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AMERICAN aircraft modeler

THE LARGEST MODEL HOBBY MAGAZINE IN THE WORLD
INCLUDING THE OFFICIAL NEWS OF THE ACADEMY OF MODEL AERONAUTICS

NOVEMBER 1974



Beginners Control



Look like real planes!

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solid balsa construction withstands hard landings time after time

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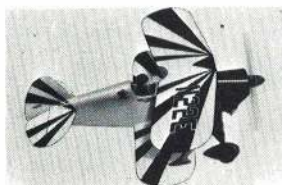
Scientific models have an exclusive pre-carved balsa body (not just a thin sheet of wood) which gives you a sturdier more realistic flying model.

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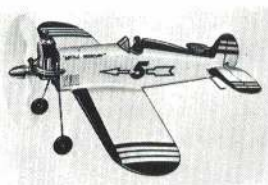
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- Complete control assembly including formed metal bellcrank, hardware, control rod and horn
- Tailwheel or metal skid assembly
- Elevator hinges
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One look will tell you these Scientific kits are designed to get you flying F-A-S-T! Every kit is specially designed for engines .020 to .049. You're not limited to just one engine size. And they're just as easy to build as profile kits . . . but look like a real airplane. Whether you're a beginner or a pro, Scientific flying models are your best buy!



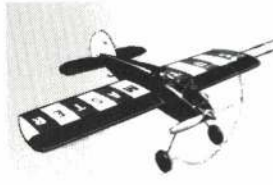
Kit 20 LITTLE STINKER, 18". Popular aerobatic speedster.



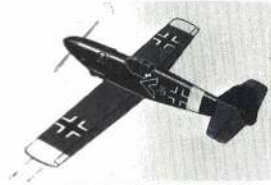
Kit 26 LITTLE MERCURY, 18". Easy to build and fly.



Kit 70 F-51 MUSTANG, 21". Famous WW II fighter.



Kit 72 SUPER STUNTMASER 20". A built-up wing stunt sensation.



Kit 74 MESSERSCHMITT ME-109, 18". German WW II fighter.

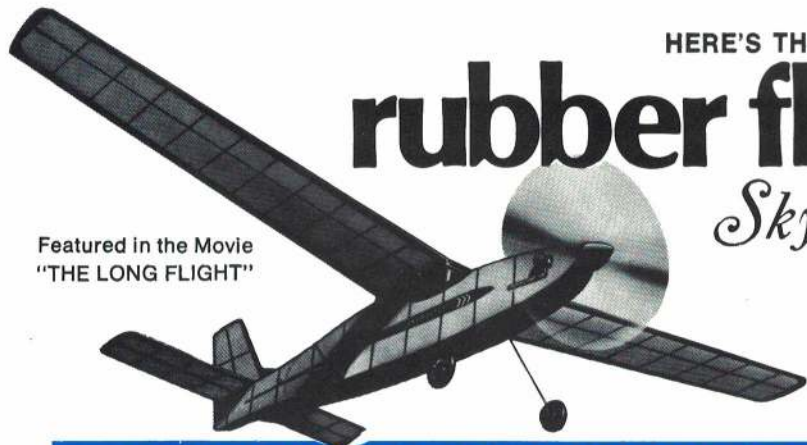
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real plane.

Photos of actual models



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Scale model of W.W. II fighter



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Kit 48 GOLDEN HAWK 18". A great
model for fun flying



Kit 25 STUNT MASTER 18" One of
America's most popular stunt models.



Kit 30 RED DEVIL 18" Great training
model for beginners



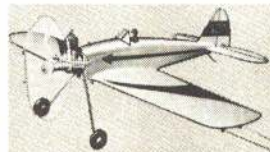
Kit 6 CESSNA BIRD DOG 18" Scale
model U. S. "Flying Jeep"



Kit 54 CESSNA "182" TRI-CYCLE
High performance private plane



Kit 14 PIPER TRI-PACER 18" with
popular tri-cycle landing gear



Kit 28 LITTLE DEVIL 18" Fast, easy
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easy to fly semi-scale model



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Send for our big colorful catalog . . . only 25¢

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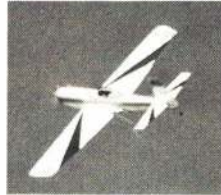
AMERICAN aircraft modeler

VOLUME 74, NUMBER 11 NOVEMBER 1974

COVER STORY

Bipes are beautiful! Miss Noreen Pankow agrees, as she holds Jerry Nelson's Pitts Special. This new design soon will appear as a kit. Photographer—Jacque Mittendorf. (Transparency courtesy of Midwest Products Co., Hobart, Ind.)

See page 20 of this issue for a beautiful Acro-Sport especially designed for the N.S.P.A. rules.



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Photo by Bob Brown

Boris Krasnorutsky poses with one of his pride-and-joys. He built four (two spares) of these custom engines for the AN-14M model.

RUSSIAN Custom Engine

An exciting new power plant designed specifically for scale applications. / by Don Jehlik



Photo by Don Jehlik

From Speed to Scale. Boris Krasnorutsky (left) and Valery Kramarenko gave up CL Speed to enter Scale. Valery's first effort brought him a World Championship.

went to the AerOlympics at Lakehurst, N.J., (See last month's AAM for the full story.) just to watch, but wound up at a reunion of Team Race fliers. The 1974 World CL Scale Champions, Valery Kramarenko and Boris Krasnorutsky, competed in Team Race at the last World Championships in Helsinki, Finland, in 1972, finishing second.

When we met at Lakehurst, I asked why they were flying Scale. Boris said that when he learned the Scale Championships were to be in the U.S., he stopped Team Racing in order to have a chance at making the Russian team. He wanted to see our country.

Pat Potega asked me to get *that* engine used in the winning plane, and find out how it worked. You see, the engine is probably the first designed to meet the demands of scale modeling since the Morton M-5.

When Valery and Boris decided to build the AH-14M twin-engine turboprop, it was obvious that no conventional engine would hide completely in the scale nacelles. But, they designed and built one that would. Boris made four special engines. Having seen their original team race engines go in competition, there is no question about the execution or quality of their work.

The basic engine design features Schnuerle ports, with an ABC piston/sleeve and a drum valve backplate. There are reasons for all this. Schnuerle ports for maximum power; the ABC piston/sleeve setup prevents the engine from seizing when it gets hot. Picture 1 shows how little air is available to cool the engine. Cooling air enters the annular ring between the shaft housing and scale turbine housing. The air passes over the engine backwards, in a sense. It moves from the propeller shaft housing to the crankcase and, lastly, over the head, then dumps out the scale turbine exhaust stack.

The drum valve backplate includes the throttled intake, which nestles against the cylinder casting. The mouth of the intake is just below the cylinder cooling fins. The "normal" crankshaft housing is shortened, ending in an exposed ball bearing.

Picture 2 shows how the normal crankshaft assembly has been modified to accept the bevel drive gear. The shaft has a bearing supporting it at the end, and then comes the bevel gear. Another bearing is located between the bevel gear and the crank disk.

Picture 3 shows the propeller shaft housing removed from the bottom of the crankcase. You can see how the gears mesh when the housing is on the engine.

Engine specs provided by Boris are:

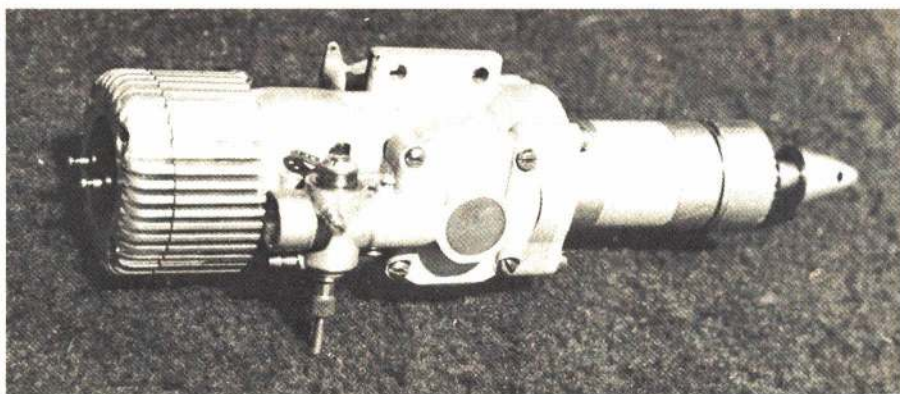
Displacement: 10 cc

Weight: 560 gm. **HP:** 1.5

Rpm: 11,000 on three-blade, 280 x 160 mm scale prop

Head chamber (volume): 1.5 cc

Gear drive ratio: 1:1



The Russian engine is rated at 10 cc (equivalent to a 61). Photo by Bob Brown

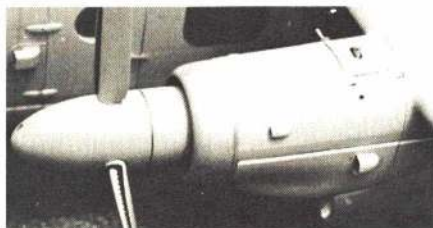


Photo 1.



Photo 2.

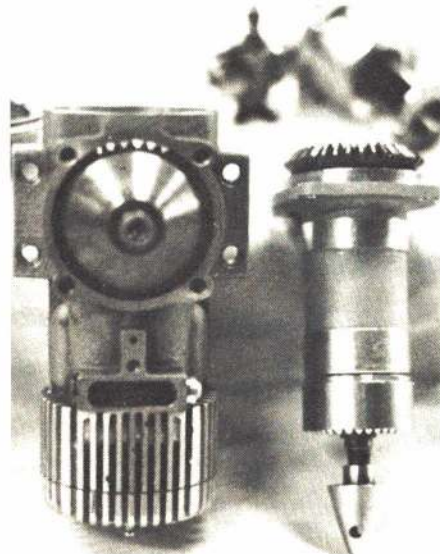


Photo 3.

While the engine caused a lot of excitement at Lakehurst, the basic question is: Is it a practical design for planes? One problem is apparent—cooling. The engine runs very hot in its scale housing, but I believe that this can be solved in a production version. Then, just think of the possibilities! All those scale planes that couldn't be built because of the exposed engine problem! There might be potential in mating the Scozzi fan with one of these engines. I

expect that it won't be long before engines based on this design will be available.

I understand that both the engine and plane will be on display in the U.S. soon.

Our congratulations to Valery, Boris, and all the members of the 1974 U.S.S.R. Scale Team. Their sportsmanship and competence left a lasting impression on all who attended the Championships.



Should a manufacturer pick up the idea of an "in-line" engine, scale nacelles like those on the AN-14M would be practical. How about one with a ducted fan? Photo by Eric W. Meyers

SAVE \$\$ ON THESE MATCHED COMBINATIONS

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- These small retract units are unique in several respects -
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 4. Installation is very simple due to small size, non-critical linkage requirements, easily removable struts.


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I weighed this big set of super fast drying epoxy glue, and darned it it's not 12 ounces worth. That's 5 times more than brand P. Sufficient quantity for big jobs like assembling your own full scale 707, or gluing your mother-in-law to her motorcycle seat.



NEW! MYSTERY OBJECT \$2.95 each

I'll show you this picture and bet you that you don't know what the thing is or who makes it. To the first 12 guys who write in and correctly identify this thing, we'll send you one FREE. If you want to buy one send \$2.95, but why would you want one if you don't know what it is?



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TRY US OUT: J.K. did:
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Sullivan "PROP-LOC" SPINNERS

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PROP-LOC SPINNERS AND SPINNER-ETTES absolutely prevent the problem of props coming loose during starting, or during backfiring, or when shifting from low to high throttle in the air.

NEW! MRC-MK (All balsa construction) R/C AIRPLANE KITS

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"BLUE ANGEL"

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Automatic Battery Analyzer

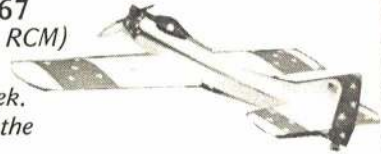
This device was the subject of RCM Magazines's rave review. It is the best insurance you can buy for the reliable performance of your digital proportional.

1. Checks both receiver and xmtr. packs.
2. CYCLES batteries to break memory and restore full capacity.
3. Can be used as a load assist in finding a bad cell.
4. Helps restore infrequently used battery packs.



NEW! Lanier A-R-F TAIL DRAGGER WING KIT for "STAR TREK" \$18.67

The "Star Trek" construction article (Sept. RCM) took us by surprise. The article called for a Lanier ARF wing to be used on the Star Trek. We've got these wings in stock... they are the Lanier Jester wings with retract cut outs.



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The Bayou Blues by Patrick H. Potega

Telephone rings.

First voice: "Hello, food market, Johnny speaking. May I help you?"

Second voice (country drawl): "Yeah, I want to talk to somebody 'bout them chicken kits y'all sellin'."

First voice: "I'm sorry, sir, but I'm afraid I don't understand what..."

Second voice: "You must, you sell 'em. You know, back there in the meat department with all those fresh steaks and whole chickens."

First voice: "Oh! You must mean chicken parts."

Second voice: "Yeah, that's them. Well, I bought one and me 'n my boy put it together, but it won't fly. An' I

think what's wrong is you shoulda put some feathers in the kit."

First voice: "Well sir, I'm sorry you're not satisfied, if you will bring the chicken..."

Second voice: "I'm not complainin'. I just thought you'd like to know the reason they won't fly. Now me and my boy bought one last year at about the same price, but we put the giblets in backwards and it flew backwards."

(Advertisement heard on a local radio station during the Lake Charles NATS.)

know better, since they go somewhere (anywhere) else during the "hot" season.

But there were titans in this year's NATS epic. They called themselves the LARKS, and by the way they hustled and hustled to keep the cogs of the NATS machine turning, one would have thought there were millions of them, instead of the mere handful who form this energetic club. It was obvious to all that these ardent workers formed the superstructure upon which the NATS rested.

The question then arises: Who is the NATS for, the flier or the spectator? Were we in Lake Charles to place laurels on the sweaty brows of a National Champion, or to create a fever in the heated brains of those who were supposedly watching?

To view the '74 NATS as a "free-for-y'all" activity, where everyone and anyone can vie for the sacerdotal distinction of being the best in the U.S., is to speak of the pathos as a comical ritual. Not to belittle the Herculean efforts of those who posted the best scores, but did we do justice to the men who entered this arena in the shades of Hades, and did we show due respect to the bronze plaques? Or were there, as seen and suspected, more Pyrrhic victories than real ones?

When the entry in any event is only half what it normally is, did one beat 'em all to be the best-of-y'all in the nation? It is feared that many hollow

(Continued on page 35)

The Lake Charles NATS was like a sick-chicken joke. The humor does not come out of the subject *per se* (the NATS is never funny), but the context in which it is presented. The context of this year's NATS can be focused in two areas—the locale and the schedule.

For all of those who had a grand chuckle at Oshkosh (By Gosh!), Lake Charles was a real knee-slapper. Home of the red ant (no relation to the Toledo mudhen), the area was a shining example of what life in America can be like if you live in a reclaimed swamp a thousand miles from nowhere.

Funny paper Pogo, himself a denizen of such a community, summed up the Lake Charles scene well in his oft-

quoted statement: "We have met the enemy and they is us." To fly at Lake Charles, one had to be his own worst enemy. To abuse the body in order to achieve some claim to fame speaks well of the Spartan spirit of the fliers who subjected themselves to the endurance test. Perhaps it also says much of the silent wisdom displayed by those who stayed away (with a little over 900 total fliers, those *in absentia* were a silent majority).

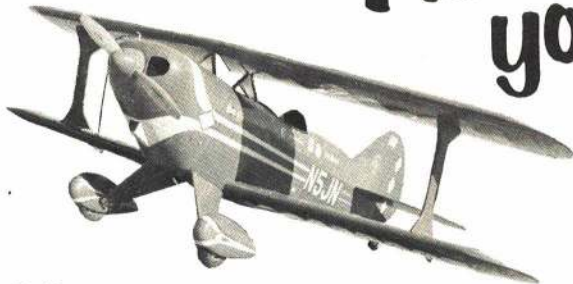
The ironic tragedy is that Chennault AFB is the epitome of flying sites. Runways as far as the eye could see went unflown for long periods throughout the ten-day schedule (a real decathlon for many multi-event fliers). Vast plots of excellent spectator areas went untrampled—the local citizenry apparently

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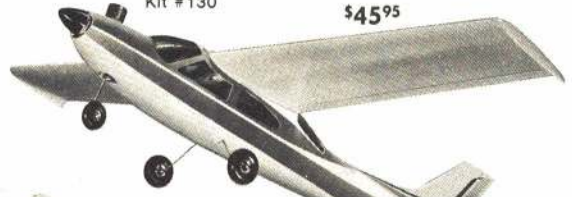
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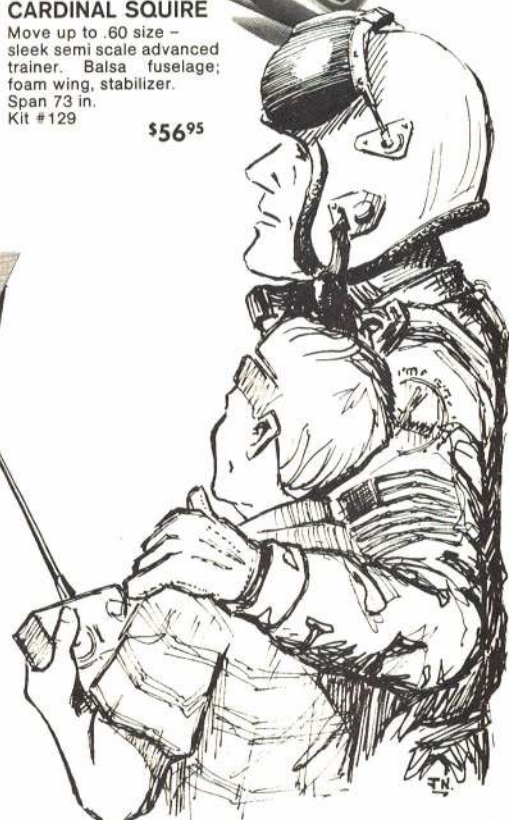
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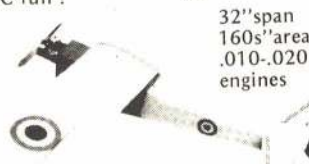
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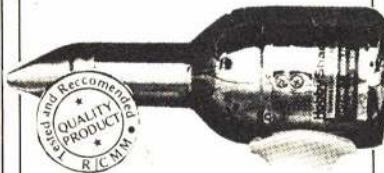
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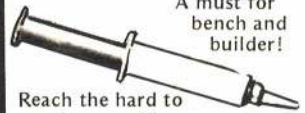
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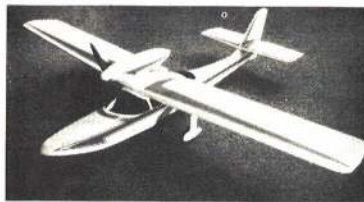
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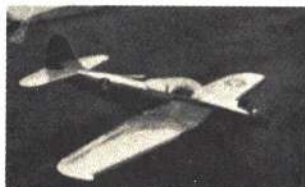
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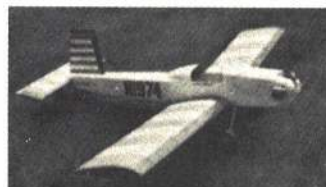
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.09 III TV	\$22.50	\$17.75
.15 III TV	25.25	19.95
.19 V TV	27.50	21.40
.29 IV TV	30.98	23.90
.35 III TV	32.98	25.60
.40 TV	62.98	47.75
.45 BB TV	56.25	41.35
.60 III BB TV	83.50	58.00
.60 III BB TV G-8	88.50	65.00

FOX:		
.15 RC	\$20.95	\$15.50
.19 RC	25.95	19.00
.25 RC	25.95	19.00
.29 RC	29.95	21.25
.36 RC	29.95	21.25
.60 RC Eagle	69.95	47.25
.78 RC	84.95	56.50

H.B.:		
.61 RC w/muffler	\$130.00	\$80.00

H.P.:		
.40 RC Schneurie F.R.	\$84.50	\$64.50

K&B:		
.35 RC Stallion	\$29.00	\$21.00
.40 RC w/Perry	54.50	38.95
.40 RC Schnuerle	82.00	57.50

O.S. MAX:		
Pet .099 RC	\$ 13.98	\$11.75
.10 RC	19.98	15.95
.15 RC	25.98	20.95
.20 RC	27.98	22.95
.25 RC	29.98	24.25
.30 RC	32.98	26.50
.30 RC Wankel	87.50	75.00
.35 RC	32.98	26.50
.40 RC	49.95	39.95
.50 RC	59.95	43.95
.60 RC Blackhead	74.95	61.00
.80 RC	105.95	86.50

SCOZZI:		
Ducted Fan	\$69.95	\$59.50

SUPERTIGRE:		
G 20/23 RC	\$33.95	\$28.00
G 21/46 RC	39.95	32.95
G 60 F1 ABC RC	90.00	74.95
G .60 RC Bluehead	74.95	61.00
G .71 F1 RC	79.95	64.95

VECO:		
19 RC	\$42.00	\$30.75
61 RC w/muffler	85.00	60.50

WEBRA:		
.40 RC Blackhead	\$101.00	\$64.50
.61 RC Blackhead	134.00	84.00
.61 RC Schnuerle	148.00	95.40
.61 RC Schneurie R.V.	157.00	102.20

YS:		
YS .60 RC	\$146.00	\$94.00

NOTE: ENYA AND WEBRA PARTS IN STOCK!

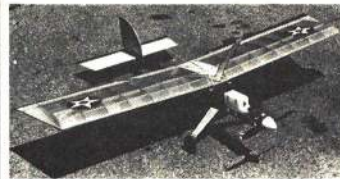
THE FAMOUS GATES LEARJET



Now an RC model of the most popular business jet. Beautifully kitted with foam wing and precision molded plastic fuselage. Full hardware package included. A super kit!

Wingspan 55" Length 57"
Wing Area 550 sq. in. Engine .60 ONLY \$67.50 (NO C.O.D.'s)

GMC MODELS KWIK-STICK I



Span 58" Engine .40 to .60

RETAIL \$42.95 TOWER \$40.75

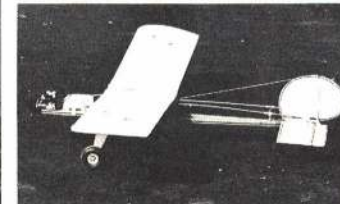
GMC MODELS KWIK-STICK II



Span 56" Engine .29 to .40

RETAIL \$32.95 TOWER \$31.25

GMC MODELS KWIK-STICK III



Span 48" Engine .15 to .29

RETAIL \$30.95 TOWER \$29.40

RC KITS MIRAGE



Span 64" Engine .60

RETAIL \$59.95 TOWER \$51.00

All prices in this ad are correct as of July 20, 1974.

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H.B. .61 RC ENGINE WITH PERRY CARB & MUFFLER



RETAIL \$130.00 TOWER \$80.00

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RC GLIDERS . . .

	RETAIL	TOWER
AFI (ASTROFLITE):		
ASW-15	\$49.95	\$37.75
ASW-17	79.95	60.50
Monterey	34.95	29.00
Fournier RF4	34.95	29.00
Malibu	25.95	22.00
Astro 10 Electric Motor	65.00	53.95
Astro 25 Electric Motor	85.00	69.95
AIRTRONICS:		
Olympic	\$49.95	\$40.95
Grand Esprit	129.95	102.50
Questor	34.95	28.75
Super Questor	39.95	32.75

GRAUPNER:

Cirrus	\$84.95	\$51.00
Cumulus	169.95	120.00

JP MODELS:

Dart	\$55.00	\$47.00
Dart II	64.50	55.00
Javelin	49.50	42.00

MARK'S MODELS:

Windward	\$29.95	\$22.95
Wind Free	39.95	28.95
Wind Free R.T.C.	89.95	77.50

OTHER R/C PRODUCTS

In addition to all of the items listed and shown in this ad, TOWER HOBBIES carries all of the following lines: Austin Craft, DuBro, Goldberg, Robart, Rocket City, Sonic-Tronics, Su-Pr-Line, and Tatone ACCESSORIES; Ambroid, Devcon, Hobby Pox, Southern RC, and Titebond ADHESIVES; Tower Hobbies BALSA WOOD; Eveready and Tatone BATTERIES; A-Justo-Jig, Dremel, and X-Acto BUILDING EQUIPMENT; Perry CARBURETORS; Coverite, Royal Silk, and Southern RC COVERING MATERIALS; Kavan and Sonic-Tronics ELECTRIC STARTERS; K & B FUEL; Sullivan FUEL TANKS; Fox and K & B GLOW PLUGS; DuBro, Hegi, Kalt, Kavan, RC Helicopters Inc, and Graupner HELICOPTERS; Complete selection of MUFFLERS; Aero Gloss, Hobby Pox, and K & B SuperPox PAINTS; Badger PAINT SPRAYERS; Top Flite and Tornado PROPELLERS; EK, Kraft, MRC, and Tower Hobbies RADIOS; Goldberg, Rom Air, and Sonic Systems RETRACT SYSTEMS; Tower Hobbies RUBBER BANDS; JP SCALE INSTRUMENTS; Williams Bros. SCALE PILOTS; Midwest, Tatone, Tower Hobbies, and Williams Bros. SPINNERS; DuBro Goldberg, and Universal WHEELS.

