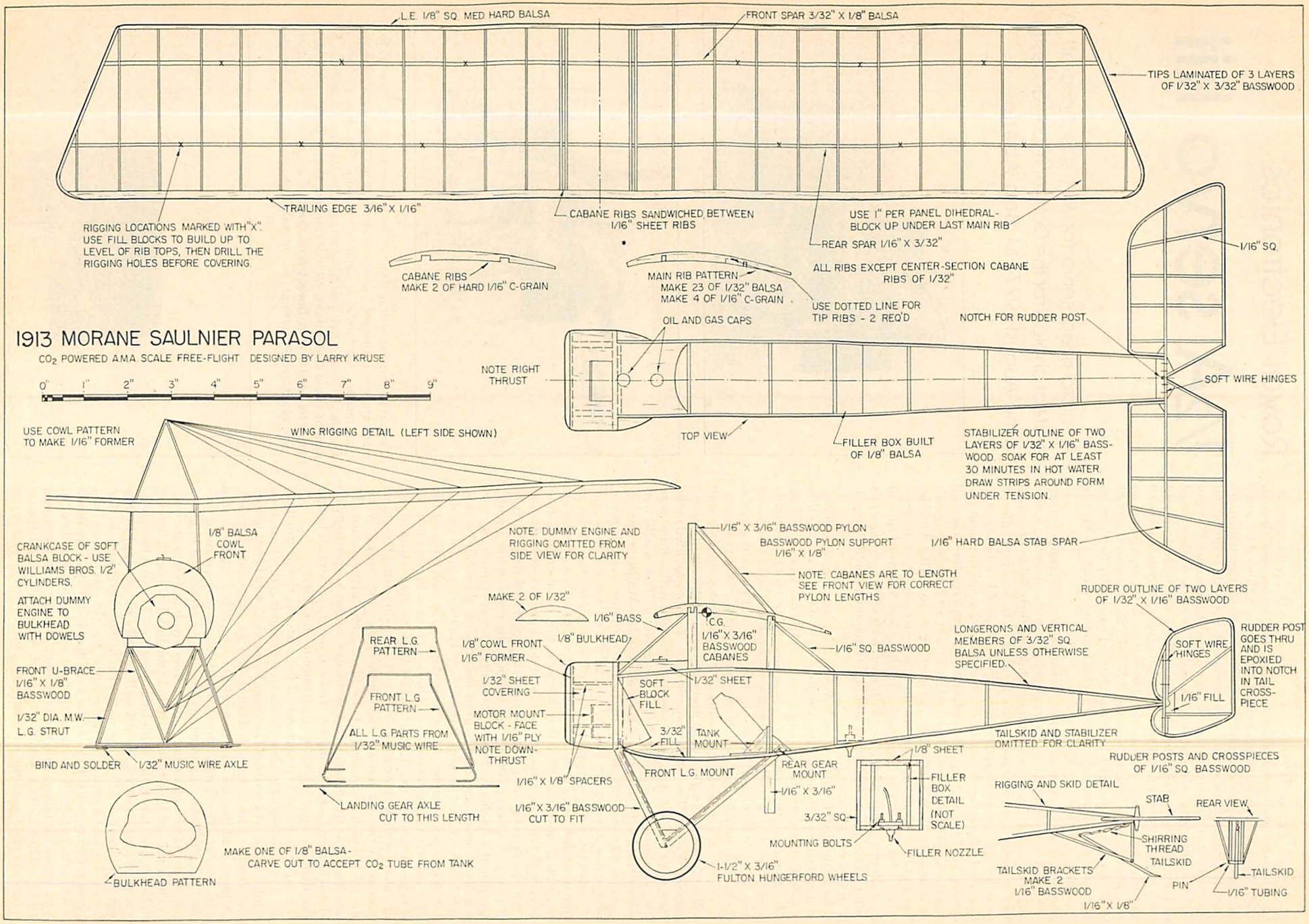
With the cowl and the dummy engine removed, begin flight testing over the universally available tall grass. Check the C.G. to make sure it is as indicated on the plan. The prototype required no additional weight either fore or aft, but wood availability may alter that circumstance.

Rather than doing any test gliding, *per se*, I began with very low-powered flights launched toward the end of the engine run.

With its generous wing area and ample moments, the Parasol flew very well from the outset, requiring only a bit of left rudder and a bit of down in the elevator. If your model stalls and the C.G. is correct, bend in a small bit of down into the elevator. If the plane shows a tendency not to climb, bend the elevator up just a little. If it flies in a straight line about 1/16" left offset in the rudder should give it some left turn. Left turn is generally preferable to a right turn in order to avoid the threat of a gyroscopic spin after the power wanes.

When everything looks comfortably safe in the flight, add the dummy cylinders and the cowling, Hot Stuffing both in place. Check the C.G. again. In all probability, it will not require correction. If it does, though, some clay discreetly wedged in the tailskid bracket should resolve the problem.

Full-powered flights typically are in gentle left turns, climbing to about a fifty or sixty foot altitude and then circling slowly to earth as the power runs out. Predictability and consistency are two of the Parasol's virtues. I hope you'll be pleased with your version of the ship.



FULL SIZE PLAN AVAILABLE THROUGH CARSTENS FLYING PLANS

ORDER PLAN CF-485

Royal Electronics' ½A servo kit

A micro-sized servo for ½A sized aircraft. A perfect choice for the Dorffler receiver design in the August 1977 FM/**Bob Aberle**

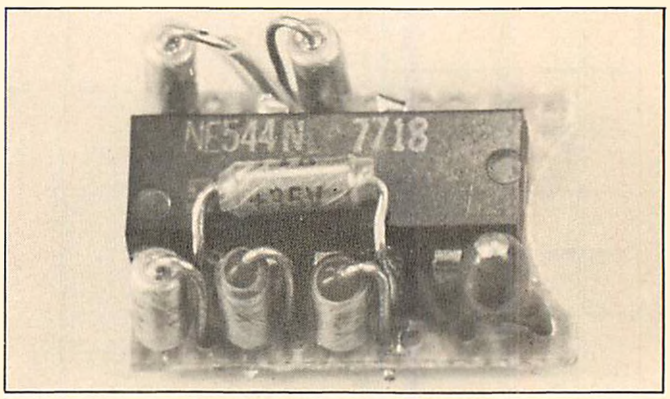
Last year FLYING MODELS ran a series of R/C equipment construction articles by Mike Dorffler. The series included his ½A-2 Micro Receiver in the August 1977 issue followed by a two part article on a companion two channel transmitter which appeared in the September and October issues. All of this equipment was made available in kit form by the Royal Electronics Corp. of 3535 S. Irving, Englewood, Colorado 80110. As many readers found out later, the little ½A-2 receiver gave them the opportunity of owning a very compact unit with a weight of only 1.0 ounce and a kit price of just $22.95 (less connectors). Royal made the receiver even more attractive by adding a single S/N 74L73N integrated circuit ($1.95 list price) giving it full four channel capability (within the same case size). For many modelers this was their chance to finally fly a small ½A powered R/C model.

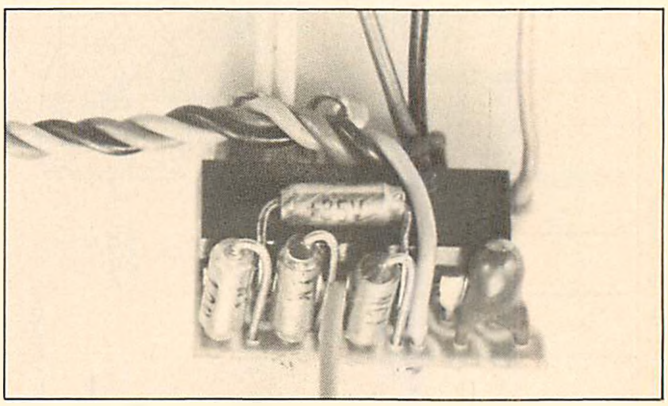
To complete the micro airborne package Royal Electronics offers a 100 mah (fast charge) battery pack ($12.50 less connector) with a weight of only 1.3 ounces. Naturally this system wouldn't be complete without a micro sized servo. Royal Electronics now offers a servo kit (designated as their ½A Servo) which employs the Dunham D-5 mechanics and their own LSA-2 amplifier with the popular NE-544 I.C. chip. Many FLYING MODELS readers who had already successfully assembled the ½A-2 receiver wrote in requesting information on a suitable companion servo. Mike Dorffler wasn't available, at the time, to do a full magazine construction article, so we chose an alternative in this case. Mr. Sid Gates of Royal Electronics provided me with a servo kit for the purpose of a product review. The following will be a commentary on the assembly of that micro servo.

The basic Royal Electronics ½A Servo kit lists for $29.95 less connectors. Quantity pricing is available. A set of two servo kits lists for $28.15, three for $26.95 and finally four servo kits for $25.25 each. On the multiple orders you receive only one set of assembly instructions (which is all that is really necessary). The ½A Servo kit consists of the Dunham D-5 mechanics, case and mounting tray; a Sagami (12 mm diameter, 8 ohm resistance motor), 5K potentiometer, P/C board, NE-544 I.C. chip (14 pin variety), four ⅛ watt resistors, seven miniature capacitors and an assortment of pre-cut color coded wires. The connector and cable are not provided in the kit price. In my own case Sid Gates supplied me with a three wire cable terminating in a Kraft Multicon connector. This would normally sell for $1.80 (from Royal Electronics). The Multicon connector should normally have four pins. In this case mine had only three. With the one missing pin you do run the risk of being able to plug the connector in the wrong way. As such I disgarded the Multicon connector/cable in favor of my own cable with a Deans three pin connector. I only mention this because the photographs show clearly both types of connectors. If you do chose to use Multicons for your system I would suggest that you insist that they have all four pins (even though only three are actually used in the circuit).

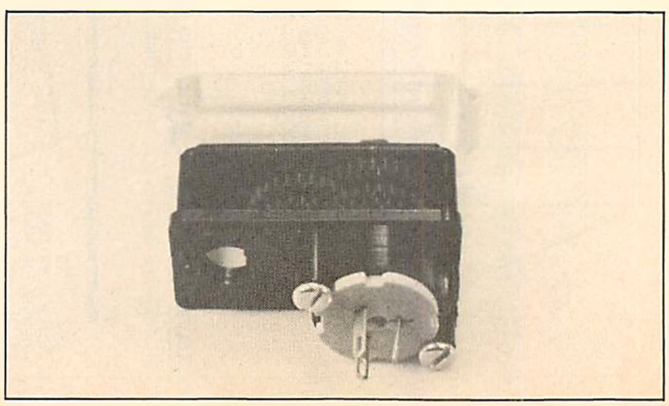
Despite it's small size this servo really doesn't require any special tools. A small jewelers loop or magnifying glass can be very helpful. Ace R/C has several of these listed in their current catalog ($2.00-$3.00 price range). Most important is the selection of the proper solder and soldering iron. The very best soldering iron for this type of work is the Ungar Model 1235 heating element (42 watts) along with the Ungar PL-340 tip. This tip in particular is most important. Without it you will have little chance for success. As far as the solder itself is concerned I would recommend the number 22 gauge (very thin diameter) Ersin Multicore solder. Surprisingly no solder was supplied with my kit. You can purchase a 6 foot length (more than enough) from Royal Electronics for 75¢.

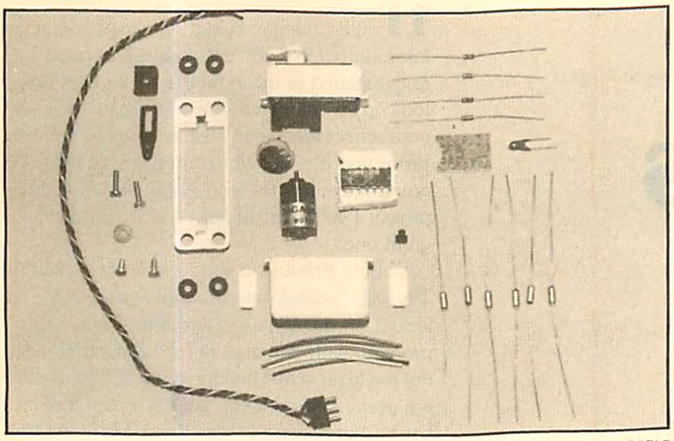
It is a good idea to first sort out all the parts. As the instructions state, if you can't readily identify each component at this time, then get help before proceeding. The magnifying glass will help identify some of the resistor color coded bands and the capacitor markings. Start by assembling the servo amplifier which is contained on a single, very small, printed circuit board. The board has been pretinned to make soldering much easier. It is most helpful to take a small piece of 2x4 lumber and epoxy a wooden clothspin to one end. This clothspin can then be used to hold the tiny P/C board, leaving both hands free during the soldering operation. The first four resistors assembled to the P/C board will actually be covered by the integrated circuit (I.C.) chip. So please make sure you have the correct value and location for these parts. Should you make a mistake you might as well throw out the amplifier and start again. When you get to the I.C. itself you must first cut off two pins (numbers 10 and 12) before installing it on the P/C board. If you cut off the wrong pin you just lost $5.00, so again be careful. After the I.C. is in place you can add the remaining components. The one tricky part is the placement of a single 0.1 mfd tantalum capacitor (C-1) directly on



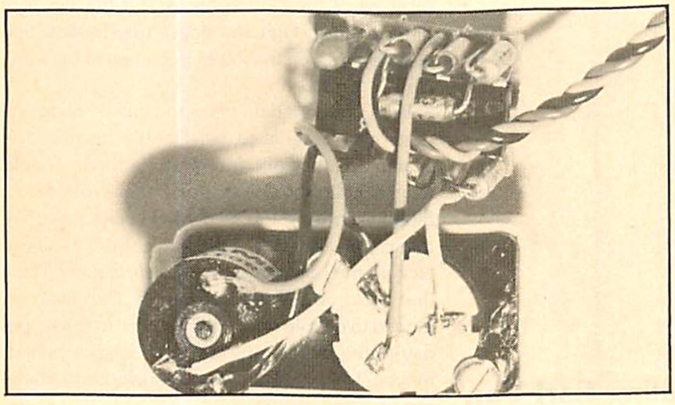


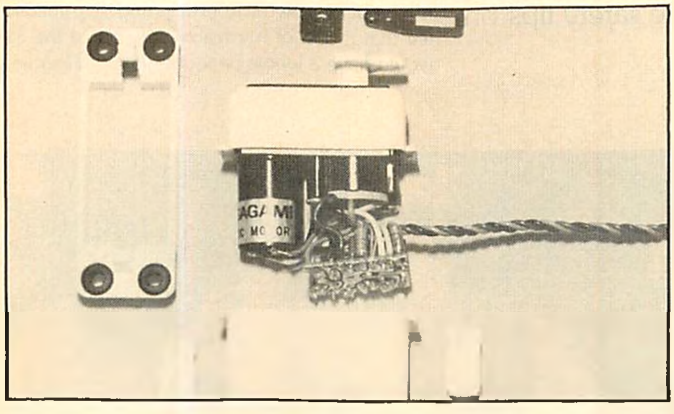
Completed amplifier with all interconnecting wires in place. Three go to the motor and three to the pot. Twisted cable contains D.C. power and the signal from receiver. Be careful of capacitor polarity. **Top shot:** Partially built amplifier P/C board. Bob held tantalum capacitor on top of I.C. with Hot-Stuff until he could solder leads. All four resistors located underneath the Signetics NE-544 I.C. chip. **Down below:** Dunham D-5 micro servo mechanics come assembled. Pot element mounts with 2-56 screws, motor is a press fit.



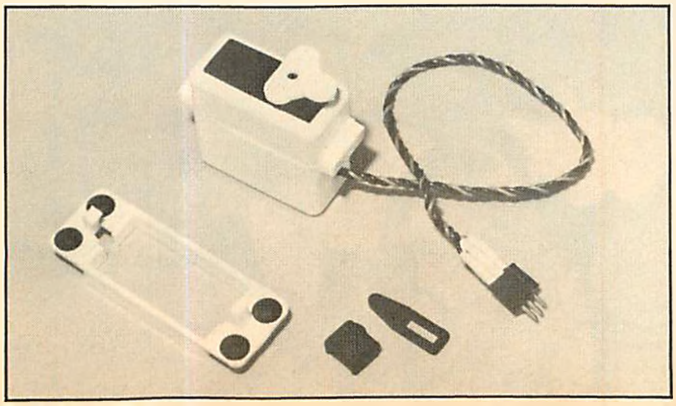


PHOTOGRAPHY: BOB ABERLE





Royal's ½A micro servo ready to be placed in it's case. An adjustable output arm (at top) is supplied with kit. Sagami motor is 12 mm in diameter with a resistance of 8 ohms. **Photo at top on down:** The complete Royal ½A Servo kit. Cable shown with Multicon connector is *not* supplied with basic kit, purchase a cable suited for your receiver. Not much to it, remember receivers of ten years ago. **Next photo:** Pot leads bent flush with top for proper clearance. **At bottom:**.8 ounces,Bob has switched to a Deans connector.



top of the I.C. chip. I found it easiest to pre-cut the leads of the capacitor and then hold it in place with a little "Hot-Stuff" until the two leads can be soldered. The last step in the amplifier assembly is the installation of the interconnecting wiring. This amounts to three motor leads, three pot leads and the three wire main servo cable (which remember is not supplied with the kit). Total amplifier assembly time was under two hours. On a learning curve basis each succeeding servo would most likely require less time to assemble. Inspect the foil side of the P/C board at this time with your magnifying glass to make sure you have no "bridged" or shorted connections. If you find any it is much easier to correct them at this time. It is also a good idea to pre-fit the amplifier into the bottom of the servo case. If a particular part is out of position it can be adjusted easily at this point.

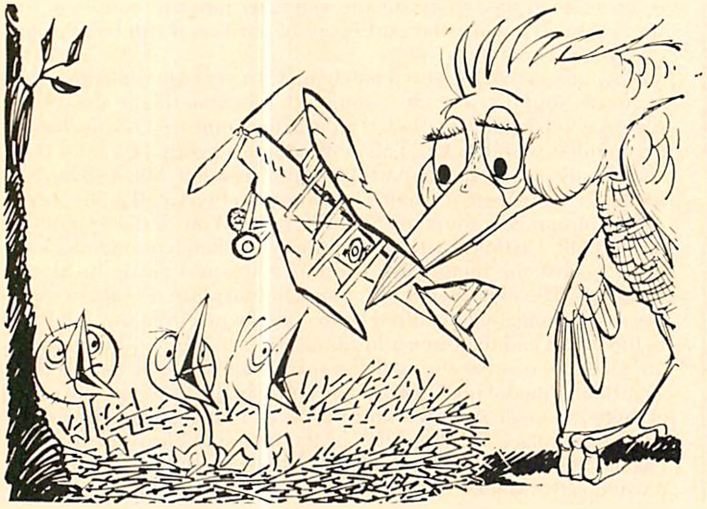
Now proceed to the servo mechanics. In my case the entire gear train was supplied already assembled. I assume this is always the case. A good detailed exploded view of the Dunham D-5 mechanics is provided with the kit. This will come in handy at a later time should any of the gears or parts need replacement. You will have to install the pot element into it's housing with two small 2-56 screws. A tiny pinion gear must be carefully pressed on to the end of the motor shaft. Do this exactly according to the sketch provided. Don't push against the motor case itself as you could easily break the windings. The motor is simply a press fit into place. Final assembly involves connecting the three color coded wires from the amplifier to the motor and the three additional wires to the pot. Instructions are given for reverse wiring of the servo should this be required for a particular model installation. You can actually "fire up" the servo at this point to see if it is working properly. Trusting that it is you can proceed to place the amplifier in the case and close it up. If, by chance, the servo doesn't work, Royal Electronics supplies an extensive set of trouble shooting information including a complete voltage chart, scope patterns and a guide which details the remedies for specific problems. No mention is made in the instructions as to what would be your recourse if you couldn't get the servo working on your own. I suspect it is some type of nominal service charge plus any parts you were responsible for damaging. Final neutral adjustment of the servo is accomplished with the aid of a small jewelers screwdriver. This is inserted into the top of the main servo shaft. Rotating the screwdriver will effect a change in the neutral position to match your specific radio system. Total assembly time of this micro servo was under four hours. For comparison purposes it was about as easy to build as a standard D&R Bantam servo, despite the smaller size. I might add that the instructions provided with this kit were excellent.

The completed servo weighs approximately 0.8 ounces. Dimensions are 1¼" long x 1¼" high x ⅝" thick (less output arm and mounting flanges). You can mount the servo by itself with servo mounting tape or you can attach it to a special tray (which is supplied with each kit) that converts the mounting to the conventional four rubber grommets. The four hole spacing is identical to the larger Dunham D-1 and the D&R Bantam (a convenience if you are replacing servos). Idle current of this servo is 7 ma. Transit time I would guess at around 0.6 - 0.7 seconds for a full 90 degree rotation. This is a little on the slow side and might be attributed to the particular motor in my servo. Although not stated in my instruction package the D-5 type servos generally are rated at 8 to 10 oz./in. of torque or in some cases they are rated at 2 to 2½ pounds of thrust. These thrust specifications are generally arrived at by supporting a particular weight at the first servo output arm hole (out from the center of the main shaft) while the servo motor reaches a stalled condition (another variable). I hope to say more about this output rating in general in the future. Suffice to say this particular micro servo is intended for small models up to approximately .15 to .19 power.

With this tiny servo you can now have a complete lightweight R/C airborne system capable of controlling planes down to .010 power. A typical two channel system using the Dorffler receiver, two of these ½A servos and a 100 mah battery pack would weigh approximately 4.5 ounces. A full four channels (four servos) would weigh around 6.0 ounces. The low capacity battery pack can be easily fast charged at the field after every couple of flights. Using the Royal Electronics list prices a two channel airborne system kit would cost approximately $100.00 (complete with connectors and a suitable lightweight switch harness). This could easily be used with an existing transmitter as an extra (micro sized) airborne pack.

For those interested, back issues of FLYING MODELS containing the receiver and transmitter construction article can be obtained by writing Carstens Publications, P.O. Box 700, Newton, New Jersey 07860.

Flyin' things for fledglings



In this, the second of our new beginners column, author **Earl Van Gorder** covers a successful school project and some safety tips on using different types of glue for your first projects.

Hi, again, gang. Gather 'round and let's do a *little* "hangar flying". Do you remember last month, I told you that a couple of good ways to get started in this hobby/sport of ours was to look up a local model club or just start "bugging" your school teachers? Well, now we've got some proof that it really works! Yep, that's right. I've got some news for you about the first school project I've heard about, and it sounds like a great one.

Debbie Arnouts, a sixth grade teacher in the Titusville School, near Poughkeepsie, N.Y., has kicked off the Vintage Aero Mini Square Thing program with her students. It seems that, while not really an active builder in the hobby, Debbie is a pretty "air-minded" gal. As a matter of fact, her husband, Jack, is Vice President of the Mid-Hudson Modelmasters club and she attends almost all of the club contests and fun flys with him—even though she doesn't fly herself. She also holds down the job of Secretary in the same club.

Well, I guess it didn't take too much "nudging" from her students to get Debbie interested in setting up a beginner program for them. Thanks to an alert hobby dealer, Bob Pearson of Custom Hobbies in Kingston, N.Y., who stays on top of things with all the latest items, Debbie was able to pick up the bulk packs of the Mini Square Thing that I told you about last month. Deb even arranged to devote one regular period of the school day to the building project (the Science period, maybe?). Now, I ask you, how lucky can some of our fledgling gang get? I'm not so old that I can't remember my own school days and I can guarantee that if one of my teachers had told me we would have a whole period devoted to learning

DEBBIE ARNOUTS is shown above with Miniprofile Nesmith Cougar. Debbie (**top right**) is explaining the project to her class and (**right**) is showing some of the finer construction techniques to Chris Ragonese and Mark Dondlinger. Gary Wexler in back.

model building. I'd have probably enjoyed heading off for school a lot more

I learned a little more about our "air-minded" teacher, too. She constantly tries to get volunteer guest speakers on general aviation, as well as modeling, to help familiarize her students with the overall aviation picture and keep interest running high. I'll bet this gal is one teacher who's really well liked and respected by her class, and I can't imagine any student not working a little harder on the Math, English, Social Studies, etc. when the teacher is providing such a great change of pace in return.

As I understand it, Mrs. Arnouts plans to continue modeling programs and guide her students right on through the Miniprofile program. Hopefully, she'll bring them right on to regular scale subjects. Maybe, by the next time we get together, I'll have some news of this group's first flight contests where Debbie will undoubtedly be assisted by some of the members of her club.

Now, why not pass on this information to your own teachers? Maybe you can get lucky, too. Of course, everyone won't be able to promote a situation like this so don't forget the other alternative I mentioned. Contact your local hobby dealer and ask about model clubs in your area. Most clubs I've ever known of were always willing to help a beginner. Why, just the other day, I got word that the S.O.U.R.S. (Sullivan, Orange, Ulster Radio Society) club of Newburgh, N.Y. had put on a big display for a Scout get-together. Not only that, as I recall, they charged a small fee which they turned over to the Scouts treasury. Now, no one can tell me that a club like that isn't interested in promoting beginner interest.

Before we think about closing the hangar doors for this session, I want to pass on a few words of caution. I know, from experience, that every modeler—beginner or expert—wants to finish the building job and get that new creation into the air. That means—get the building job done as quickly as possible. But, that's where the caution comes in. The new super-fast cyanoacrilate cements get the job done in nothing flat, but they can be dangerous if you're not careful. I generally recommend that beginners stick with the white glues (called aliphatic resins) that are usually specified in the kit instructions. There are a number of brands on the market and most of them dry, and set up, a heck of a lot faster than you might think. Let me tell you my favorite way to use the white glues: Put a thin film on each piece you are going to join, rub lightly with your finger, wait a few seconds for the drying process to just get started, and then join the parts. You'll find that it will work almost like contact cement and the parts will stay in place.

If I haven't convinced you, however, please do what I do when I use the super glues—wear safety glasses. It's one thing to have your fingers stuck together, or to the frame of the model, but just a small bit of the stuff in your eye can be extremely painful and could cause real damage. So, use the old noggin—we need all you fledgling modelers and we don't want to see your fun spoiled by a needless accident. And speaking of needless accidents brings one other thought to mind. The tool you'll be using most, as you get started as a model builder, is a sharp cutting edge—whether it be a modeler's knife or a razor blade. Again, careful handling is the answer to preventing accidents. Even a small cut can reduce your enjoyment, because it's mighty hard to work on a model with a bulky bandage on one of your fingers. One of the regular modeling knives is the best, and safest, way to go and they're not expensive. If, for some reason, you can't get one of these and are forced to resort to a razor blade, be sure you use a single edge blade. You don't need the type used for shaving. Most hardware and paint stores, as well as hobby shops, carry an industrial grade of single edge blades. Believe me, they're plenty sharp for your purpose and the cost is amazingly low. I strongly advise against a double edge blade, even if you tape over one of the blades. You'd be surprised how, under a little finger pressure, that second blade can come through the tape and gash a finger.

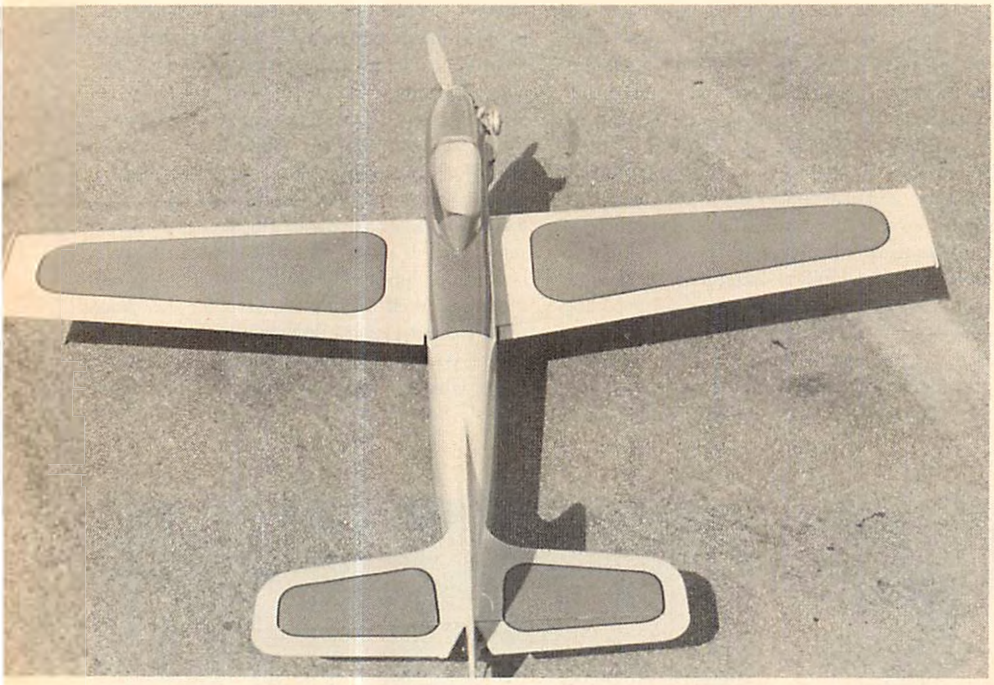
You'll be hearing more from me on safety as we go along. If you develop safe building and flying habits right from the start, they'll become second nature as you continue in the hobby. It's not much different, really, than the pilots of real aircraft who, as a group, are the most safety-minded people I've ever met. I'll always remember the statement of a gray-haired instructor I had when I started flying real aircraft many years ago. Someone asked him if he could recall what kind of pilot he wanted to be when he first started flying . . . fighter pilot? . . . racing pilot? . . . transport pilot? He thought a minute and then said, "I guess what I wanted to become more than anything else was an old pilot!" So, let's all think the same way. If we're all safety-conscious, we'll have more fun and someday, we'll all be old modelers. Well, I guess that's it for this time, gang. Be sure to show up next month so old Van can fill you in on more news of all our student pilots who are working hard to "earn their wings". See you soon.

LORRAINE INNES carefully applies cement to fin of Mini Square Thing preparatory to covering. Cathy Macek gives moral support (**above**). Debbie explains the components of an aircraft (**right**). Cathy Macek, Kelley O'Conner and Brad Fountain exhibit intense interest.

Chopsticks

Here's a fine-performing and different looking Pattern ship that will help take the wobble out of your flying. It uses .60 power and sports an easy rolled plywood fuselage and foam core wings for faster building/**Dan Reiss**

Chopsticks was designed to take the wiggle out of your model. No, not the kind that immediately comes to mind, but that wobbling around you see your R/C plane do so often. Fishtailing can be attributed to one of three things. First, you might have a sloppy set of pushrods. That can be easily cured. Secondly your tail surfaces could be too small. Well, that would take enlarging them with a somewhat not too attractive effect. Finally, a tail moment that is too short will also produce the same results. Now, a longer tail moment in conjunction with a proportionally lengthened nose moment will contribute to a more stable flying machine and one that is certainly more sleek and attractive in appearance. And that's what Chopsticks is all about. It might not be the world's greatest flying R/C model but it certainly is in the running for the longest. The



A straight forward, yet pleasing paint scheme. **Beneath:** Dan with his Chopsticks. The San Matao area, a suburb of San Francisco. **Facing page:** Veco .61 engine and muffler, set up to run on muffler pressure. Easy engine access. **Center shot:** Ply tip plates serve as skids in rough landings. **Bottom:** Close up of canopy mounting. Don't try to cut a cockpit out of rolled ply, it's under stress, would crack easily.

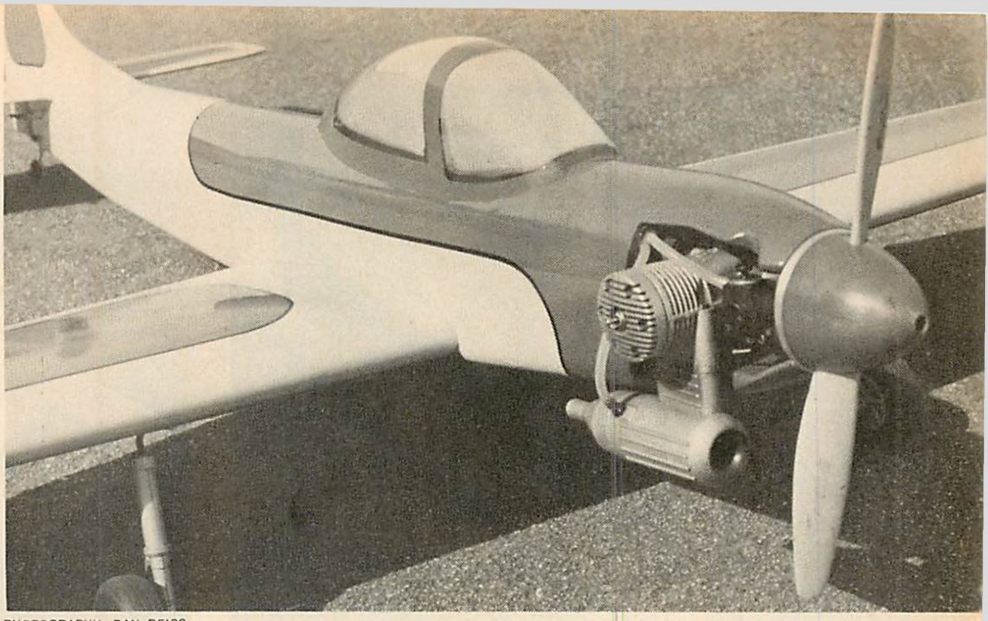
name? That was my wife's idea. While seeing the fuselage take shape she just couldn't resist tagging it "Chopsticks".

As with most sport models this one is pretty easy to put together. The empennage is cut from ¼" sheet balsa, sanded smooth and edges rounded. The wing is foam, sheeted with 1/16" balsa. Cut the core with the templates shown on the plans. Wing tip plates were utilized for expediency and to help increase the effective wing area with no increase in drag. Being cut from ⅛" sheet plywood they also act as great skids, should the need arise.

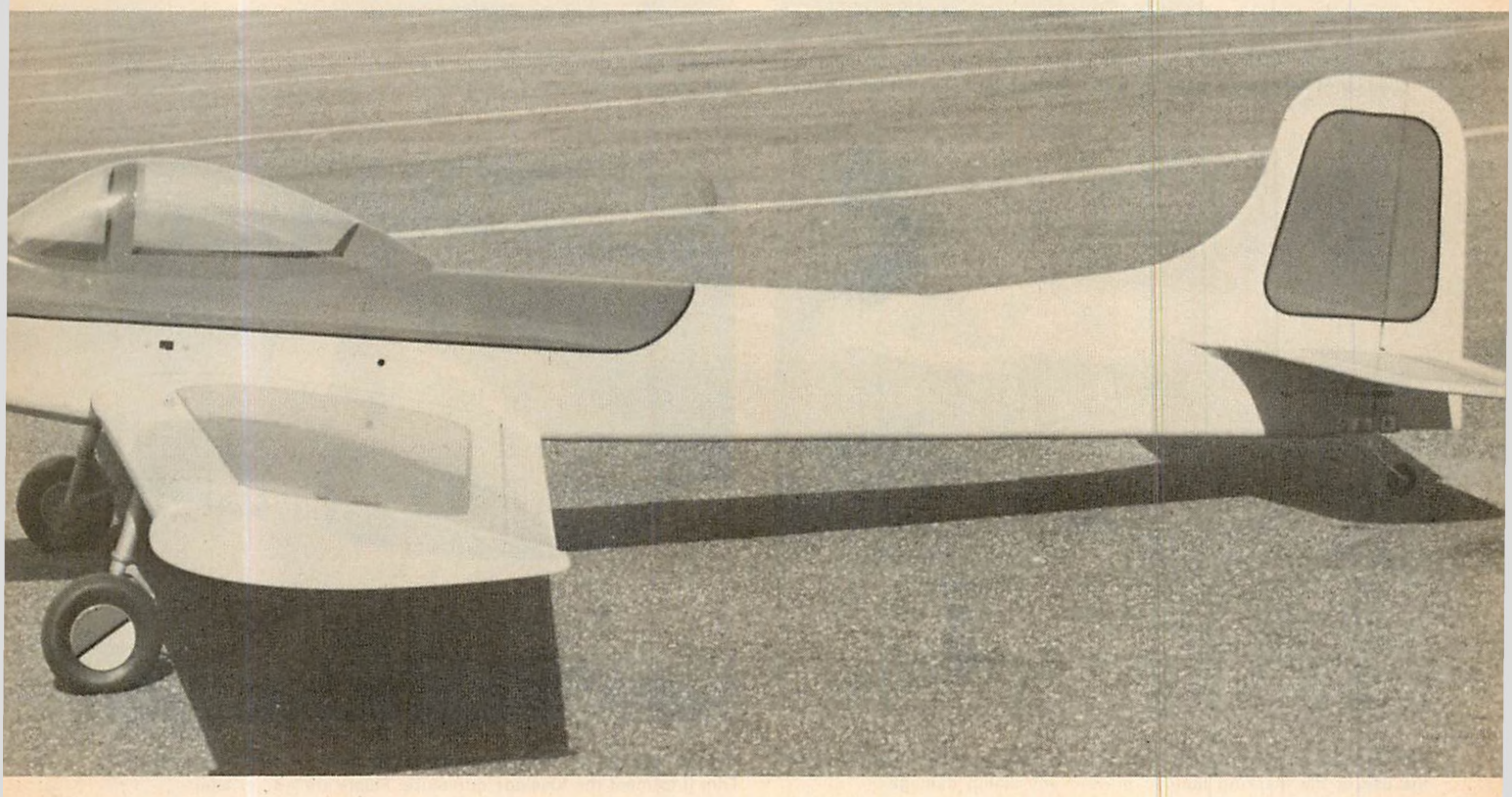
What still might seem unusual at this time is the fuselage construction. It is molded from a single sheet of 1/32" sheet plywood. I have previously employed this technique with two other models that have appeared in past issues of FLYING MODELS. The first was

a sport biplane in the May, 1977 issue and the second was a semi-scale Skyraider published in the October, 1977 issue. Although the diameter of the fuselages were different, the technique was basically identical. I won't go into such great detail here as in the previous two articles as it will only be repetitive. However, I will outline the basics just in case it's new to you.

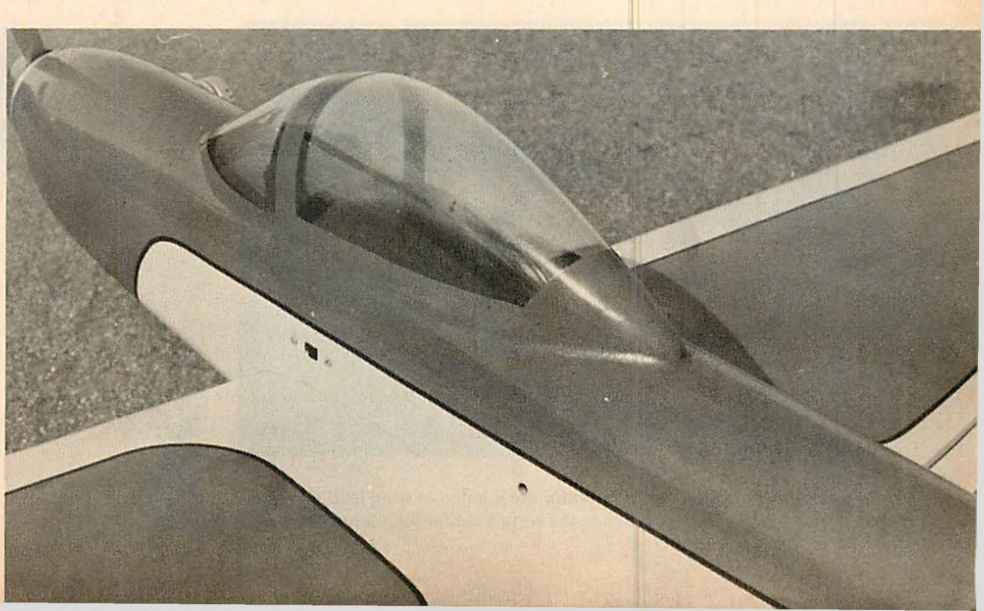
Cut out three of the "U" shaped fuselage fixtures and glue them on to a flat piece of plywood. Line them up well and place them where F-1, F-2 and F-3 will go. Leave enough room between the ones for F-2 and F-3 so that with the fuselage in the fixture you can still get the wing into its saddle. Make up the plywood fuselage skin using a good grade of epoxy for all of your joints. Wet the outside of the skin, fold it and push it into the fuselage fixture. Epoxy in F-1, F-2 and

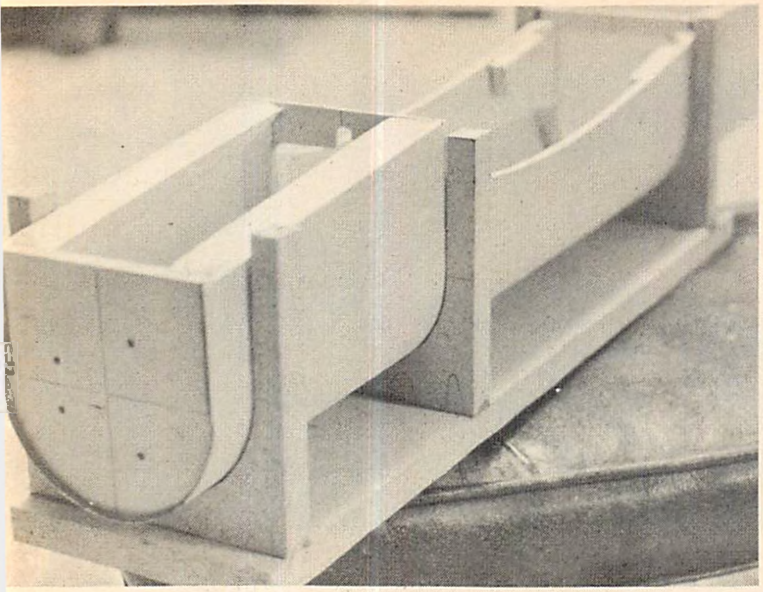


PHOTOGRAPHY: DAN REISS

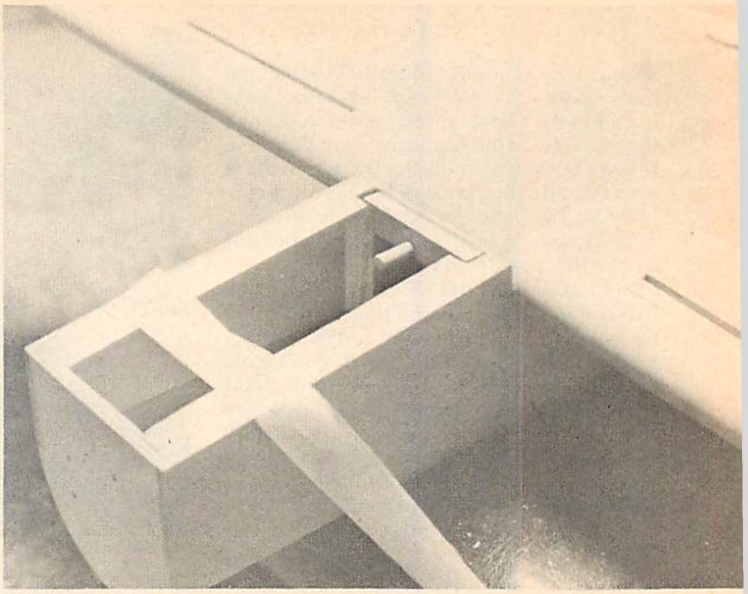


F-3. Make sure that the wing seats well into the wing saddle before the epoxy cures. When cured, epoxy the tail section together. When that's cured, you're basically done with the fuselage. Balsa blocks are used in front of the firewall, carved to a shape to conform to the spinner. When access is no longer required, the bottom of the fuselage can be glued on. Bolt the wing and the fuselage together. Put the assembly on a large flat surface and block it up until the wing lays absolutely horizontal and with no angle of incidence referenced to the table top. Mark the location of the horizontal stab parallel to the table top on both sides of the fuselage and cut out a slot ¼" wide to accept the stab. Epoxy in the stab and the rest of the tail feathers. Microballoons and resin are used liberally around the empennage junction to the fuselage to yield a smooth contour. I

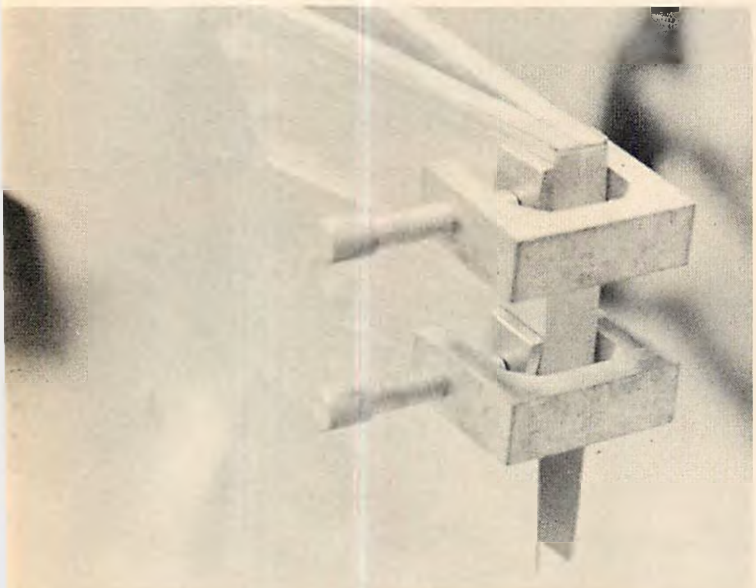




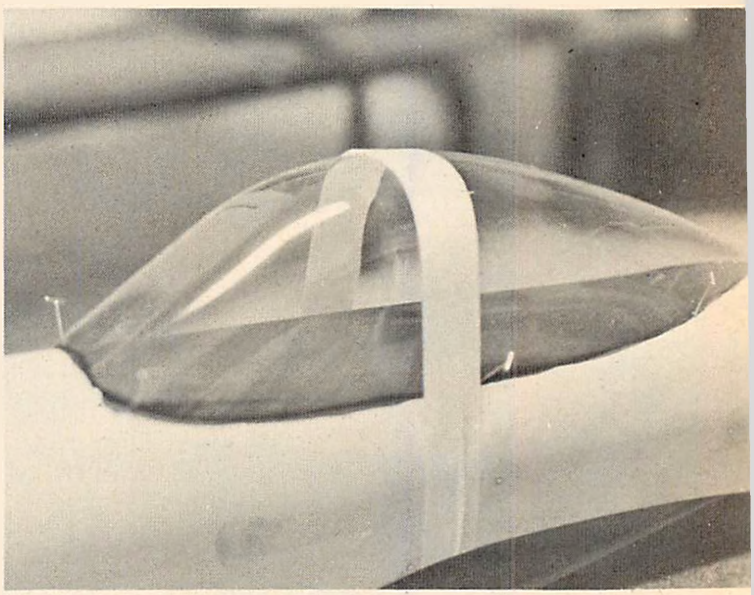
The fuselage is simply rolled out of a single sheet of 1/32" plywood, held in a rugged jig of flakeboard material from a lumber yard. Jig can build more.



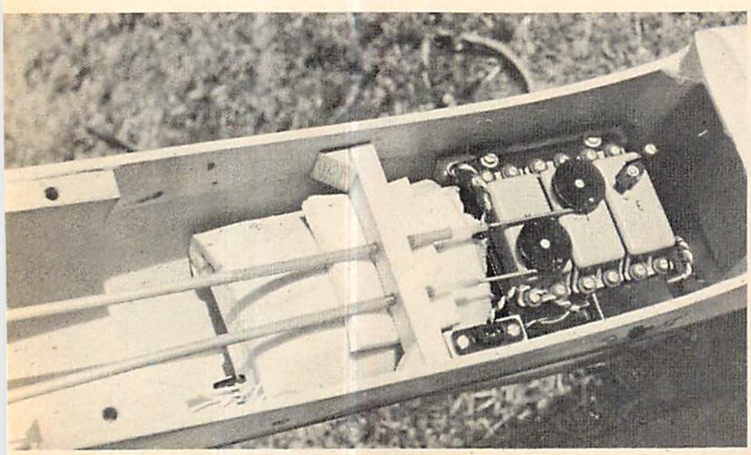
The wing hold-down details. Note the fiberglass cloth reinforcing wing joint and plywood plate discs reinforcing area beneath the nylon bolts.



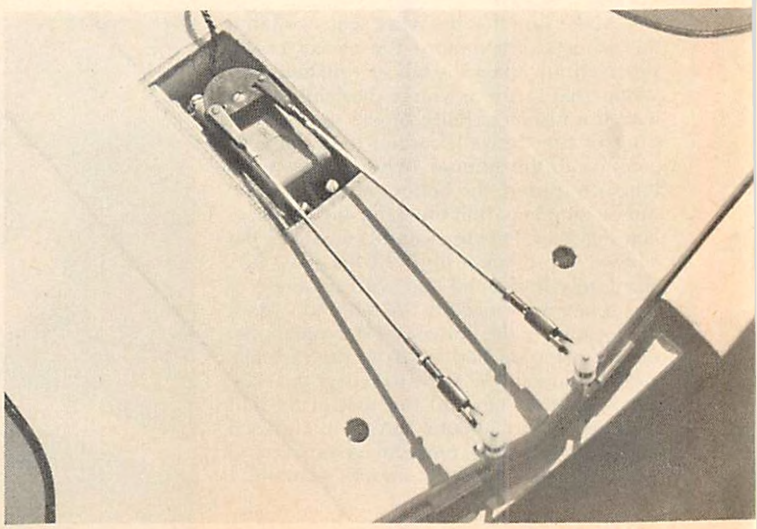
This shot explains the clamping of the fuselage sides together at rear. Note the use of the masking tape to prevent any clamp damage.