All are in our new SUMMER '74 fully illustrated catalog - at the lowest prices, of course!

JUST RELEASED SUMMER '74 CATALOG

The Summer '74 catalog is an updated version of the Spring '74 catalog. Over 75 manufacturers of kits, radios, engines, and accessories at the lowest prices anywhere! Send 75c (mailed 3rd class). For first class mailing, send \$1.00. FREE WITH ANY SIZE ORDER.

FULLY ILLUSTRATED!



Nickel-Cadmium Batteries

Most modern radio control systems include nickel-cadmium batteries for both transmitter and airborne power sources. Transmitter batteries have eight or more cells and airborne batteries usually consist of two or four cells in series. Nickel-cadmium cells are always charged in series. Many systems charge both the transmitter and airborne batteries in one series loop.

Others have two separate secondary sources in the charger transformer, each going to a separate rectifier circuit. One charges the transmitter battery, the other the receiver battery. This type of charger has the additional advantage of allowing charging of one battery with or without the other in the circuit. Also, separate charging indications are available so that trouble-shooting of a bad pack is easier.

Some of the advantages of nickel-cadmium cells besides the obvious one of long life with repeated charging are: relatively constant voltage over a wide range of current demand and throughout most of the useful discharge cycle; rugged construction with little sensitivity to shock or vibration; useful over a wide temperature range (but there are some cautions we'll talk about later); and finally, a large power capacity compared to comparably sized cells using one-way chemical reactions. Nickel-cadmium cells are expensive—on the average \$2-\$3 apiece—but when you consider the advantages, they're worth the money.

Despite all the good things I've just said about them, nickel-cadmium cell failures still account for the lion's share of radio failures today. Some of these failures are unpredictable, but some could have been prevented or the impending failure could have been detected. Nickel-cadmium cells, like the rest of your radio equipment, require periodic maintenance.

During normal operation, the cell voltage remains relatively constant. Voltage will decrease rapidly from about 1.35 volts to about 1.2 volts, then very gradually to 1.1 volts. Near the end of its capacity, cell voltage will drop quickly to zero. A normal day's flying will never get you down to the

rapid drop-off point.

If you have an output meter on your transmitter, keep an eye on it. If it drops appreciably, stop flying. A DC voltmeter with a load resistor in parallel is useful for checking the condition of the airborne battery. There are also commercial testers available to do this. A fully charged system will normally be more than adequate for eight 10- to 15-minute flights.

Batteries should be given a full charge each time before you fly. Charge retention of nickel-cadmium cells is good at lower temperatures, but if stored at temperatures above 20°C (69°F), the charge will bleed off significantly (as much as 20% capacity in a week).

SEVENTY-FIFTH IN A SERIES

getting started in R/C

by Jim McNerney

Operating temperature for nickel-cadmium cells is broad (-40°F to 140°F) but the limits on charging are more severe (+32°F to 115°F). This is important if you're using a charger in the field. High temperatures cause deterioration of the separators between the plates and an eventual short circuit. Extremely cold temperatures during charging cause generation of hydrogen gas and internal resistance becomes very

high.

Nickel-cadmium cells can normally be charged and discharged at least 1000 cycles. The normal charging rate is one-tenth of the rated capacity. For a 500 milliampere hour battery, the charging rate would be 50 milliamperes. This charging rate is safe for indefinite periods. These cells can be charged much more efficiently at higher current rates. That is, the cell will store more of the energy put into it and less will be lost as heat. However, as the cell reaches full charge, continued charging at a high rate causes surplus free oxygen in the cell and the internal temperature and pressure rise rapidly. If the cell is equipped with a safety relief valve, the cell will vent and some electrolyte will be lost. Repeated or prolonged overcharge at a high rate will eventually lead to cell failure. Some cells are designed to accept a moderately high charge rate for prolonged periods with no adverse effects. These are normally identified by the manufacturer as "high rate" or

(Continued on page 93)

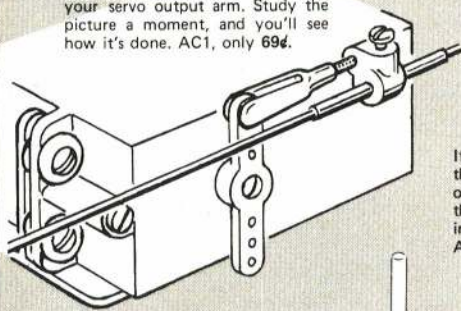


CARL GOLDBERG

3 NEW AILERON FITTINGS!

AILERON COUPLER

At last, a simple way to couple conventional aileron pushrods to your servo output arm. Study the picture a moment, and you'll see how it's done. AC1, only 69¢.



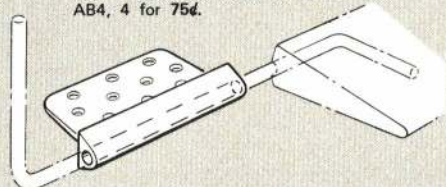
KLETT AILERON PUSHROD EXITS

A beautiful new fairing where the aileron pushrod exits your wing. Roy Klett again has used his special quality touch to produce the finest item of its kind. PEG 3, 2 for 69¢.



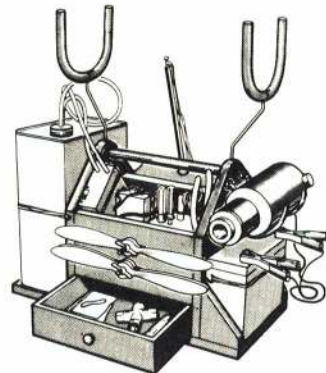
KLETT AILERON HORN BEARING

If you like precision fits, ask to see the Klett horn bearing. Superior to others, it reduces play, and has a thin tapered tab to facilitate entry into a slot, and holes for glue. AB4, 4 for 75¢.



NEW!

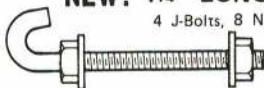
THE RIGHT-AND-LIGHT FLITE BOX HANDI-TOTE!



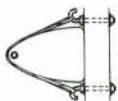
Here's the Flite Box that won't give you a hernia! Compact like you won't believe, yet room for everything you need. HANDI-TOTE was designed by Bob Rich, a practical modeler who flies a lot as he travels around (he's our field representative!). Kwik-Assembly kit HT1, only \$14.95.

NEW! 1/4" LONG J-BOLTS

4 J-Bolts, 8 Nuts, 8 Washers
LJB6 59¢



Long J-Bolts are especially useful for holding tanks in place as illustrated here on profile fuselages.



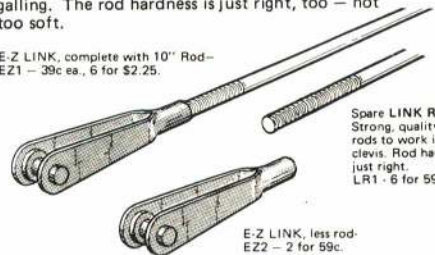
NYLON TAILWHEEL BRACKET

The simplest tailwheel mounting bracket yet—just cut a slot in the rear bottom of the fuselage, smear epoxy on the glue fin, and slide into place. TBI-40¢

1/2" J-BOLTS.
JJB6 4 for 35¢.

NEW! Spring Steel E-Z LINKS with 10" Rod 39¢ Each, or 6 for \$2.25. New E-Z LINKS not only save you money, but are made of spring steel and have quality threads that work smoothly without galling. The rod hardness is just right, too — not too soft.

E-Z LINK, complete with 10" Rod—E21 — 39¢ ea., 6 for \$2.25.



Spare LINK RODS
Strong, quality threaded rods to work in 2-56 clevis. Rod hardness just right.
LR1 - 6 for 59¢.

E-Z LINK, less rod—E22 — 2 for 59¢.

NEW! CG LOW BOUNCE WHEELS With SHARP, CLEAN RIB TREADS and TOUGH, LONG-WEARING HUBBS. From 1-13/16" Dia. on up, all wheels take standard brakes. 7 sizes—1-3/8" to 3-1/8". From \$1.89 to \$3.19 pr. Tested and proved in the field by famous fliers, we believe you, too will be pleased by these very attractive new CG Low Bounce Wheels. Ask your dealer to show you the size you want.



REPLACEMENT FOAM WINGS, ETC. Ranger 42 foam wing gets you in the air quickly—\$4.95. Stab and vertical fin, set—\$2.50. Assembled Ranger 42 fuselage, plus bearers, nosegear, etc.—\$10.95



WING KITS For Falcon 56 and Skylark 56. Can be used on either ship. \$9.95
For Sr. Falcon, Easily built, strong. \$18.95
Skylark 62, \$18.95



AILERON BELLCRANK Has steel bushing so crank can be screwed firmly in place without binding. 50¢ for 2 AB1



UNIQUE SNAP LINK! Patented. Tiny 45° shoulder snaps through arm, prevents accidental opening. Snap-Link with rod 29¢ Mini-Snaplink with rod 29¢. Either one, less rod—2 for 40¢.



NYLON STEERING ARM Hardened steel collar and screw. 75¢ SA1



STEERABLE NOSE GEAR Complete steerable nose gear with nylon bearing, 5/32" plated music wire strut, extra collar, blind nuts, screws and washers. \$2.50 G16N

NYLON BEARING One-piece design, no alignment problems. Includes blind nuts, screws and washers. 75¢ NB1

NEW—MAJOR R/C FITTINGS SETS R/C Fittings Set No. 1 for ship with standard ailerons. \$3.50 RFS1
R/C Fittings Set No. 2 for ship with strip ailerons \$3.50 RFS2

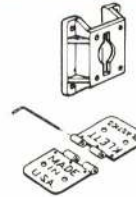
SHEET METAL SCREWS Like wood screws, but better. Sharp threads, hard. Includes washers—#2x5/16—30¢ for 10. SMS2 #4x3/8—30¢ for 8. SMS4

5/32" ADJUSTABLE AXLE Adjustable axle allows you to easily have the strut length you want. Both the axle and screw are hardened steel. Just file a flat on the strut, and tighten axle in place. 75¢ ea. AA1



ENG. BRACKET for COX "290". 59¢ EB1

KLETT HINGES — WORLD'S FINEST! Small RK2 hinges are as thin as a knife slit. Regular size RK3 hinges are the slickest you've ever seen. Removable pins. RK2-7 7 for \$1.10 RK3-7 7 for \$1.25 RK2-15 15 for \$1.95 RK3-15 15 for \$2.35



KLETT SAFETY DRIVER Can't slip off and damage your wing! Large for 1/4" Nylon Screws. Small for No. 10 Nylon Screws. 98¢ ea. Large SD1 Small SD2



KLETT PUSHROD EXIT GUIDES To protect fuselage and insure smooth operation of pushrods. Tough nylon. Two sizes—large for 5/64" wire, small for 1/16" wire. PEG-1 Large 4 per pkg. 75¢ PEG-2 Small 4 per pkg. 75¢

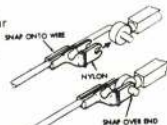


CONTROL HORNS Upright part rises from center of base. Long horns or short, with screws. 50¢ for 2. Long CH1 Short CH2



NYLON REINFORCING TAPE Extremely tough when applied with epoxy. 2 1/2" wide x 5 ft. 50¢. N2 3/4" wide x 5 ft. 25¢. N1

SNAP'R KEEPER Quickest, handiest way to safety pushrod wire end to servo, etc. Easy to use, but has tremendous holding power. Works on wire 3/64" to 5/64" diameter. 4 for 50¢ SK1



4-40 BLIND NUTS—25¢ for 4. BN4



1/2A BELLCRANK and HORN Nylon provides smooth 1/2A control line operation. Easy on dacron lines, too. 25¢ BCH1



1/2A FLYING LINE Dacron Thread—56 ft. Strong, min. stretch. For small control-line models, hinging, etc. 25¢ HL1



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4735 W. Chicago Ave., Chicago, Ill. 60651
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MANUFACTURERS—All our accessories are available at excellent O.E.M. bulk prices. ALL ITEMS AVAILABLE IN CANADA

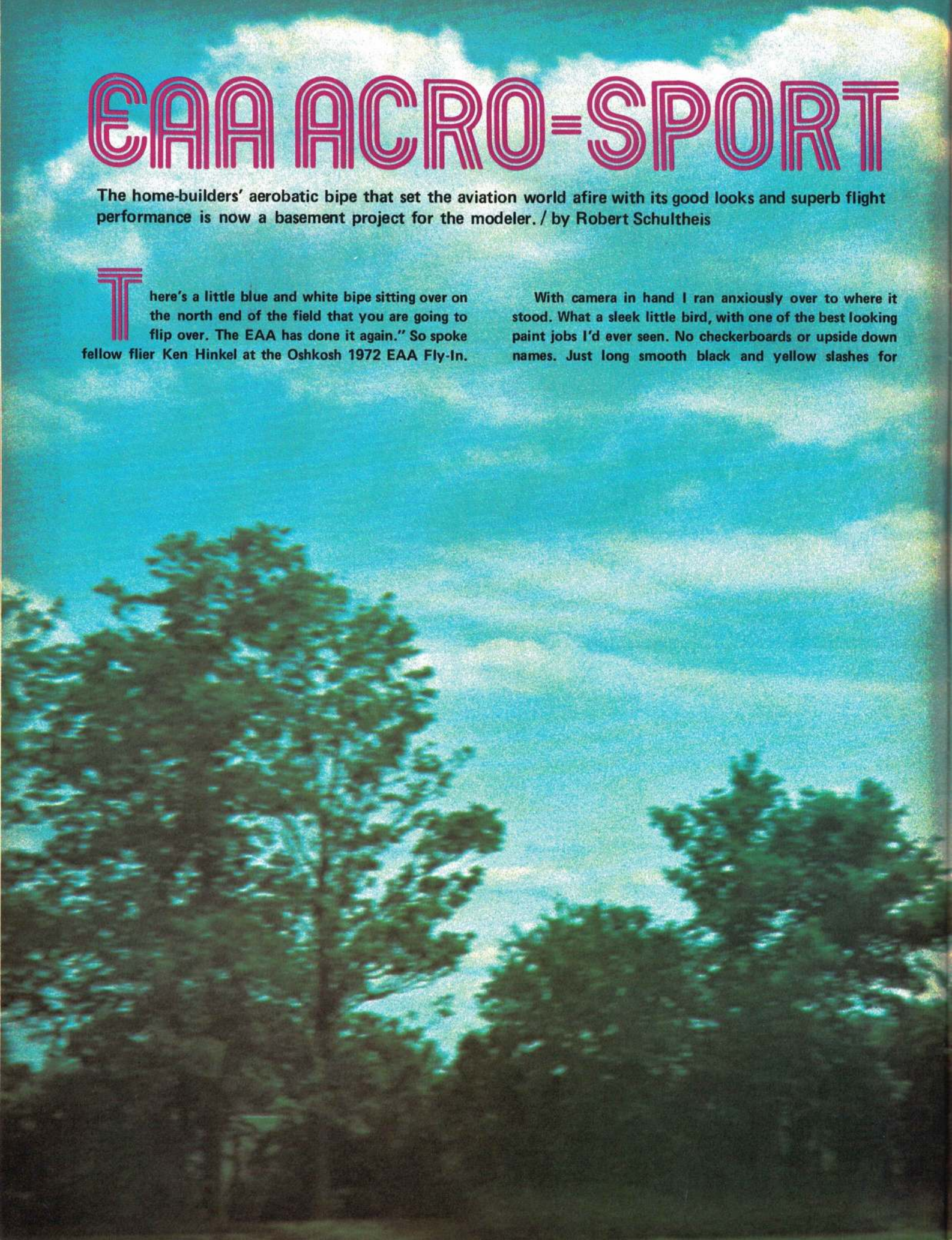
CARL GOLDBERG MODELS INC.
4735 WEST CHICAGO AVE. • CHICAGO, ILLINOIS 60651

EAA ACRO-SPORT

The home-builders' aerobatic biplane that set the aviation world afire with its good looks and superb flight performance is now a basement project for the modeler. / by Robert Schultheis

There's a little blue and white biplane sitting over on the north end of the field that you are going to flip over. The EAA has done it again." So spoke fellow flier Ken Hinkel at the Oshkosh 1972 EAA Fly-In.

With camera in hand I ran anxiously over to where it stood. What a sleek little bird, with one of the best looking paint jobs I'd ever seen. No checkerboards or upside down names. Just long smooth black and yellow slashes for



stripes over blue and white. I stood there, flying a model of that biplane in my mind. One week later the plans were drawn and I started building.

The EAA is most cooperative on pictures and three-view drawings, right up to the plans for the real thing, which are available from them.

The plane has rather slim wings (narrow chord), a fairly long nose moment and good tail areas. Try to keep the weight to six pounds, although mine is seven pounds and flies fine.

The nose is built right into the fuselage and then cut away when fitted to the engine selected. A little of the right front side of the cowl, back to F-3, is attached to the front block F-1. This is doweled and screwed on, thus completely eliminating a fiberglass cowl. The fuselage sides are 1/8"

sheet balsa with 1/32" doublers contact cemented to them. Former F-2 is really the front block, because the one-inch thick noseblock is removable. F-2 gets cut out, as does the 1/8" sheet side in front, to accommodate the engine used. This is done on the right front side, of course.

The sides are glued to formers F-3 and F-6B. This is done upside down, so that the top of the sides provides a straight edge from which to work. Then add F-7B and F-2. Draw center lines on all former pieces, as this facilitates their proper location with relation to the sides. The top of the side is also the thrust line. Now add F-2 and join the sides at the rear with the tailblock. Insert F-8, F-9, F-10, F-11, and F-12. Top rear turtledeck can be made two ways: 3/32" sheet over a 9/16" stringer or, as I did it (the lazy man's way), a 1/2" sheet from F-8 to F-10 rounded off.

(Continued)





From F-10 to the rear of the fin is 1/16" sheet beveled on its edges to provide a smooth fillet. The bottom is 3/32" sheet. I installed a Tatone mount on F-3 and blocked off the left side of the cowl below the engine to get better circulation around the head. This cooling of the engine is critical. Cut out enough cowl to get air around the engine head. The opening on the front right hand side of the cowl is cut out and lets air in. A rule of thumb is: Let at least twice as much air out as goes in. I can't stress this enough.

The landing gear was made from one piece of 3/32" thick T-6 aluminum bent to shape. The axle is of 5/32 wire which runs up to simulated shock absorbers. The gear could be made entirely of wire and strapped to the hardwood blocks. This would also be lighter. Wheel pants are Williams Bros. with a 1/4" balsa sheet around the wheel (tapered to 1/16 at the front and back) epoxied between the two halves. It's essentially a spacer to thicken the wheel pant, with a cutout for the wheel.

The cabane struts can be made two ways, either solid or as a strip. Bend up a sheet of 3/32" T-6 aluminum after laying out and cutting "N" struts in their proper location.

The second method is to use some 7/16 x 3/32" T-6 aluminum bent up to the sizes shown on the plan. Then add cross struts with pop rivets, or epoxy to form an "N."

The cabanes are bolted with 4-40 screws and blind nuts onto the 3/32" ply plate between F-5 and F-6. This ply plate is glued on top of the fuselage sides. Good alignment of the cabanes is assured because they are made and checked on a flat surface and then mounted on the fuselage. Shims may be added, if necessary, after flying to get proper trim. The interplane struts are made from 1/16" plywood, then sanded and sealed with Hobbypoxy. They are fastened to small brackets which are epoxied in the foam or built-up wing.

Their placement fore and aft in the wing is not critical ($\pm 1/4"$ is good enough) but the spanwise location gives the proper slant to the strut between the wings. These struts are placed outside (toward the top) of the brackets and have a 3-48 blind nut pressed in them. This blind nut is located and transferred through the bracket. Use nylon screws, if available. They are strong enough for flying pressures but will shear off, saving the wings, if ever necessary.





The Acro-Sport's cowl is exceptionally clean, and is uninterrupted by the usual vagaries of an exposed cylinder head. The Du-Bro Muff-I-aire keeps things quiet, yet neat. The nose of a biplane gets lots of attention, so treat it with respect.

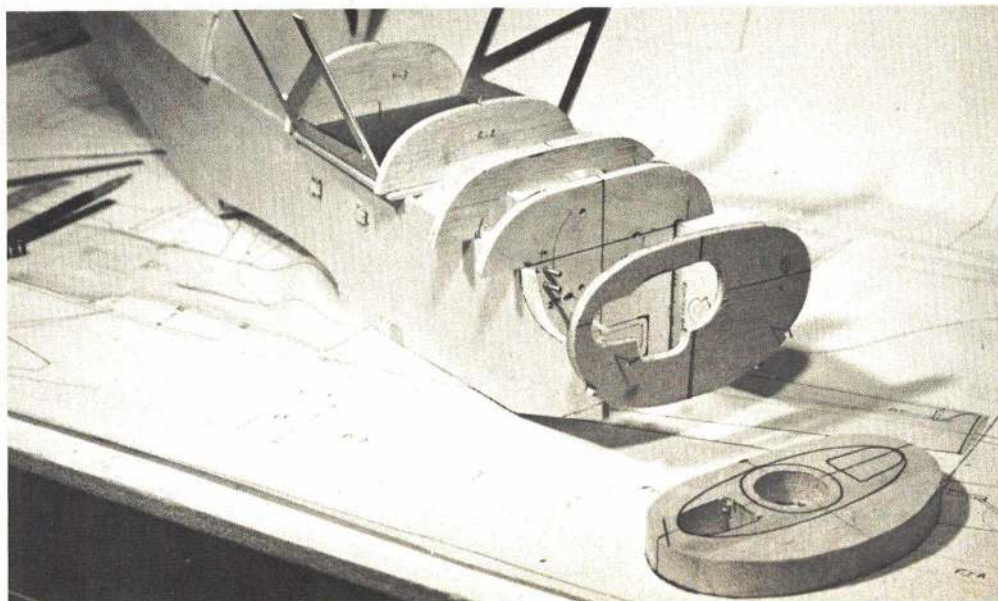
Now that the cabanes have been made and fitted, sheet and plank the fuselage. I used 3/32" sheeting on gentle curves, (top and bottom of fuselage, rear sides, etc.). Plank around the cheeks of the cowl with beveled 3/16" strips. The 3/16" can easily be sanded to the correct thickness. This is only a small area on each side of the nose. Blocks of balsa were used on the lower front nose. A sheet of 1/2" balsa on the lower center front blends in with the F-1 nose-block.

Use your own judgment on where to fill, because it's easier to see than to draw or explain. I still think this method of constructing the cowl is faster and cheaper than a fiberglass one, which could crack or chip. There is a semi-circular shield around the exhaust pipes on the real Acro-Sport. I simulated this with a piece of 3/8" balsa cut in a half-moon shape about 1/4" thick and glued on the bottom front.