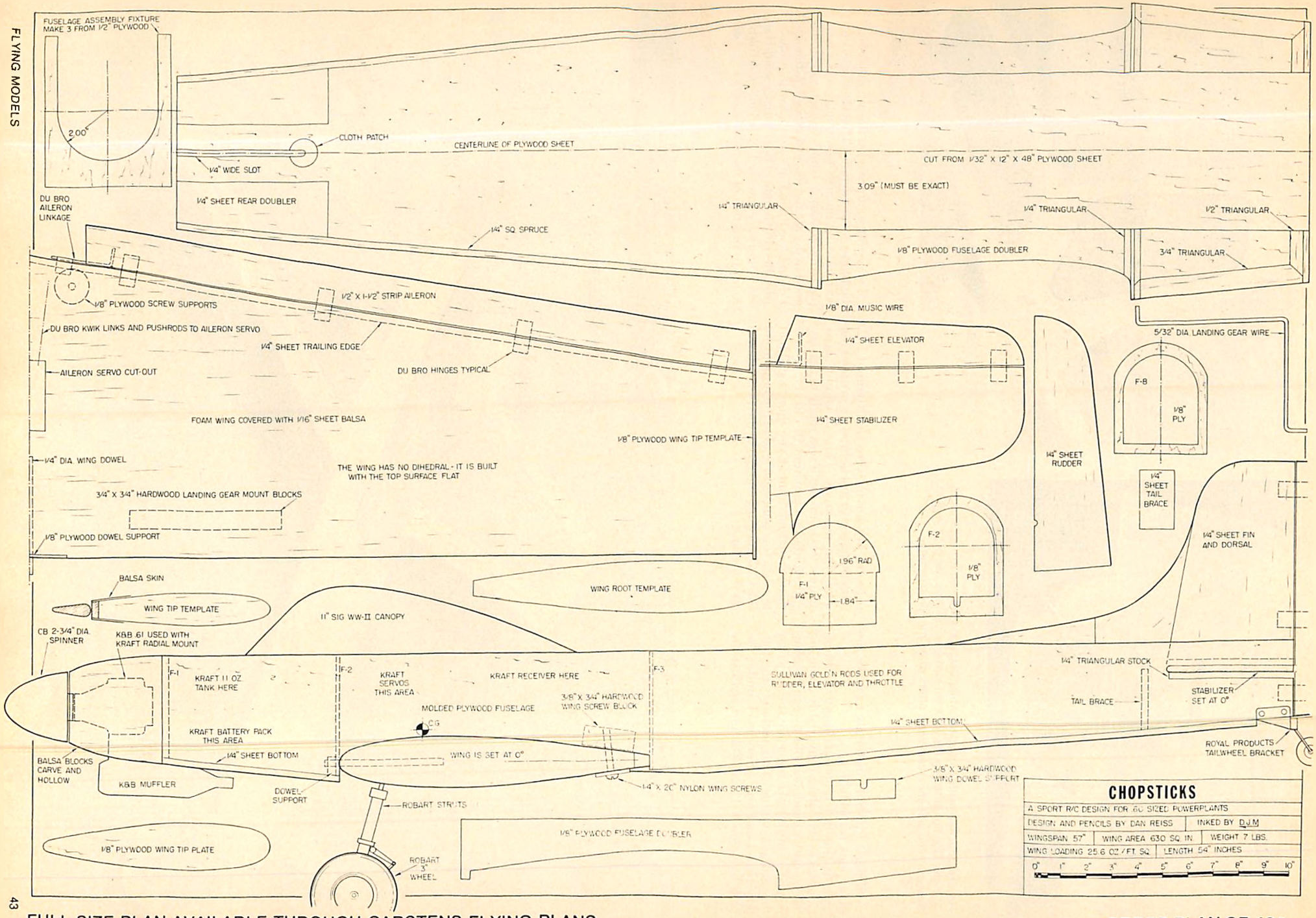


Here we see the big bubble canopy being carefully cemented in position. Trim it to meet the fuselage curvature. Fillets are added later.



KPS-15 servos for rudder, motor, elevator are located at wing leading edge. **Right:** Kraft KPS-15 servo mounted in the wing's center for aileron control.





CHOPSTICKS

A SPORT R/C DESIGN FOR .60 SIZED POWERPLANTS		
DESIGN AND PENCILS BY DAN REISS		INKED BY D.J.M
WINGSPAN 57"	WING AREA 630 SQ. IN.	WEIGHT 7 LBS.
WING LOADING 25.6 OZ./FT. SQ.	LENGTH 54" INCHES	

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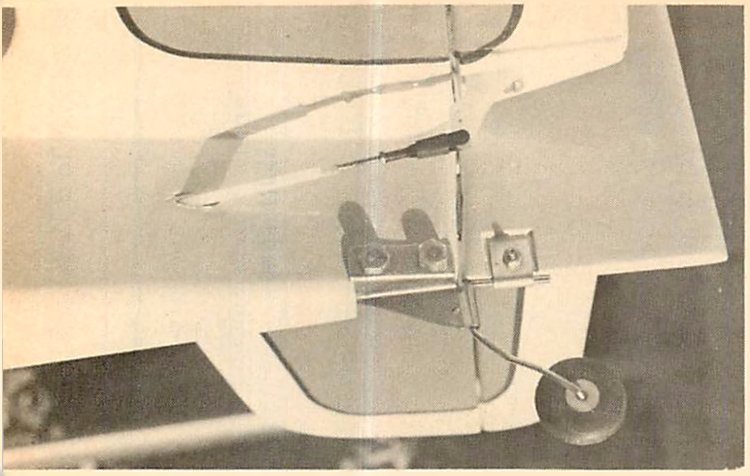
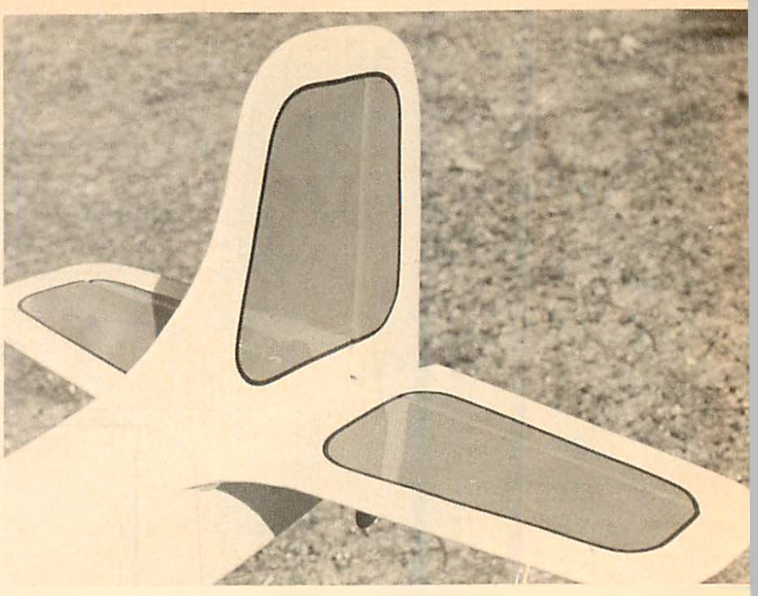


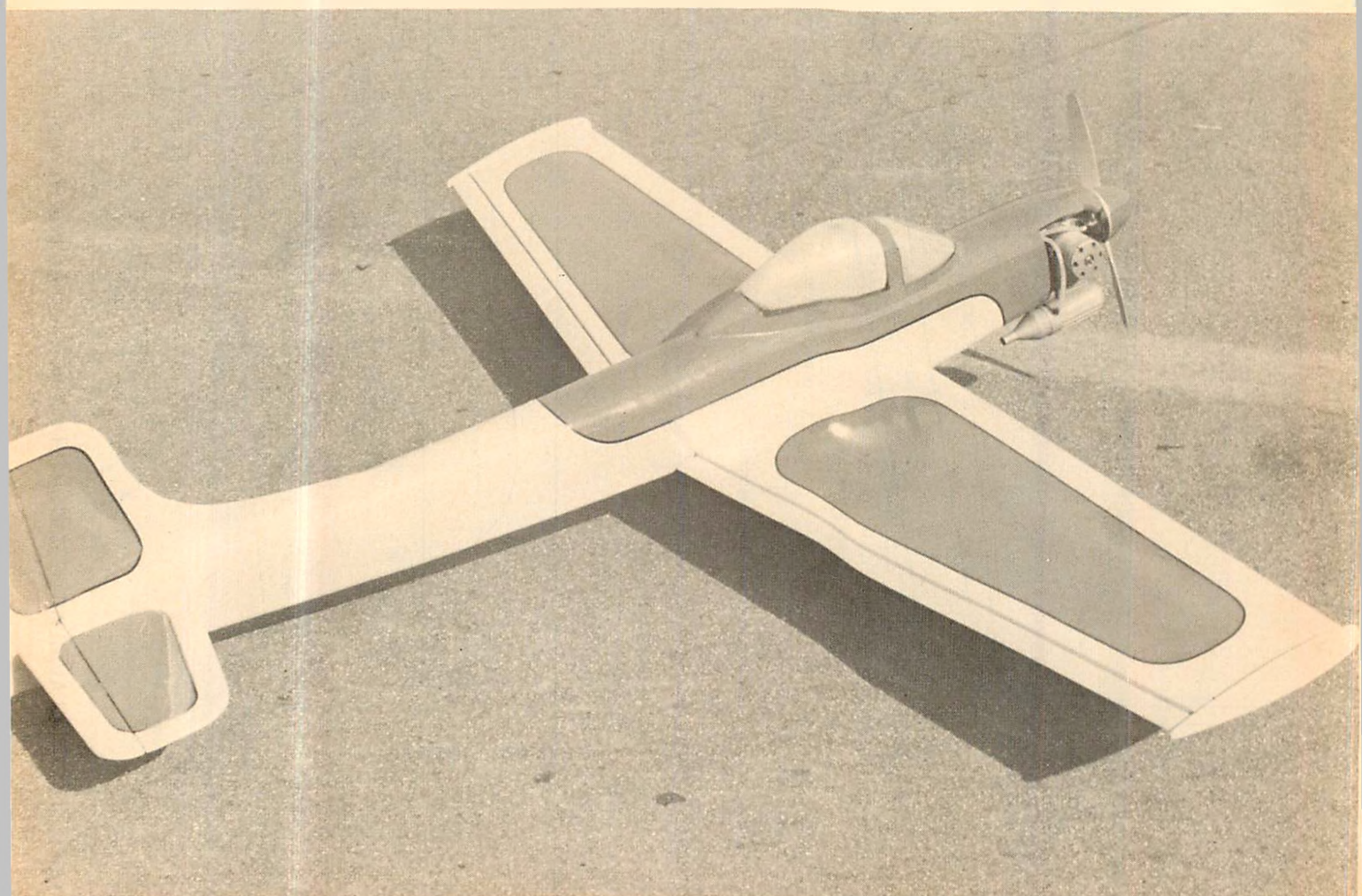


Royal produces a really rugged tail wheel bracket, stands up to hard knocks.
At right: Use lighter balsa for your tail surfaces, lessens the nose weight.
Beneath: The side mounted Veco offers good muffler clearance.

used K&B finishing materials to make the plane look respectable.

With the tail moment being so long, Chopsticks will almost invariably come out tail heavy. A good deal of this can be compensated for by placing your servos as far forward as possible. This includes the battery also. I had my battery pack under the tank between F-1 and F-2 and against the firewall. My servos were right behind F-2 with the receiver just behind them under (or over) the pushrods. This all might seem against the norm but it was really necessary and yielded no apparent ill effects. Everything functioned fine. Even then, I still had to add a few ounces of lead to the nose to get the C.G. forward enough to the point shown on the plans.

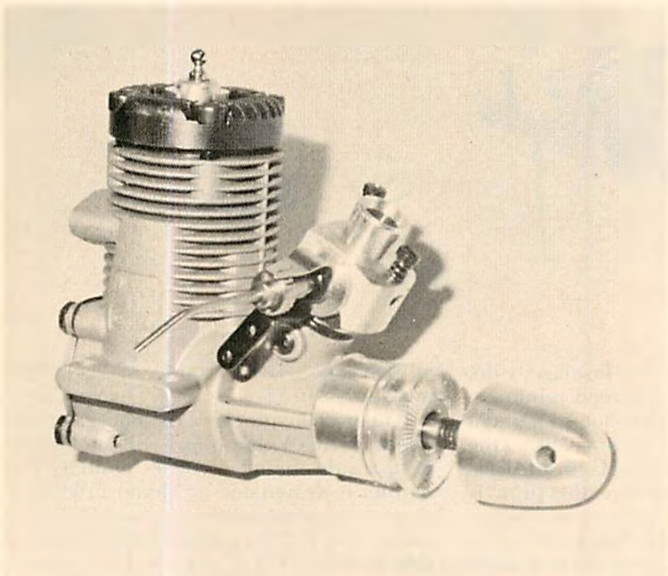
I was pretty surprised at the attention that the plane got at the field. That long fuselage was unusual enough to attract quite a few pleasing remarks. Chopsticks look pretty good in the air and flys just as well. Although I didn't use them I'm sure that with retracts installed the length of the fuselage would be even more accentuated. Now, if I could only learn to use two of them at once!

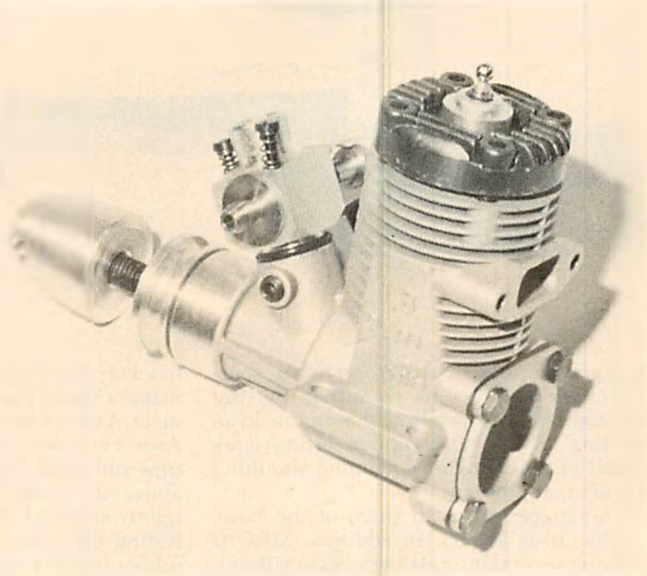


An FM Product Review:

MRC's Webra .10

Webra's new entry into the small engine field. Rear exhaust, Schneurle ported, with double ball bearings. Available with several muffler options and specially tuned pipe. A marine version is offered with a water cooling jacket and a built in prop reduction drive. High performance/**Bob Aberle**





PHOTOGRAPHY: BOB ABERLE

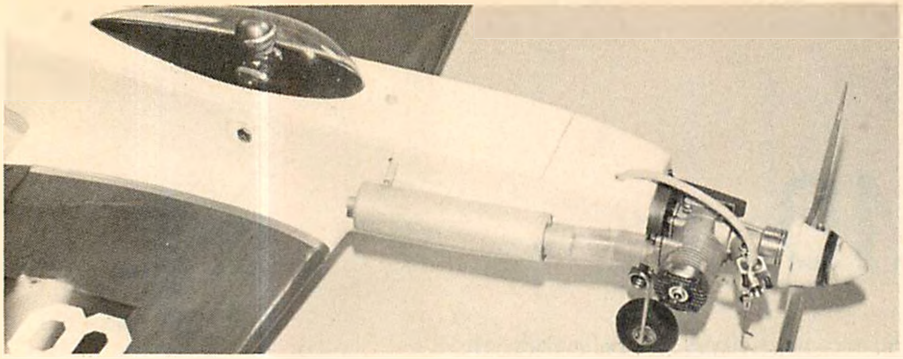
In recent years there has been two very significant trends in R/C modeling. One centers around the extremely large scale (sometimes called mammoth scale) models while the other concentrates on the little ½A's on the opposite end of the power spectrum. Engines in the ½A class have been limited, for the most part, to those manufactured by the Cox organization. R/C models powered by .049 engines have been the subject of many recent construction articles and kits as well. The House of Balsa Company, for example, has an ever expanding line of very fine ½A R/C Stand-Off Scale models.

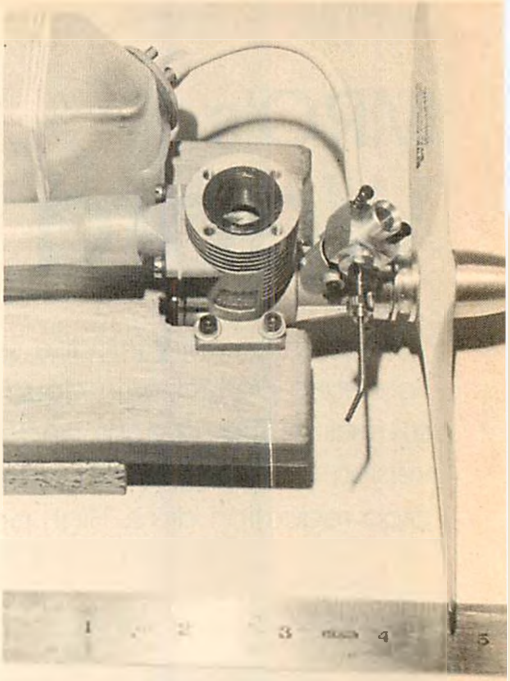
Unfortunately, there are still problems associated with the operation and performance of the ½A engines in general. They are still difficult to throttle on a reliable basis. A muffler is generally required to make the throttle work in an acceptable fashion. Unfortunately, muffler technology has not been perfected very much either. By the time you hook up a muffler, a carburetor and a throttle servo, the combination of power loss and extra weight makes for a very marginal flying model. From another standpoint R/C modelers have complained that the small size of some of the new micro servos makes radio installation quite difficult. What's more the tiny equipment is considerably more expensive. All of these problems may be pointing to a more reasonable alternative.

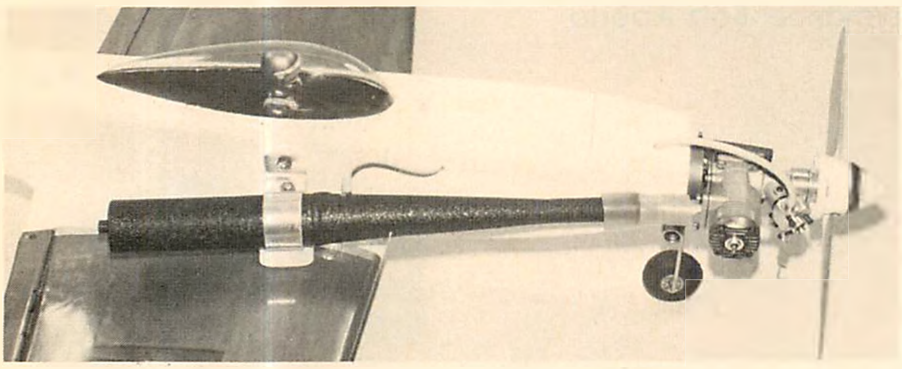
This past year we have seen some new interest in a slightly larger size model powered by the .09 or .10 cu. in. displacement engines. Several new .09's have recently been introduced. It is my understanding that House of Balsa will now include instructions for the use of .09 engines in some of their new kits. This would add some performance for those who desire a snappy flyer that is capable of taking off and landing rather than being hand launched. One of the top contenders, performance wise, in this class of "large" ½A engines, is the new MRC-Webra .10 (Model # 1008 Speedy R/C) which is imported from Germany by the Model Rectifier Corporation, 2500 Woodbridge Ave., Edison, New Jersey 08817. The MRC-Webra .10 has an exact displacement of .109 cu. in. One of these engines was made available to me recently by Mr. Frank Ritota, R/C Product Manager of MRC, for my review and comments.

It is definitely not my intention of doing a detailed evaluation of this engine such as we are accustomed to seeing Mr. Peter Chinn do regularly in Model Airplane News. Like most modelers I'm a dedicated Peter Chinn reader. I merely want to point out some facts about the Webra .10 and share some of my experiences in installing and using this engine in one of my recent R/C designs. The format of this article will be one of application rather than evaluation. If this approach interests you please write in and tell us so.

First of all the engine, by itself, is no light weight at 5.0 ounces. It is not small either, having an overall height of 2⅜" and a length of 2½" (plus the prop shaft and nut). For mounting purposes it will fit the Kraft KM-15 radial mount a little on the snug side. Crankcase width (or roughly beam mount spacing) is approximately 1". The biggest problem in mounting this Webra is the rear exhaust port. A small exhaust manifold measuring 1" long × ½" O.D. must be mounted to the port to enable connection of either the straight muffler or the tuned pipe. Unfortunately, the lower portion of this manifold will not quite clear the Kraft mount. You will probably have to remove some of the material from the top of the mount to get the necessary clearance. In my case I still didn't quite clear the fuselage







For photo Bob mounted muffler with double-sided tape. Small aluminum bracket must be fabricated to hard mount the muffler to fuselage side. Silicone tubing limits heat conduction and isolates the vibration. **Right:** Detail of special cylinder head. An alternate head is available but power will be lost from the top end. See text for details. **Below:** 11" tuned pipe mounted on Bob's ship. Pressure line runs through fuselage to fitting on pipe. Weight is 7.6 ounces, balance isn't adversely affected, mostly over C.G.

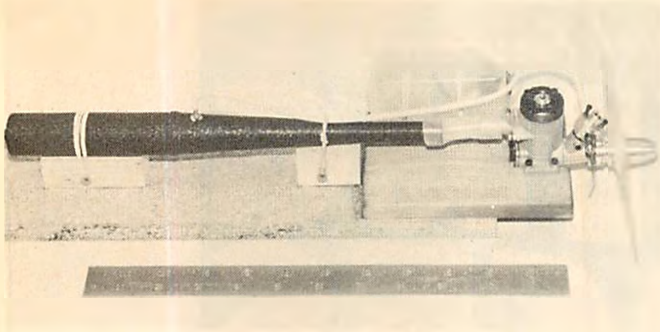
side and therefore had to resort to 3/32" spacers under each engine mounting lug. But remember, I was installing this engine in an existing model. With proper design work ahead of time, engine mounting shouldn't be any real problem.

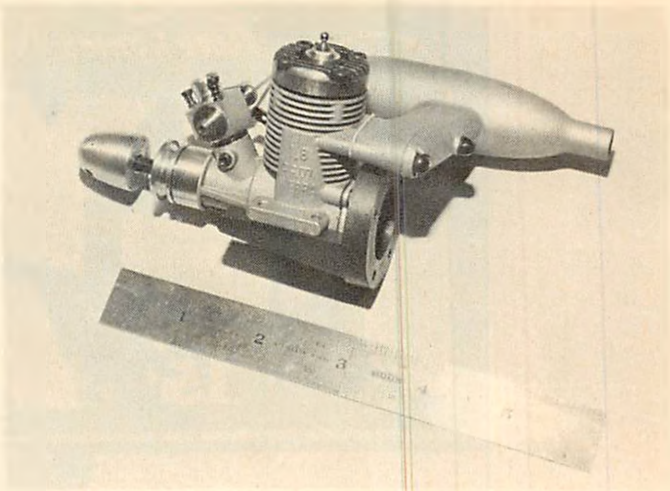
The suggested retail price of the basic Webra .10 is $89.95. In addition, MRC is offering several interesting accessory items. The first of which is a tuned pipe (Model 1100/S) which lists for $43.00. It is of aluminum construction measuring 11" in length, with a maximum diameter of 1⅛". Weight of this pipe is 2.4 ounces. The pipe itself has a black wrinkle finish which keeps the exhaust air warm inside the pipe chamber. A pressure fitting is located approximately half way up the length of the pipe. As you can see in the photographs, this unusual pressure tap location requires a rather long tubing (hose) connection back to the fuel tank. In most cases it will be necessary to route this line inside the fuselage rather than having it flap around out in the slipstream. The pipe is connected to the manifold with a 2" length of ⅜" I.D. silcone rubber tubing. This tubing acts as a vibration isolator to a degree. It's main purpose is to prevent engine heat from transferring back to the pipe. The pipe, as a result, never really does get that hot in actual use. As is typically the case with imported engines there are virtually no instructions supplied. This being my first attempt with a tuned pipe I was disappointed about the lack of information. Without directions the most logical thing to do was to bend up a small mounting bracket out of 1/16" thick aluminum (1" width). A screw on one end was used to tighten the bracket around the pipe (just aft of the pressure fitting). The other end of the bracket was bolted to the fuselage side, using a small piece of plywood reinforcement. As you can see in the photos I found it easiest to side mount the engine, letting the pipe run along the right fuselage side, just above the wing. Make sure the pipe is tightly mounted. At one point in my engine testing the pipe actually "blew off". The rubber bands I was using on the test stand must have slipped. The resulting sound, without a muffler, was terribly frightening. Had this happened in the air I would have assumed that the engine had thrown a prop. Total weight of the engine, manifold and tuned pipe is 7.6 ounces.

Another accessory is the Model 1100/11 silencer or straight type muffler. It is actually a straight cylinder in appearance measuring 4" long × 1" diameter. Weight is 1.1 ounces. Like the tuned pipe, this muffler must also be connected to the rear exhaust manifold by the clear silicone tubing. Again no mounting instructions were provided. A small metal bracket must be fabricated for this purpose by the modeler. This particular muffler might be the best choice for scale model applications since the exhaust outlet at the back end of the muffler could be directed out the fuselage side using another length of silicone rubber tubing (smaller diameter in this case). No pressure tap is provided with this muffler. The very brief Webra instructions mention that the U/control version of this engine (standard carburetor) must be run on pressure at all times. MRC will be offering a special pressure tap which replaces one of the top, rear crankcase bolts. This provides a quick and convenient pressure connection. My experience with the R/C version (variable speed carburetor) indicates that pressure really isn't necessary. List price of this 1100/11 muffler is $16.25.

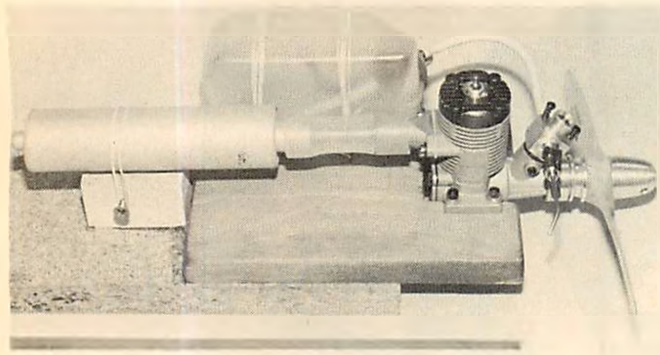
If neither the pipe or the silencer suit your needs, MRC-Webra offers still another option, a side mount or offset muffler. This muffler is designated as Model 1100/SP. It projects approximately ¾" away from the engine and is 3¾" in total length. Weight of this muffler is 1.8 ounces. List price is $14.75. In this application the manifold is not required since the muffler mounts directly to the rear exhaust port of the engine. Total weight of the engine plus this particular muffler is 7.2 ounces. Again a pressure tap was not provided but is considered essential when using the controline version (standard carb). By the way, this offset muffler is perfectly symmetrical. As such it can be mounted on either side of the cylinder. On one side, however, it does get in the way of the needle valve, making it difficult to adjust while the engine is running. At any rate the mounting option is yours. A very clever design!

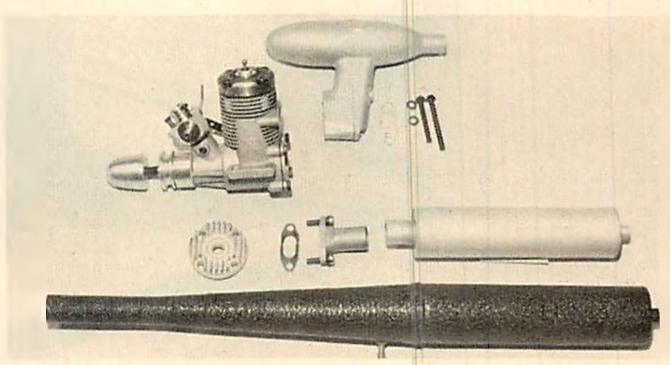
Another item of interest is the cylinder head supplied with the engine. It is set up to receive a special Webra glow head which lists for $3.50. To remove this plug you must first unscrew four Allen head bolts and remove the head itself. This can be very time consuming when you have a flooded engine and you want to clear it. An alternate cylinder head can be obtained which will permit the use of standard glow plugs. When using this alternate glow head and a Fox idle bar (long) plug I did obtain r.p.m. readings typically 500 to 700 less than with the special head and the Webra glow plug. At the suggestion of MRC's Fred Fischer, I did try the Fox idle bar (long) plug *without* the normal glow plug gasket. Surprisingly this





Test stand for tuned pipe. 11" long, weighs 2.4 ounces. Note need for a long pressure line. **Right, top:** View of offset muffler mounted in position. Kraft KM-15 radial mount shown in photo. In some cases you may have to space the engine off the mount for rear port clearance. **Below right:** Basic Webra items include two types of mufflers, tuned pipe, alternate head. **Beneath:** Straight muffler 4" long, silicone rubber connector.





improved the performance somewhat. Then I substituted a standard long reach Fox glow plug (without an idle bar) and again I didn't use a gasket. This combination produced a top r.p.m. figure only slightly less than was obtained with the special Webra head. The only problem, as might be expected, was that the idle was no longer reliable. At the moment, therefore, the special Webra glow head is still the best performer. Since this head is normally not stocked in local hobby shops you would be wise to order a few spares from MRC to have handy.

About the engine idle. Using the special Webra glow head (which does not have an idle bar) I was able to get a reliable idle around 3800 r.p.m. which isn't too bad on a new engine. With a little adjusting of the carburetor I'm sure I can improve upon this figure. To get a really low idle it may be necessary eventually to go to an on-board battery. An extra C size nickel-cadmium cell wouldn't add that much weight to the model. One thing for sure, I got positive and immediate response when going from dead idle to full power, without any delay or hesitation.

For those interested I will mention some initial performance data. The Webra specifications indicate a potential of .38 h.p. at 19,000 r.p.m. and .52 h.p. at 22,000 r.p.m. These specs did not mention prop size or fuel content. I suspect also that these would be the speeds expected in the air, not on the ground. I only ran up my engine for approximately 15 minutes, using Fox Superfuel (5% nitro and 29% oil) prior to taking initial test data. During this break in period I used a 7-4 prop cut down to 6-4 as recommended to me by George Aldrich. This allows the engine to obtain a substantial speed which is essential for a good, fast, break in. Run the engine rich and only for short periods.

After this I switched to Aldrich 15% nitro fuel for the remainder of my test runs. All r.p.m. readings were taken with a Royal Electronics Pro-Tach. Using the tuned pipe on pressure I got the following readings: Power Prop 7-4 (cut down to 6-4) 16,100 r.p.m., Power Prop (Super-M) 7-4½ 14,500 r.p.m. Power Prop 7-4 (full size) 15,200 r.p.m. This last prop was also tached at 14,600 r.p.m. using the 5% nitro fuel. The increase in nitro content added approximately 600 r.p.m. in this case. With additional break in time I expect to go up to 25% nitro fuel with hopefully even more increase in r.p.m. Quite honestly I didn't feel that my particular pipe was really tuned at this point. Without any instructions I'm still trying to teach myself. The sound isn't exactly what I had expected leading me to believe that I still must experiment with the length of the pipe to get truly peak performance. My initial test data supports this comment since I was able to get almost comparable readings without the pipe. For a starter the silicone rubber connecting tube should be cut in length (approximately $^{3}/_{16}$" at a time) until no further increase in r.p.m. is obtained. At that point the pipe should be in tune for that particular prop and fuel combination.

On the straight muffler a Power Prop 7-4 turned up 14,400 r.p.m. Using the side mounted offset muffler the same prop turned 14,100 r.p.m. For those who wish to experiment I think a good prop might be a 6½-4 or possibly a 6½-4½ (cut down from a 7-4½ Power Prop Super-M). This engine has to be allowed to turn up for best performance. Don't load it down with a full size 7 or 8 inch prop.

In the form of some general comments I did find the needle valve difficult to adjust. The wire extension at the end of the valve is bent at an odd angle, making it difficult to grasp properly. I kept getting the feeling that my fingers were going to slip into the prop while making adjustments. To correct this I clipped off half the wire, slipped a piece of brass tubing over the remaining piece of wire and then silver soldered a hex nut to the end. The hex nut provided a much better grip. I also found that the throttle required considerable servo travel to provide a full speed range. Rack gear (linear output) servos will not work too well throttling this particular engine. You can improve this situation somewhat by rebending the throttle arm carefully. In my particular case the Kraft Signature transmitter came to my rescue with the special control throw adjustments.

The MRC-Webra .10 engine is still a most remarkable little powerplant considering it's size. It has to be the top engine in it's class, at the present time, intended for the most discriminating of modelers. For tuned pipe applications new model designs and new kits will have to engineered around the physical size of this engine. Adding on to an existing design, as I did, can be difficult. The pipe could easily be streamlined into the fuselage structure. For scale or sport flying the straight or offset mufflers would offer a better choice for general installation. And don't overlook the new marine version of this engine. Hopefully, FLYING MODELS, Bob Staat, will be doing a separate Dry Dock Review on this engine for our boating section. Write to MRC should you have any difficulty in locating one of these highly specialized engines.

1928·1978
flying models
50
CARSTENS PUBLICATIONS
FLYING ACES

Ben Shereshaw was one of the more prolific writers and designers for FLYING ACES magazine. Ben not only designed "gas jobs" with fine plans and winning flying characteristics, he also wrote many articles on the state of the art of the time and even some on radio control. Through the years Ben has been involved in twin cylinder engine design and many other aspects of our hobby. He is still active and lives in New Jersey. This months FLYING ACES reprint is one of his designs, the Cadet, a cabin model with an 87½-inch wingspan. It qualifies for Antique competition under SAM rules and looks like a good, sturdy ship that'll take a lot of hard competition flying. It's from the September 1938 issue of FLYING ACES.

FLYING ACES was not only a modeling magazine, as pointed out by the cover story in this issue (above.) "Let's stop killing air travelers!" is an article dealing with the question of why the airlines didn't provide parachutes to the passengers.

There is also a news story in this issue that quotes Dr. Hugo Eckener, German Zeppelin expert, as saying, "I can't see why the United States won't let us have helium. After all, in fifty years there won't be any dirigibles—and then what will they do with the stuff?" He had raised the money after the Hindenburg disaster to build the L.Z.130 and had tried his best to justify the expense by planning the use of helium.

The FLYING MODELS Old Timer Fly-In was such a resounding success that we plan to do it next year at the same place. We will keep you posted as to the date.

Fly This

Gas-Powered "Cadet"

By Ben Shereshaw

THE *CADET*, a cabin gas model of 87½" wingspan has been designed for FLYING ACES' readers as an intermediate step toward a larger and more intricate gas job. Many of the structural and aerodynamic features of the *Cadet* are conventional, and due to this simplicity the craft is easily constructed and will prove a reliable performer both in fair and gusty weather.

The original model was built from my plans by Dick Hergenrother, of Hillside, New Jersey. Up to the time of writing, it has made about sixty flights each averaging about ninety seconds' duration. The ship has survived a few minor crackups, and is still flying. She gave a creditable performance at the recent Eastern States Contest at Seversky Field, Long Island, New York.

BUILDING THE FUSELAGE

OUR first step is to select a flat work board upon which to construct the jigs for the fuselage sides and also for assembling the job. We must then scale up all of our necessary structural drawings—using an architect's scale—to full size. The side elevation of the fuselage (Plate 1) is laid out to full size on the board, and small blocks of hardwood are nailed around the outline and on both sides of the longerons and cross-members.

We now select our 3/8" sq. balsa for the longerons. Be sure that all of the four strips possess uniform grain and bending characteristics. The wood may be of medium grade, a shade on the hard side. The longerons can now be laid in the jig, and all of the fuselage and cross-diagonal braces cut to size. In cutting the cross-members, be careful not to force them in place between the longerons. Instead, cut them so they just fall into place with the slightest pressure.

After the insertion of the members, the first coat of a good grade of gas model cement is applied to them. After this has been allowed to dry for about one hour, the final coat of cement is applied in such a manner as to form a glue gusset between the longerons and members.

Note carefully the diagonal braces running parallel to each other on Bay No. 3 for shock strut accommodation. These members are made of 3/16" by 3/8" hardwood. The same procedure is followed in laying out and constructing the second fuselage side. After the sides are fully completed, they can be assembled. Start by binding together the stern posts of each side and the 1/8" diameter music wire tail skid.

The cross-members across the cabin should then be cemented in place. Note that at the cabin portion of the fuselage there are three separate longerons. All three are connected with 3/8" sq. cross-members.

Once this is accomplished, quick progress can be made by inserting the cross-members between the cabin and stern post. While inserting the cross-members, keep checking the alignment of the fuselage with a set of architect's triangles. The last step in this assembly is accomplished by pulling the nose of the fuselage together to its proper width and keeping it there until the cement has firmly taken hold.

As a brief summation, keep in mind the important notes up to this step—the long diagonal brace in Bay No. 1 with a two-piece diagonal intersecting it; the three longerons about the cabin; and the double diagonal shock brace.

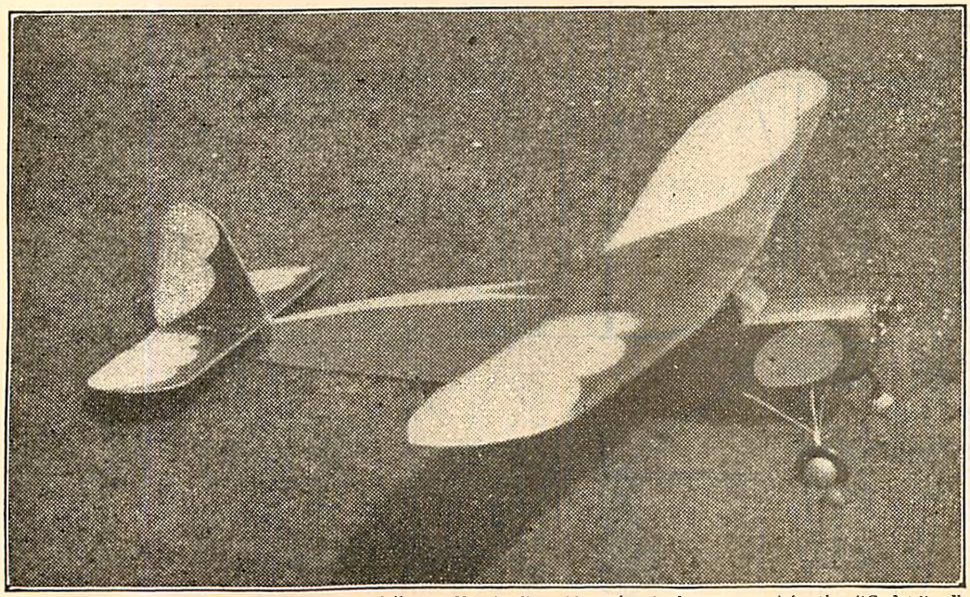
NOW the longerons can be planed or sanded to a radius, and the cutting of the internal motor mount bulkheads (see detail sketch on Plate 2) can be accomplished. The cross-section of the fuselage is obtained at Cross-sections Nos. 1, 2, and 3, and the internal bulkheads are then cut to size. These are laminated of two 1/8" balsa sheets with the grain of the two sheets running at right angles to each other.

The motor mount sockets are of ½" by 7/8" stock. They are cut into the interal bulkheads. On section No. 2, the internal bulkhead does not extend below the line marked A-A. This forms a small tunnel which allows the windstream to pass through to the screened outlet. The motor mount of basswood is cemented in place through the ½" by 7/8" holes on the internal bulkheads.

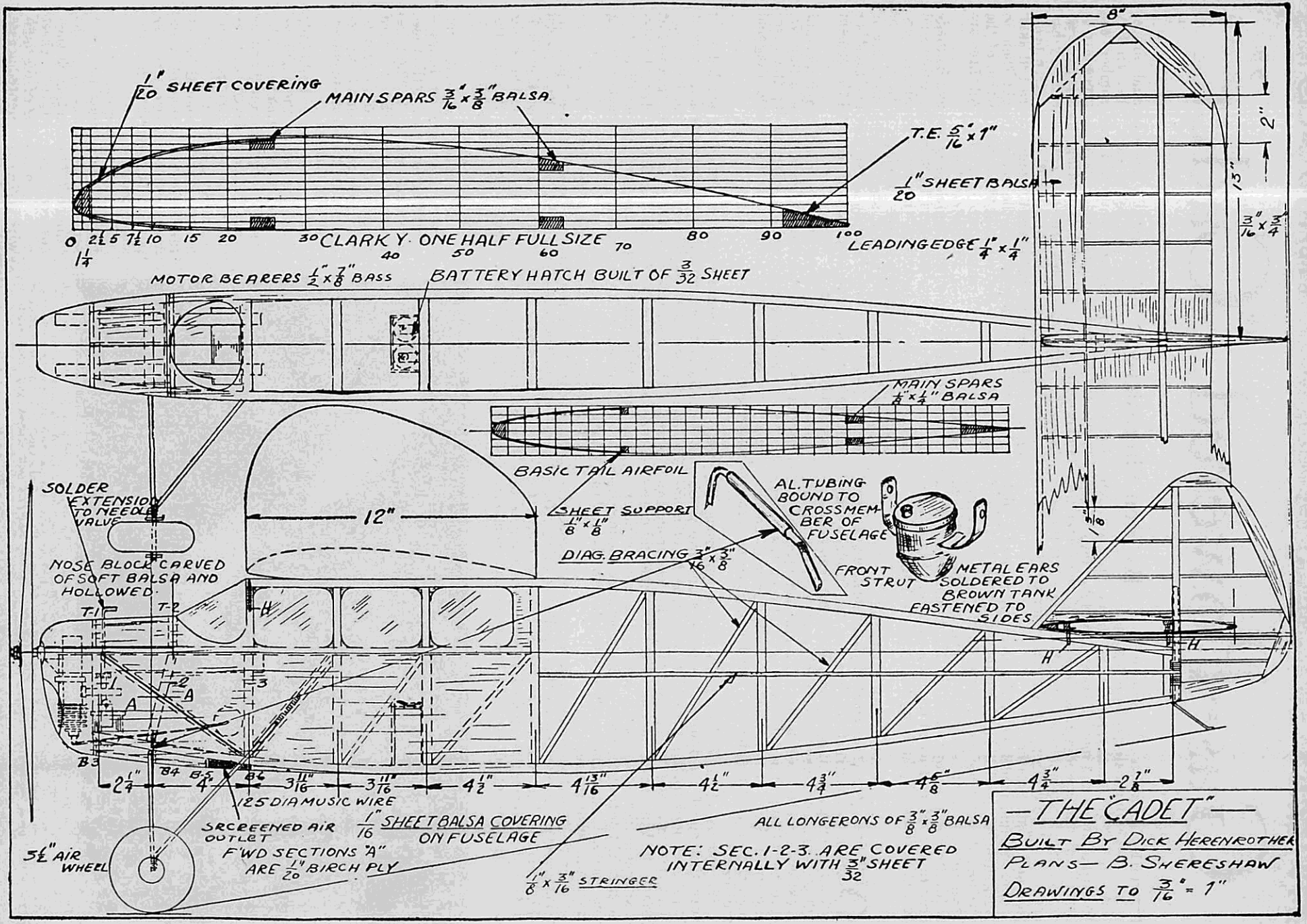
The landing gear tube—of either aluminum or brass—should be attached to the fuselage at section No. 2. The tube, which secures the forward portion of the landing gear to the fuselage, is bound and cemented to the cross-members with No. 6 thread.

Now the nose bulkheads should be cut, notched, and cemented to the fuselage. The stringer positions on the bulkheads should be layed out relative to the basic stringer locations. Two of the T-2 bulkheads (Plate 2) should be cut for the construction of a removable hatch. The entire nose portion is covered with 1/16" sheet balsa.

The lower portion of the fairing accommodates the screened air outlet from the "tunnel." This section is then covered with 1/16" sheet balsa, and a piece of 80-mesh wire screen is cemented across



Ta-rum-ta-ra! Atten—SHUN! Yes sir, fellows. Here's Ben Shereshaw's latest gas job, the "Cadet," all slicked up and polished like a West Pointer on parade. And just like those Army lads up the Hudson River, this consistent "Cadet" is able to perform as well as pose. For in more than sixty consecutive flights, never once did its time fall below ninety seconds on a thirty-second engine run. Dick Hergenrother built this original model from Ben's plans, and he tells us that he's well pleased with the results of his handiwork.

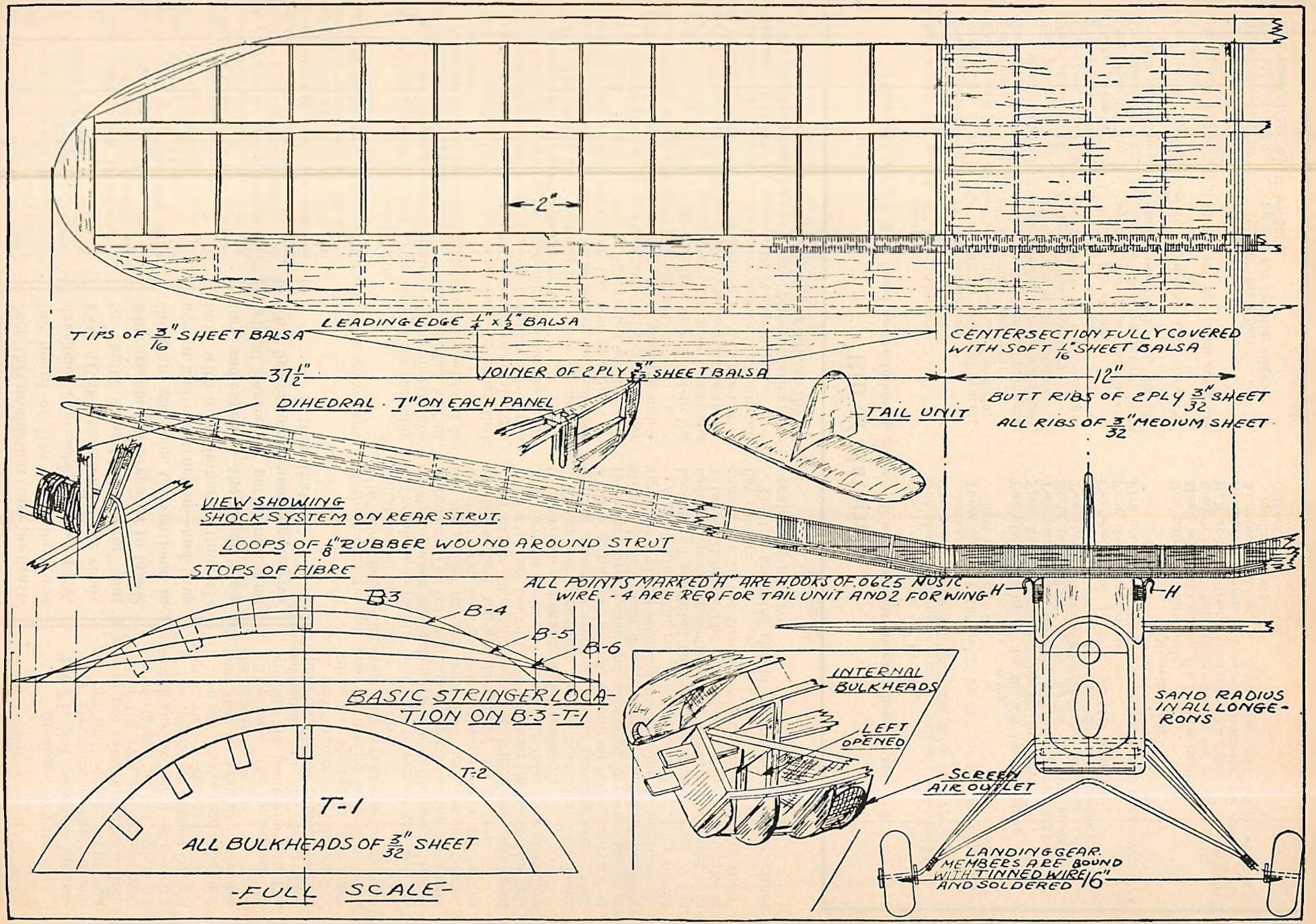


—THE "CADET"—

BUILT BY DICK HERENROTHER

PLANS— B. SHERESHAW

DRAWINGS TO 3/16" = 1"


2"
TIPS OF 3/16" SHEET BALSA
LEADING EDGE 1/4" x 1/2" BALSA
CENTERSECTION FULLY COVERED WITH SOFT 1/16" SHEET BALSA
37 1/2"
JOINER OF 2 PLY 3/32" SHEET BALSA
12"
BUTT RIBS OF 2 PLY 3/32" SHEET
ALL RIBS OF 3/32" MEDIUM SHEET
DIHEDRAL · 1" ON EACH PANEL
TAIL UNIT
VIEW SHOWING SHOCK SYSTEM ON REAR STRUT.
LOOPS OF 1/8" RUBBER WOUND AROUND STRUT
STOPS OF FIBRE
ALL POINTS MARKED "H" ARE HOOKS OF .0625 NOSIC WIRE - 4 ARE REQ FOR TAIL UNIT AND 2 FOR WING
H
H
B3
B-4
B-5
B-6
BASIC STRINGER LOCATION ON B-3 - T-1
INTERNAL BULKHEADS
LEFT OPENED
SCREEN AIR OUTLET
SAND RADIUS IN ALL LONGERONS
T-2
T-1
ALL BULKHEADS OF 3/32" SHEET
LANDING GEAR MEMBERS ARE BOUND WITH TINNED WIRE AND SOLDERED 1/16"
-FULL SCALE-

the bottom between bulkheads B5 and B6. The covering of the fuselage should now be completed with balsa, with the exception of the portion marked A, where 1/16" birch plywood is substituted.

The battery box is merely a simple chamber built from 3/32" sheet balsa on the floor of the cabin. The batteries are thus easily accessible whenever the wing is dis-assembled from the ship.

Our next step in the completion of the fuselage is to bind the wing hooks to the fuselage uprights. And before leaving the fuselage, a hardwood stop should be cemented in place between the shock diagonals in a position to allow the rear strut of the landing gear about two inches of up-and-down movement.

Spanning slightly more than seven feet, this production from the drafting board of Ben Shereshaw was developed expressly for those FLYING ACES readers who are ready to "build something bigger" but who are not yet prepared to tackle the giant gas jobs. Conventional in design and construction—and thus built with a minimum of time, effort, and expense—the "Cadet" is a typical Shereshaw performer. And what better compliment can we give it than that?

Landing Gear

ATTENTION should now be focused on the assembly of the landing gear. Because of the metal tube anchorage of the front strut, it is obvious that half of the forming of the member must take place while it is in the tube.

While bending the music wire, keep in mind that sharp or extreme bends are apt to encourage crystallization—and consequent weakness—of the material. A full sized layout of the landing gear members should be made before any of the bending is attempted.

After the struts have been shaped, they should be bound together with tinned wire, as shown, and soldered with half lead and half tin solder. Use acid as a flux.

The shock system is clearly illustrated on Plate 2. In the detail sketch, note the coils of ⅛" flat rubber wound about the landing gear member and the cross-brace. About fifteen loops are required.

And now we return to the fuselage and complete the nose end of the ship by carving out the nose blocks and the cowl. The cowl should be first cut to its outside shape, and then hollowed to a wall thickness of ⅛". The entire top portion of the nose is made removable for motor adjustments. It is held in place with rubber bands.

Cut a generous opening in the cowl for ventilation. The cowl should be cemented in place only lightly, so that it may be detached easily in case of motor trouble.

Rudder and Tail

WE next undertake the construction of the horizontal tail and rudder. Note that these are constructed as a unit. All of the ribs are scaled from the basic tail airfoil (Plate 1) to full size. A full sized drawing of the empennage should be laid out on your workboard.

And now you're ready to select your spar material and assemble the rudder.

Duplicate the procedure in building the horizontal tail. The horizontal tail and the rudder spars should be bound together at their points of intersection. The entire section of the rudder at the horizontal tail juncture should be covered with 1/16" sheet balsa. The same step is taken with the horizontal tail at the rudder juncture.