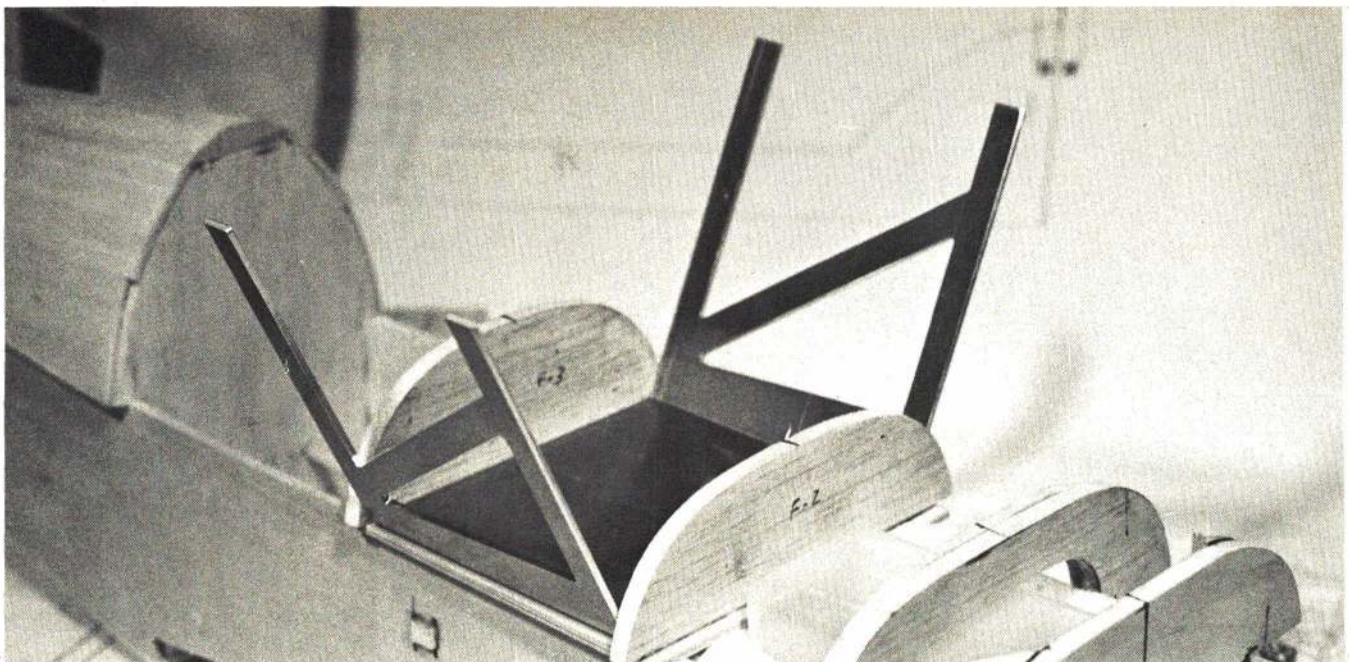
The fin, rudder, stab, and elevator are of soft 1/4" sheet. Hinges are Robart hinge points which give a scale-like appearance.

The windshield was cut from a 13" Sig canopy. It blends perfectly with the fuselage. The cockpit is edged with black 1/4" neoprene fuel line. This is slit and glued on. A 2" diameter spinner finishes off the nose.

The wings can be of conventional built-up ribs and spars or of the foam type. I chose foam, which is slightly heavier, but stronger for banging around. Foam wings are old hat anymore, so I won't spend much time discussing their construction, other than to say: Be sure to fiberglass at least a 6" wide band at the center section. Both wings are straight with no taper. The top one is flat, the bottom has 3/4" under each tip. Four 8-32 nylon screws hold the top wing to the cabanes. Two 10-32 nylon screws and a LE dowel hold on the lower wing.



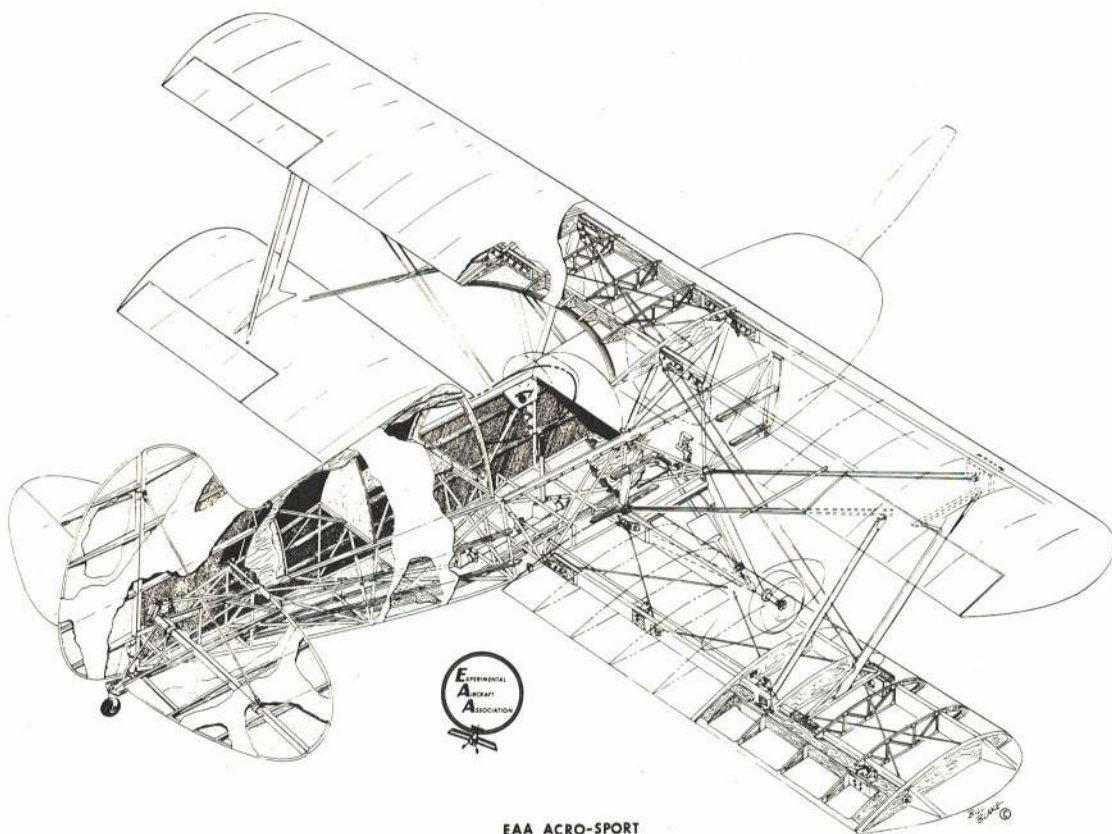
By superimposing partial formers on a box fuselage, the sweeping contours of the cowl can be fabricated with less effort than with fiberglass.



The bane of most bipes is the cabane "birdcage." The Acro-Sport simply employs an aluminum blank to get the job done.

By now you have spent some time constructing and you're ready to try all the parts for fit. I put the whole plane together, uncovered. Fit the interplane struts. Then, when satisfied, cover everything with light blue and white MonoKote. The aileron drive rods connect the lower and

upper wing ailerons. Use a Du-Bro Kwik-Link for adjustment on one end and a solder link on the other. I slipped this rod into a chrome-plated K&S 1/8" diameter tube, after applying some Silastic to the rod. Pushrods are your own option. Install the radio where you want it and



EAA ACRO-SPORT
Cutaway of the model, showing both foam and built-up wing.



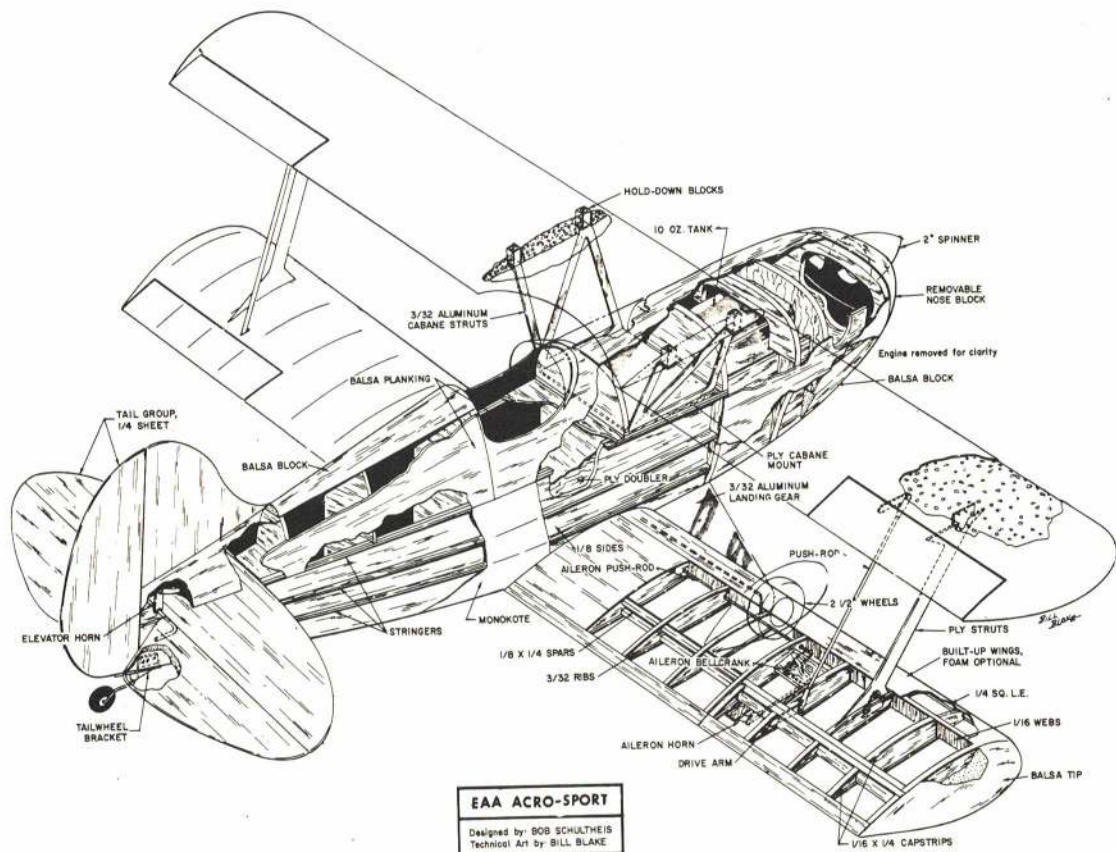
This view gives an excellent angle on those wings, which have a distinctively short chord.

you're set to fly.

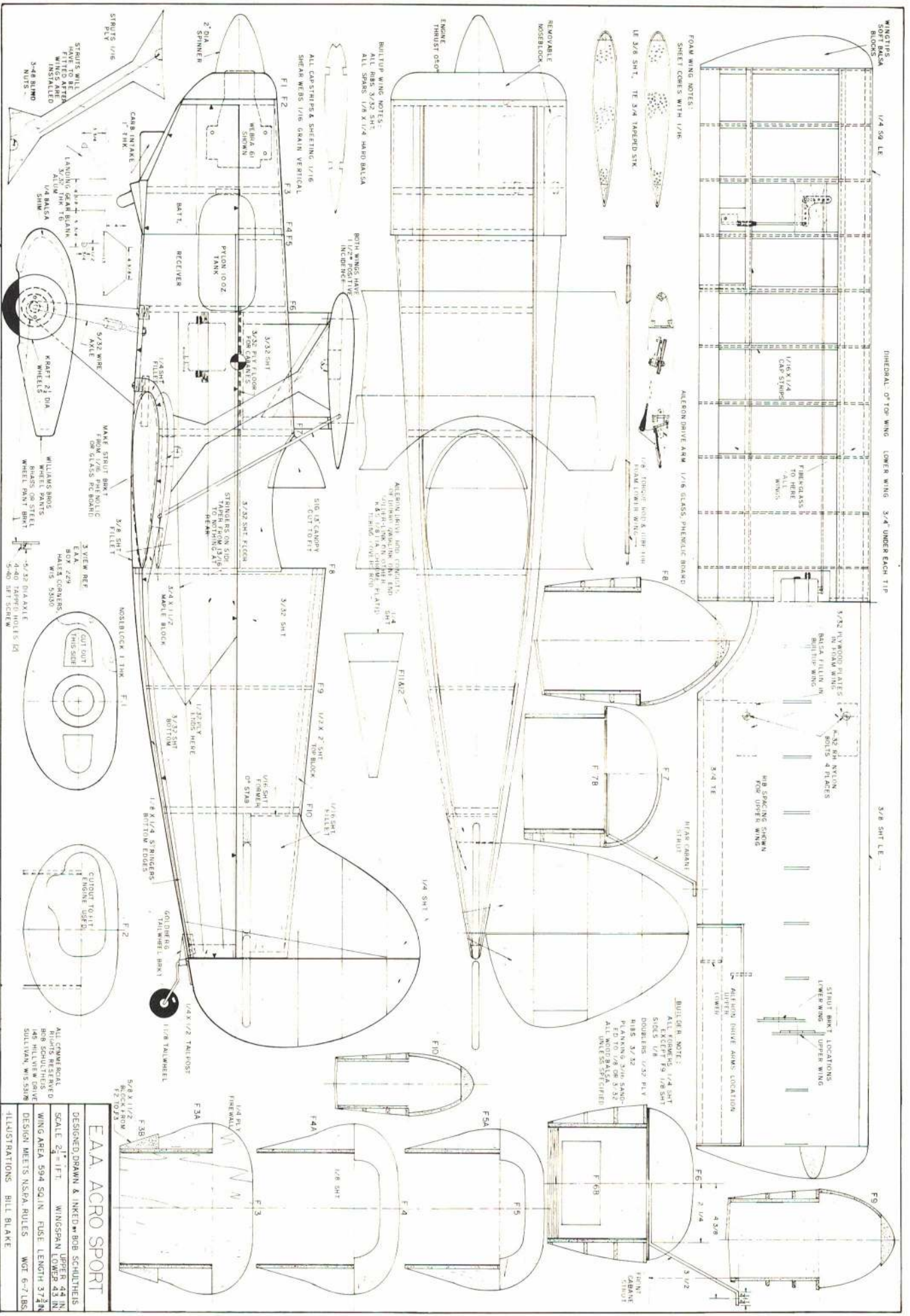
Balance at or ahead of the CG shown and give the little bird a try. Add power slowly till the plane is moving, then get off the elevators and steer *gently* with rudder. She'll fly off nicely at half throttle. Once airborne and heading out,

pour the coals to her. This little biplane is truly something to flip over.

Note: The Acro-Sport placed a respectable fourth at Jerry Nelson's Biplane Contest this season, which speaks well of its potential in the new N.S.P.A. event.



Cutaway of the full-scale Acro-Sport.



WINGTIPS SOFT BALSA BLOOD
1/4 SQ LE
DIHEDRAL OF TOP WING LOWER WING 3/4" UNDER EACH TIP
3/8 SHT LE

FOAM WING NOTES:
SHEET CORES WITH 1/16
LE 3/16 SHT, TE 3/4 TAPERED SIX

AERON DRIVE ARM 1/8 GLASS PHENOLIC BOARD

3/4 TE
3/4 TE
3/4 TE

BUILDER NOTE:
ALL CORNERS 1/4 SHT
SICKS 1/8
DOUBLERS 1/32 PLY
RIBS 3/32
PLANNING 3/16 SAND-
FED TO 1/8 OR 5/32
ALL INTERSECTIONS
ALL INTERSECTIONS

BULLET WING NOTES:
ALL RIBS 3/32 SHT
ALL SPARS 1/8 X 1/4 HARD BALSA

BOTH WINGS HAVE
1/2" POSITIVE
INCURVATURE

AERON DRIVE AND CONTROL
CUT TO FIT
CUT TO FIT
CUT TO FIT

1/4 SHT A

1/4 SHT A

1/4 SHT A

1/4 SHT A

ALL CAP STRIPS & SHEETING 1/16
SHEAR WEBS 1/16 GA IN VERTICAL

SIG. 1/4 CANOPY
CUT TO FIT

3/32 SHT

3/32 SHT

3/32 SHT

3/32 SHT

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STRUTS 1/16
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FULL-SIZE PLANS AVAILABLE - SEE PAGE 100

ILLUSTRATIONS BILL BLAKE

EAA ACRO SPORT

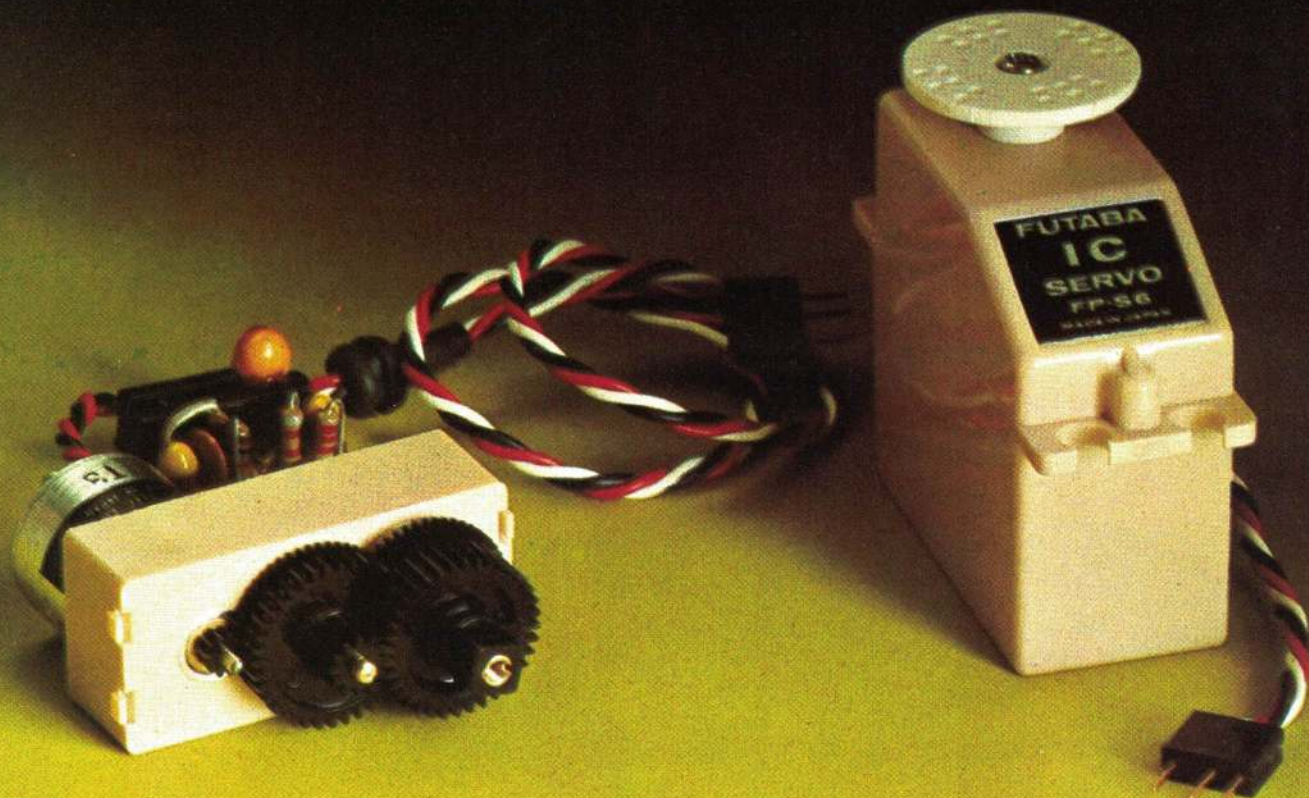
DESIGNED DRAWN & INKED BY BOB SCHULTHEIS

SCALE 2" = 1 FT. WINGSPAN LOWER 4.3 IN. UPPER R. 4.4 IN.

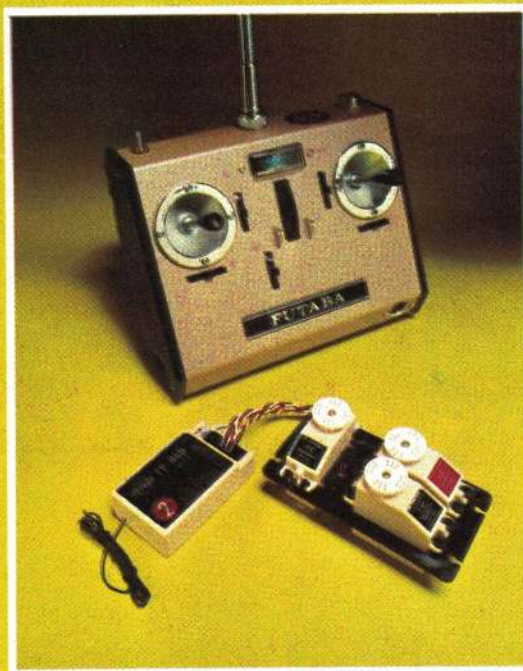
WING AREA 594 SQ. IN. FLISE LENGTH 37.2 IN. WGT 6-7 LBS.

ALL COMPONENTS RIBS RESTRIKED BY BOB SCHULTHEIS 145 HILLVIEW DRIVE SULLYVA, WIS 5308

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If you're a flyer who prefers a heavy-duty servo, then our new FP-S6 is for you. Just as compact as our FP-S5, the FP-S6 features tough new double-thick gears to absorb the punishment of competition flying. And the FP-S6 is completely compatible with all current Futaba systems.

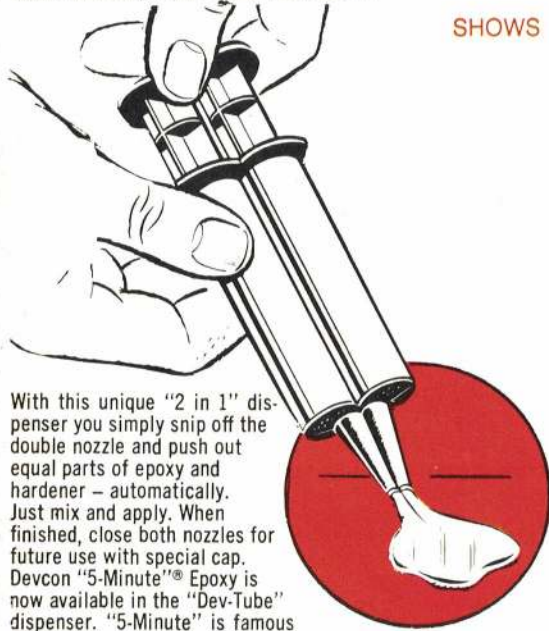


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"5-Minute"® Epoxy in the Revolutionary new 2 in 1 dispenser.



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R-208 1 oz \$1.70

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Bonds Steel, Aluminum, Brass, Copper, Glass, Rubber, and most Plastics to themselves or each other. Sets in seconds. Most items can be handled in 1 or 2 minutes. Very thin films work best. One small drop or less per square inch.

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Devcon® "5-Minute"® Epoxy

For super-fast repairs.



First epoxy material to provide all physical strengths of epoxy adhesives plus quick setting, even in thin films and at low temperatures. Use it to build and repair RC models.

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R-206 2 1/2 oz 2.50

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PRECISION GROUND STEEL BALANCE PIN
KNURLED BASE CAP

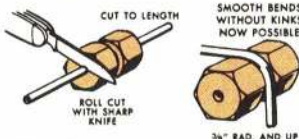
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PB-295 ONLY \$2⁹⁵

FITS ALL PROP SIZES BORED FOR 1/4" SHAFTS

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3/8" x 1/4" SOLID BRASS, LIFETIME MODEL BUILDER'S TOOL MAKES BENDING 1/8" BRASS FUEL TUBING A SIMPLE OPERATION. CAN BE HELD WITH THE FINGERS OR CLAMPED IN A BENCH VISE.

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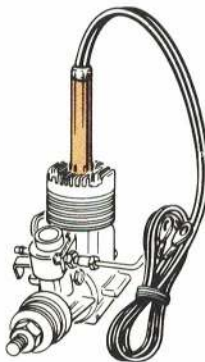
Requires very little pressure to engage brake... is not affected by fuels.

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Complete Brake & Linkage Hook-up (11 PIECES)
CAT. NO. WB 100

\$2.95 EACH
WHEEL NOT INC.

DU-BRO KWIK GLOW KG-200 GLO-PLUG CONNECTOR

THE IDEAL GLOW PLUG R/C ENGINE CORD SET. SLIM 1 3/4" BY 3/8" ONE PIECE BRASS BARREL SNAPS ON TO PLUG. NO FLIMSY SPRINGS OR CONNECTIONS. WIRES FIRMLY ANCHORED IN TOUGH NYLON. - CAN'T JERK OUT. EXCELLENT ACCESSORY FOR TODAY'S KIND OF R/C MODELER. ENGINES .10 AND UP. APPROX. 2 1/2" LONG.



KG-200 WITH ATTACHED BATTERY LUGS \$2.00

DU-BRO

2 EACH RIGGING COUPLERS



30c

FOR KWIK LINKS
THREAD SIZE
2.56; 1/32 EYE

Catalog No. RC-30



NC-39
2 FOR
39c

DU-BRO NYLON KWIK-LINK

THESE "SURE-LOCK" CLEVIS ARE THE SAME SIZE AS OUR STEEL "THREADED CLEVIS." DU-BRO NYLON KWIK-LINKS ARE MADE FOR SELF THREADING ONTO DU-BRO RODS AND THREADED CONE PINS OR ANY OTHER RODS HAVING 256 THREADING.