The above covering allows us to cement the unit securely together by forming a fillet with several layers of cement. The trailing edges and tips of the horizontal tail and rudder are cut from 3/16" medium sheet balsa, the sheet balsa leading edge on the horizontal tail is then applied to both top and bottom of the surface.

All of the four tail hooks, H, which are bent from .0625 wire, are bound to the spars on the horizontal tail. The forward hooks are bound to a false spar extending to one rib on either side of the center rib.

The rudder is next cut away at point A and the lower portion cemented securely to the fuselage stern post. At this point, the ¼" o.d. aluminum tubes indicated in the spars are bound and cemented between the spar strips. A ¼" birch dowel is next sanded to fit. This serves as a pin in securing the tail unit to the fuselage.

A duplicate of the rib at point A in the rudder should be cut and cemented to the removable section of the rudder. The entire section above Point A is covered with 1/16" sheet balsa. The four hooks are used to attach the empennage to the fuselage with four strands of 3/16" flat rubber.

The tail assembly should possess no incidence, either negative or positive.

Bill of Materials

Complete plans will be found on the following pages—all wood is balsa, unless otherwise specified.

Fuselage

Two pieces ⅜" sq. by 48" for longerons;
Two pieces ⅜" sq. by 40" for longerons;
Two pieces ⅜" sq. by 18" for longerons;
Five pieces 3/16" by ⅜" by 36" for diagonal braces;
Four pieces 3/16" by ⅜" scrap hardwood, for ditto;
Four pieces ⅜" sq. by 36" for cross-members;
Two sheets of 3/32" by 3" by 36" for internal bulkheads —additional stock of same size for regular bulkheads;
Two pieces ½" by ⅞" by 8½" for motor mounts;
Four sheets 1/16" by 3" by 36" for covering;
One sheet 1/16" by 6" by 12" birch ply for covering;
Three sheets bamboo paper for covering;
Three pieces ⅛" by ¼" by 36" for stringers;
One piece 1⅛" by 2¼" by 3½" for upper cowl block;
One piece 2½" by 3½" by 4½" for lower cowl block (this should be split to make two blocks 2½" by 1¾" by 4½" for hollowing-out);
One piece copper screen, 80-mesh, 1¾" by 4½" for air vent;
One piece .015 celluloid 6" by 12" for cabin enclosure.

Tail Assembly

Three sheets 1/16" by 3" by 36" for ribs;
One piece 3/16" by ¾" by 24" for trailing edge;
One sheet 3/16" by 3" by 36";
One piece ¼" by ¼" by 36";
One piece .0625 music wire for tail and wing hooks;
One piece ¼" by ⅜" by 8" for false spar for elevator hooks;
Three sheets 1/16" by 3" by 36" for leading edge and sheet covering.

Wing

Two pieces ¼" by ½" by 48" for leading edge;
Five sheets 3/32" by 3" by 32" for ribs;
Two pieces 5/16" by 1" by 48" for trailing edge;
Eight pieces 3/16" by ⅜" by 48" for wing spars;
Two sheets 3/32" by 2" by 36" for joiners;
Two sheets 1/16" by 2" by 36" for spar boxing;
One sheet 3/16" by 3" by 36" for wing tips;
Four sheets bamboo tissue;
Five sheets 1/16" by 3" by 36" for leading edge covering.

Miscellaneous

One pair 3½" airwheels;
Music wire, .125 diam., for landing gear;
Length of ⅛" flat brown rubber, for landing gear;
Half-and-half lead-tin solder, with flux;
Aluminum tubing, ¼" outside diameter, for rudder fin;
Aluminum tubing, ⅛" inside diameter, anchorage for landing strut;
Cement, etc.

OUR WING is constructed in three sections; namely, the two outer panels and the center-section. The center-section is our first step. The required ribs for this structure are scaled to full size from Plate 1 and are cut from medium 3/32" sheet balsa.

Over a full scale drawing of the center-section, lay your lower spars at the proper locations. After notching the ribs, fit them onto the spars and cement them in place. Be sure the ribs are set at right angles to the spars. Now insert and cement the upper spars and the leading and trailing edges. After these have dried, box the front spar with 1/16" balsa panels cut to fit between each rib. The grain of the boxing material in all cases, should run parallel to the spar.

Notches for the wing joiner—which is of two-ply 3/32" hard sheet balsa—are cut 1¼" deep in each of the center-section ribs. The notches are cut so that when the joiner is fitted into them, it rests snugly against the boxing material of the front spar. After the joiner has been bound and cemented in place, the center-section can be covered with 1/16" sheet balsa. Remember to "ply" all butt ribs before assembling them to the panels and center-section.

The construction of the *Cadet's* wing panels follows very closely that of the center-section except for the variable depths for the wing joiner. The proper amount of angle should be built in on the butt rib, so that it gives each wing panel 7" of dihedral.

The tips are cut from 3/16" medium sheet balsa, and all of the shaded areas indicated on the drawings are covered with 1/16" sheet balsa. The entire panel is covered with bamboo paper and given four coats of heavy nitrate dope. Be sure to erect some fixture to hold the wings in place while the panels are being doped—many a good ship which might otherwise have flown well has spiraled in due to dope-warped wings.

On the original *Cadet*, a Brown Jr. motor was used. However, any other engine of similar type and power (1/5 h.p.) will do the trick. A 14" prop with an 8" pitch is recommended.

A small trim-tab of .010 aluminum sheet may be added at the trailing edge of the rudder. The approximate size of the exposed surface of the tab should be 1" by 3". The trailing edge of the rudder can be split at the center and the aluminum tab wedged and cemented in place.

In preparing to fly the *Cadet* it is always best to test-glide the model first at an altitude of at least fifteen feet. At this height, the stalling tendencies of the model can be brought out. If the 1/5 h.p. motor is used, about ½ throttle is required. Two-thirds throttle is needed for *Cadets* using 1/6 h.p.

If the model is inclined to be tail heavy, trim the ship so that it turns with the torque. Do not change the incidence nor add weight unless it is absolutely necessary. Write me in care of FLYING ACES if you should need any help. Enclose a self-addressed, stamped envelope.

With Model Builders

by Ed Whalley

Bob White Takes Mulvihill

Twenty-seven entered the Bob Meuser-sponsored Mulvihill at the USFFC's; twenty-four flew, and Bob White put up the best one-flight time—9:40. He won handily. Roger Gregory came second with 8:16, and that good old Georgia boy, George Perryman, came third with 7:00 even. Jim Quinn and Doug Rowsell trailed, but you had to do better than 6:00 to even get into this company. Shucks, you had to do better than 5:00 to even place twelfth. Meuser himself managed to come in eleventh, and George Xenakis missed a sixteenth-place tie by one second. There was some pretty stiff competition.

Meuser's idea in sponsoring the event was to provide a vehicle to keep the Mulvihill name going in an event associated with traditional, rubber-powered outdoor models. Offering it in conjunction with the USFFC's insured its prestige. With Mulvihill and Unlimited Rubber's being synonymous, Meuser could count on a pool of ready flyers; and the Mulvihill magic added a bit of incentive to enter. The result was greater than he'd anticipated. And it has prompted him to go ahead with plans to put the event on a permanent footing.

Now, remember, the above times were made on a single, official flight. Bob wants the event to be easy to run and as non-time-consuming as possible. The only restriction imposed was a minimum-weight requirement of 20 grams to keep semi-Indoor types out of the event. Flying was done before breakfast—between 6:30 and 7:30—in an effort to insure relatively still air. Everyone liked it. And the event generated a lot of constructive discussion relative to future competitions. So Bob circulated a questionnaire and is soliciting input. And he's arranged for permanent trophies to go with the perpetual pot and the certificates.

Meuser himself doesn't particularly like the 20-gram rule he imposed this year. It was an expedient, pure and simple. And the thought of guys building 20-gram ships just for this event runs counter to the expressed idea of fostering "traditional" rubber-powered designs. What he wants is a rule which will be easy to administer, which will not inhibit creativity, and which, yet, will not result in the creation of still another class of ship. We can all live without wing-loading and area requirements.

Other considerations deal with event administration—on-site procedures. Some guys have opted for the free-for-all of a single, simultaneous launch—the last one down wins. But just how do you really do this? How can you determine which ship came down last—every time—without a watch and timer on every ship? And what are the absolutely fairest time limits within which to hold the event—in order to obviate thermal advantage? The basic idea is to see how high absolute, still-air duration can be pushed within the Unlimited category. And what do you do if conditions are crummy at the time scheduled—postpone, cancel, or fly anyhow? And, given the single, no-max-time flight, what leeway or what restrictions for the timers? Setting up an event takes a lot of planning; fitting this one into a non-conflicting slot in the USFFC's, even more than usual.

Bob's not counting votes on this deal—the guy who does the work has the right to run the show. No one can appreciate the limitations of a particular situation more than he. What he wants is input that will help him maximize the potential of an established concept within the framework of an established meet at a price which he can afford to pay. Write him at 4200 Gregory Street, Oakland, Cal. 94819.

Free-Flight Notes

• We don't know whether the daytime winds had anything to do with it or not, but some of the Salt Lake Free-Flighters reached a milestone in the on-going saga of their efforts: they held a successful all-nite meet on the flats. Toward the end of May, Bob and Dave Sugden, Mark Feehner and Lin Haslam actually stayed awake and flew ships all night. They equipped the ships with "cool lites" and chased on a Honda. Each guy made more than thirty flights in the dark. With the coming of daylight, they repaired to the Haslam camper where Peggy Haslam served-up hot coffee and cooked

breakfast. All of the planes, incidentally, were Old Timers. It took them years to do it, but they did it.

• The USFFC's had pretty good weather. Temps at Taft ranged from 90 to 100 degrees. The number of entrants was substantially the same as last year, but event entries were down slightly despite a number of added events. Financially, this translated into a break-even or slight-loss situation. Junior entries were conspicuously lacking, and gas events showed a decline while non-power events were up. If this doesn't suggest something to you, it did to Jim Scarborough. In his report, he asked: "Could this trend reflect the rising cost of building a large gas model?"

Scarborough, incidentally, is resigning as business manager of the Champs after six years in harness. Enough is enough. And Joe Norcross has also announced that he will not be available as CD next year. It's the old story: when you find a guy that *can* do something, you tend to think that he ought to do it. "Time for some fresh blood," says Jim. He's right.

And just in case you didn't get the word, Paul Stober took Grand Champ by beating Irv Aker, last year's winner, by a few points. We hear that the team race was pretty close too.

• The SHOC Annual at TAft saw Hulan Mathies and Jack Moreland each take a couple of wins. Mathies posted handy wins in both A and C Gas. Moreland won handily in Half-A Gas and scored a big win in A/1 with a tremendous 1033 total. Mark Kerzie took B; John Trevino, D Gas. Bob Bicknell had a lopsided win in Replica with a posted 1080. Bob Boyer took Handlaunch, and Don Zink took A/2.

The Rubber events proved to be as hot as a pistol. If I were a handicapper, I'd put the likes of Irv Aker, George Perryman, Bob White and Jim Quinn all in the same class. I just might rank Bob Piserchio and John Ferrer a shade down the scale—but not much. I'm willing to bet that George is having the time of his life out on the Coast in *that* league. Anyhow, the whole bunch was on hand for this meet. Believe it or not, there was a three-way tie for first in P-30: Aker, White and Quinn. They didn't even bother with a flyoff. Ferrer was next, and then came Perryman. In Wakefield, it was White, Piserchio and Quinn. And in Coupe, it was Perryman, Schroedter and Ferrer. White, by the way, posted 1240 in Wake, and Aker took Sweeps. That's two in a row for Irv—looks like he's after the Broadhurst trophy again this year.

Controline Notes

• Further evidence of general belt-tightening comes from the minutes of the WAM meeting in June. General discussion turned on the topic of meet financing and the difficulties sponsors have in holding the line at traditional, family-oriented prices. Lower entries in a number of classes were cited along with rising costs. Suggestions offered included: combining classes, dropping low-entry events, giving a handicap to smaller engines; and, combining age groups in more events. And, just for the record, WAM is still growing, too. Figures for this year have already surpassed the year-end figures for '77. Scarborough may be right about inflation's affecting event entries. The choice may be getting to be one between groceries and hobby supplies. A lot of guys

Carstens plans

R/C SCALE

CF-9 AERONCA CHAMP 51 wing. 049 to 09 engine. Familiar sports design $3.00
CF-13 NORTH AMERICAN P-51 MUSTANG 099 powered single R/C or UC By Bob Buragas $3.00
CF-17 B-25 MITCHELL BOMBER Dandy World War 2 vintage bomber for R C By Nick Ziroli FM 12 70 $5.00
CF-36 LOCKHEED U-2 Prop or glider spy plane 72 wing Semi-scale by Robert Trishin FM 2 66 $3.50
CF-51 ALPAVAIA RF-3 French sportplane 64 span 09 mil By O Kampen FM 9-66 R C $2.00
CF-52 CURTISS JN4D JENNY 42 wing for single channel R C By Nick Ziroli FM 9-66 $1.50
CF-53 AVI 205 Argentinian sportplane 44 wing R C or rubber scale FM 9-66 $3.00
CF-57 SPAD SV-2 World War I fighter By Paul Palanek FM 5-64 09 mil 43 span R C $1.50
CF-64 GYPSY MOTH, DEHAVILLAND 68 wing 60 71 biplane 3 sheets By Elmer Nowac R C FM 4-67 $4.00
CF-66 WACO N Tricycle gear biplane 09 15 R C with 40 span FM 1 67 By Nick Ziroli $2.00
CF-81 FOKKER D-VII 60 span R C World War 1 biplane 1th scale 61 mil Nick Ziroli FM 6 67 $3.00
CF-83 GRUMMAN AG-CAT Duster biplane 1 12th scale for 35 40 CL 2 shts By Bob Adair FM 6 67 $3.00
CF-85 BEECHCRAFT STAGGERWING 55 span biplane for 60 R C Bryce Petersen FM 7 67 $3.00
CF-89 FAIRCHILD PT-19 Low wing Army trainer 62 span for 49 R C Gene Rogers FM 8 67 $4.50
CF-93 FOKKER DR-1 WWI triplane for 51 61 48 wing R C Bryce Petersen FM 9 67 $4.00
CF-97 MORANE SAULNIER "N" 1915 version neat scale 55 span 35 Nick Ziroli FM 10 67 $3.00
CF-104 S E 5 Famed British WWI fighter biplane 52 1 2 span 61 mil engine FM 1 68 By Nick Ziroli R C $5.00
CF-109 FALK RIVETS Goodyear Racer 1st at 67 NATS FM 2-68 By Joe Foster R C $3.00
CF-114 EINDECKER E-111 German monoplane 55 span uses 35 Nick Ziroli FM 3 68 R C $3.00
CF-122 EL BRONCO R C sport tail dragger for 61 mil with 68 span By Wally Zober FM 9 70 $3.00

CF-126 HEATH BABY BULLET 1928 racer by founder of Heath Co 56 span R C for 46 to 60 Nick Ziroli FM 7 68 $3.00
CF-143 VIGILANTE Semi-scale R C similar to Navy AJ 3 51 span with 45 to 60 pusher Nick Ziroli FM 11-68 $3.00
CF-146 AMERICAN EAGLE 1929 scale biplane R C For 40-56 mil 56 span By Tom Collins FM 12 68 $3.00
CF-154 P-47 THUNDERBOLT Near scale WW II fighter with 45 engine R C By Nick Ziroli FM 3 69 $3.50
CF-159 JUNKERS CL-1 56 span World War I model with Enya 45 engine By Jim Burgholzer FM 5 69 $3.00
CF-163 FW-190-A3 Near scale R C retractable gear 54 span 45 56 engine Nick Ziroli FM 6 69 $3.50
CF-170 MARTIN MARAUDER B-26 R C twin 45 scale 72 wing By Joe D Amico FM 8 69 $5.00
CF-173 DEMOISELLE Dumont's pioneer airplane 3 1 scale Zundel & Signorino RC FM 1 70 $7.00
CF-174 BLACKBURN ALL-STEEL 1915 near scale R C for 29 mil By Vern Zundel FM 9 69 $5.00
CF-183 GRUMMAN F8F BEARCAT 52 span R C 40 52 Semi-scale by Nick Ziroli FM 2 70 $3.50
CF-184 INSTANT AZTEC Twin Super Tigre 29 power VK Cherokee R C conversion B Petersen FM 2 70 $3.00
CF-188 MORANE SAULNIER 1 6 scale model of French sportplane 57 span 49 Ziroli FM 3-70 $3.50
CF-200 VOLKSPLANE 57 span R C for 45 popular home build craft By Gene Rogers FM 7 70 $5.00
CF-215 DEPERDUSSIN 1911 vintage craft with 56 span R/C scale By Vern Zundel FM 10-70 $5.00
CF-223 PFALZ D-111a R/C 2 scale World War I biplane 60 mil By Alan Spievak FM 6 71 3 sheets $10.00
CF-227 A.V. ROE BIPLANE 1911 standoff 2 scale R/C for 19- 35 60 span By Frank Noll FM 7 71 $7.00
CF-245 TIGER MOTH Slow flying oldtime bipe for 23 mil inverted with 43 span Don Foster FM 11 71 $2.00
CF-251 NESMITH COUGAR Eyeball scale R C 54 span 40 60 Simple Stan Hines FM 2 72 $5.00
CF-273 GRUMMAN F4F-4 WILDCAT RC semi-scale 45 span OS Wankel 30 Nick Ziroli FM 9-72 $3.50
CF-286 B-17G FLYING FORTRESS Four Webra 20 R/C 1st in 72 NATS flight achievement Tom Cook FM 1-73 $7.00
CF-287 WINDECKER EAGLE R/C scale 69 span 61 Webra Kraft radio and retract gear Ralph Jackson FM 2-73 $7.00
CF-308 SKYHAWK Navy Douglas R/C semi scale A4 D5 39 span 40 60 Stan Hines FM 9-73 $3.50
CF-311 BUHL BULL PUP Classic R C Semi-scale with 76 span 4-ch radio 60 engine Vern Zundel FM 10-73 $7.00
CF-313 BOEING-STEARMAN PT-17 Stand-off scale R/C for 40 to 60 Nick Ziroli FM 11-73 $3.50
CF-319 PIPER CHEROKEE ARROW Scale R/C of popular sport design 60 span Don Condon FM 1 74 $3.50
CF-321 TAUBE Stand off scale R/C with 84 span Ger man WW1 2 sheets Nick Ziroli FM 1 74 $7.00
CF-324 GRUMMAN F6F-3 "HELLCAT" Stand Off Scale R/C for Enya 60 and 59" span Don Williams FM 2-74 $4.00
CF-326 BRISTOL M1B World War I stand off scale mono plane 52" span with 40 engine Tony Eck FM 3 74 $3.50
CF-328 CULVER "V" Stand Off Scale post War classic 51" span 29 35 engines Stan Hines FM 4 74 $3.50
CF-331 MOONEY M-18 69" span stand off scale R C for Fox Falcon 60 with Goldberg Retract Gears Stan Hines FM 5-74 $3.50
CF-333 HENRI FARMAN 1910 antique stand off R C scale ship for 40 45 mil 2" scale 47" span 3 sheets Vern Zundel $10.00
CF-334 1920 DAYTON WRIGHT RACER A Pylon or Stand Off Scale R C 30" span Cox Tee Dee 049 By Bob Aberle FM 6-74 $2.50
CF-339 BARLING NB-3 33 span Stand Off Scale open cockpit monoplane for 010 to 020 engines or rubber power pulse radio or F F Hurst G Bowers FM 7 74 $2.00
CF-341 HANRIOT HD 1 WWI R C Scale biplane 56" span for Ross Twin or 40 to 60 engine Tony Eck FM 8 74 $3.50
CF-348 AERONCA L Stand Off Scale R C with 72" span for 45 to 60 engine Bruce Lund FM 10 74 $5.00
CF-349 HIPERBIPE R C Stand Off Scale 45" span for 40 engine Stan Hines FM 11 74 $3.50
CF-350 CURTISS ROBIN R C Scale monoplane 61" span 45 engine Bill Antoine FM 11 74 $5.00
CF-357 STUKA JU 87 Stand Off Scale R C for 61 span Tony Eck FM 1 7 $3.50
CF-364 EAA HEADWIND Brilliant stand-off scale R C for 15 engines 48" span by Al Wolsky FM 4 75 $2.50
CF-373 LINCOLN SPORT 020 powered 30" span scale classic for pulse light R C or F F Hurst G Bowers FM 6-75 $2.00
CF-375 FOCKE WULF 190D-9 Stand Off Scale R C 62" span for 61 engines Tony Eck FM 7 75 $6.00
CF-377 YAK-9 R C Stand-Off Scale for 60 engines 61" span Dan Reiss FM 8 75 $3.50
CF-386 GRUMMAN SKYROCKET Stand Off Scale R C twin engine experimental 56" span and two 29 40 engines Nick Ziroli FM 10 75 $5.00
CF-380 BD-6 Stand-Off Scale R C for 19 to 35 engines 56" span Bob Aberle FM 9 75 $3.50
CF-389 HEINKEL He 162 Stand Off Scale R C with 55" span for Scozzi 40 Turbo Ax 1 ducted fan Nick Ziroli FM 11-75 $5.00
CF-391 SOPWITH PUP Stand Off Scale R C WWI biplane with 59" span 60 engine Jerry Pulco FM 12-75 $5.00
CF-396 DEWOITINE D-510 Stand-Off Scale R/C with 69" span 40-60 engine Alan Spievack FM 2-76 $3.50
CF-397 JUNGSTER II Stand-Off Scale R/C EAA Homebuilt with 50" span 19- 29 engine Al Wolsky FM 2-76 $3.50
CF-400 HAWKER HURRICANE Mk-1 R C Scale with 61 span for Ross 61 engine Tony Eck FM 3 76 $5.00
CF-403 P40 "WARHAWK" R/C Stand-Off Scale 56" span 60 engine Dan Reiss FM 4-76 $3.00
CF-406 BOULTON PAUL DEFIANT R C Stand Off Scale fighter 60 engine 60" span Dan Reiss FM 5 76 $3.50
CF-407 BIG "GERE SPORT." 60 powered 54" span Stand Off Scale R/C biplane Dr J Makovich FM 6-76 $3.50
CF-413 FARMAN 400 MONOPLANE 020 powered light R/C or F/F 38" span Hurst G Bowers FM 8-76 $2.00
CF-418 MONOCOUPE 90A Stand-Off Scale R/C classic with 72" span for 45 engine Frank Dellamura FM 9-76 $6.00
CF-425 DEWOITINE D-520 R/C Stand Off Scale WWII fighter for 60 engine 62" span Dan Reiss FM 12-76 $3.50
CF-431 GRUMMAN KITTEN G-63 48" span R/C Stand Off Scale ship for 40 engines Bob Aberle FM 2-77 $3.50
CF-434 NAKAJIMA KI-84-1a HAYATE 54" span Stand-Off Scale R/C for 60 engines C S Hines FM 377 $3.50
CF-441 BERG O AVIATIK D-I Austrian WWI SOS R/C Bipe with 40" span for 35 to 40's Frank Dellamura FM 6-77 $3.50
CF-446 FOKKER T-2 Stand-Off Scale R/C with 66-inch wingspan for 40 to 60 engines Don Martin FM 7-77 $3.50
CF-452 DOUGLAS A-1H SKYRAIDER Stand-Off Scale R/C for 60 engines with a 58" span Rolled plywood fuse Dan Reiss FM 10-77 $3.50
CF-454 DC-3 SOS R C twin for two 45 engines with a 96" wingspan Tony Lombardo FM 11-77 $5.00
CF-462 CP-65 PORTERFIELD COLLEGIATE SOS R/C ship with a 74" span for 35 to 45 engines D B Mathews FM 2-78 $5.00