NL-12 12" ROD WITH NYLON CLEVIS...29¢



DU-BRO WHEELS
featuring the 6 Spoke Dura-Hub

Newly styled, hand inspected, top quality tires with treads

REGULAR

NH-1	WHEELS 2 1/4"	2.59/pr
NH-2	WHEELS 2 1/2"	2.79/pr
NH-3	WHEELS 2 3/4"	2.99/pr
NH-4	WHEELS 3"	3.19/pr
NH-5	WHEELS 3 1/4"	3.39/pr
NH-6	WHEELS 3 1/2"	3.59/pr

TREAD

OR
Du-Bro smooth surface tires available!

175R	WHEELS 1 3/4"	2.19/pr
200R	WHEELS 2"	2.39/pr
225R	WHEELS 2 1/4"	2.59/pr
250R	WHEELS 2 1/2"	2.79/pr
275R	WHEELS 2 3/4"	2.99/pr
300R	WHEELS 3"	3.19/pr
325R	WHEELS 3 1/4"	3.39/pr
350R	WHEELS 3 1/2"	3.59/pr

"T" OR "R" LOW BOUNCE

Low Bounce "SLICKS"

225S	WHEELS 2 1/4"	2.59/pr
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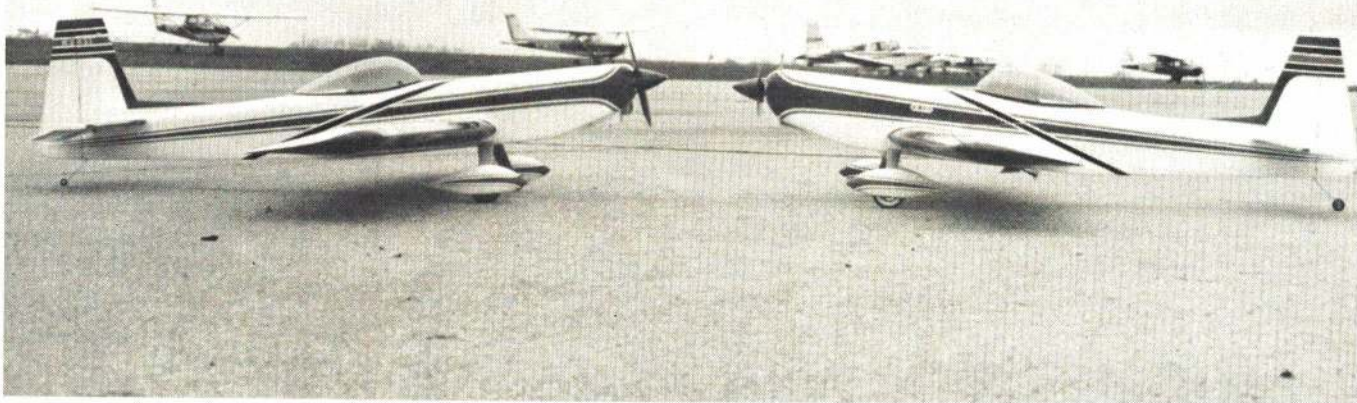
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Lew's Akromaster

This ambidextrous Akromaster aims at achieving advanced aerobatics a la RC and also CL.

by Lew McFarland



Stand-off Scale is the likely domain of the Akromaster. To the left is the CL version, while the RC machine is on the right.

An article in *AAM* (February, 1970) on the Spinks Akromaster rekindled a desire to produce a semi-scale stunter. The full-scale aerobatic plane was designed by Charlie Hillard, under the sponsorship of "Pappy" Spinks, for the sole purpose of winning the World Aerobatic Championship for the U.S. Charlie came close in 1970 with a third, but retired the Akro in favor of the Pitts Special to win the big one in 1972.

The Hillard/Spinks Akromaster looks much like a big model, and has proportions that are comparable to many good CL stunt ships, while approximating an RC pattern ship. I claim to be one of the world most frustrated modelers in that I like Scale, Stunt and RC—and this plane can supply all three. My Akromaster can stand at the top of the class when it comes to versatility. You can tailor your own Akromaster to do just what you want, whether it be CL Stunt Competition, Stand-Off (Sport) Scale, RC Pattern, or just a plane to fly for fun.

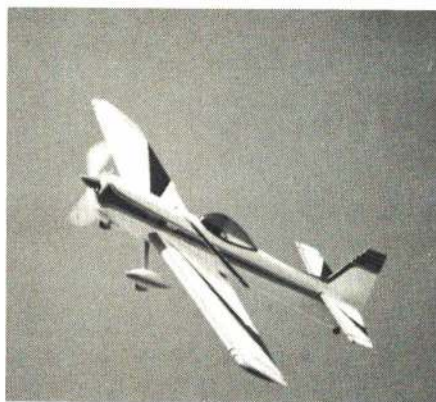
My first project was a 6 ft. semi-scale RC ship which still flies well, but lacks the finesse and agility of the present model.

The CL version got its first real test in the 1971 FAI finals, in which I had to settle for a respectable seventh. I would describe the model in much the same way a British expert did. "It is a sheer delight to fly," because of its simple, uncluttered lines and colorful paint scheme, he declared, calling it "one of the most beautiful airplanes I have seen."

Staying in the usual rut of most competition stunt fliers, a new model was finished just before the 1972 NATS. After a feverish trimming and last minute practice, it garnered a fourth. My cohort Randy Hancock came up with a fifth in Senior Stunt flying with an Akromaster. Randy repeated his fifth-place standing in 1973,

but I fell to tenth trying to trim another new plane and harness the power of an HP 40. The HP is a fine engine, but don't try to work one into a stunt engine when you have limited time. I have had best results with the ST 46, but I'm still searching for the right 40, so that .015 lines rather than .018 can be used.

A hybrid RC and/or CL Akromaster was created just to prove a point and satisfy my own curiosity. The plane was flown CL for the first 15 flights. It showed full acrobatic capability and was trimmable for competition. The flaps were fixed in position, an RC unit installed and away it went, much to my pleasure. The RC flight characteristics were good and fast. I am sure the full



Airborne, the RC Akromaster has a touch of class and sleek style all its own.

potential of the plane was not demonstrated because of my lack of expertise.

During the Mint Julep meet, Dave Brown (RC pattern expert) did a Figure M with my Akromaster even with the low power caused by the exhaust-off tube (which I later removed) and wrong prop size.

The next day at the Mint Julep I flew the Akro in my first, last, and only RC meet, for a ninth in Stand-Off Scale.

The plane did its part, only five points behind the top score on the ground. However, in the air my stick capabilities let it down and we settled for ninth out of some 20 entries. The big thrill of the flight was when I found my Akromaster stacked above a real plane that had been waved off due to the closed runway. I applied full throttle, the real plane was left behind, and I went ahead and made a left turn out. (*Maybe you lost some flight points for not flying at scale speed, Lew!—php.*)

This plane is basically simple, but the novice should first look elsewhere for the fundamentals or have experienced help. For this reason, I shall not go into the usual "glue A to B" sequence of construction. Pick your poison, be it CL, RC, or Stand-Off Scale, and let's go at it:

CL Precision Aerobatics Version: Even here a chance for plenty of versatility presents itself, and the quality of the final product is up to you. Select wood as if you were using an 049 for power. You will need to decide the type of motor mount set-up preferred. I like the Kraft-Hayes because of its flexibility. Note that a 1/4" firewall replaces the 1/8" plywood used in conjunction with hardwood beams when a radial mount is used.

The model under construction utilizes a tank inserted through F-3 into a compartment specially built between F-3 and F-1, which is quite similar to the RC method of tank installation. Both vents come out inside the cowl and engine compartment; one is for muffler pressure and the other is plugged after the tank is filled. This method of removable tank becomes impractical if you choose not to make the wing removable.

Note the difference in wing position between the removable and fixed versions. The dihedral in the removable version, in effect, produces the same aerodynamic position. The 1/16" plywood

doublers stop at F-4 on the fixed-wing version, but extend to F-7 on the two-piece plane. When using dihedral, I install two control horns (one on each flap) and attach dual pushrods to the sides of the regular elevator pushrod.

The original (still my best airplane) and all other removable-wing versions used adjustable steel, 2-56 X-Cell clevises on the flaps and an overside 4-40 clevis to connect the elevator pushrod to the bellcrank. Several people have had sad experiences using clevises in CL Stunt. I suggest a band made from neoprene tubing as a retainer to prevent clevises from opening in flight (this caused the loss of my RC version). In the Akromaster we have the clevises acting to stabilize each other, and some 500 flights have been trouble-free.

The pushrod must be rigid for the removable version to allow it to drop down and be accessible for hook-up, yet not flex as an unguided piece of 3/32" wire will do. A Sullivan RGR-4 Fiberglass Rod (1/4" OD, 12" long) is modified by inserting a metal control horn into the shaft and pinning in place with 1/16" wire and epoxy. A 3/32" wire of sufficient length is attached to the aft end to permit conventional attachment at the elevator horn.

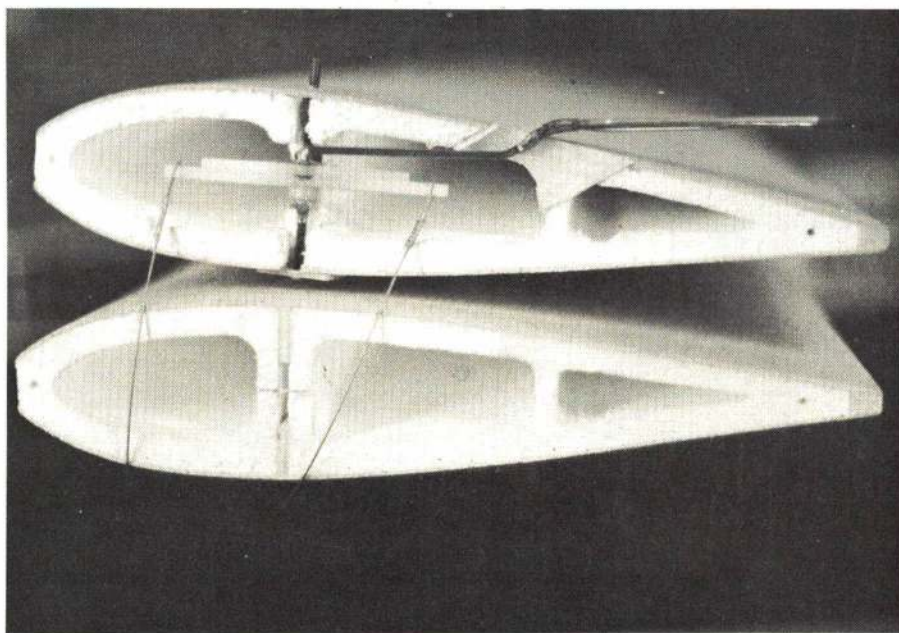
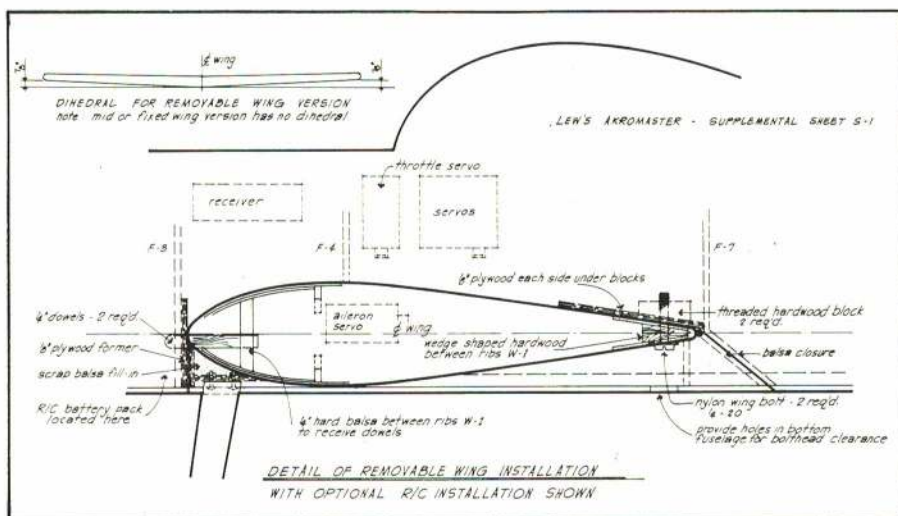
The Rabe asymmetric rudder is a feature which I take no definite stand on, although the original and best plane utilizes Al's brain child. Without doubt, the movable rudder is needed to get optimum performance on certain designs. It is very easy to fix a 2-56 clevis (threaded end only) to the bottom of the stabilizer next to the fuselage. Then you can convert to and/or try the rudder in any position.

The gear position shown on the plan is standard, but I intend to try a position 1/2" further aft in hopes of getting more landing consistency. The Gieseke (long) tail wheel is no accident, thus we have the only stunt plane that admits to a "Rabe Rudder" and a "Gieseke Tail Wheel."

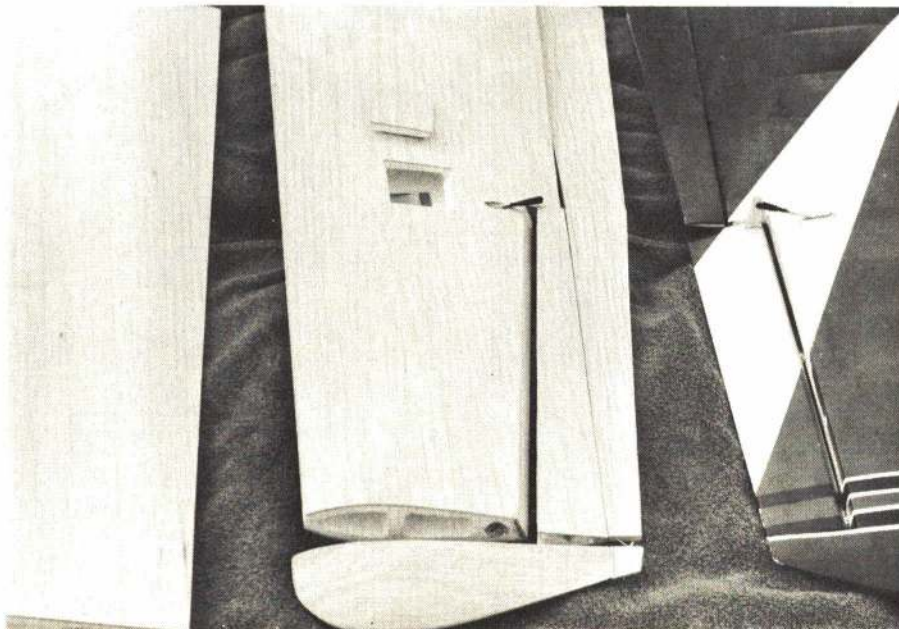
A variety of wings have been used with equal results: built up, Stott's Foam Flite, and currently X-CELL's (a la Bob Hunt) Cored Foam. The cutout and lamination of the stab is not necessary, but many cannot find 3/8" stock that is light enough.

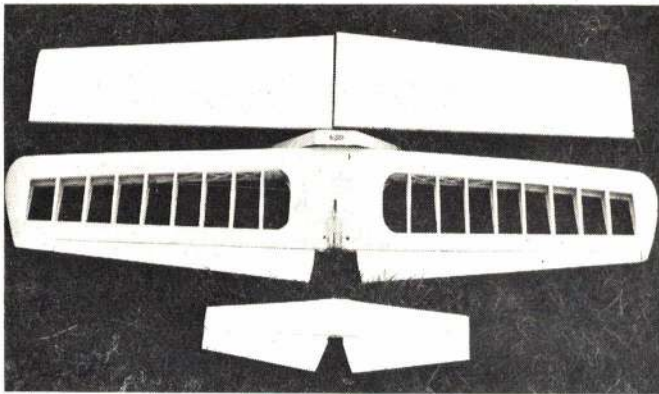
A note on cowling: A tight cowl which forces air around the cylinder is necessary for proper engine operation. If you do not get good flow, you may need to resort to a wrap-around of tin stock from 2 o'clock to 10 o'clock, with an outlet 3/16" wide to the rear of the cylinder. I have narrowed the fuselage width on more recent versions but, as previously stated, I still do not have a plane superior to the original.

RC Pattern Version: I'll go out on a limb and say that this plane can hang in there with the best (given proper modifications and power). I suggest the following, in addition to having the proper expertise: (1) use a 3/4" top block; (2) move wing forward 1/2" or lengthen tail moment 1"; (3) use HP40 or engine of equal power; (4) reduce elevator chord by 1/2" as shown on plane; (5) side-mount engine (optional); (6) make

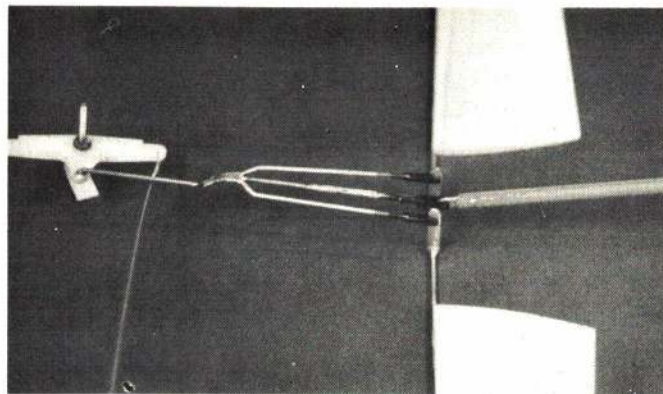


ABOVE: An oversized bolt and two plywood plates secure the bellcrank in the foam core. BELOW: The barn door ailerons for the RC Akromaster are quickly cut out and balsa-faced. The wing on the right has a built-up structure.

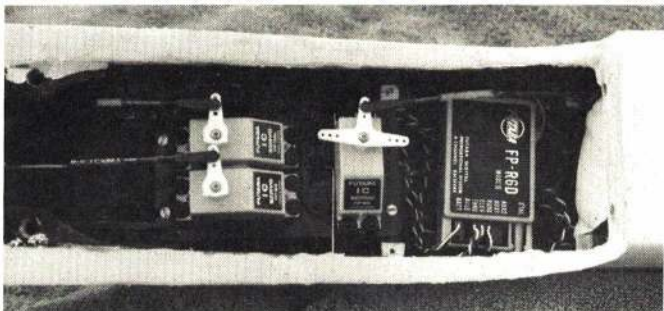




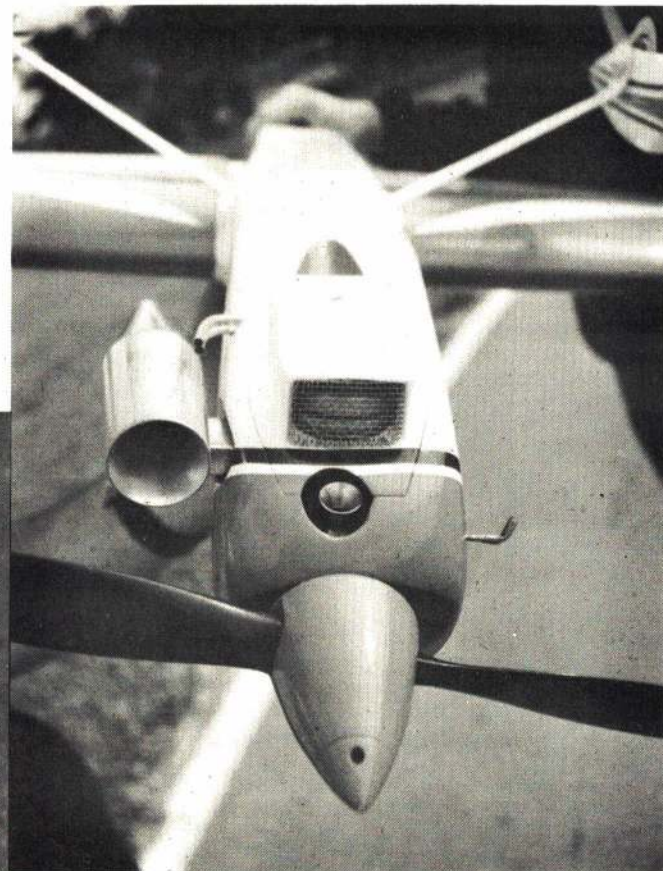
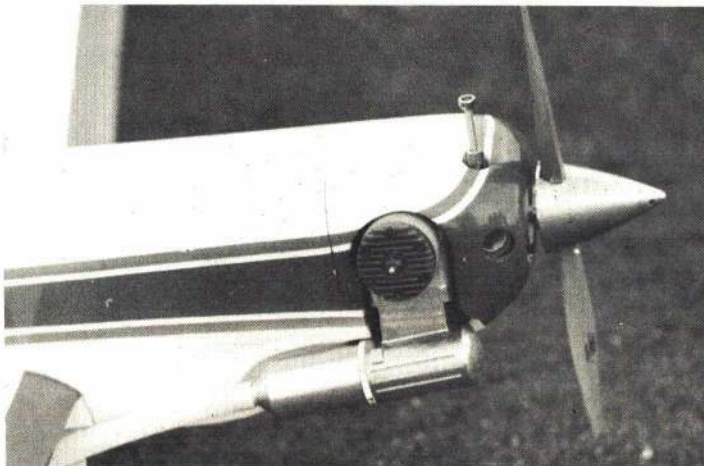
Use a Hallco B105-4 landing gear. The Akro offers the versatility of either a built-up or foam wing, with another option of either securing the wing permanently to the fuse or bolting it on.



The unusual coupler system for the removable wing makes for a quick disconnect of the elevator pushrod.



While the Akromaster has a slender fuselage, there is still plenty of room for a comfortable radio installation.



ABOVE: The Webra 40 on the right has plenty of power for RC aerobatics. The option of side-mounting the engine might be wise for easier starting. RIGHT: The HP 40 works very well for CL Stunt. Note the tight fitting cowl for proper cooling.

fuselage 1/4" narrower.

There is a lack of detail on the plan to prevent clutter, but the barn door installation is conventional. They are simply whacked out and boxed in with 1/8" sheet. Be sure to take a "V" out to allow a 1/4" gap for closure on down aileron as a result of the top hinge point. As for the built up RC wing, a point worth noting is the need to use 2" wide trailing edge sheeting on the RC version for additional strength, particularly in the R-10 and R-11 area after the aileron has been cut out.

Some problems were anticipated in the construction of barn door ailerons on a foam wing, but it proved to be very simple. Be sure to plan ahead and make installation before joining the two halves. Simply cut out a plug in the bottom of the wing and install a right angle aileron crank. The crank is at-

tached to a 1/16" plywood platform in the conventional manner at an appropriate angle to line up with a nylon aileron control horn. The aileron control horn should be attached to a 3/32" sheet plywood plate approximately 3/4" square that has been epoxied into the foam just below the balsa sheet covering.

Precautions should be taken to prevent flexing of controls in all versions. If 1/16" wire is used to connect the aileron servo to the controls, be sure to insert a 1/16" sheet plywood guide through the center into the cored-out area; otherwise, use a 3/16" dowel or hollow fiberglass rod for a portion of the pushrod to give rigidity. If you are strictly a competition pattern type, then the door is open to retracts, and even trike gear and coupled flaps are a natural.

Stand-Off Scale Version: Here we find a great merger of RC and CL, with such similarity that one can use the same plane for both events by installing a bellcrank and making the radio removable. It would be a challenge to find a plane more suitable than Spinks Akromaster. All of the previous implications apply, but the door is open to all degrees of scale fidelity to meet the individual's desires or needs. Be sure to obtain a three-view, as it will be needed to prove outlines, (available from AAM and Aeromodeller) and to help the builder add scale detail. Prove all detail, but make no effort to give proof of detail not reproduced.

The exact color scheme and shades can be produced with Sig dope: white, Miami blue, light red and black. Note that the wing, stab and elevator are white with Miami blue stripes on top,

while the bottom of these surfaces are light red with a white stripe. Caution: Do not try to stripe white over red, but rather paint the whole plane white and mask off the portion on the bottom that remains as a white stripe.

Finish: Lets keep this to a few words, rather than the full dissertation that could develop. The newer epoxy finishes and the already colored iron-on materials are well worth consideration. If they complement your building habits, then by all means use them. I prefer a dope finish and feel that it can be applied to equal any other in appearance, lightness and realism.

Regardless of the type of finish used, the real secret is to use sandpaper through all stages, except the very last coats. I would like to make one point: Never add any material (whether it be filler, dope, wood or paper) if the same result can be obtained by removing unneeded material. The most easily seen example is the filler coat, which can be applied until the balsa has a perfect finish, but is as heavy as oak. Do not make the mistake of trying to fill and get a slick surface after starting to apply color, but rather be sure to have a well-finished base on which to apply the color. Three or four coats of clear (Sig Lite-Cote suggested) sprayed over the final color will give added depth and allow you to rub the plane out with compound.