RADIO CONTROL

CF-158 BOONDOCK BIRD R C trainer with 52 span for 15 19 and Hallco gear McGovern FM 4 69 $3.00
CF-2 RAVEN 54 RC ship with fat fuselage holds PREY glider releasable in flight Single channel RC 09 19 By Don McGovern FM 4 65 $3.00
CF-4 FAIRFIELDER Low wing R C design 67 span 45 R C Phil Ostilio 2 sheets FM 2 62 $5.00
CF-5 CITATION Multi R C by John Roth 63 span 35 45 High wing last assembly FM 8 62 $5.00
CF-7 RIDGE HAWK Proportional R C trainer Fun ship 72 span 19 35 power John Tudor FM 8 63 $5.00
CF-11 RIDGEHOPPER 15 19 high wing 58 span Trike gear R C single FM 10 62 $5.00
CF-12 GENIE Single R C fat fuselage with 59 span Don McGovern FM 2 64 $5.00
CF-21 SKYLINER Class III R C 45 shoulder wing design By Marty Meyer FM 9 65 $5.00
CF-22 TEMPO Class III multi 68 wing By Phil D'Ostilio FM 6 65 $3.00
CF-32 MARK 8 Class 3 multi design R C 67 wing 60 engine By Paul Foster FM 4-66 $3.00
CF-35 TOUCHDOWN R C low wing sport model for small fields 42 wing 049 By B Petersen FM 4 66 $2.50
CF-42 LUCKY 2 Class 2 R C 020 45 By Gene Rogers FM 7 66 $3.00
CF-48 PATRIOT II Low 62 wing class II 61 mil Bosch airfoil proportional R/C Joe Foster FM 8 66 $3.00
CF-50 B.I.R.D.S. SPECIAL Class III R C 60 mil Uses any standard foam wing By Dallas Moran FM 10 65 $3.00
CF-54 KOBRA II Class II RC hi stab with 60 wing 29 35 competition model Gene Rogers FM 10 66 $3.00
CF-72 DEFENDER Class II parasol wing 65 Removable tray for R C gear 45 Gene Rogers FM 4 67 $3.00
CF-77 PIRATE III Twin tail mid wing 60 wing 45 mil By Nick Ziroli FM 5-67 $3.00
CF-100 SKIPPER 31 span sport flyer for single channel 1 2A and small R C By Vince Micchia FM 12-67 $2.00
CF-105 BANTAM KOBRA Small proportional R C with 23 power By Gene Rogers FM 1-68 $4.00
CF-110 X-103 Sport & experimental for Hallco R C 103 gear Elevators & ailerons 23 Ziroli FM 2 68 $3.00
CF-116 DEVASTATOR 66 span multi-contest with Enya 60 R C By Gene Rogers FM 4 68 $3.00
CF-117 TRIDENT All weather R C trainer for 61 Land water skis Wally Zober FM 4-68 $3.00
CF-134 PROFILE MUSTANG R C equipment is buried in foam wing 45 56 wing By Sterling Models FM 10 68 $3.00
CF-137 TIGER TWIN 62 span trike geared design for two 23s R C By Gene Rogers FM 10 68 $3.00
CF-138 JUNKER KLUNKER Put a 45 to 60 in this Zober design Looks German World War I FM 10-68 $3.00
CF-151 URCHIN Small R C sport tail dragger for 23 and mini gear By Gene Rogers FM 2-69 $2.00
CF-156 VIXEN ACROBATIC 40 span biplane with inverted 23 R C design by Gene Rogers FM 4 69 $4.00
CF-161 SNIPE R/C sport flyer 68 span with 56 engine By Wally Zober FM 5-69 $3.00
CF-165 BOOMERANG Big acrobatic Bipe 58 span 60-61 R C By Wally Zober FM 3 67 $4.00
CF-175 VERT-A-GO Rocket assist R C VTO with 38 span uses 19 engine By Nick Ziroli FM 9 69 $3.00
CF-180 ACCELERATOR R C sport design for land or water 50 span for 19 29 By Gene Rogers FM 12-69 $2.00
CF-187 SWINGER 2 R C stunt with coupled flaps & elevator foam 63 span wing 45 Jack Sheeks FM 3-70 $3.00
CF-206 RAIDER 56 span for 40 and larger MRC Digital By Jack Sheeks FM 3 71 $3.00
CF-216 DEE-KAY SPECIAL Formula II R C pylon racer 57 wingspan Dave Gierke K&B 40 FM 5 71 $3.50
CF-220 BRAZEN RAVEN 81 multi pattern R C Super Tigre 60 4 sheets Dave Gierke FM 5 71 $9.00
CF-229 RAMPANT Toledo R/C Pattern Class Winner 60 mil wing retracts in tandem 62 Jerry Worth FM 7-71 $7.00
CF-236 BANSHEE R C design for full AMA or FAI patterns With Webra 61 and Pro Line gear By Jim Martin FM 9 71 $3.50
CF-237 SHOESTRING 57 semi-scale for Fox 35 mil By Paul Simons FM 9 71 $3.50
CF-238 BEHEMOTH Giant 14 T Tail craft Takes 29 to 60 By Humphries FM 9 71 $3.50
CF-239 INDY 500 A maneuvering R C monster that'll deliver pattern performance Jack Sheeks original has 61 Merco and EK Logictrol FM 10 71 $3.00
CF-249 INTIMIDATOR RC pattern ship for 60 7 1/2 lbs By Marty Meyer FM 1 71 $5.00
CF-252 D D T Sport R C design easy and cheap 15 23 Jack Sheeks Jerry Caldwell FM 2 72 $2.00
CF-255 XP-400 Formula II and FAI Pylon Racer 56 span 40 Dave Gierke FM 3 72 $2.50
CF-256 SPRINTER Sport R C V tail two channel 42 span for 049 to 15 By Gene Rogers FM 3 72 $2.00
CF-261 ASTEROID R C sport 61 span K&B 40 Dick Johnson FM 4 71 $3.50
CF-266 DREAMER R C sport biplane with 38 1 2 upper span 37 1 2 lower with 40 engine Don Foster design FM 5-72 $3.50
CF-269 FAIMEISTER 65 span R C pattern ship 61 powered retract landing gear Bob Caplan design FM 7 72 $5.00
CF-270 ESCAPADE R C tail dragger with Goldberg retracts 60 engine Gene Rogers FM 8 72 $3.50
CF-272 JOEY 63 span R C 60 engine Ply and foam construction Dick Sarpolus FM 8 72 $3.50
CF-289 ME 109 a midget pylon racer 39 span Super Tigre 15 with Blue Max R C Jack Sheeks FM 2 73 $2.50
CF-281 SEA VIXEN 64 span pattern twin boom for 60 power R C Jack Sheeks FM 11 72 $2.50
CF-282 TYCHO 400 Altimeter equipped R C trainer with Enya 15 Orbit R C span 62 McGovern FM 12 72 $3.50
CF-293 BLUE FLAME Open pylon racer R C 54 span 50% ea in Super Tigre 10 ABC Dave Gierke FM 4 73 $3.00
CF-298 MOONROCK R C Pattern Delta with 44 span 46 length Enya 45 Lou Cubillos FM 5 73 $3.50
CF-299 GULL 66 span R C sport for easy flying Fox Eagle 60 and MRC 710 radio Unusual wing By Dick John son FM 6 73 $3.50
CF-303 TAILGATER R C pattern ship 63 span Webra 61 Pro Line radio Rom air retracts D Ostilio FM 7 73 $3.50
CF-310 NORTHERN EAGLE R C Pattern 58 span 40 51 mil Dave Gierke FM 9 73 $3.50
CF-345 DESPERADO R C flap equipped 60 powered sail plane with 99" span for Ross Twin Opposed 60 engine Gene Rogers FM 9 74 $5.00
CF-340 LIT SPECIAL A R C Pylon Racer for Cox Tee Dee 049 with 31" wingspan V A Caluori FM 8 74 $2.00
CF-367 "NOTHIN' SPECIAL" 1/2A R/C V-tailed pylon racer with 27" span Bob Aberle FM 5 75 $2.50
CF-383 FLICON R C Pattern Trainer using Falcon wing kit 40 to 46 engines Vince Caluori FM 9 75 $3.50
CF-405 76 SPECIAL Quarter Midget R C trainer with T tail 15 engine 36" span Bob Aberle FM 5-76 $3.50
CF-410 CANNONBALL Micro size R/C pylon racer for 020 engine and Cannon Tiny R/C 22" span Bob Aberle FM 7-76 $2.00
CF-415 REVISION "A" Single or two channel R/C trainer 049 engine 44" span Howie Applegate FM 8-76 $2.50
CF-417 SUPER WHIPLASH R/C Sport Pattern ship with 54" span and 40 engine Dick Sarpolus FM 9-76 $3.50
CF-420 SUPER SPAD R/C sport bipe with 38" span for 19 30 engines Gene Weaver FM 10-76 $3.50
CF-426 WHEN R/C Sport biplane for 15- 19 engines 38" an Norman Rosenstock FM 12-76 $3.50
CF-429 INDY RE-TRAINER Sport R/C with a 50" span for 30 engine Jack Sheeks FM 1-77 $2.50
CF-435 CHECKERS 64" span R/C Pattern Trainer for 60 engines Jarold Schmidl FM 4-77 $3.50
CF-437 THE BASIC BIPE 48" span R/C Sport Biplane for 60 engines Dan Reiss FM 4-77 $3.50
CF-438 REISS' ROOSTER R/C Sport Biplane for 60 engines Dan Reiss FM 5-77 $3.50
CF-442 LIL' EAGLET 010 Sport R/C with 22" wingspan for mini radios and Cox 010 Bob Aberle FM 6-77 $2.00
CF-451 DOUBLE TROUBLE Pattern Biplane for R/C and 60 engines with a 54" wingspan Dick Sarpolus FM 9-77 $3.50
CF-455 BI-BABY R C Sport Biplane for 29 to 40 engines Jack Sheeks FM 11-77 $2.50
CF-456 THE ACE THREE-TEN 3 channel R C trainer with a 36 wingspan for 09 and 10 engines Bob Aberle 12-77 $2.50
CF-458 THE CHALLANGER A twin-boomed 60 powered R C pattern ship with a 62 wingspan Bob Godfrey FM 1-78 $2.50
CF-459 THE HUNGRY EAGLE An R C duration model (looks like a F F ship) for 40 s with a 96 span Dick Sarpolus FM 1-78 $3.50

SAILPLANES

CF-1 SPOTTER A 2 Nordic with 79 two piece wing By Joe Bilgri FM 4-65 $3.00
CF-14 SEAGULL Giant 84 wingspread soarer R C with supplementary 09 15 power Don McGovern FM 8 67 $5.00
CF-16 THERMAL QUEEN Radio control soarer uses Eppler 385 airfoil 144 span with light wing loading By Carl Lorber FM 11 70 $3.00
CF-20 LIL T R C 74 glider rudder only with 1 tail By Bob Hahn FM 6-65 $4.00
CF-34 SCHWEITZER I-26 R C 1 6 scale glider with 67 sport canopy By Dan Lutz FM 4-66 $4.00
CF-41 SPECTRE WING R C flying wing Thermal soarer with power assist 15 92 By McGovern FM 6 66 $2.50
CF-44 CASTAWAY Nordic A 1 51 span Low cost competition glider By Joe Bilgri FM 7 66 $2.50
CF-46 SLINGSBY SKYLARK 4 119 span high aspect ratio R C slope or thermal Ira Achey FM 8-66 $4.00
CF-65 FOAMIN'S BAT WING R C modern foam wing soarer By Rolf McPherson 72 span $3.00
CF-69 BONG BOOMER 1 A1 R C glider one time world record altitude holder Maynard Hill 136" FM 2 67 $4.00
CF-70 THUNDERHEAD 54 span towline trainer By Don McGovern $1.25
CF-88 SOAR SAM A 1 Nordic for NATS etc 48 span By Bill Dunwoody FM 7 67 $2.00
CF-92 1931 NORTHRUP PRIMARY TRAINER 72 span R/C glider By Walt Kessler FM 8 67 $3.00
CF-99 PEREGRINE 89 span A 2 Nordic with fibreglass fishing rod fuselage By Ken Whiting FM 10-67 $2.00
CF-101 RAINBOW 100 span R C power & boom design with power assist 15 mil FM 12-67 McGovern $3.00
CF-102 HYPODERMIC NERDEL A 2 Nordic with 47 span By D Mathis FM 12-67 $3.00
CF-108 LA MILA 66 NATS winner Hand launched By Maj Mel Allen FM 2-68 $1.25
CF-112 DANCER R C Glider pod and boom V-tail soarer for thermals Carl Lorber FM 3-68 $3.00
CF-118 ENILWOT A 1 Nordic easy to build with under slung rudder By Dick Mathis FM 4-68 $1.25
CF-120 AMERICAN CROW A 2 Nordic 77 wing Different approach to competition model Mathis FM 5 68 $2.00
CF-127 NORDIC EXTRA LARGE 113 span Pod with fibre glass boom By Chet Lanzo FM 7-68 $3.00
CF-139 MOLLYMAWK Superstreamlined 108 R C thermal soarer Carl Lorber FM 10 68 $3.00
CF-142 PTERODACTYL Hand launch lightweight glider 20 span By Tom Peadon FM 11 68 $1.25
CF-148 TRI-BELLE RC glider slope thermal power 105 span By Marley Michaelis FM 1-69 $3.00
CF-152 TUMBLEWEED A 2 Nordic 74 two piece wing for windy weather By Dick Mathis FM 2 69 $2.00
CF-166 GAGGLER R C soarer 117 span Pod and boom design By Carl Lorber FM 11 69 $3.00
CF-169 MISKEET 149 R C glider with fibreglass fuselage By Harley Michaelis FM 7 69 $3.50
CF-176 SCARAB A 2 Nordic with 79 span fibreglass fishing rod fuselage By Dick Mathis FM 10 69 $2.00
CF-179 U S KID, ZING, FLASH Three hand launched 18" gliders by Bay, Mathis, Peadon Great fun FM 7 70 $3.00
CF-189 INVADER 15 35 powered sailplane 73-1 2 wing By Gene Rogers FM 4-70 $3.00
CF194 HALF MACH. 120" span thermal or slope soarer Optional power R/C By Carl Lorber FM 5-70 $2.50
CF-201 PRANCER 12' R/C thermal or slope soarer with fibreglass fuselage By Carl Lorber FM 2-71 $4.50
CF-205 HYSTERIA 1000 Class C FF 84 40 1000 sq in wing area By Mathis FM 3 71 $7.00
CF-207 GOB A/1 Nordic with Jedelsky type construction By Mel Allen FM 4-71 $2.00
CF-208 SABRE SOAR 125 span R/C soarer Eppler 385 airfoil By Neil Liptak FM 4 71 $3.50
CF-209 ATHENA 80 span Nordic A 2 Glass fuse Open class winner 66 NATS Roger Simpson FM 3 67 $2.00
CF-233 LEAD ZEPPELIN Steel A/2 Nordic free flight 88 span Tom Hutchinson FM 8 71 $2.00
CF-243 YANKEE SOAR 16 ft span makes it easier to find thermals Neil Liptak's R/C soarer FM 10 71 $4.50
CF-244 GAMBIT A/2 Nordic Benedek 7457 airfoil, fibreglass rod fuselage By Kil Bays FM 11 71 $2.00
CF-250 POACHER A 2 Nordic FF 77 span A beautiful soarer By Don Chancey FM 1 72 $2.00
CF-264 THERMAL HOPPER 120 span FAI R/C sailplane British design with rudder elevator spoilers/towhook controls Geoff Dallimer FM 6 72 $3.50
CF-275 QUASOAR R/C soarer with 146" wingspan By Neil Liptak FM 9-72 $6.00
CF-276 SPIRIT OF FREEDOM Graceful 118 radio controlled soarer Harvey Michaelis FM 10-72 $3.50
CF-280 ILLUSION 120 span R/C wing soarer for towline winch, slope Hal Cover FM 11 72 $5.00
CF-292 BANZAI Giant 50 span catapult glider by Mike Atwood Free flight FM 3-73 $3.50
CF-306 UNDERDOG Handlaunch glider design by Harry Kruse 19 span FM 8 73 $1.50
CF-314 THERMUS Catapult glider 36" span Bob Adair FM 11 73 $1.50
CF-317 LONG ISLANDER R C soarer for slope or thermal 100 span Bob Aberle $3.50
CF-337 WILD BLUE 100" span slope & thermal soarer that fits into a suitcase Don McGovern FM 7 74 $3.50
CF-343 FACE SAVER Handlaunch Glider for rough wind 16" span Larry Kruse FM 8 74 $2.00
CF-359 SPORT PRO 100" span R C soarer with 605 sq in area Harley Michaelis FM $3.50
CF-369 "BOMMEL" 114½ R/C soarer with full wing flaps Peter Keim FM 5-75 $4.00
CF-372 THE WEIRD ONE 119" R/C canard soarer by Dick Sarpolus and Arnie Pederson FM 6-75 $3.50
CF-378 OCHROMA PYRAMIDALE Nordic A/2 with 70" span Dave Linstrom FM 8-75 $2.00
CF-379 EYESORE 116" R/C flying wing soarer with 19 power pod Don McGovern FM 8 75 $7.50
CF-385 "98.6" R/C soarer with 98.6 wingspan and a normal disposition Howie Applegate FM 10-75 $3.50
CF-401 BACKLASH Catapult glider with 24½ span Larry Kruse FM 3-76 $2.00
CF-408 "DESPERATION" A/1 Nordic glider 48" span Bruce and D B Matthews FM 6-76 $2.00
CF-424 BOOMER BUM 78" span Nordic A/2 competition glider Joe Sloc Slovacek FM 12-76 $2.50
CF-412 LARS Low Aspect Ratio Sailplane R/C, 74" span Dick Sarpolus FM 7-76 $3.50
CF-422 THE HIGHTAILER 100" span R/C soaring glider by Howie Applegate FM 11-76 $3.50
CF-443 MOJAVE A/2 NORDIC An A/2 Nordic Free Flighter with an 85" span Dick Mathis FM 6-77 $3.50
CF-448 OGAR A SOS Polish powered glider for 049 engines with a 72-inch wingspan Howie Applegate FM 8-77 $2.50

R/C SEAPLANES

CF-6 SCAVENGER Amphibious R/C flying boat for 35-60 engine 77 wing Don McGovern FM 8 62 $5.00
CF-30 SKIPJACK R C 35 seaplane with one large float two smaller 50 span Paul Hook FM 1-71 $3.50
CF-63 PIRANHA 74 span seaplane for 56 mil R/C proportional FM 12-66 By McGovern $4.00
CF-75 DORNIER DO-18K1 66 span R C 19 24 twin engines in tandem flying boat By A Swanston $7.00
CF-76 SEA HORSE R C seaplane twin float amphib for 45 67 span FM 5 67 McGovern $3.00
CF-86 MAKO MONSTER R C seaplane 45 mil Another McGovern original FM 7-67 $4.00
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CF-278 DANDYLION Nifty powered free flight for .049 mil with 36" span Fast Richard design $2.00

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are fooling around with those foam meat trays as it is. Maybe we can build a few events around them.

• Sign of the times? The Thunderbugs have decided to hold down costs in their combined Annual with Bakersfield. There will be no third-place trophies in Junior events as the typical entry does not warrant it. Junior fees will be held to $1.50, and Open charges will, hopefully, be held to two bucks. A lot depends on how many trophies the boys can recycle.

• The June Cat.1 contest in Salt Lake City featured three events: Nordic Combo, Gas Combo, and Mulvihill (Unlimited). Old Barney Taft took Nordic in 12:05 with a new Nova. Jay Jackson took Gas with a Pilfered Pearl in 14:15. And Carter Watts posted 12:40 with his Sum Fun to take Rubber. It was a fine day, and there was a good turnout.

R/C Notes

• The ski boats, hang gliders and giant puppets got the news and TV coverage, but the CRCS put on a show for the Charleston Spoleto Festival at Brittlebank Park. Tom Hampton lost a ship into the drink but managed to save the equipment. Jack Scharpe took Bomb Drop, but the big show-stopper was Glenn Fields. He took Touch and Go, Dixie Death, and Loops, Rolls, etc.

• The Spartanburg Sky Knights put out a mighty nice program for their June Bug Fly-In. Thanks, Rich Jackson, for sending it. Ol' Jax edits the SCRAM bulletin and does a fine job. (108 Thornlee Dr., Charleston Heights, S.C. 29405)

• Winners in the unique Jack & Jill event at the DCRC Fun Fly were Wayne Simpson and Donna Nielsen. Reportedly, it was the "funnest" event. Can't give you the details, but plenty of water was involved. Harry Grattan took Spot Landing, and old-timer Walt Linthicum took Sport. John Spalding took Static Scale. The Robisons, however, ran the most popular event, Elbow Bending. It's based on the premise that, if you put a hot dog in a kid's hand, his arm will bend and his mouth will fly open. Some of the entrants couldn't make up their minds whether or not it was the elbow bends or the mouth openings that counted. The Robisons figure that, next year, they'll have to double the wiener order.

• We get Dick Franco's SACRAT Newsletter regularly and enjoy it immensely. The bulk of the club's 140-odd members are somewhat less than contest-oriented. They're a bunch of guys who just enjoy flying together without too much commitment to the organized aspects of the sport. And, like a lot of us, they, now and then, tend to take their club for granted. When that happens, when circumstances threaten the things the club stands for, someone has to snap them up short and remind them (and us) that a club is composed of individuals.

When access to the club field was threatened and when the club's contest schedule seemed about to go down the tubes, this job fell to Pres. Ralph Bain who got right down to the nitty-gritty when he said:

"Don't wait for 'organizers' to pull everything together—because there really aren't any. Everyone else is just like you. Naturally, there's a lot of ongoing coordination and administration to do, and some of us have been elected or have volunteered to spend our time doing these things. But, beyond all that, it still takes some effort from each member, seeing what needs to be done and simply doing it." 'Nuff said!

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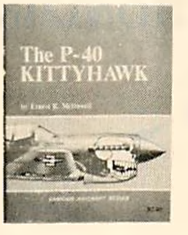

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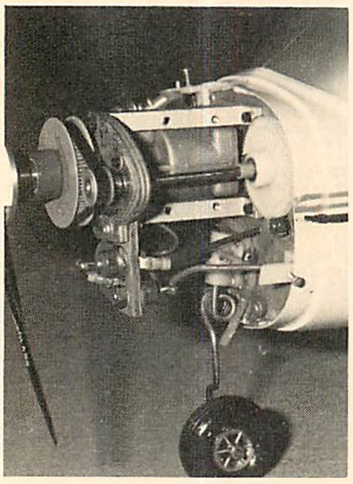

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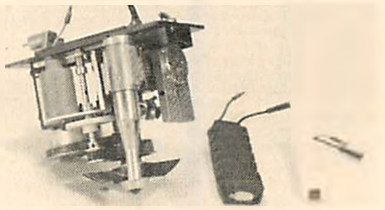

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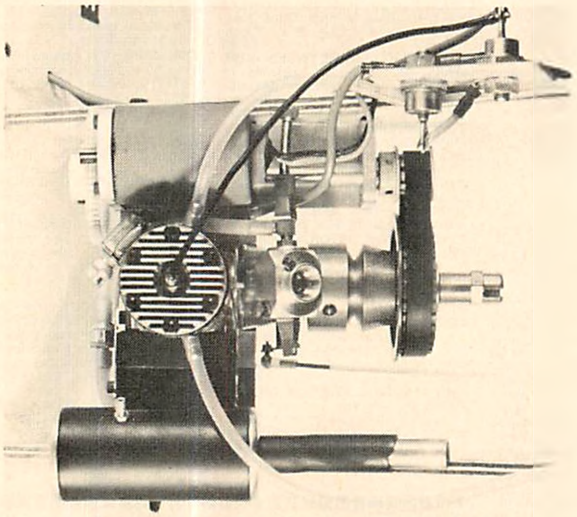

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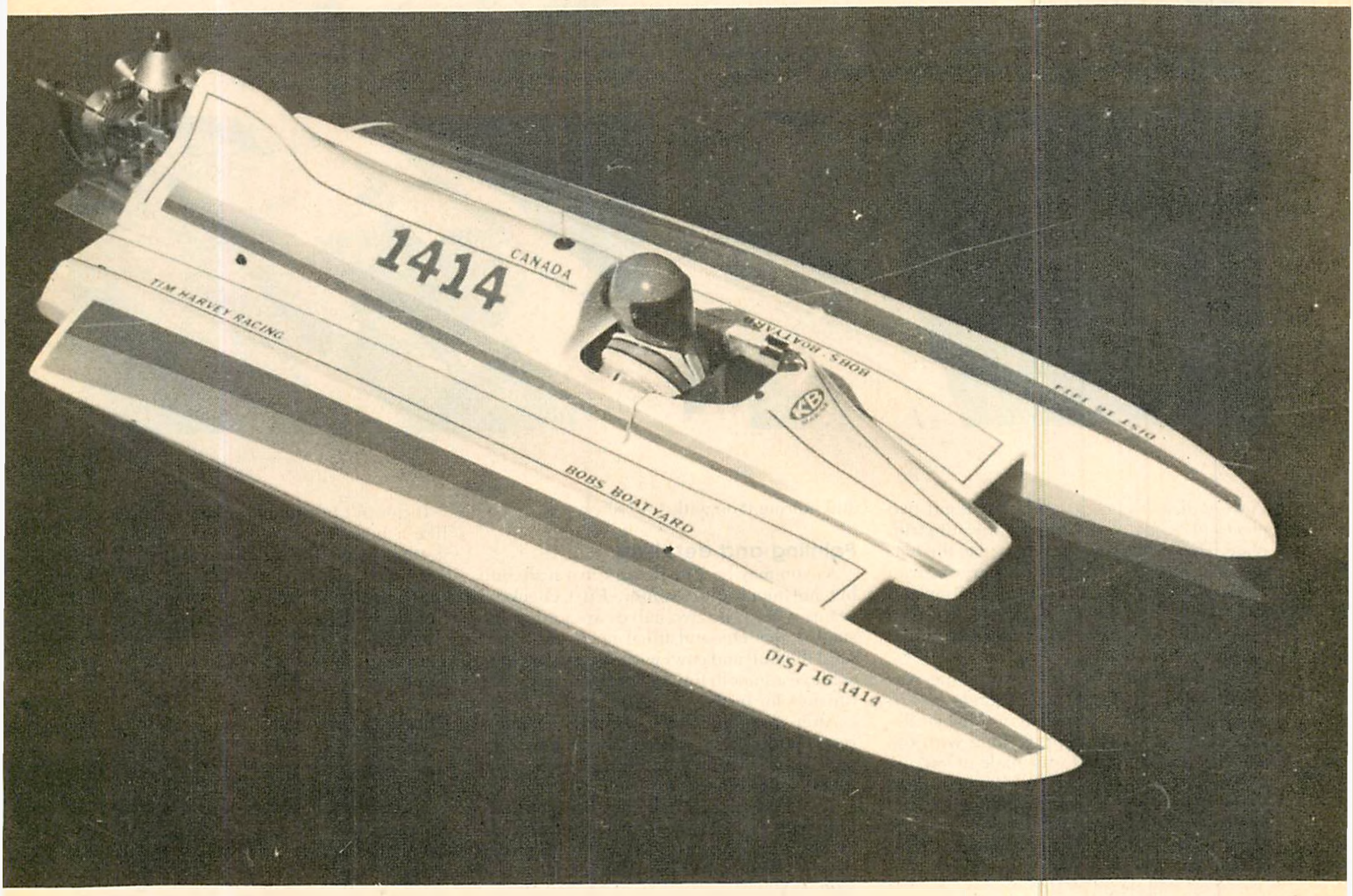


A Dry Dock Review:

EXCALIBER

A new entry into the field of outboards from R/C Glass/**Tim Harvey**

Since the introduction of the K&B 3.5cc. outboard a year or so ago, there has been rapid growth and improvements in tunnel hulls.

I decided that this class was for me; scale appearance, not too fast and stock engine. I ran a tunnel all year to learn about riding characteristics and air trapping hulls, making many modifications but never being able to excede 35 m.p.h.

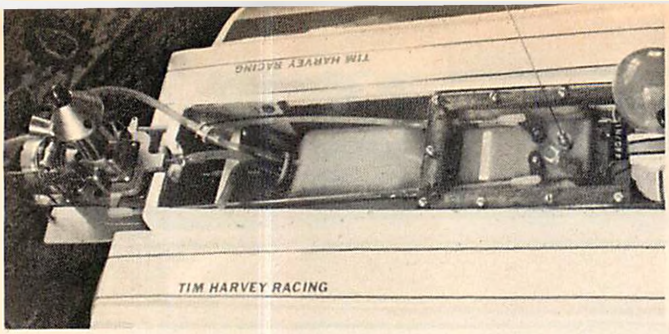
At the 1977 Nationals in Reno, Nevada, I met Jerry Dunlap, who explained a lot to me about tunnels. After watching his boat perform I was so impressed I enquired about getting a set of plans. Jerry told me that within a few months they would be coming out with a fiberglass version. I waited patiently for the boat, and believe it or not it was personally delivered to me by it's designer. It was well worth the wait.

The boat comes almost ready to run; the two halves are joined together, with only the radio box, engine and fuel tank to install.

It is available thru R/C Glass, 1628 Corona, Medford, Oregon, 97501; or through Jerry Dunlap, in Tacoma, Washington, at a cost of $79.95 white gel and $89.95 metal flake.

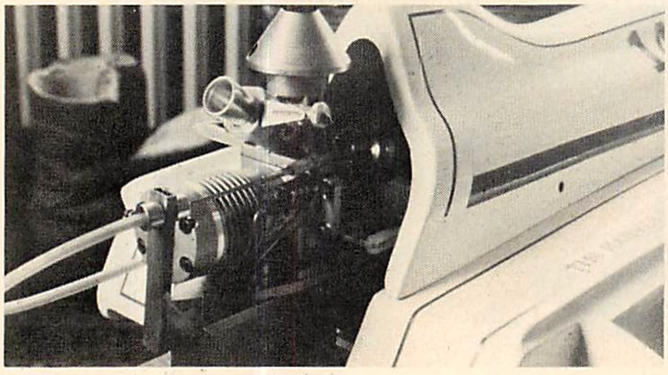
Building the Excaliber II

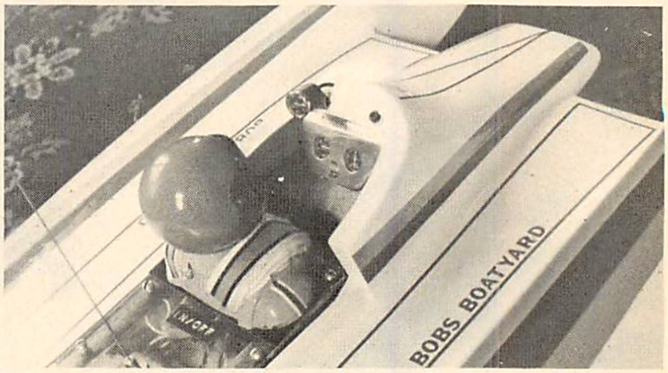
Before installing anything, be sure to add floatation as fiberglass *will not* float. I epoxied foam in the sponsons, but Pour In



The business end of the Excaliber outboard by R/C Glass sports the K&B .21 engine which blends in with it's nice, clean lines (**above** and **below**).

These photographs of the front of the Excaliber (**above** and **below**) show off the boats scale possibilities with driver and dashboard.





Place will work just as well. Next, cut two pieces of 3/8" ply, 2½" x 2½", for the auto trim plate. This should be fiberglassed to the bottom and transom. Blind nuts were used to hold the plate in place, 1¼ from the transom and 1" up from the bottom. I found the transom needs to be notched 5/8" deep and 1" across for the auto trim bar.

Next we build the radio box; mine was made out of the boat, and fiberglassed in place afterwards. The box is 2" high in the rear and 1½" in the front, 6" long with the angle on the bottom. It was made of 1/64" ply and braced with ¼" x ¼" balsa wood on all seams. Gold-N-Rod was used for throttle and steering linkage. I installed the box with the front exactly 13" from the transom. This works well because you may mount your driver on the plexiglas lid.

Next I mounted the turn fin 6" from the transom and ¾" deep. A block of wood is already installed in the boat for this purpose.

The fuel tank is mounted in the cowling as I have found that this gives you much better draw to the carburetor. The cowl is mounted by drilling two holes 2½" from the transom and bolting it on with 4-40 screws.

Painting and detailing

As you may be able to tell I'm a scale buff but not much of a painter. First check all seams where the two halves are joined, for small holes etc. and fill if necessary. Next sand the hull and cowl with 600 grit paper to achieve a smooth finish. I prefer epoxy paint finishes for boats.

After resanding and polishing out a few runs I added Trim Kote for the stripes, DJ's tape for pin striping and Super Stick vinyl letters and numbers for trim.

The driver is a 2" William's Bros. military pilot with a small piece of wood cut to shape to form a Bell Star Helmet and foam pieces to make up a Life Line jacket. I have also added a tinted visor for sunny days and clear if it's cloudy or rainy.

For the dash I used 7/16" Tatone Products instruments, cutting two holes in a small piece of aluminum and mounting them from the back. For the tachometer I used 7/16" dowel covered with electrical tape, with the same instrument face.

It doesn't take much to make a boat look like a boat, in a sport which seems to be getting away from this. I must add that I did not receive the instructions with my boat, but having only two years of experience I found it very easy to build.

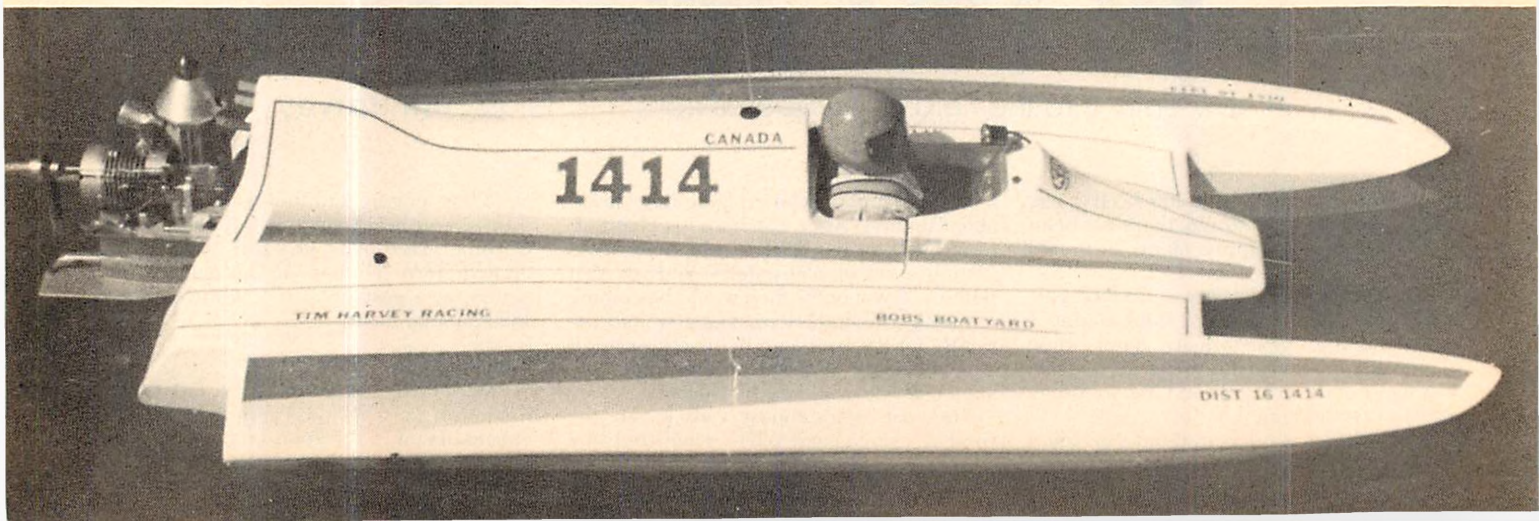
After receiving the plans I feel any inexperienced modeler would have no trouble building and running a fine hull.

Running the boat

I mounted the engine 3/16" from the cavitation plate to the bottom of the tunnel; running the engine at this height it cavitates a bit right at the start, but only takes a few runs to adjust to. After slapping on a J.G. E-20 wheel and throwing the boat in the water it took off like a shot, easily going well over 35 m.p.h., really smooth in the corners, too.

Jerry says they are running anything from an E-20 through G-20 on the boat. I have four props I use depending on the weather and water conditions.

In conclusion, I don't think you will be able to find a finer looking and running boat on the market today.



An RCMB How to:

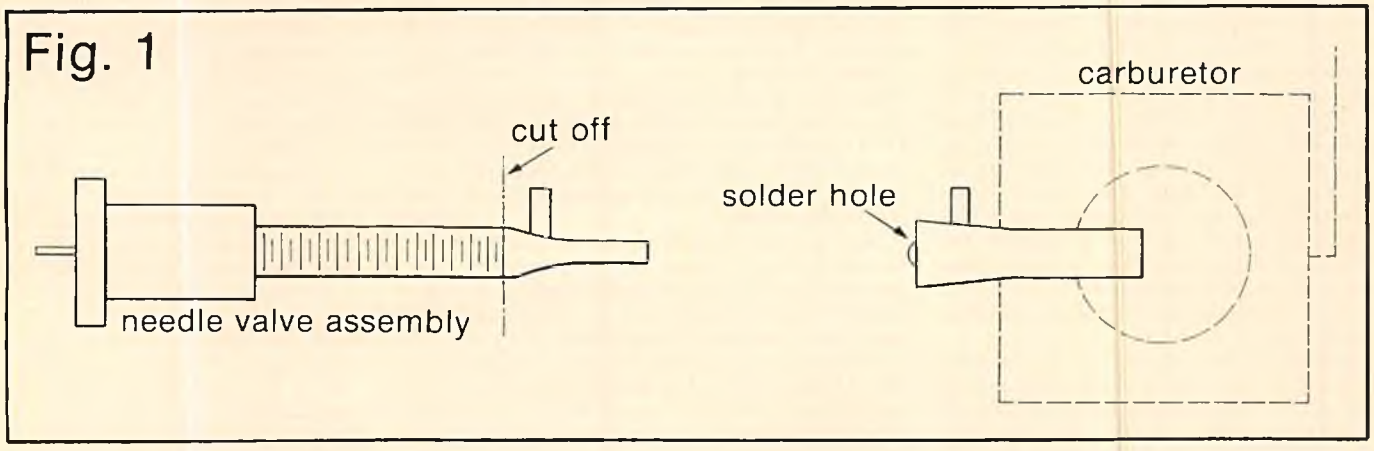
Isolated needle valves

In the June 1978 issue of FLYING MODELS, author **Don Bilsky** talked about his isolated valve system in his .40 twin hydro. Since then we have had many letters asking for more information on how to set the system up so here it is in detail.

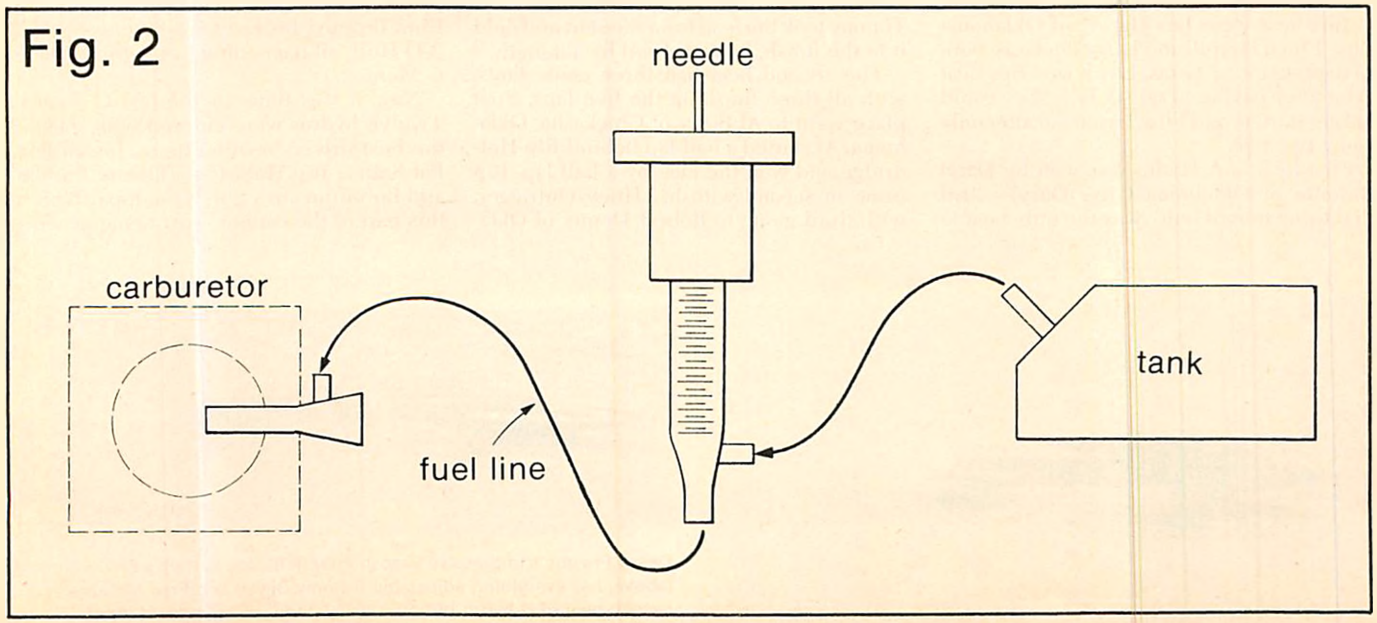
Since my article about the twin engine hydroplane came out in the June 78-FLYING MODELS, I've had many inquiries on how to set up the isolated needle valves.

To use isolated needle valves all you have to do is cut off the needle valve in your carburator just behind the fuel line connection. (see Fig. 1) Then take a complete needle valve assembly and locate it in a place convenient for you. Run a fuel line from your tank's pickup tube to the spray bar, or bottom end, of the needle. Then you run a fuel line from the normal fuel line fitting to the fitting on your cut off needle that is in your carburator. (see Fig. 2)

By using this setup you should be able to locate your needle valve up to 6 inches away from your carburator for convenience. I hope this clears up some confusion and helps get that needle valve that you can't get to very easily in a more accessible place.



ARTWORK: BILL SCHAUMBURG



Oklahoma points racing

The action is hot and heavy and doesn't seem to stop in the Southwest/**Andy Seay**

PHOTOGRAPHY: ANDY SEAY

The first NAMBA sanctioned race for district seven points was held on Ghost Lake in Oklahoma City, Oklahoma. The contest was hosted by the Boaters of Oklahoma on the weekend of May 6th and 7th. District seven plans on having one more sanctioned race in Lubbuck, Texas, on June 10th and 11th. A possible third race may be held in Wichita, Kansas, but a date has not been set at this time. The district seven championship race will again be at Ghost Lake this year, sometime in August. Joe Bishop, district seven director, hopes that those of you interested in obtaining a district seven championship will plan on attending these races.

Saturday turned out to be a cloudy, cold, and windy day. A few contestants put up tarps, only to have them blown down by the gusty winds. After a short driver's meeting by Jerry Kimball, the first heat of A Mono kicked off about 10:00 AM. The contestants in this heat were Les Hatley of Oklahoma City, Floyd Herrell and Larry Dickens, both of Wichita Falls, Texas. Larry won this heat even after having to go six laps. Les could not get started, and Floyd spun out after only going two laps.

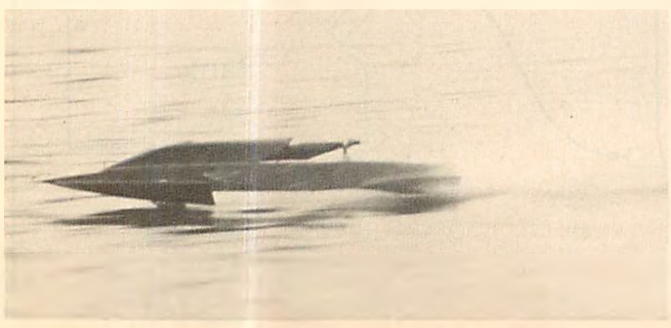
First heat of A Hydro was won by Daryl Garcille of Oklahoma City. Daryl's "Lil Lightning tunnel hull" was the only boat to complete the full five laps. Mike Wilson, Bobby Nunley, and George Moir could not get their small outriggers running. Despite spinning three times in one turn, Rip Holdridge of Dallas, Texas, pulled off a first place over Dave McDonald of Oklahoma City in the first heat of B Mono. Rip had his OPS .40 Warderaft smokin' around the course. Dave's O.S. Max powered stinger was hot on Rip's tail until he spun out and died on lap four.

Jerry Kimball of Oklahoma City won the second heat of B Mono by passing Larry Dickens after Larry had flipped on lap three. Ralph Wilson of Dallas won the third heat easily by defeating George Moir of Fort Smith, Arkansas. Alan Bumbaugh, a rookie from Oklahoma City, had trouble getting his .40 powered Northwind on plane. The first head of B Hydro saw a very close five-lap race between Tommy Bilyeu of Irving, Texas, and Fred McGuire of Oklahoma City. Tommy took the lead from the start and held it to the finish, beating Fred by a length.

The second heat had three contestants, with all three finishing the five laps. First place went to Al Berry of Chickasha, Oklahoma. Al started a half lap behind Rip Holdridge and won the race by a half lap. Rip came in second with his Huey Outrigger, with third going to Robert Denny of Oklahoma City. Robert is another rookie and a new member of the B.O.O. Club. He had a beautiful scale Atlas Van Lines Hydro which could not stay up with the fast outrigger designs. The first heat of C Mono was a close three-boat race for the first three laps. Rip Holdridge, Mike Wilson, and Denny Preston all went across the line together with Rip leading the pack. It was Rip, Mike, and Denny in that order for about two and a half laps, until Mike and Denny got tangled on lap three in turn number one. Mike spun out and died. Meanwhile, Rip increased his lead over Denny and crossed the finish in first place.

In heat two, Bill McAbee crashed into the bank on the back side after having radio trouble. Ralph Wilson won the heat with Jerry Kimball taking second. Stuart Russell of Plainview, Texas, easily won the third heat over Donald Ross of Lancaster, Texas. Jim Hopkins could not get started with Bob Finn flipping his fast OPS 60 powered 50" 3-D Hull, all happening in the third heat of C Mono.

Now it was time for the fast C Hydros. Twelve hydros were entered with some of the best drivers owning them. Joe Bishop, Pat Saliva, Rip Holdridge, Denny Preston, and Bob Finn are a few of the top drivers in this part of the country, just to name a few.



Denny Preston's impressive Crapshooter (**left**). Joe Bishop's BMD Phantom (**above**) has everything adjustable. Tommy Bilyeu and Fred McGuire in the second heat of B-hydro put on a really good, close race (**at top**).

The first heat was won by Al Berry with a 40 powered Challenger. He was really smoking around the course, despite the rough water on the back side. Harold Ellis of Chickasha, Oklahoma, using a OPS .65 stroker in a 42 in. R.C.D. Challenger, died in the first turn. Stuart Russell of Plainview, Texas, crashed into the bank. Tommy Bilyeu finished well behind Al Berry with his .60 powered outrigger. In the second heat Joe Bishop had radio trouble and had to shut his beautiful blue B.M.D. "Phantom" off. Bob Finn, using a super 60 crapshooter, flipped high into the air and went in nose first. The race reached the point of a two-way contest between Rip Holdridge and Pat Salvia of Oklahoma City, Oklahoma. Rip won the race, but Pat held back to keep from flipping his very fast Wing Ding.

Denny Preston, a BMD Team Member, showed the way around the course with his highly modified Super 60 crapshooter. Denny was using a OPS .65 Stroker with all Bishop Marine Design parts on it. Denny finished one full lap ahead of Donald Ross of Lancaster, Texas.

In the outboard class, Daryl Garcille won the first heat with his Steve Muck Lil' Lightning tunnel over George Moir and his modified Hot Shot tunnel. The second heat was won by Marvin Lang with a Ekim Lil' Missle. Joe Bishop's highly modified piped outboard engine made his tunnel too fast for the wind, and it flipped on the first lap. Going into round two, a good close race developed between Al Berry and Fred McGuire of Oklahoma City. Fred and Al took turns being the leader the whole five laps. When the heat was finished, Fred edged out Al Berry for the 400 points. By winning this heat of B Hydro, Fred put himself in a tie for second at 700 points, with Al Berry at the end of round two.

In the second round, second heat of C Hydro, we saw a fantastic run made by Denny Preston. Denny went in and out of traffic to win first place with a time of 1:25:51 for five laps. Pat Saliva took second with his fast Wing Ding which was flying loosely above the water. Third went to Rip Holdridge, while fourth went to Donald Ross. Joe Bishop show boated around the course with his "Phantom" hydro in the third heat of the second round. Tommy Bilyeu won the fourth heat as Bob Finn and Harold Ellis could not get started.

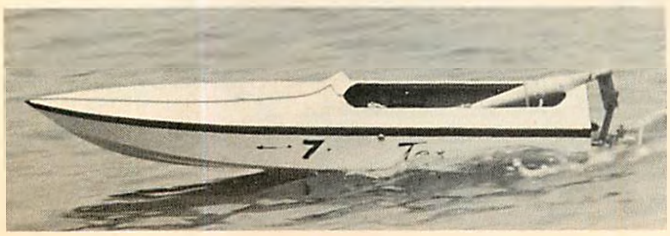
The third round, first heat of B Mono was won by Rip Holdridge even if he did almost forget to turn on his radio. Second place went to Ralph Wilson. Jerry Kimball had to scratch because of damage he obtained in the second round. The third round in B Hydro gave Robert Denny and his scale hydro a first blue ribbon. In the second heat Fred McGuire got involved in another close race which lasted right down to the finish with Tommy Bilyeu. Fred won it with Tommy finishing a boat length behind.

Joe Bishop's Phantom smoked them good in the first heat of round three in C Hydro. Despite the rough water, the Phantom design outrigger ran quite smooth. Pat Saliva took the second heat, and Mike Wilson took the third with his OPS 60 powered crapshooter. The last event for Saturday was Open Outboard with Marvin Lang and his "Lil Missile", the only boat in the two heats to complete five laps.

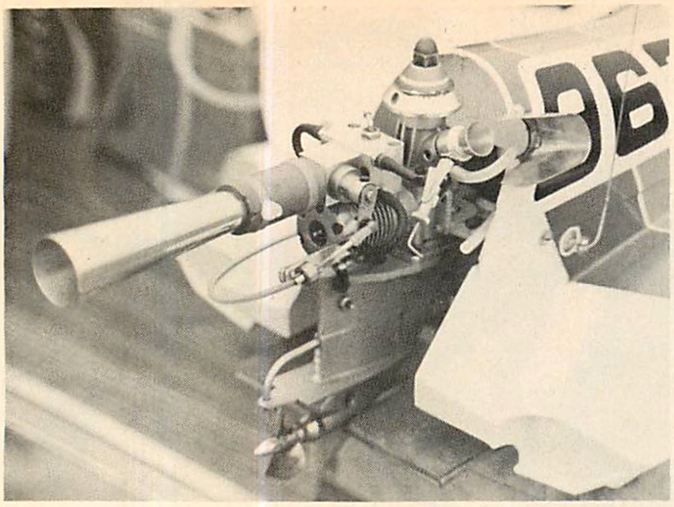
Here are the top first place finishers in each class at the end of Saturday:

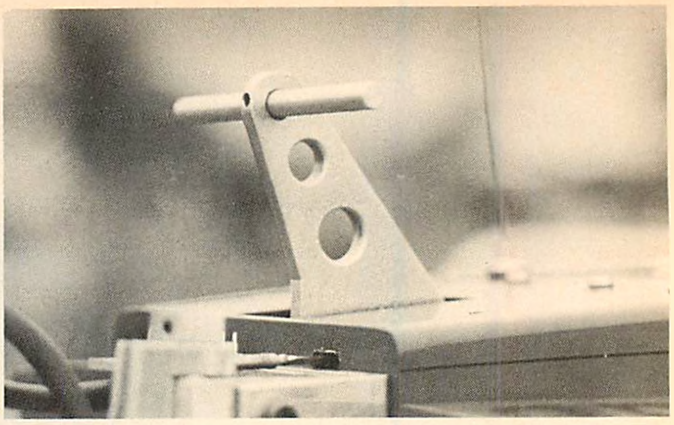
A-Mono - Larry Dickens at 1,200 points
B-Mono - Rip Holdridge at 1,200 points
A-Hydro - Daryl Garcille at 825 points
B-Hydro - Tom Bilyeu and Fred McGuire at 1,100 points
C-Mono - Denny Preston at 1,100 points
C-Hydro - Denny Preston at 1,100 points
C Deep Vee - Denny Preston with 20¾ laps
Open Outboard - Marvin Lang at 1,200 points

Saturday turned out to be a successful day of racing even with the wind and cool temperatures. The Boaters of Oklahoma ran off



Rip Holdridge's B-mono winning, OPS .40 powered Wardcraft (**above**). Daryl Garcille's Lil Lightning by Steve Muck's Boats ran circles around the outriggers in A-hydro (**right**). Rip Holdridge (**at top**) won overall high point.