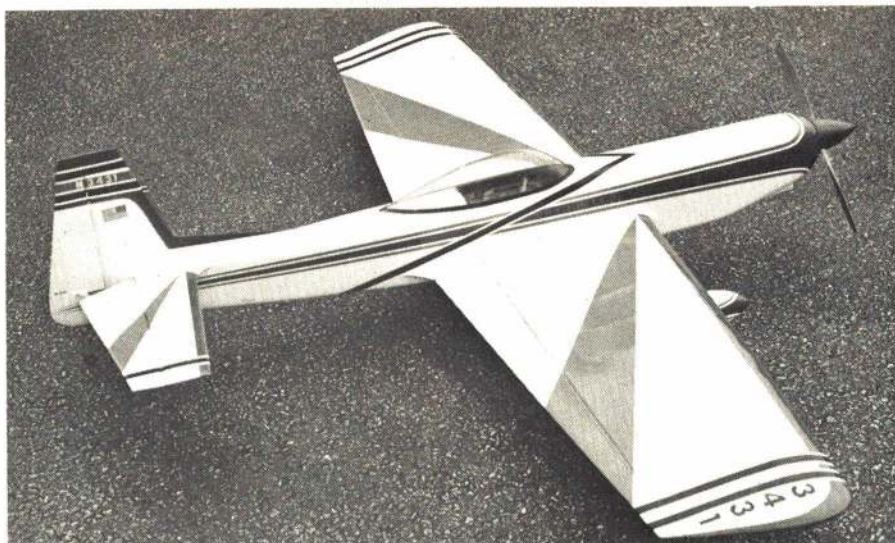
Trimming for Flight: The removable wing version is totally trimmable and makes the extra work worthwhile. Be sure the wing is totally sealed and seated with silicone sealer, since seeping exhaust oil and fuel can be disastrous. Adjustment of flap movement and alignment is a snap. I am convinced that once you have a warp-free plane within weight limits (under 60 oz. for CL) it can be trimmed (adjusted) to fly with the best. Make only one trim change at a time, otherwise interplay may distort the effect.

The RC version is considerably simpler to trim, since all adjustments can be made in the air. The CL model will require more time and application. Make sure that ground tracking is good, so that the plane rolls smoothly on takeoff and landing. The CG should fall close to 2½" behind the leading edge for CL Stunt, and 3" for RC. By all means, make fine adjustments by adding weight (in 1/4 oz. increments) to either the nose or tail (one at a time) until the desired sensitivity is reached. Modeling clay can be useful for this purpose and nose weights are available that will fit inside the spinner.

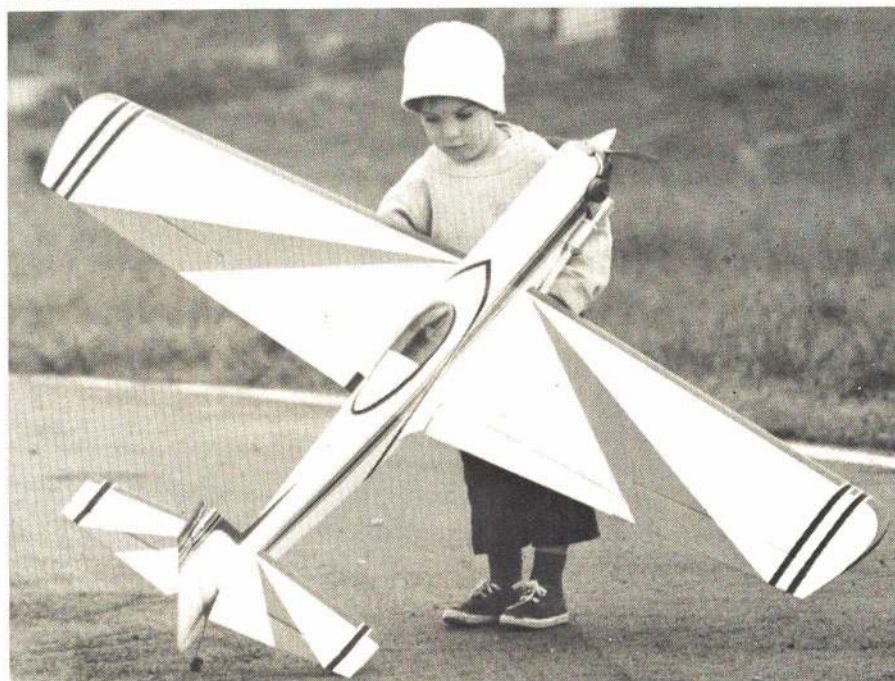
Make fine adjustments to the position of the lead outs and to the offset for line tension and yaw, but remember to vary only one at a time. Don't underestimate the effect of tip weight on yaw and line tension; modeling clay can be used here to find the correct amount of weight.

Now you can create your own style of Akromaster; one that will give back just what you are willing to put into the effort of creation, and one that is a real expression of your individualism.

(Plans on following page)



The Akromaster has one of the simplest, yet most distinctive paint jobs of any aerobatic bird. The visibility in the air is superb. All lines are straight, so masking is simple.

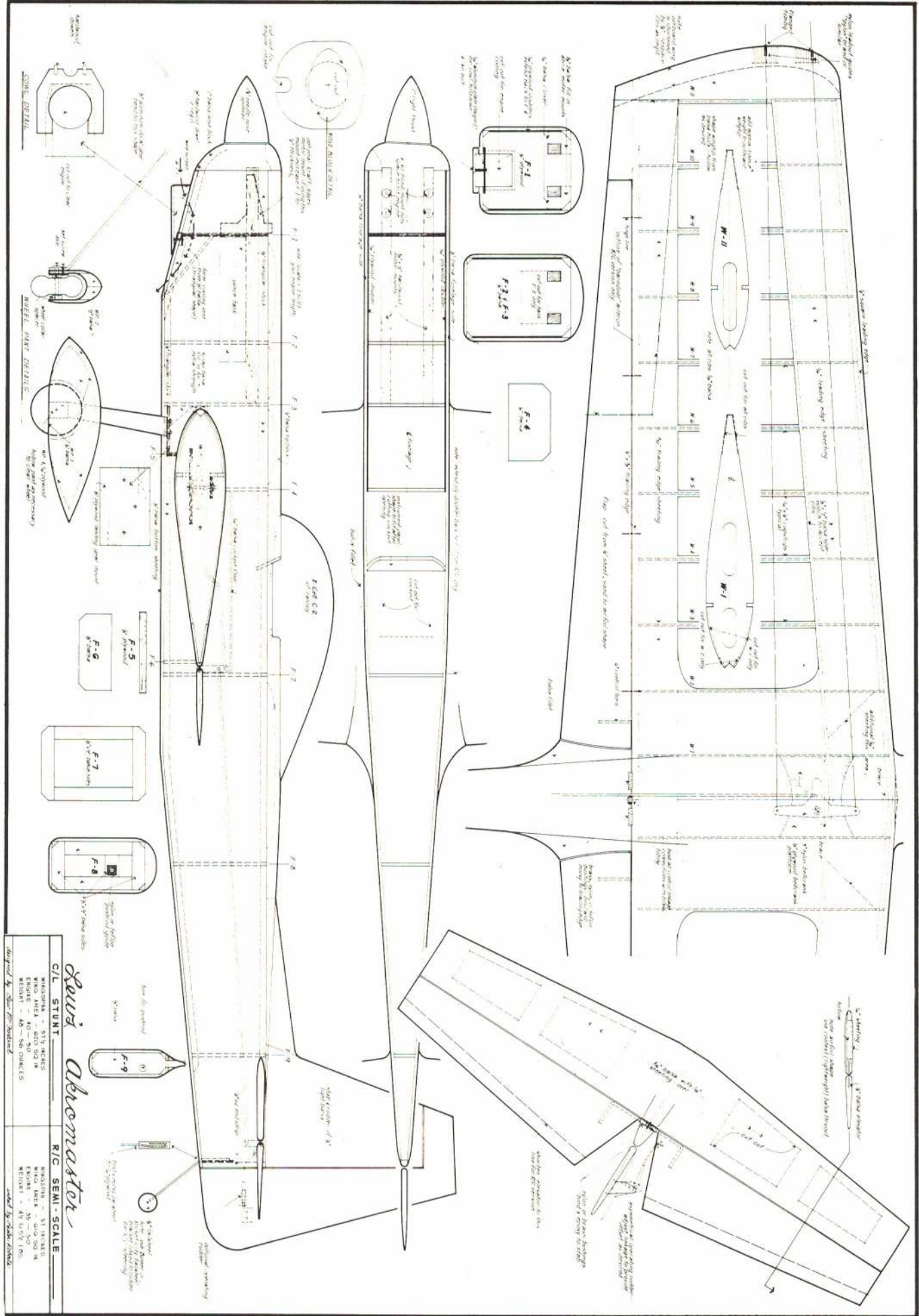


ABOVE: Lew's son Steve ponders the day's flight plan: "When you gonna' crash it, daddy?" BELOW: This photo may explain why the Akromaster is a competitive machine. Its pedigree goes through the Ruffy, Shark and 50 other designs. The Akromaster has won Open and Senior at the '74 King Orange; firsts at Albany (Georgia); Cincinnati, St. Louis and Indianapolis.



Photos by Author

FULL-SIZE PLANS AVAILABLE - SEE PAGE 100



<i>Lewis</i>		<i>Abnormator</i>	
C/L STUNT		R/C SEMI-SCALE	
WINGSPAN - 51 1/2 INCHES	WING AREA - 500 SQ IN	WINGSPAN - 51 INCHES	WING AREA - 500 SQ IN
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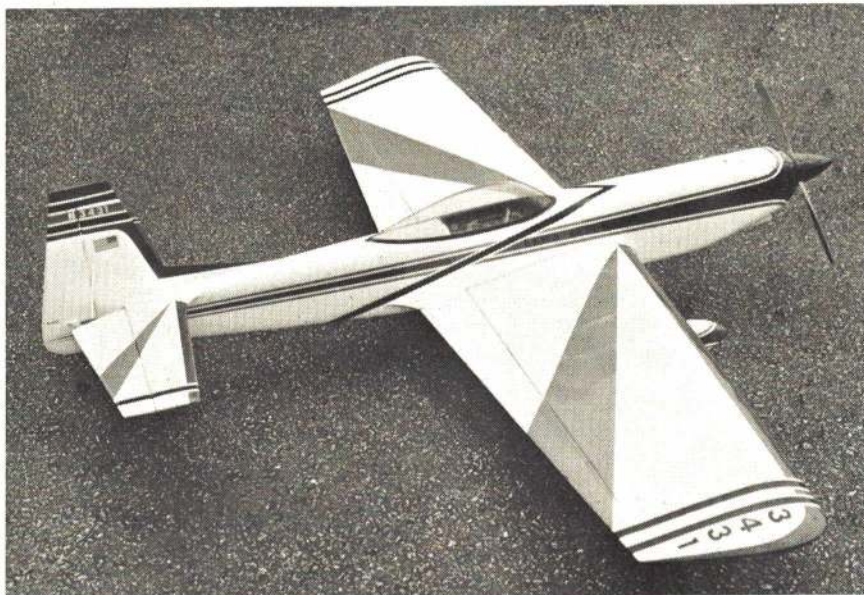
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THE BAYOU BLUES

(Continued from page 8)

crowns are being worn in the modeling kingdom because of Lake Charles. Some of our acknowledged kings found themselves playing the jester in mock battle—how can you be doing little more than tilting at windmills when you're practically the only entry in an event?

One must question whether the new "style" of the NATS isn't reinforcing the concept of National Championships apart from our annual get-together. Is the U.S. Free Flight Champ a title from the dry desert of Taft, or from soggy Chennault? Our soaring czar had his coronation in Illinois, and our pattern master will focus on the Master's Tournament. Are Pylon, Precision Aerobatics, *et al*, all heading toward the inevitability of having their own championships?

If then, the NATS is a contest of fliers, a national conclave where men and machines aspire to the singularly highest distinction of champion, then we have failed. Instead, we held a contest so remote that only the chosen few could attend (no coincidence that manufacturer's reps almost exclusively dominated the prestige events). I don't think this is what Dick Mathis meant when he wrote in his NATS FF report that "to be a NATS winner is to be a special modeler."

Also, for those who did fly, the contest became one of endurance, not skill. Indeed, one can argue that all suffered

under the same duress, but this holds as much water as the logic of having golf's Masters tourney in the middle of Death Valley. Flying a model in a National contest is trying enough as it is, without having to call the question of stamina into play.

For similar reasons, this year's NATS was also a fiasco as far as spectators are concerned. It was frankly appalling to note the decline in inter-event exchanges at Lake Charles. Everyone seemed to have his own mini-contest going, with no one from any event spectating at another. It has always been felt that the reason all events are held at one site is to allow *all* of the modelers to meet and identify with each other. This is the first year that the CL fliers weren't found trying to avoid tripping over imaginary control lines in the RC Pattern pits; or the radio guys weren't trying to convince a free flied that only one servo could save a romp in the swamp.

Where were those midnight hangar sessions from which all used to come away with the bleary-eyed wisdom that communication brings?

We all know what happened—we quenched our desire for knowledge with air conditioning and a cool drink. Runway and pit area conclaves were forsaken in order to dash back to the hotel and take a quick dip in the pool. Heat exhaustion replaced curiosity, and a thirst for knowledge became just a thirst. But this is a moot point; it wasn't the heat at all, but the lack of fliers and

a protracted NATS schedule that fostered such an environment.

The NATS has grown like a well-watered swamp weed. It's taken on embellishments like stalactites of tree moss—the number of events, official and provisional, grows annually to keep pace with the catholicism which characterizes modeling. A ten-day NATS normally would create only minor problems (people who can't afford that much vacation, etc.), but this year's approach to the mechanics of handling so many events left much to be desired. The big banquet was moved to Saturday night—in the middle of the NATS, not at the end. Also, all the trophy presentations were made on the field after each event. This, in itself, did much to perpetuate the feeling expressed by many fliers that they were in a local contest atmosphere. "Let us now praise famous men": What recognition is it for a National Champ to be handed his trophy out in the middle of a half-deserted runway?

With a ten-day schedule, we can usually afford flexibility. And that seemed to be the case when events like QM ran late (and bit into my personal flying time for which I paid over \$1.00 a minute!), and when Scale was rescheduled for Sunday.

But why couldn't the reigning National Pylon Champion be processed a few hours late, so that we could all see what portended to be the race of the

(Continued on page 128)

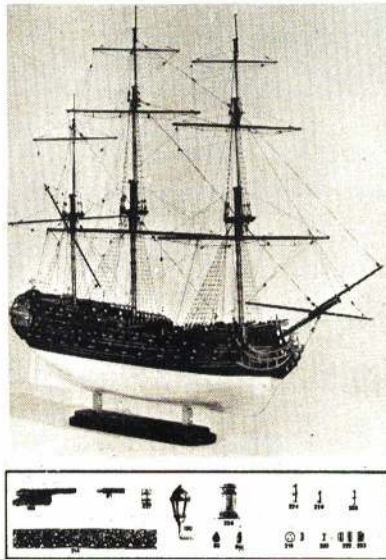
BILLING

Denmark's Finest Models Spanish Galleon

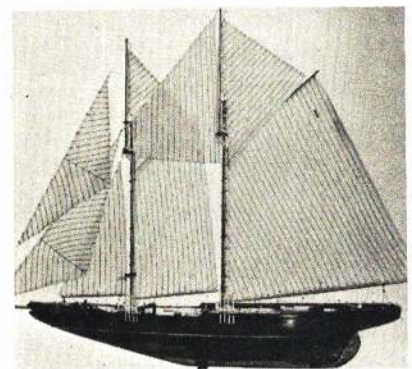
Detailed model, using planked hull construction, fully rigged. Length 29 inches. Width 6 inches. Height 24 inches. Typical of the old Spanish Galleons, it is constructed on the basis of drawings and descriptions found in long research. It includes several colored coats of arms, has mounted sails, and includes turned brass fittings, including cannons.
Kit & Fittings Set \$58.00



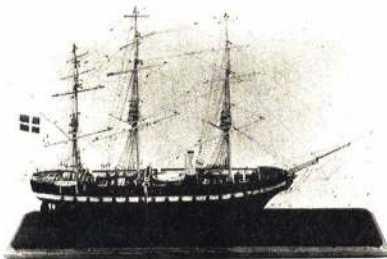
CUTTY SARK is scaled 1:75.
Builds to a 44" show piece.
Planked Hull Construction.
Kit & Fittings Set: \$115



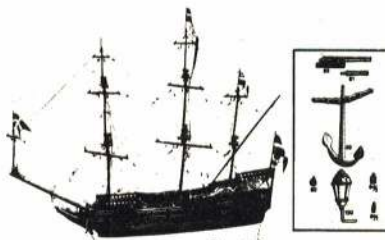
NORWEGIAN LION, a warship of 1765 era complete set of fittings includes 70 turned brass cannon. Challenging, rewarding kit to build.
Kit & Fittings Set: \$88



BLUENOSE, 35" long, 27" high. Beam 5 1/2". Kit & Fittings Set: \$54



JYLLAND Frigate. 39 3/4" long, 24 3/4" high.
Kit & Fittings Set: \$82



WARSHIP WASA, original built in 1628. Sunk on maiden voyage. Located and lifted in 1960, now a museum piece. Beautiful model, 23" long, 23" high. All wood kit with fine precision brass fittings.
Kit & Fittings Set: \$56

BOATS

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Planked Hull Construction

Marie Jeanne



FRENCH TUNA FISHING BOAT

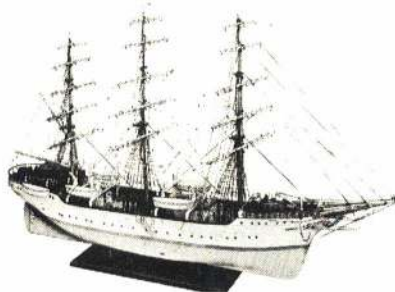
Detailed model using planked hull construction. Complete with sails and all fittings. Length 23 inches. Width 5 inches. Height 20 inches.

Scaled 1:50.

\$43.00



SANTA MARIA, 21¾" long, 17¾" high, 5" beam. Kit & Fittings Set: \$32



DANMARK, this training ship of the Danish Merchant Navy is a real beauty. Kit has wooden planked construction and is complete with turned brass fitting. Scale 1:75, length 35½", 23½" high, beam 5½" Kit & Fittings Set: \$101



DRAGON, International racing class. 31" long. Kit & Fittings Set: \$45



KRABENKUTTER, typical German Crab Fishing Boat. Kit contains all wood parts from keel to mast, including net. Scale 1:30, length 52cm, Height 42cm, Beam 15 cm Kit & Fittings Set: \$51



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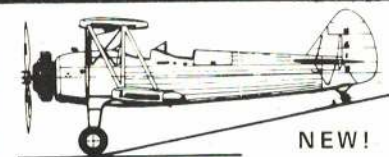
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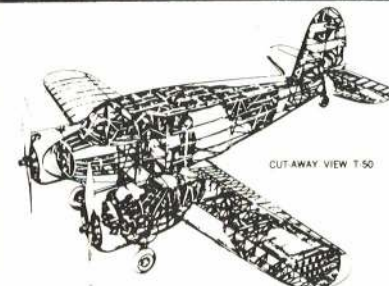


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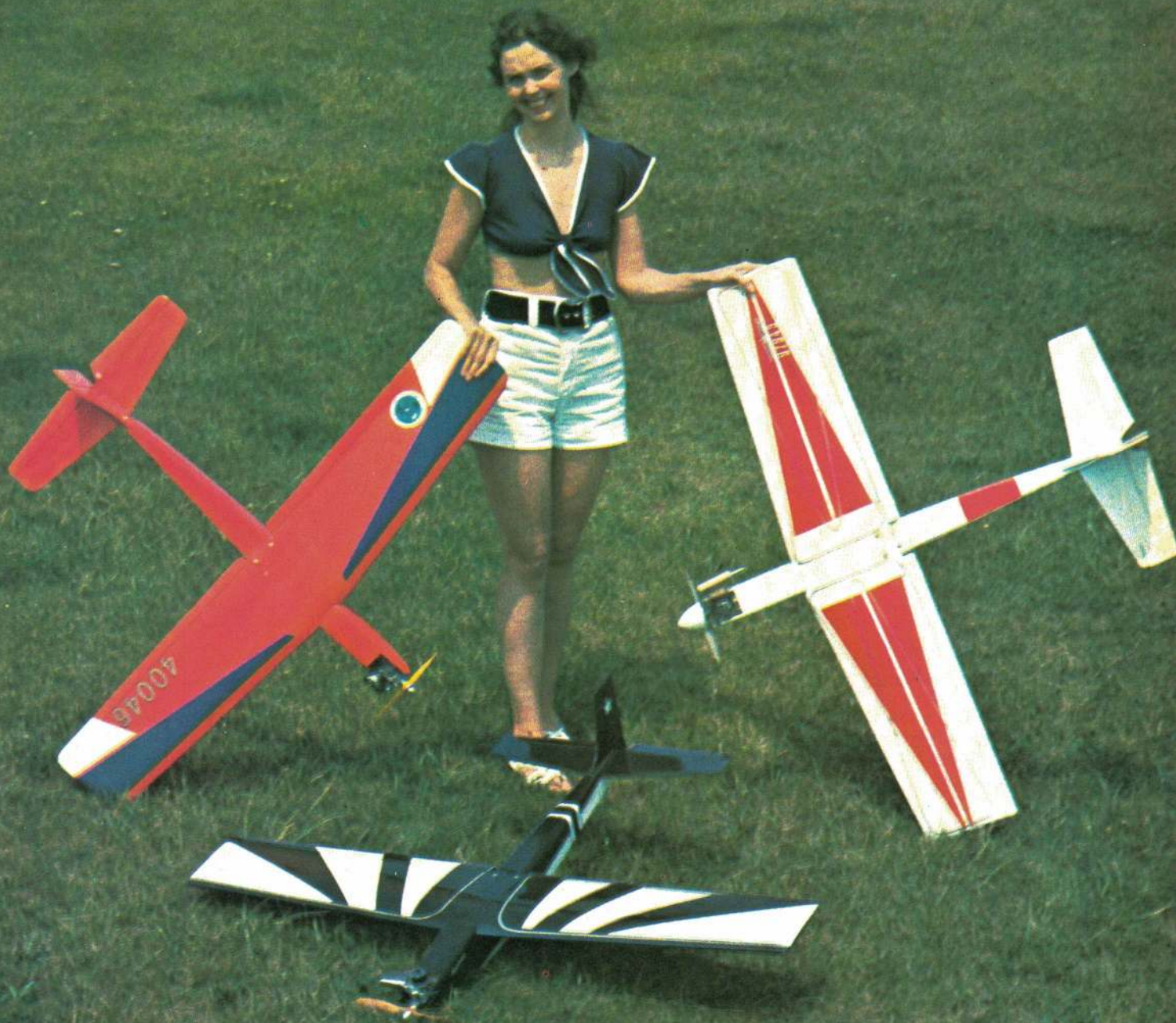
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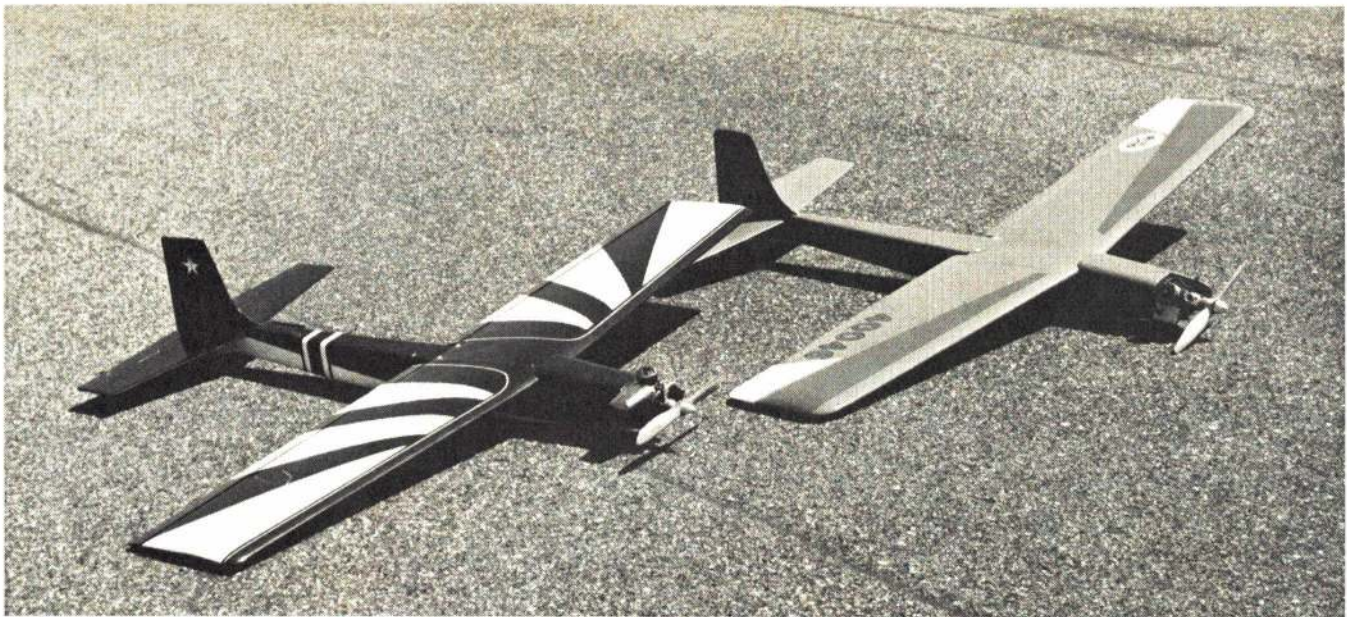
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WHIPLASH!