Joe Bishop's high performance piped outboard on a Steve Muck Lil Lightning tunnel hull (**left**). Launching handles (**above**) help keep hands out of props.

fifty-one heats with sixty-four contestants entered. From these sixty-four entries we had two manufactures represented. From Oklahoma City was Joe Bishop of Bishop Marine Designs. Joe was running his new C Hydro called the "Phantom". This outrigger is unique in that *everything* on the boat is adjustable. Rear and front sponsons, motor mount, carrier bearing, and rudder are items that are adjustable on this boat, just to name a few. You might want to write Joe at B.M.D., 501 N. Meridian, Suite 107, Oklahoma City, Oklahoma 73107 for more information on his new designs.

Also entered in the races was Al Berry, representing RCD products in Chickasha, Oklahoma. Al was running his kit design, The Challenger, a very stable outrigger. The challenger comes in lengths of 30 inches to 42 inches. Al showed me his new boat that is coming out, called the Challenger X-111. It looks really sharp. For more information, write Al Berry at RCD Products, 1623 Missouri, Chickasha, Oklahoma. Steve Muck and his successful line of model boats are now located in the Dallas, Texas area. This makes up the list of model boat manufacturers now developing in the central and southern areas of NAMBA.

Sunday's weather was more winter than spring. It took a good heavy coat to stay warm under this low overcast day. There was one good thing about it; the water was smooth as glass, excellent for high speed model boats. The fourth round of A Mono turned out to be a two-boat race between Floyd Herrell and Larry Dickens. For the first time all weekend, Floyd managed to beat Larry for first place. In the fifth round Larry came back to get first and a nice total of 1,900 points for the weekend. Floyd Herrell took second with 500 total points. Rip Holdridge continued to tear them up in B Mono by winning the fourth and fifth rounds with his OPS 40 powered Warderaft. This gave him a perfect score of 2,000 points for the weekend. Dave McDonald won his fourth and fifth round heats but only managed to place third overall in B Mono.

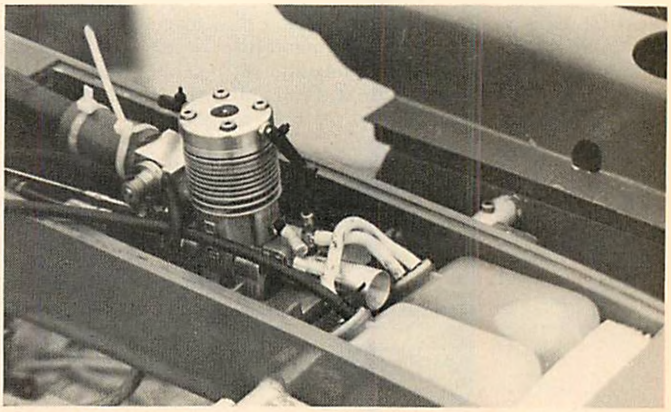
In the fifth round of B Hydro, Al Berry put his Challenger outrigger around the course in style with a time of 1:27:0. I'm told that the time he turned was only six seconds shy of the record. Tommy Bilyeu won his fifth round making him the victor in B Hydro only 300 points above Fred McGuire and Al Berry, who were tied for second. Stuart Russell won C Mono by putting in a first in the fourth round and a second in the fifth. His final score was 1,525 points, only 100 points over Denny Preston and Donald Ross, tied for second. Rip Holdridge was running great all weekend, but in the last two rounds he had trouble getting on plane.

Daryl Garcille made the outriggers look sick with his tunnel hull in A Hydro. He finished the weekend with 1,150 points, with Bobby Nunley in second at 450 points. Daryl Garcille only placed second in Open Outboard with 850 points. Marvin Lang, using his Ekim "Lil Missile", took first with a grand total of 1,625 points. In the fifth round Denny Preston was really smokin again, passing them left and right in C Hydro, but to his disappointment, he lost the rudder control on the third lap and had to shut it down. Al Berry finished first that heat. In the second heat of round five, everyone died on the course, and Tommy Bilyeu took an unchallenged first place.

The third heat saw Pat Saliva taking an easy first after Joe Bishop had trouble keeping a new engine alive and running. After the smoke was all clear, Tommy Bilyeu won first with 1,800 points. Tommy was not the fastest boat, but he consistently kept running and placing. Denny Preston took second with 1,525 points. The last round of C Deep Vee was completed with the final winner being Bob Finn at 64¾ laps for three ten-minute rounds.

A run-off in B Hydro for second place resulted between Al Berry and Fred McGuire. Fred was on the clock better than Al and started half a lap ahead. Al was unable to make up the distance between them and had to settle for third place overall in B Hydro. A run-off for second place in C Mono was easily won by Denny Preston after Donald Ross had to contend with radio trouble.

A special award was given to the hard luck driver of the contest. It went to Les Hatly of Oklahoma City, Oklahoma. Many thanks to all contestants that came down to run with the Boaters of Oklahoma.

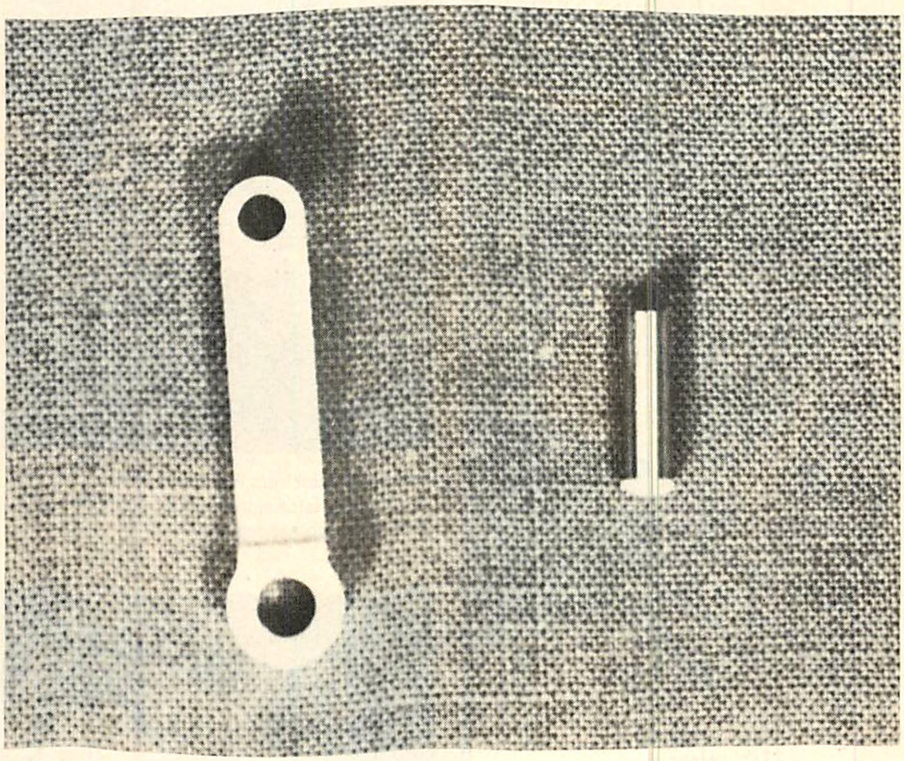


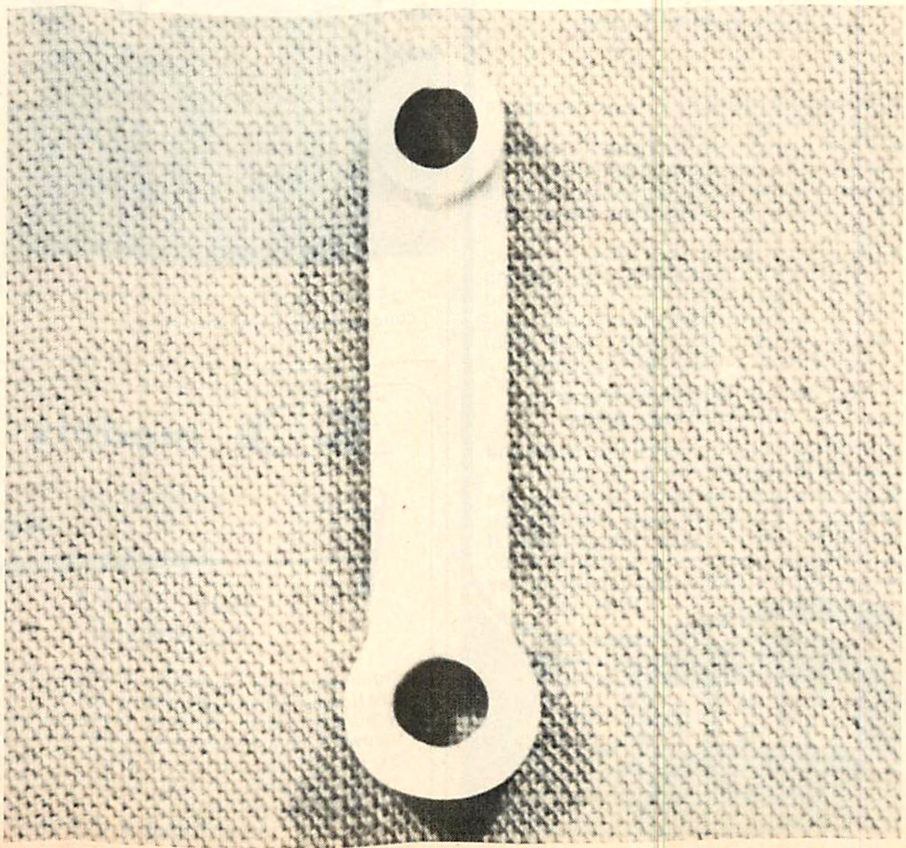
Al Berry of Chickasha, Oklahoma, with his Challanger X-111 design (**left**). Here's what makes Denny Preston go fast—an OPS .65 stroker.

An RCMB How to:

Beef up your K&B 6.5

To run at 85 m.p.h. and over there's a secret you ought to know about your engine. Here's a hot tip from **John Ackerman**



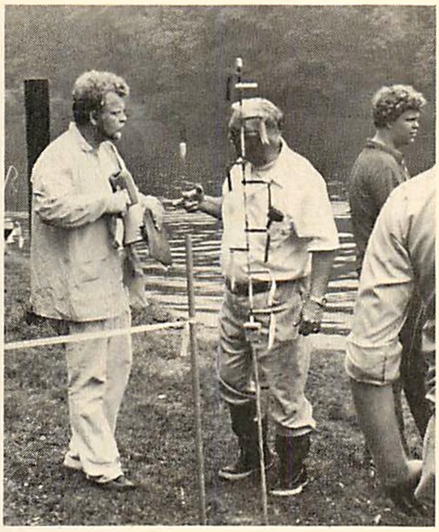


If you've wondered how we make those banzai straightway passes in the mid 80's and still manage to keep the K&B engines together, we've got a secret. A couple of years ago Dave Richardson of R.P.M. sent me a couple of connecting rods. They were machined out of 7075-T6 aluminum and are very strong. Needless to say, I'm still running the originals and have no plans to remove or change them in the near future. K&B's rod at 25,000 has a tendency to break. Every time I started doing test stand work I had to work below 25,000 r.p.m. because every time I'd go above that magic number the rod would go, along with the piston, liner, case and rotor. Total destruct. I've been running the r.p.m. to 28,000 and have yet to see the slightest bit of wear or distortion. By the way, if you plan to make a charge towards the magical eighty or ninety m.p.h. bracket you'll have to run in excess of twenty five thou. Also, in oval racing under a good dunk the K&B rod will bend. I'd rather crack a case then replace a lot of broken parts from running an engine with a bent rod. Now, I have never had any problems with the .20 rod but I understand that the car guys have, so when I started running in the .20 class it just seemed natural to install the R.P.M. rod. Dave told me the .20 had had some wrist pin problems so he includes a stronger wrist pin with each rod. (Don't get them mixed up.)

Installation

On the forty and the twenty they are simply a direct interchange. However on the forty I suggest two gaskets under the rotor housing instead of one. Helps keep the clearance correct between the rotor disc and the rod. If you can't find the rods locally write or call Dave Richardson, R.P.M., 5070 Golden Dr., San Jose, CA 95129, 408/257-7059.

Letter Rip!



Contest Director Vern Randolph, at left, is having a serious discussion with Ray Kurz, a member of the Empire Racing Association.

Kathy Randolph is racing with the calling help of Jim Allen. Bill Deickmann and Lisa Randolph, Kathy's daughter, keep track of the action.

Doug Twaits and his pitman Arnold Raynon deep in concentration during the race.

Empire Racing Association NAMBA heat race

This popular race was held on June 3rd and 4th at Tibbets Brooks Pond in Westchester County, New York. CD Vern Randolph and assistant CD Bill Deickmann ran 48 heats each day from 10am to 6pm Saturday and from 9am to 4pm on Sunday when the trophies were handed out. The weather was sunny except for about three hours on Saturday afternoon when there were some spotty showers. The fastest time (1:54) for the two mile, six lap course was turned in by Vern Randolph of the Empire Racing Association with a custom-built .40 hydro.

The High Point trophy was won by Chuck McGaughy of the Great Hartford Model Boat Club of Connecticut. The only girl driver at the contest was Kathy Randolph who took three first places and one second with her .40 ski boat to give her a second in B

Luke Farmer is doing the driving while Tony Asaro is calling in a .20 hydro heat.

Mono overall. This was her first race.

There were 101 boats entered and 42 drivers. Trophies were given to third place in each class plus the High Point. The Empire Racing Association is also holding a Deep Vee race at the same site on July 29th and 30th—VERN RANDOLPH.

Empire Racing Association Heat Racing Results

A Mono
1. Bill Deickmann, 1250
2. Chuck McGaughy, 1150
3. Doug Faconi, 1125
4. Pete Liard, 1025
5. John Aubel, 969

A Hydro
1. Ted Bartkawiak, 1400
2. Chuck McGaughy, 1225
3. John Palica, 1200
4. Doug Twaits, 1200
5. Luke Farmer, 725

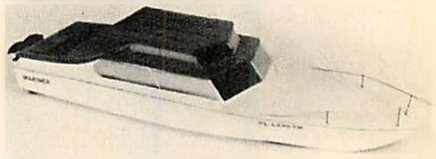
B Mono
1. Mike Janes, 1500
2. Kathy Randolph, 1500
3. Glen Simpson, 1400
4. Ruben Neazer, 1400
5. Ramsey Reid, 1225

B Hydro
1. Vern Randolph, 1600
2. Walter Austin, 700
3. Chuck McGaughy, 475
4. John Palica, 475
5. Richie Barile, 450

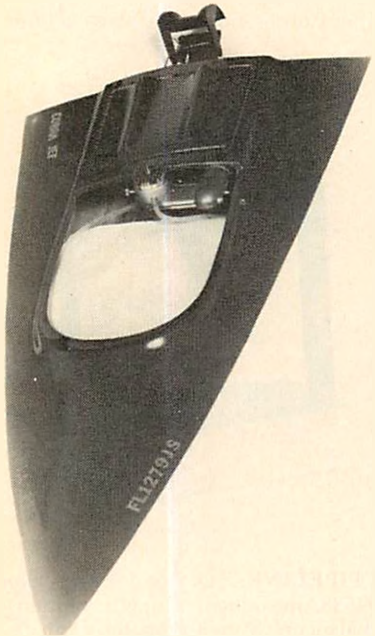
C Mono
1. Pete Liard, 1500
2. Larry Szybkowski, 1500
3. Arnold Raynor, 1269
4. Robert Van Houten, 1225
5. Ramsey Reid, 1150

C Hydro
1. Larry Montterulo, 1025
2. Tony Asaro, 825
3. Richie Barile, 475
4. Mike Meyers, 475
5. Larry Szybkowski, 425

MODEL RECTIFIER CORP., *2500 Woodbridge Ave., Edison, NJ 08817*, has introduced two ready-to-float boats. One the flat bottom, semi-V "Mariner" pleasure yacht; the other, the "Cobra Jet", a speed boat. Both are fiberglass complete with brightly colored gel coat finish. The yacht comes with MRC-Enya 35BIIITV Marine engine in place. The Cobra Jet has an MRC-Enya 40TV Marine installed. Both have waterproof boxes installed to house your radio equipment. Control rods, fuel tank, muffler, glow plug and starter belt are factory installed. These are really quite complete and need barely an hour to get them floating. In addition to being complete with engine, the boats come with MRC's new Turbo-Trol jet propulsion system. The system offers the modeler uncommon maneuverability and control even in the most treacherous or stump-filled waters. With Turbo-Trol you can run the craft aground and still not damage the control mechanisms. There's no prop shaft or rudder assembly to break. With

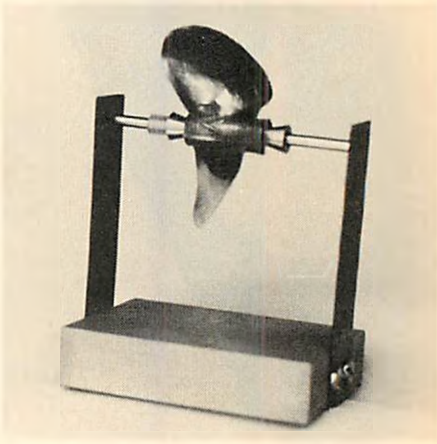


no external prop, the boats are great fun and excitement for the entire family. The Turbo-Trol system gives the boatsman an ability to run in reverse or brake in an instant. Sharp turns become an everyday reality. Complete with ball bearing bronze bushing for shaft support, the Turbo-Trol is

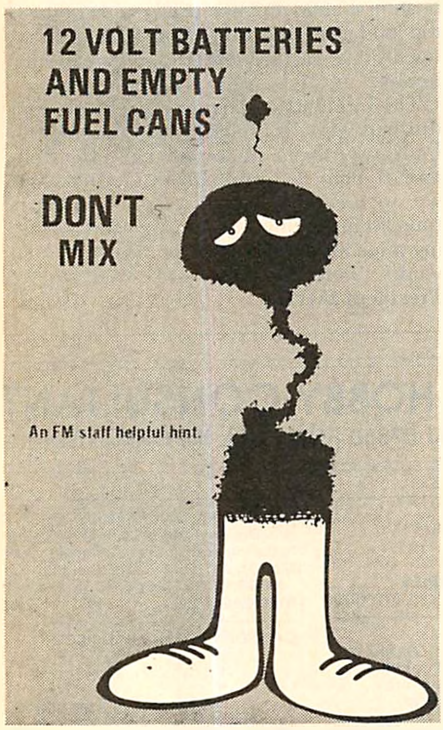


a new generation of control. It features its own water outlet for supplying cooling water to the engine. The Mariner measures 36" in length with a 12½" beam. Sugg. retail $259.95. The Cobra Jet speed boat is 32" long, 17" beam. Retail $269.95. Both craft require a two channel radio (not included). A third channel can be used should the sailor want to utilize the brake or reverse control of the Turbo-Trol system.

For further information, see your hobby dealer. If he can't help you contact Model Rectifier Corporation at the above address.



THE PIPELINE, *P.O. Box 1868, Fremont, CA 94538,* introduces a new evolution in prop balancers; Spin-a-Prop, the ultimate in simplicity and accuracy. This balancer requires no leveling and may be used anywhere, with more accuracy than the conventional style. No more worrying about the proper fit of your prop on a hopefully straight shaft supported by two pre-leveled knife edges. Now a precision ground shaft with conical ground ends mounts two tapered stainless steel cones which holds your prop centered on its rotating axis. This assembly is then placed in the detents between the two spring steel uprights and allowed to spin freely. An unbalanced prop is a Boater's worst enemy! Not only can it cost you those precious RPMs, but it can also destroy your strut assembly and bearings as well. With Spin-a-Prop you can now get all your props in perfect balance and get that extra edge. For any prop to be in perfect static balance it's center of gravity must coincide with it's axis of rotation. If this is true the prop will rest in any position about its rotation axis. If the center of gravity does not



coincide with the center axis, the prop will rotate until it's center of gravity comes directly under the center of the shaft. Before attempting to balance the prop blow heavily on it causing it to spin. By placing something white behind the assembly check the hub for run-out. Many props are drilled off center, so if this is the case, correct the hub first. The prop is then brought into balance by adding or taking away weight at the proper points starting at the greatest diameter on the leading or concave face. The Spin-a-Prop sells for $22.50 and can be ordered from The Pipeline, P.O. Box 1868, Fremont, Ca. 94538.

IMPBA Roostertail

Here I am in "Big Daddy's" (Fred McBroom's) motor home on my way to the NAMBA Nationals in Naples, Florida. I think that establishing good relations between the IMPBA and NAMBA is important to the advancement of model boating. Perhaps one day soon we may be able to present a united front for model boating. Unfortunately, we will always have a few individuals who try to stir up trouble between the organizations for their own benefit and not for the welfare of all model boaters.

The Mini-Gold Cup Race in Detroit was a huge success. The new practice of turning off radios in the retrieve boats was a major help in getting 84 races run in one day. Congratulations WMRBA on a job well done. Ken Brunck from Louisville, Kentucky tied for second place in .60 hydro with Jack Bucknell and also tied for 1st place in .40 hydro with Doug Riha. It wasn't in the stars for Ken since he lost both run-offs but he did show us the best races of the day. A large number of Scale hydros showed up for a good display and a spectator pleasing performance. Doug Riha from Chicago gave the people a real show when he threw his Scale Miss US in the water and started it with an on-board starter. I might mention that I saw an increasing number of launch handles on the boats which was pleasing. Once again the safety nets performed well.

Being an intense competitor, I have been bothered by some peoples actions lately. It seems that winning to some (very few I might add) becomes everything and they will use almost any means to do it. Good close competition on the water is very exciting, however to intentionally try to run someone over in order to force them out of a lane is poor sportsmanship. It is also *good*

sportsmanship to give plenty of room to a faster overtaking boat. The point of the matter is to be considerate of your fellow boater. If winning is that important to your ego, model boating will be better without you. I must admit that this is not a major problem and it only applies to a fraction of 1% of the people involved in the hobby. I have always said the people are what this hobby is all about.

Soon I will be leaving this office and your new president will be taking my place. I would like to say that it has really been an interesting experience. I would like to pass on a few tips to the model boaters which will be helpful to the next president. First of all, try not to ask the president to make exceptions to the rules for you since it puts him in a "damned if you do and damned if you don't" position. Second, be considerate of his time by giving him sufficient notice of scheduled events, records, problems, etc. so that he doesn't have to call all over the country to get them resolved. Third, if you have a complaint, have a solution to go along with it. Fourth, don't complain about something not being done unless you want the job. Lastly, be open minded to any suggestions he may have since he has the welfare of all model boaters at heart and not just the viewpoint of the loud minority. Don't forget, he is donating his time and effort for the welfare of your hobby.

The Internats will be over when you read this and we will probably start preparation for New Orleans. I hope you had a fun summer. I hate to terminate this article, but we are nearing "Gator" country and it is time for me to put down my pen and pick up my transmitter and listen for those immortal words, "Port time is on."—LEONARD SWIERA, **President IMPBA**

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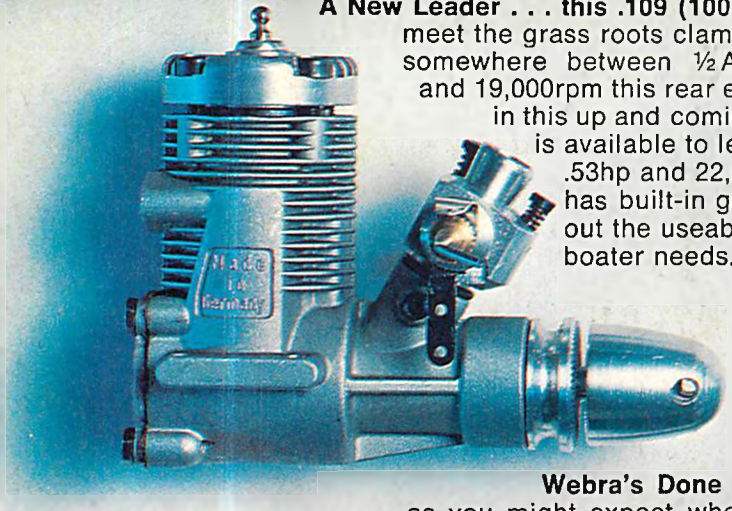

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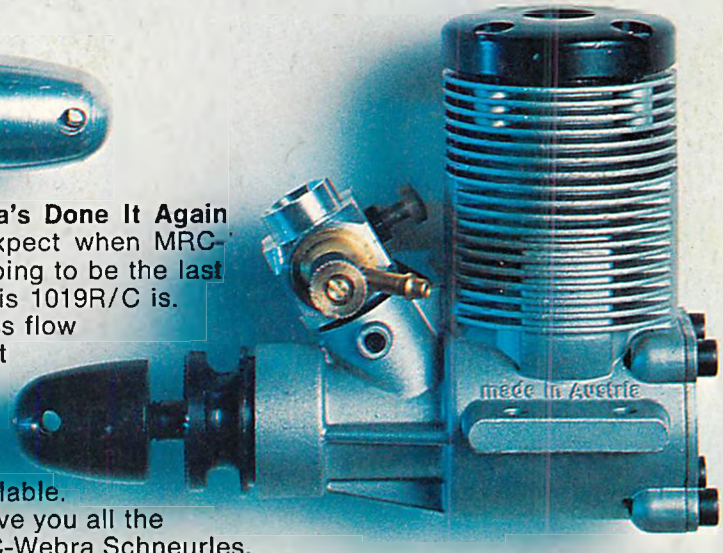

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