If you were in it while it was flying, you'd understand how this plane got its name.

by Dick Sarpolus



The angular lines of the Whiplash allow many variations in personalizing the finish. Wayne Marcy did the eye-catching MonoKote job at the left.

If weather conditions in different parts of the country have an effect on aircraft designs, then the Whiplash is a result of our northeastern (New Jersey) winter climate. I am primarily a pattern competition flier, and after the last contest in October, I hang the current hot ship on the workshop wall until spring. I just don't enjoy serious practicing in cold, wet, windy winter weather—I'd rather not risk a good pattern aircraft in casual fun flying.

Our club field does see a lot of winter activity and, without the contest season pressure, it is a lot of fun. Because of the weather, our winter flying is done a little differently—we don't plan on a

whole day at the field. Much of the time is spent with hot coffee in a handy car.

For this type of flying, a small, easily assembled plane (especially one that will fit in the car assembled) is a real advantage. We observed some fliers who flew powered gliders exclusively and, while this was not what we wanted (can't practice Class C maneuvers with a glider), the simplicity of hand launching appealed to us. Elimination of landing gear would further simplify the plane and enable better performance with a small engine.

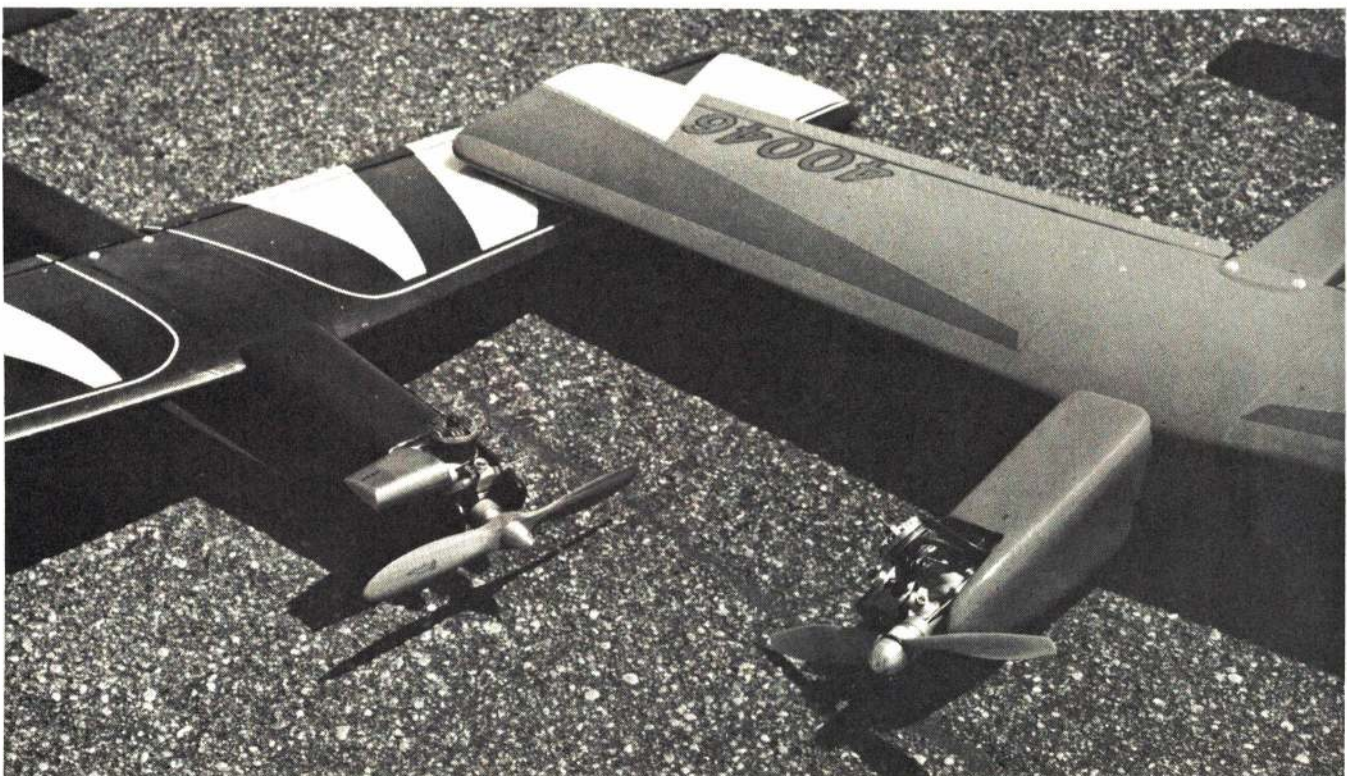
One characteristic we had to have to allow pattern practice was full aerobatic capability. To be competitive in Pattern, you must fly a lot. To do all the flying

with the same aircraft would, of course, be ideal. However, that is not a necessity. The important thing is to fly something that will perform all the maneuvers.

Don't think that these desired characteristics result in a hot, "experts only" airplane. The Whiplash is not a basic trainer, but it did turn out to be a good intermediate ship. Anyone who can fly basic ships like the Falcon 56, J-Craft, etc., can fly our Whiplash. And the expert flier can have plenty of fun without worrying about his top contest ship.

We settled on 19 power to keep the size down and still achieve acceptable performance. We would be using four

The sidemounted engine (right) ensures that the center of the tank falls in line with the needle valve.





Dick uses transmitter antenna to prod Arni Pederson into one of his statuesque launches.

channels, so the equipment weight would be considerable. There are some good 19 engines on the market, and we felt this was as small an engine size as possible. The wing would need to have a fully symmetrical airfoil for full pattern capability; we wanted this plane to "feel" like a typical 60 competition ship. Wing planform would be tapered, of course, with strip ailerons for ease of construction. Foam wing cores were desirable for a quick, easy, rugged model. The wing would be top mounted, so we could hand launch and belly land.

Competition ships are exclusively low- or mid-wing now, but a top wing on a reasonable fuselage design doesn't change performance noticeably. The fuselage was held to a minimum crosssection for the least possible drag and weight. One area that could significantly help in weight was the radio equipment; we used a 600 mah battery pack and KPS-10 size servos. The newer mini-servos and lighter battery packs would make a difference. Throughout the plan sketching, we stressed simplicity—we wanted to fly, not build.

Specs came out like this: 50" span, 390 sq. inches of wing area, 41" overall length. So many of our local club members liked the concept that, with the help of the local hobby shop, we made several dozen "semi-kits" which were sold at a nominal charge.

Lynn Sarpolus gives some feel for the size of the model—large enough for smooth aerobatics, yet small enough to dump in the trunk or back seat between flights.



One alteration of the original concept was the addition of landing gear. I like the plane better without it, but after our club put down a blacktop strip 250 x 40', we did want to use it on occasion. I added the gear to my completed plane, made it removable, and really haven't used it very much.

That covers the design. Although the major design influence was our local weather conditions, we feel the result may appeal to many fliers.

CONSTRUCTION

I would suggest cutting out all the parts first, making your own kit, rather than the cut-as-you-go approach. It will save time. Wings first—most clubs now have foam cutting ability and it sure makes for an easy wing.

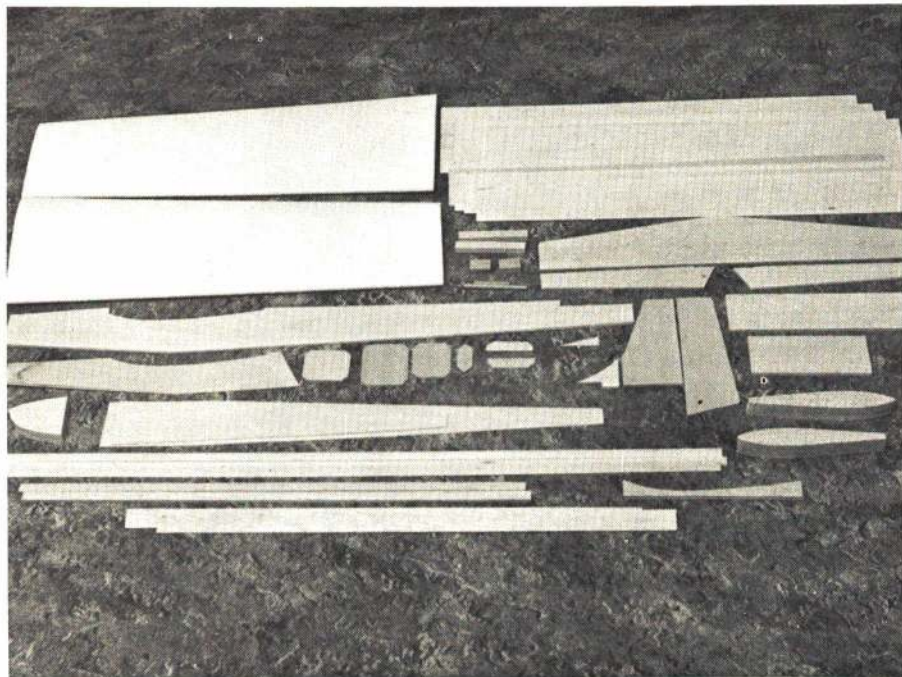
Foam wing construction has been covered many times, so I'll emphasize only a few points. To insure a smooth job, join the 1/16" balsa skins, truing the edges first, taping the seams, then gluing and sanding before cementing the skins to the core. The best contact cement I have found is Southern's Sorghum or Mini-Flite's Maxi-Tac. I skin the cores first, true the leading and trailing edges with a long sanding block, then glue on and finally shape the leading and trailing edge wood. Tips come next; center section is joined and reinforced with fiberglass cloth and epoxy. Aileron horns are installed, then the 1/16" plywood reinforcement for the nylon hold-down bolts.

Tail surfaces are simply 3/16" sheet balsa. Try to select light wood throughout and sand everything well.

The fuselage is a basic box, with triangular balsa in the corners to permit a well rounded shape. The 1/32" plywood doublers add a lot of strength. The sides are parallel from the firewall to the wing trailing edge, which makes it easy to align. I build almost the entire fuselage with five-minute epoxy. The engine could, of course, be faired in more with balsa blocks shaped to match a spinner but, again for simplicity, I used side cowl pieces only.

Glue the hardwood wing mount blocks securely and drill and tap for the nylon wing bolts. There is not a lot of room for the radio equipment, so the installation must be neat. The three servos in the fuselage should be installed as low as possible, and the aileron servo should be installed as deeply as possible in the wing. The gas tank can be inserted through the wing opening and held in place with foam rubber.

We have used the Kraft nylon engine mount and the Tatone aluminum mount. The models built so far have balanced pretty well without any added weight; they do tend to be nose heavy, so try to use a light muffler and keep the radio equipment as far back as possible, etc. We put the servos at the rear of the compartment, receiver in the middle, batteries by the leading edge. If you use an engine larger than a 19, it might be well to shorten the nose by 1/2" or so. A 19 seems to be the ideal size. I have flown four different Whiplash models, each with different engines (a Veco 19, Supertigre 19, OS 19 and a



A minimum number of pieces makes the Whiplash not only simple, but inexpensive to build.

Webra 20), and all performed about equally.

It is a good idea to put a skid of some sort under the nose section, or to even cover the bottom with fiberglass or celastic. We adjust the carburetor to stop the engine on command and, if the prop is set horizontal at compression, it will stop at that position.

MonoKote or a similar material is of course best from a weight and finishing time standpoint.

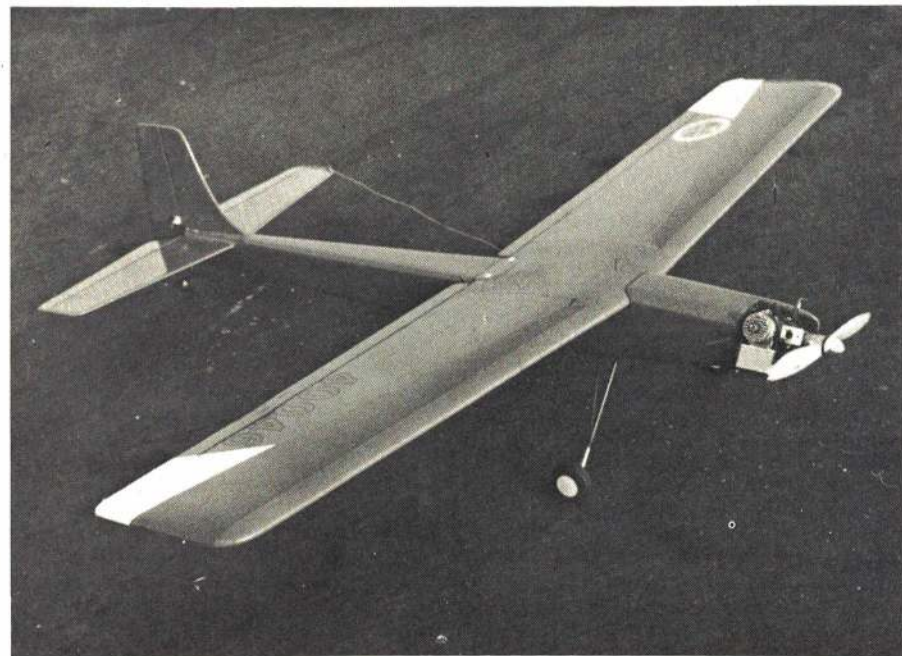
Flying the model should present no problems; if inexperienced, let a pro set it up for you. The rudder is only needed for certain maneuvers and, if lack of a throttle doesn't bother you, I see no reason why it couldn't be flown two channel (ailerons and elevator). With the

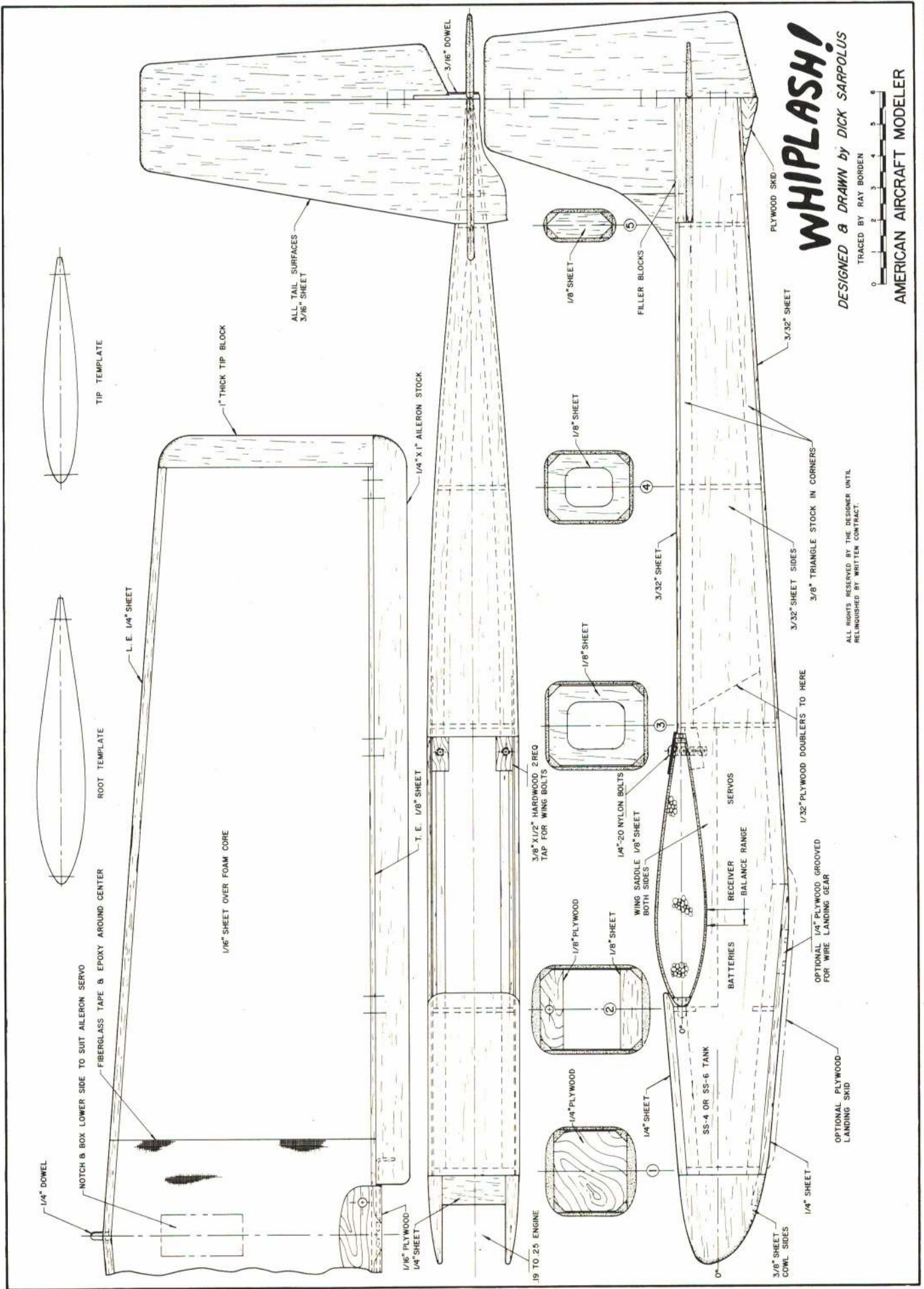
fully symmetrical airfoil, it isn't going to float like a sailplane, but it is pretty gentle. We sure don't need more pylon racing classes, but a 19 class with a design like a Whiplash would be a lot of fun.

If you can't get foam wing cores locally, contact me at 32 Alameda Ct., Shrewsbury, N.J. 07701.

Every project leads to another idea; after flying the Whiplash and reading about the progress in electric power for RC aircraft, I feel an electric-powered Whiplash would really be the thing for fun flying. Perhaps our next project will be an electric-powered pattern-ability fun ship. The state-of-the-art moves ever onward!

A Whiplash with legs. The landing gear might be essential in some areas (after all, it doesn't snow everywhere). Try skis in place of wheels for an ROS (Rise Off Snow).





WHIPLASH!

DESIGNED & DRAWN by DICK SARPOLUS

TRACED BY RAY BORDEN



AMERICAN AIRCRAFT MODELER

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FULL-SIZE PLANS AVAILABLE - SEE PAGE 100

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RC-108



Seasquare GT

MODIFY AN AAM QUICKFLOAT INTO AN RC FLYING BOAT / by George A. Wilson, Jr.

Seasquare GT is part of a series of experiments with RC seaplanes and floats that have flat bottoms. The original Seasquare flat-bottom design was built quite secretly, since we felt that a simple design of this sort might not be an immediate success. The day of test flying came and the fears went away! What we had hoped was true:

1. A flat-bottom hull rises quickly onto the step and planes nicely.
2. The large "wetted area" of a flat-bottom float causes no problem of drag.
3. A wide hull keeps water out of the propeller even in relatively choppy water.
4. A "low profile" design makes for excellent water handling.

Since these tests, several similar designs have been tested, and the latest is Seasquare GT. It is based upon Quickfloat, which was published in the May, 1973 AAM. If you built a Quickfloat you can easily convert it to a Seasquare GT. If you didn't, look up the Quickfloat article* and make the required modifications as you build the floats. Specifically, the following needs to be done:

1. Omit the nose-gear attachment device entirely.
2. Change the foredeck and bulkheads to make the hatch for the RC equipment.
3. Add the holes in the bulkheads for the Nyrods.

** (While you're at it, look into last month's AAM, where the author further explored the theory of floats and seaplanes.—php.)*

4. Omit the parts of the main gear attachment devices that project above the top of the float. *Do not* omit the remaining parts. They are needed for strength and to provide a strong location for the wing rubber dowels.

5. Add the wing stop behind the wing and the dowels for the wing rubber.

6. The length of the tip floats has to be changed. Note that the tip floats are cemented permanently to the wings of Seasquare GT.

7. Change the water rudder shape to provide better steering.

CONSTRUCTION

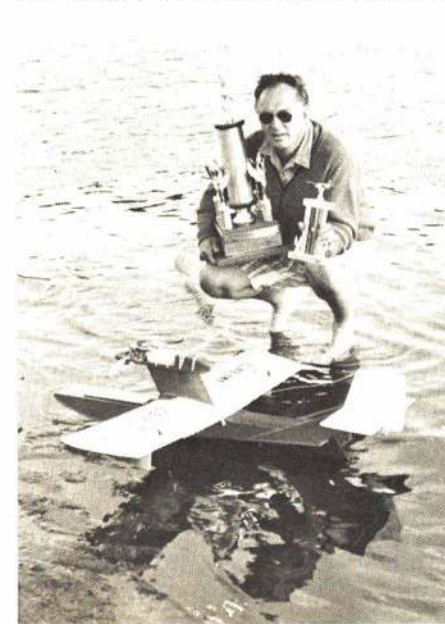
The construction information in this article will be limited generally to an order of putting things together and some notes on the tricky places. Although Seasquare GT is not a difficult project—there are very few compound curves to worry about—it is not for a novice. While docile on the controls, this seaplane can hold its own with many pattern designs.

The builder should bear in mind that waterproofing must be done as construction progresses. The inside of the structure must be sealed with dope or epoxy (Hobbypoxy Formula II diluted 1:1 with thinner). Before installing the final sheeting, coat the inside of the structure and the inside surface of the sheeting to be used to close the structure. Most purists insist that regular model cement (Ambroid, Aero-Gloss, etc.) is required for seaplanes. The writer uses Sig-Bond (Titebond) and has had no real problems. If you get water in the structure, get it out as soon as possible, no matter what cement you use. Dry the structure with heat and lots

of the driest air you can supply and you'll have little trouble. Or, better still, build with foam. If you get a hole in the balsa/foam structure, little water will get in, and standard foam repair techniques can be used once the balsa covering near the break is dried.

From a waterproofing standpoint, cloth covering is preferred. Other covering materials are more difficult to seal completely. If you use plastic film, make sure all the seams are tightly sealed. Apply a coat of epoxy over any seams that appear to be questionable.

John Ross with trophies and the author's GT. Flying in a 20 mph wind, he won the flying boat category at the Storbridge Water Meet.



Wing:

1. Pin down and glue together the bottom sheeting and cap strips for one half of the wing.

2. Glue the main spar to bottom sheeting.

3. Add the front rib sections (1) and mid-rib sections (2) except for those between the dihedral braces. Don't forget the dihedral angle on the center rib. Leave the front sheeting flat on the building surface at this time.

4. Glue in the rear spar and add the dihedral braces at the main and rear spars.

5. Trim two mid-rib sections (2) to fit between the dihedral braces and glue them in place. Don't forget the dihedral angle on the central rib.

6. Pin and glue the rear bottom sheet in place and add the rear rib sections (3).

7. Trim the center rib to accept the front dihedral brace.

8. Bevel the bottom of the sub-leading edge and glue it in place. Omit the front dihedral brace until the wing halves are joined.

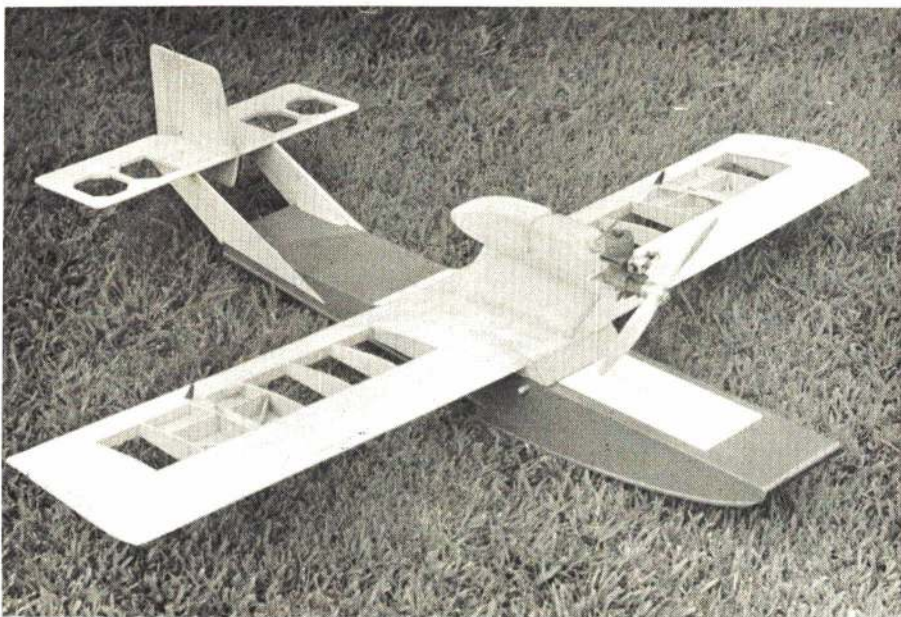
9. Add the scrap blocks for the aileron hinges.

10. With the rear part of the wing firmly pinned to the work surface, moisten the front bottom sheeting, apply glue under ribs and sub-leading edge and roll the sheeting up against the bottom of the ribs and sub-leading edge. Block up and pin in place. The cuttings from the ribs make ideal blocks for this purpose.

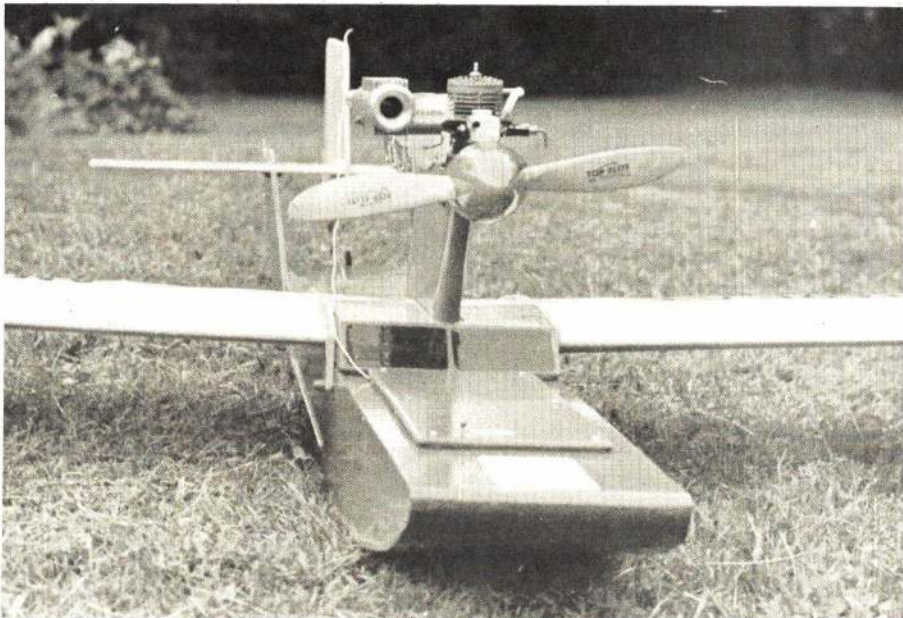
11. Now is a good time to open holes in the ribs for the Nyrod aileron controls (these have to be located to fit your servos) and to install the Nyrod.

12. Install the rib braces, (8) and (9), at the tip float location and at the center behind the aileron servo.

13. Sand the top of the wing structure to make it smooth for the top sheeting and coat the *inside* of the wing (including one side of the top sheeting) with a coat of dope (diluted 2:1) or Hobbypoxy Formula II (diluted 1:1). The first half of the wing may be removed from the building surface at this time.



ABOVE: The new parts for the Quickfloat (May '73 AAM) are shown here unpainted. BELOW: Although square, the lines of the GT are clean. A novice might find it fast, but it's a good full-house transitional ship.



*Steve
Kessler*



14. Repeat steps 1 through 13 for the opposite wing half, but omit installation of the center sections or the ribs between the main and rear dihedral braces (step 5).

15. Construct the motor pylon by first attaching the motor, tank and throttle servo bearers to the plywood center core. Use clamps and attach the first layer of the bearers on each side of the core. Repeat with the second and third layers. The 1/4" sheet balsa pylon sides and the fairing blocks are added after the pylon has been installed on the wing. Similarly, the servo fairing and other details are added after the pylon has been installed.

16. Join the two halves of the wing by cementing the main and rear dihedral braces into the second side and cementing the dihedral joint from the main spar to the trailing edge.

17. Trim the remaining center rib sections to fit between the dihedral braces and install the outer one.

18. Fit and install the pylon and the last rib section, checking to see that the pylon is upright between the wing halves. Cut a dihedral angle template from balsa or cardboard to make this check.

19. Install the front dihedral brace.

20. Construct "extension cords" for the aileron and motor servos and install them.

21. Install the top wing sheeting.

22. Cement the leading edges and shape them as shown on the plan. Glue on the tip ribs and shape them.

23. Cut and install the pylon sides. Shape the pylon sides to the cross section shown on the plan.

24. Construct the ailerons. Install the control horns as you build and don't forget the scrap balsa pieces for mounting the hinges.

25. Construct the cabin assembly and throttle servo housing.

26. Install the balsa fill (1/8" sheet) under the center section of the wing and remove the covering over the aileron servo compartment.

27. Install the 1/4" square frame and blind nuts around the servo compartment opening—holes have to be cut in these for the Nyrods. Make a plywood cover for the compartment.

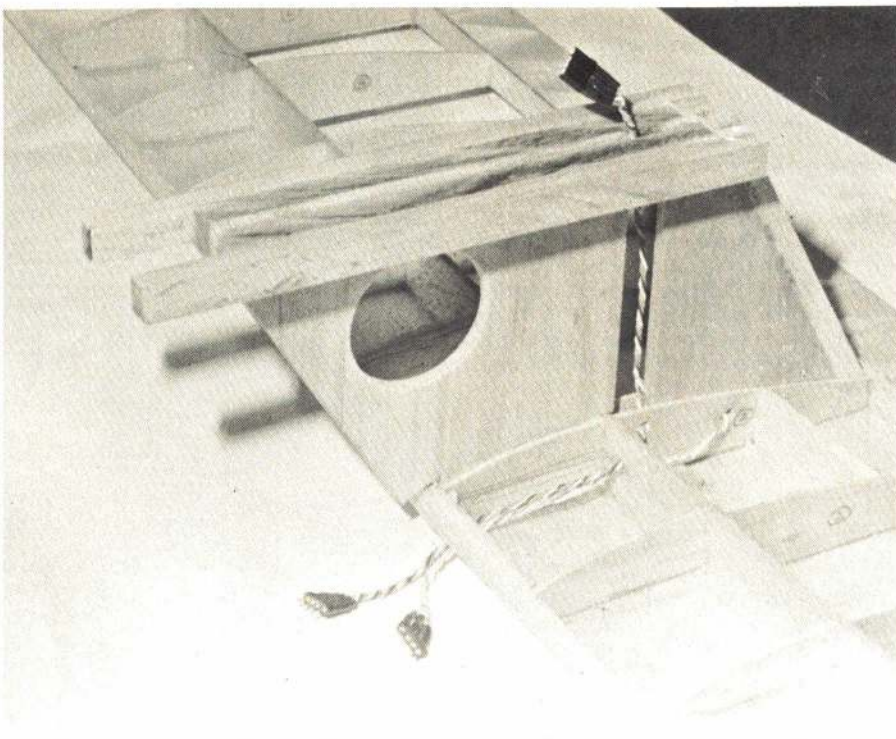
Tail Structure: The stabilizer, vertical fin, rudder and elevators are of straightforward flat construction and need no discussion. The booms that hold the tail assembly are most easily built in the following sequence.

1. Cut out 1/16" and 3/16" sheet pieces and cement them together using your favorite laminating technique. Contact cement is great; we use Sig-Bond. Note that one of the 3/16" sheet pieces is cut narrower than the other to allow for the Nyrod that goes to the elevator.

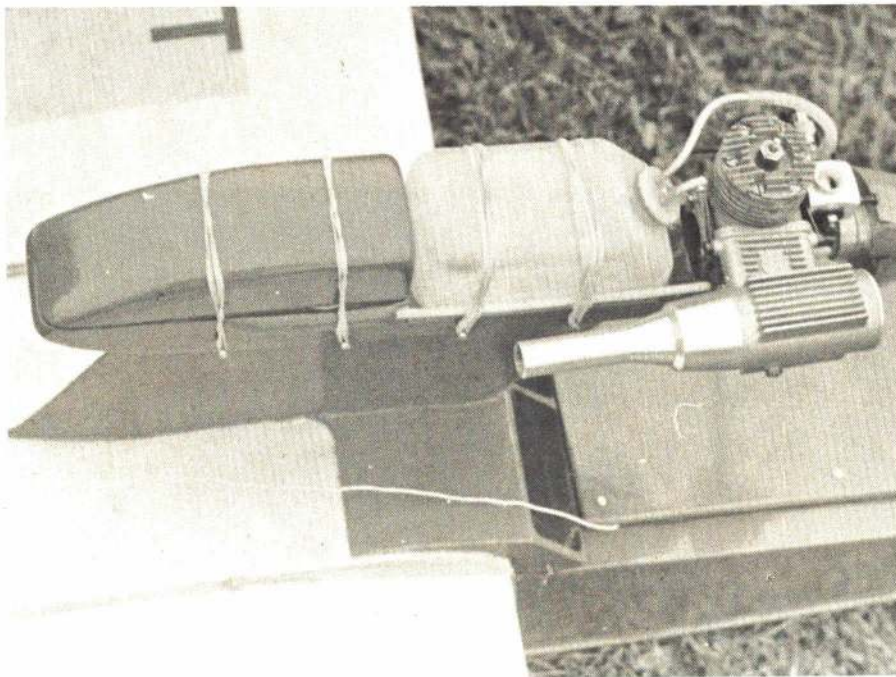
2. Add the triangular fairings at the fuselage and stabilizer ends of the booms. Shape these before you cement them in place.

3. Fit the booms to the fuselage and cement them in place. Check to see that they are square.

4. Cement the vertical fin (top and bottom) to the stabilizer. Install the tri-



ABOVE: The pylon should be solid to dampen vibration. Note the extension cords for the throttle and aileron servos. BELOW: The six-oz. tank shown here was later replaced by an eight. The throttle servo sits in the hatch behind the fuel.



angular fairings.

5. Cement the stabilizer to the booms. Again, make sure things are square.

Control Installation: Unless you want to build servos into the structure permanently, it is recommended that servo cord extensions be built into the wing and pylon for the aileron and motor servos. This makes for easy removal of these servos. A means for waterproofing the connections between the fuselage and the wing is accomplished by locating these connections (plugs) inside the cabin, which is gasketed to keep out water. To make the installation fully flexible, install a

second pair of extension cords from the fuselage top to the RC equipment hatch. This will allow easy removal of the receiver. In any case, take a good look at your control system and plan the location of the plugs carefully before you get the wing structure too far into the building stage.

If you are building the fuselage from scratch, make sure you cut holes in the bulkheads (or foam if you go that route) for the Nyrods. This will allow easy snaking of the controls when things are all assembled. If you are starting with a Quickfloat, as I did, the holes in the float can be cut by epoxying a piece of 3/16" brass tube onto a length of

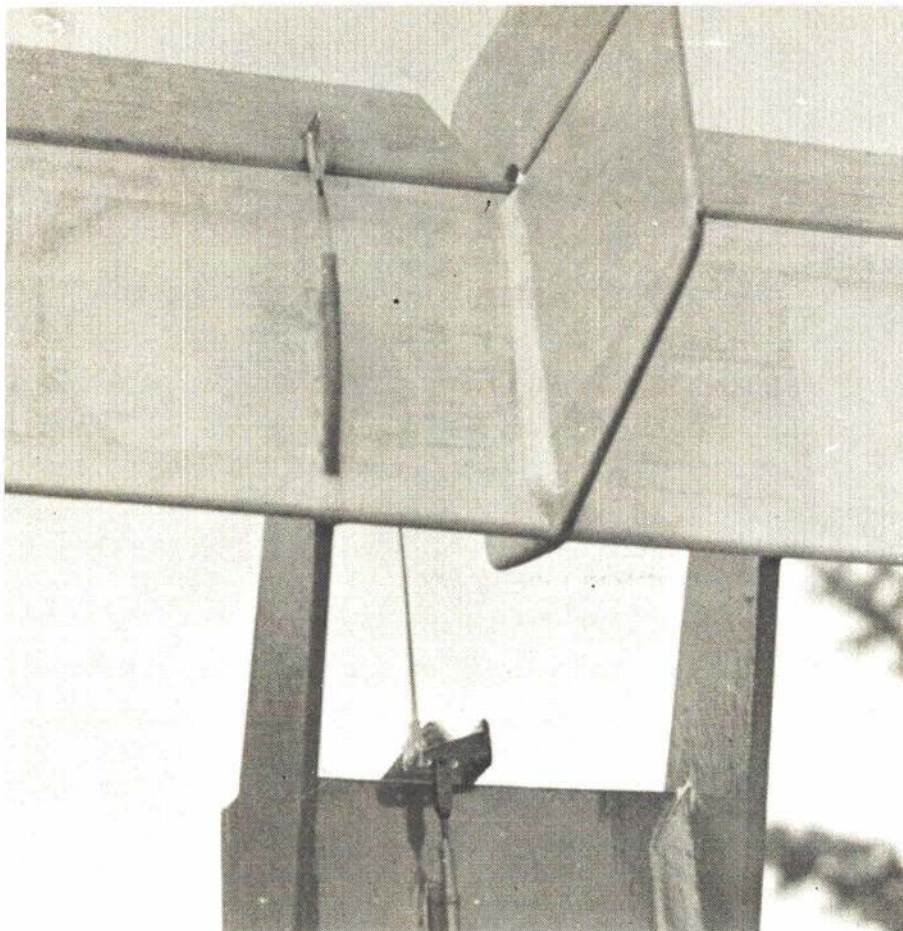
5/32" music wire and using this assembly as an "extension-hole-cutter." Sharpen the brass tube and add a few teeth with a fine file and your holes will be clean as can be! Of course, you will have to drill through the outside of the fuselage in a couple of places, but these extra holes are easily plugged.

The servos in the original Seasquare GT were mounted using double-sided tape. The aileron and motor servos can be held more positively by cementing foam to the hatch covers. The foam should press on the servo when the covers are in place. The linkage between the aileron control rod and the servo consists of a half inch "U" (spread about 1/16") made from 1/32" wire soldered to the rod, and a 3/8" 2-56 bolt through the rotary servo arm projecting into the "U." This setup caused no binding.

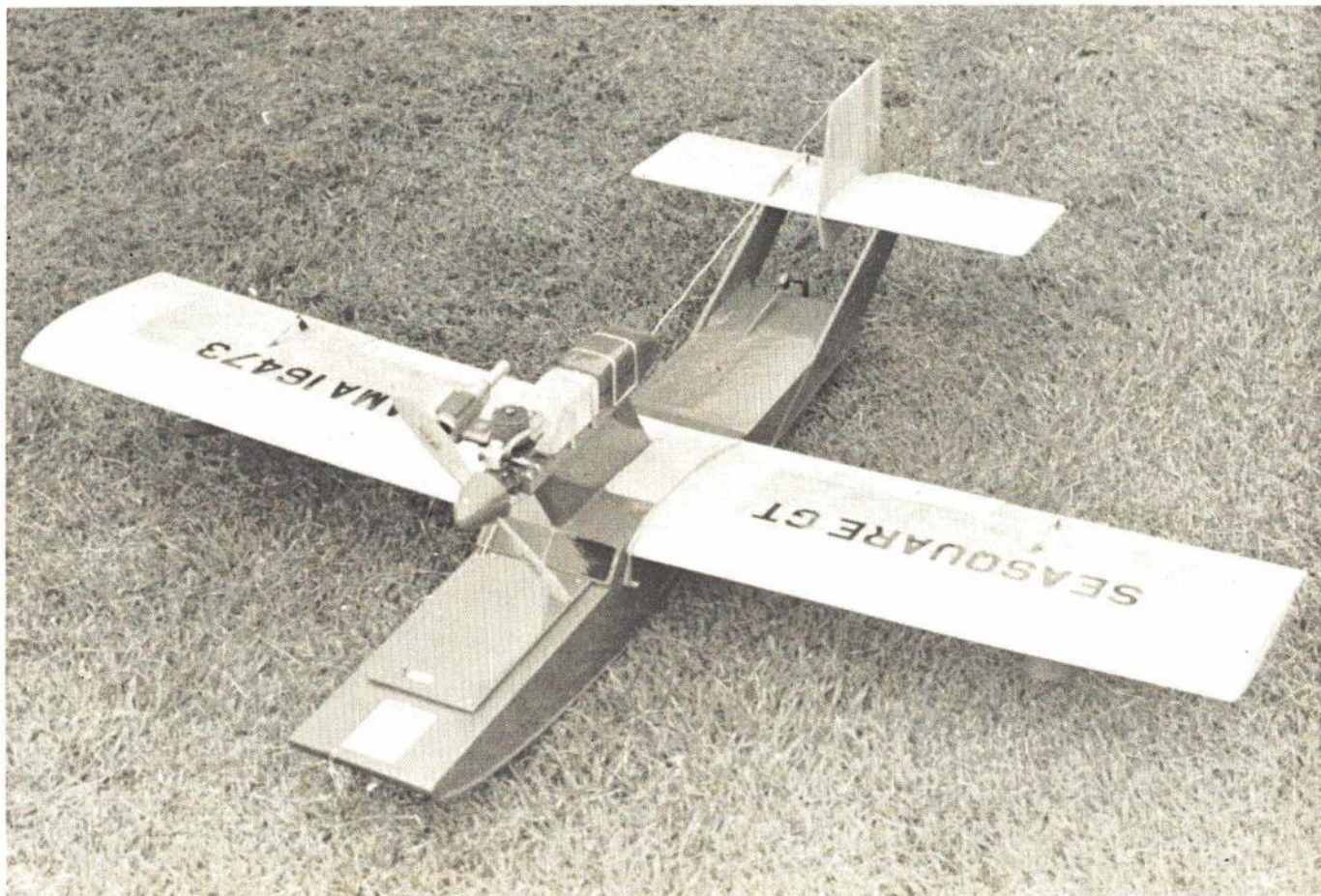
The throttle linkage is .040" wire inside 1/8" Nyrod. The servo arm is slotted lengthwise. The .040" wire passes through Nyrod, which is cemented to the outside of the servo housing, and is bent at right angles where it passes through the side of the servo housing. From there, the wire projects into the slot in the servo arm and does not require a retaining device. The Nyrod has a balsa fairing over it to make the installation waterproof. The throttle end of the linkage is a conventional nylon clevis.

Final Assembly: Like any flying model, Seasquare GT must be free from warps. The angular difference between

(Continued on page 93)



The elevator Nyrod runs up the tailboom; air and water rudders are coupled via one horn.



Rhett Miller III



Portrait of a (Twice) Nationals Champion

by Peter M. Illick

By now most of us have grown accustomed to the fact that a teenager from Tallahassee, Rhett Miller III, was victorious in the premier RC Pattern event held at the 1973 Nationals. But how many of us are again shaking our heads in amazement after the lad did it again in '74?

To the average RCer, including those who have never seen Rhett fly, the "kid who walked away with all the marbles" commands a special sense of awe. It's only natural to wonder what kind of gift or unique talent catapults a relatively unknown high school student through just three years of competitive flying to his hobby's pinnacle—National Champion.

The questions most frequently heard: Can he *really* fly that well? How do all those more experienced fliers, those who have been competing against one another for 10, maybe 20 years, feel about Rhett's victory? Perhaps Ron Chidgey's comments to Rhett just after his stunning victory offer some insight: "All summer long we've been beaten by a 15-year-old kid. Now we'll have been beaten by the National Champion!" Chidgey's comments seem to sum it all up; regardless of age or experience, Rhett had earned his laurels.

Rhett Miller III saw his first RC in the summer of 1969. Rhett and his

At Oshkosh, Rhett surprised them all with his victory. Note that his original design sported a side-mounted engine.

father, Rhett Jr. (Rhett III's chief mentor and a city engineer for Tallahassee), were out "attempting to fly" on the strings, U-Control. In the distance, they watched what they thought to be another Control Line model flying on "very long lines and doing all kinds of stunts." The other model was, of course, an RC model, and Rhett III decided then that he would have to fly one. So the Ukie model was hastily retired and replaced by a Falcon 56 with an Enya 19. With the help of some other local fliers, Rhett III had started on the path which would lead him to the top of RC Pattern competition.

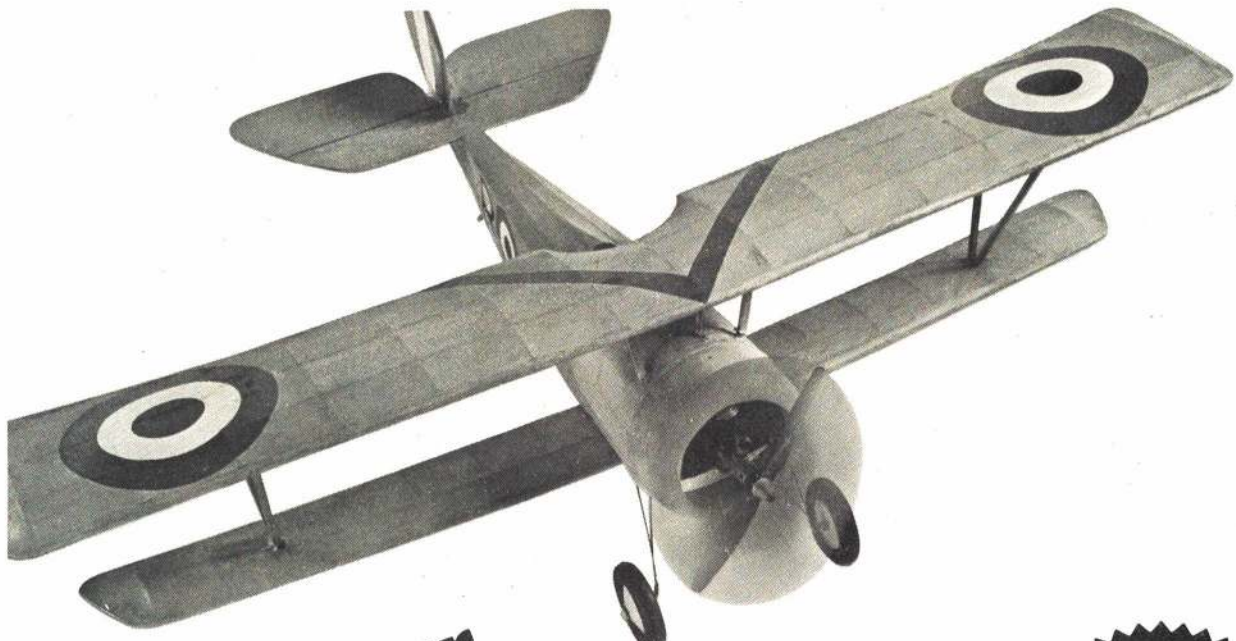
Rhett and his father learned the rudiments of RC flying that summer, but not without their share of "accidents." Rhett recalls outgrowing what had come to be considered an underpowered Falcon. So the mild 19 was replaced by a more potent 35, and ailerons were added. "We splattered that airplane all over the place" was the account Rhett III candidly gave of the unceremonious demise of the trainer Falcon. During this summer initiation to RC flying, Rhett was not showing the smooth, professional finesse which

would make him the National Champion. Rather, he was having the same types of problems most fledgling fliers have: overcontrol, disorientation, etc. Indeed, Rhett's road to the NATS was not paved with a thousand flawless flights flown on only windless days.

In his first Class A competition, Rhett was flying a taildragger Eyeball which he remembers frequently brought the judges to their feet. The judges got out of their chairs not as a spontaneous display of admiration for a faultlessly performed flight, but because Rhett claims to have set a record on that day for broken props, putting the Eyeball on its nose on every landing. Although Rhett recalls getting invaluable assistance and advice from another super-flier, the late Jim Kirkland, even this master-apprentice relationship had its bad days.

Several weekends before the '72 NATS, Rhett had been travelling to Kirkland's flying site in Valpariso, Fla., to practice. He remembers that Kirkland's field was lined with rows of pine trees, whereas he had become used to flying over the uncluttered expanse of an abandoned air base near his home. On his first flight, Rhett recalls losing sight of his Intruder as it came smoking out of a Split-S and disappeared into the

(Continued on page 103)



Let your imagination fly

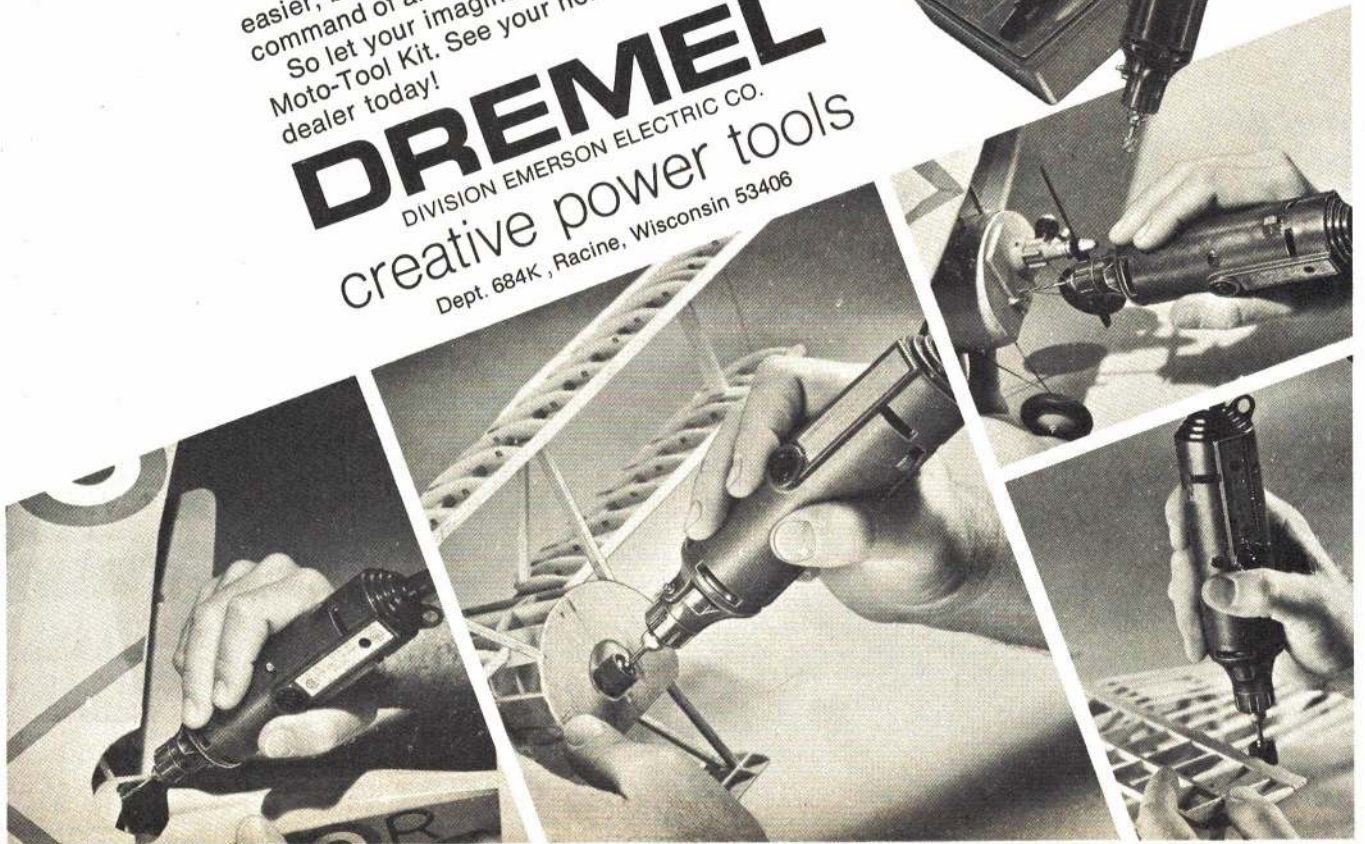
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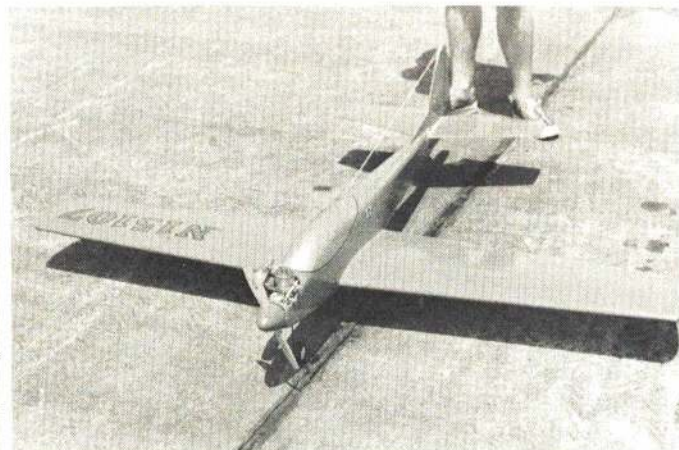
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AMA NATIONALS '74

LAKE CHARLES

RC Pattern by Don Lowe



Kraft's new bird. While not the most attractive looking execution of a Pattern ship (frankly, it was ugly), it really flew magnificently.

Rhett Miller III and his mentor, Rhett Jr., talk their way through the flight that cinched Rhett's NATS title. (See page 50 for Rhett's story.)

(Photos by author)



ABOVE: Jim Martin tried to change his style of flying to meet theoretical FAI standards. He went back to his usual fast, open format to capture fourth place. TOP RIGHT: Dave and Sally Brown with their Phoenix 6 (a Don Lowe design). One of the most popular planes at the NATS, it captured fifth place for Dave. BOTTOM RIGHT: Tony Bonnetti's new Double Trouble design, which will appear in a future issue of AAM.

Yours truly, having survived a hectic several days of practice and prelims, now sits awaiting the call for the Class D-Expert Pattern finals in the Bayou Country of Louisiana. Hectic it has been for me and others, with all kinds of mechanical and electronic problems, coupled with a liberal dose of the hottest and most humid conditions ever imposed on poor Joe Model Flier.

Let me hasten to say that the reception by the local Cajuns and the facility are tops, but the depressing heat and humidity, along with frequent gully-washers, take a lot of the zip and enthusiasm out of the staunchest RC modeler. Have you ever tried to camp or survive in a sea of mud? Well, that's what we've had on several occasions, brought on by the seemingly ever-present thundershowers.

Pattern entry was down this year, with the following unofficial stats: Class D and E—82; Class B—19; Class A—41.

The other categories also were down, with a surprising pre-entry in AMA Scale of one, later inflated to 11, when several switched from Sport Scale. The RC events have been spread over 12 days and, as I sit and write this, most fliers from other RC events have packed up and gone home. We feel just a little bit lonely with no spectators or any significance, and very few extra modelers around; we didn't even have an RC banquet this year.

The heat and humidity has taken its toll in electronic gear, but surprisingly, engines have run very well. We had expected to have to doctor our fuel, but I and many others have been running with the same fuel and needle setting that we use at home.

D Pattern qualifications have brought no real surprises—just a lot of the usual, plus a few new faces surviving to the finals. Rhett Miller III led the way with his usual fine flying. Young Mike Mueller zapped into second spot with a couple of tremendous flights; in fact, he had the highest single flight score. The top five finalists were rounded out by Steve Buck, yours truly, and Dave Brown.

As I write this, we are in the throes of the finals and it's still up for grabs.

We've had a lot of yack during this contest about judging, since it always has been one of the weakest links. Jimmy Grier is touting a system these days that a number of us have thought about at one time or another. It simply involves having the contestants judge themselves. It would work something like this:

At a given contest the entries would be split into two equal halves. For a given round, half of the contestants would judge and the other half would fly. On the next round the procedure would flip-flop. All contestants would judge, and there might be 10 or more judges on the line at a time depending on the entry and the number of lines.

To simplify things, K factors would not be used; each judge would use an automatic counter or "clicker" and jot down his total score and sign it.

With the large number judging, a more realistic score should emerge. The most qualified people would be judging, and the task of training judges would be eliminated. In making up the judging teams, an attempt would be made to combine "equal experience" groups by mixing A, B and D fliers. How about that?

Folks, stand by a few minutes while I go fly—I think I hear a page to the flight line. Speaking of page—Norm Page just flew and aborted with engine failure, which he has been plagued with at this NATS.

Well, I flew again and put in another solid mediocre flight. By now, I'm convinced that this contest is survival of the fittest—survival of the heat and humidity, that is.

Just to recoup a little bit, Class DN and DE flew eight qualifying short rounds. The top 20 were included in the D Expert finals. D Expert finalists put in four flights each of the full pattern. Six were scheduled, but the weather interfered again in the form of morning fog and washed out a half-day's flying.

Classes A and B flew two half days, with the contestants getting in four flights each of the full schedules.

(Continued on page 127)

Pylon

by Bob Stockwell



A plane's-eye view of racing at the NATS. That's Steve Sica's Ricky Rat about to get airborne.



Al Prather releases Terry's L'il Toni in the heat Terry was the only flier to break 1:20, and he

This is the first time in the history of Formula I that the AMA Championship has been determined by straight heat rotation, with no time trials. It is also the first time it has not been won by a Californian.

The winner, Gale Helms, is from Ft. Worth, Tex. He is vice president of the NMPRA South Central District. I don't know what his age really is but, like Jack Benny and your present reporter, he doesn't admit to a day over 39.

His airplane is a handsome yellow Miss DARA by PB Products. His engine

is a '74 K&B, customized by Jim Nightingale. He had no pipe. He won on the basis of consistency: good steady flying, with never a cut to knock him out of first or second, never a bad engine run, and—I'm sure he will be the first to agree—a lucky draw in the heat make-ups. His best time was a relatively slow 1:33.

If we take the best time posted by every flier in the seven rounds as a hypothetical "qualifying" time, then, according to my records, Gale would have qualified 20th or possibly 21st. This method is unrealistic, since the

fastest times generally weren't posted until the later rounds. But in qualifying heats they had to be posted in the first three rounds. More realistically (using only the first three rounds to calculate qualifying times) he would have made it comfortably around 15th.

As it happened, Gale was fortunate enough not to draw any of the fliers who turned under 1:25—in fact, he lost to both Steve Ellison (1:28.9) and Harold Coleson (1:29.8), never coming up against anyone who turned a faster time. Thus, it is interesting to determine just exactly why the faster competition failed to win. To keep the question within manageable limits, I restrict the list to those who broke 1:25 at this contest. They are: (1) Terry Prather, 1:14.9 (and 1:17, 1:18, 1:19); (2) Larry Leonard, 1:20.2; (3) Bob Smith, 1:21.2; (4) Jimmy Witt, 1:21.4; (5) Whit Stockwell, 1:22.1; (6) Kent Nogy, 1:22.3; (7) Dan McCan, 1:24.0; and (8) Bill Preis, 1:24.6.

Terry Prather's 1:14.9 is a new world's record. He seems to be able to go a little faster every time he shows up at a major contest: 1:17.3 at the Tangerine, 1:15.7 at Bakersfield, now 1:14.9. But speed alone does not always win, as this contest resoundingly proved. Let's take them one by one, in the order listed above.

Prather: Hole in pressure line, resulting in two zeroes. Also nosed over once. Three zeroes.

Leonard: Radio failure in seventh round, after winning his first six heats. One zero.

This LR1-A, belonging to Jimmy Witt, was totaled on Friday, then repaired overnight by Robert Johannes to fly again on Saturday. It flew as well after the repair as before.





in which he turned a new record: 1:14.9. He broke it every time he completed ten laps.



Kent Nogy with BobCat (left) and Walter Reiss with his Avanti, as they head for their flyoff for first place in FAI.



Caller Ed Rankin (left) and pilot Gale Helms with their winning Miss DARA. Helms flew a Nightingale customized K&B.

Smith: Radio failure in first round, still malfunctioning in rounds two and three; replaced, flew successfully in rounds four-seven with his Miss DARA rebuilt at the field. Three zeros, and a second to Leonard in round six.

Witt: Crashed in fourth round when another flier's caller accidentally blocked his view. Rebuilt, mainly by Robert Johannes, that night. One zero, and a second to Stockwell in round six.

Stockwell: Flameout when spray-bar stripped out of carburetor. One zero, and a second to Bridi in round five when plug blew in fifth lap.

Nogy: Nosed over on takeoff in seventh round after winning his first six heats. One zero.

McCan: Two cuts in race with Prather, otherwise perfect score. One zero.

The eighth man on the list is Bill Preis. Bill didn't make *any* mistakes. He just happened to be scheduled against Stockwell, McCan, and Smith in rounds five, six and seven, resulting in three second places. That put him alone at three points down, total 25, for second place in the contest. Gale Helms, you recall, was beaten only by Ellison and Coleson, for first place with 26 points.

All of these speedsters had at least one zero—i.e., at least four points down. One other flier was tied with them: Jim Martin flamed out once, but had a perfect score otherwise. Some of us thought the stage was set for a brilliant flyoff among Leonard/Nogy/McCan/Martin, but Leonard and Nogy were on the same frequency. Martin, a renowned aerobatic flier, is new to Pylon, but he would have given the old hands a race

for their money and then some, flying a Prather Products L'il Toni and one of the Prather-Custom SuperTigres.

Now, before someone from Ft. Worth plants a bomb at my door, let me hastily add that while I am sorry for the circumstances causing the speedsters to lose, I am delighted that it was *possible* for the NATS to be won by an airplane, engine, and pilot which were 18 seconds (at least two laps) slower than the fastest one. I don't think you ought to win just because you're the fastest.

Winning in racing is, and always should be, a combination of good preparation, good performance, and good luck. You can't win without having everything going right. If speed was all that mattered, we could save a lot of trouble by skipping the race and just giving the trophies to Terry Prather. And if flying the best course was all that mattered, we could just give the trophies to Bob Smith. If luck was all that mattered, I think Gale Helms would be high on my list today, but someone else tomorrow, and someone else the day after that.

It is probably only male chauvinism that identifies luck with a lady, or perhaps no more than simple alliteration. But whether feminine or alliterative, luck is sure as hell fickle. *Most* of the time the combination of good speed and good flying will win.

But not always, not always: It is good that the gambler's instinct is strong in all of us, because racing is a form of high-stakes gambling. Why else, can you tell me, would we spend Lord-knows-how-many hours and dollars building fragile models and traveling from our comfortable homes in decent

climates to a place like Lake Charles, La., in the middle of summer, just to race those toys? We *have* to be gamblers—types of addicts. If not, we are fools or worse.

Now let's look at some other aspects of the AMA NATS, Form I. First, the entry list. With 78 pilots and 112 airplanes, Form I was about the same size as Pattern of the D Expert variety (82). Certainly it doesn't look much like a dying event, and we hope its national status was boosted by having the top two winners from the South Central and North Central districts of NMPRA.

We also hope its international status was boosted by having seven entries from Mexico and five from Japan. Among the foreign entries, Kenji Nakamura took top honors by placing 15th with a fine consistent performance, netting 21 points. All the Japanese entries flew the PB Products' Miss DARA. Of the Mexican entries, Sr. Luis Castaneda actually scored even better than Nakamura once he got running, with two firsts, two seconds and a third. But he failed to fly his first two heats because of an auto accident that kept him away from the race the first day.

There were some familiar names sadly missing from the entry list. Cliff Weirick wasn't there. Bob Violett and Eric Meyers arrived 3½ hours too late for transmitter and aircraft processing. All of the northern California group, including Ron Sheldon and Joe Foster, stayed home. A national race without Pappy deBolt has got to seem strange to some of us.

And, though Adam Sattler made it, his son Bryan was in the hospital for an

(Continued on following page)

Pylon

extremely delicate eye operation. Both have been fixtures at the NATS for years, with Bryan taking top Junior and Senior awards on several occasions. Many of us had the privilege of signing a get-well card that was sent to Bryan the day after his operation. The Northeast was represented by Sattler, Al Sager, Butch Schroeder, Gus Geissinger, and Jim Martin, but we missed Pete Reed and others of the Connecticut group.

The contest management was excellent in almost every respect. Jack Fabbri was the man in charge, with the very able help of Jack Stafford, Bob Upton, Dave Lane, Jim and Laura Dalton, Ken and Loretta Hall, Howard and Gary Nupen, Frank Szeclula, Frank Capon, Gary Chaddock, and a number of hard-working members of the local club.

The flagging and lap-counting were excellent: I don't know how they did it hour after hour in that heat and humidity. I wish there had been drop-boards to display cuts at the scatter pylon—these have been widely displayed and discussed in the magazines, and there is really no excuse for the AMA not to provide this extremely useful setup.

The spectators and participants would have appreciated a scoreboard near the pit area to make the standings easier to follow. Indeed, the enormous spectator appeal of racing was almost totally lost at Chennault because of the distance between pit and racing areas, the inadequacy of the loudspeaker system (you couldn't hear it above the sound of the engines), and the lack of a display of standings as things went along. At both Glenview and Oshkosh, Form I vied with Scale as the top spectator draw.

There were certain problems for which the rules, not the management, were responsible. There isn't much hope of satisfactorily judging 112 airplanes from first to last, though the judges did an excellent job with an impossible assignment. The rules ought to be changed to judge the list in four groups, allowing ties to be resolved by a coin flip on the line or by simultaneous starts. The processing of airplanes for weight and dimensions was extremely slow—it is hard to see why any but the winners have to be so carefully measured. We really should eliminate this nuisance activity from preflight processing, just as we eliminated engine inspections (except by challenge) two years ago.

Matters of speed and safety: The very fastest K&B engines all had pipes (spelled *exhaust extension*) hanging out under the cowl, and they were obviously quite effective, gaining up to 800 or 1000 rpm. There was some disagreement as to whether they should be judged with the pipes on or off, but I doubt that the point is worth much of a hassle.

As for safety, there was no evidence that speed created any unsafe condition. Only two of the really fast airplanes crashed. Leonard had a radio failure that showed up clearly on the scope as being just that (no interference, no pilot error, just a circuit going belly-up); and Witt had a run-in with a caller.

On the first day of racing, the number of crashes was a bit upsetting, but there was no pattern to it, with respect to either frequency or speed. There was one wing that folded, and there was one mid-air in FAI, but none in Form I. The last two days were relatively crash-free, and at no time was there a crash that endangered either participants or spectators.

In the end, there were sharply conflicting opinions about whether we were right last year in recommending that the NATS go to heat rotation for everyone, without time trials. I am satisfied that this way is much better—and not just because it is less of a hassle for the fliers. Jim Witt could not have rebuilt to fly again under the old system, nor could Smith or Bertken. Prather would not have located his engine problem, nor would Stockwell, Martin, Keith Davidson or numerous others.

Our fears that the luck of the draw might leave a large number of perfect scores to be flown off at the end were totally unfounded. Guys who traveled up to 12,000 miles (round trip/Japan) got seven flights, win or lose. It is a better way to go: I believe, and hope, that qualifying time trials are forever in the past. I do think more rounds could, and should, have been flown, though. In a decent climate, we could easily have finished three rounds each on Thursday and Friday, and five on Saturday. In this climate, such a feat would have killed the flagmen and lap-counters. With ten or more rounds, I believe the final standings might have changed considerably.

A note on the equipment used: Every single airplane in the top 20 had a fiberglass fuselage! The Minnows were all from the Stegall kit, the Little Tonis from the Prather Products kit, the Miss DARA from the PB Products kit, and the LRZ-As from the A&L Mfg. kit. There was one Ricky Rat in the top 20, Steve Sica's—who also won top Junior award—from the D&S kit. I believe this is the first NATS to have *no* balsa airplanes in the Form I winning list, usually Stafford Minnows.

As for engines, there were Nightingale, Lee, - and Aldrich customized K&Bs, a few of them with pipes; and there were Aldrich and Prather customized SuperTigre X-40s which, being rear-exhaust engines, necessarily had exhaust extensions. The Prather X-40s were all super engines which turned consistently in the 1:20s for Jimmy Witt, A.A. Chambers, Whit Stockwell, Jimmy Moorhead, and Jim Martin; and below 1:20 for Prather himself.

Only the K&Bs with pipes in the hands of Larry Leonard, Kent Nogy,

Bob Smith, Dan McCan, Bill Preis, and Ron Schorr were consistently as fast as some of the SuperTigres. But the K&B fliers had fewer problems running the full ten laps. There is no doubt that we are now pushing our engines to 75 or 80% of their theoretical efficiency, and consistency at that level is likely to be unattainable.

Now, a few words about FAI Pylon—only a few, however, because the event is dead, or at least moribund. There were 27 entries, but only 18 of them actually flew more than one heat. Since there were 20 trophies, you can see that it wasn't hard to get one. Kent Nogy won the event with a BobCat set up exactly like Bob Violett's, pipe and all, built from the same Stegall kit as Violett's own. His best time was 1:36.7 and, until the very last heat in Formula I, it looked as if Kent would take both events just as Violett took them both at the 1973 NMPRA Championships.

Kent had to beat Walter Riess, of Nampa, Idaho, flying the Joe Foster-designed Avanti, in a flyoff for first. It was a good race, but Kent had a five-second advantage, since Riess' best time was only 1:41. Tom Pownall sewed up third with five firsts, one second, and one third. In a tight, well-flown race, Ron Schorr beat Larry Leonard and Adam Sattler for fourth. That gave Ron fourth in FAI and 13th in Form I, a very impressive performance.

My view about FAI Pylon is that we ought to drop it, in its present form, altogether. The muffler/pipe rule is uninterpretable and/or unenforceable; the airplanes are mostly monstrosities; and the fuel is a nuisance.

I used to think we should work at FAI Pylon in order to preserve an international event—but International really meant mostly U.S.A. and Great Britain. Now, in fact, Formula I means U.S.A., Mexico, and Japan—it is just about as International, under a realistic definition, as FAI. I can see no reason to perpetuate an event that doesn't make modeling sense.

Formula I is a real modeling event: The full-scale corresponding airplanes and races do exist, do have a meaningful tradition, and do provide a wide variety of interesting challenges to the modeler. Formula I aircraft are sleek and, in most instances, beautiful machines that deserve to be replicated. Retractable gear in FAI are at least as much trouble as wheel pants in Formula I, and the pants can always be removed for rough fields. If landing speeds are problems, I don't see why Formula I birds can't be fitted with an extra servo to drop both ailerons, like flaps, for slower landings ("flaperons"); or simply fitted with flaps. As Cliff Telford suggested, we could fly Form I birds on alcohol for international competition.

In short, I'd like to see Quarter Midget for initiation into Scale Racing, and as the main event where the fields don't allow Form I safely; and Formula

(Continued on page 125)

Quarter Midget Pylon



ABOVE: The idle rule at work. Austin Leftwich's ST 15 passes. Austin finished second after a mid-air. LEFT: "In my hand I have Austin Leftwich's L'Il Gem, and it's going to win this heat." It did.



LEFT: Charlie Swain checks the engine on his original Miss DARA. RIGHT: Joe Bridi is a threat in any competition. He turned a comfortable 1:54.2 in qualifications.

by Dan Santich

The first year for Quarter Midget at the Nationals drew 64 pre-entries, 48 of which actually competed. Four rounds of qualifications were completed, with a total of 48 time trials. Event director Hank Waechter (Nashville, Tenn.) kept the heats moving in a well-organized manner. The idle

rule was strictly enforced and resulted in many ships never leaving the ground.

To set up a racing engine that will go fast and still be able to idle below 5000 rpm for 15 seconds is something most QM pilots have yet to learn. This was the single most significant factor for eliminations in the event. As in any contest, a lot of grumbling was overheard; but, what is fair for one is fair for all.

The wide variety of airplanes com-

peting seems to indicate that the event is still on the upswing. No particular design was dominant, nor was any one engine.

The cutoff time for the top 20 qualifiers came at 2:06.6 with Bill Weesner (Pro-Models P-51) and Steve Sica (original Ricky Rat) filling the Nos. 1 and 2 alternates. Tom Christopher (House of Balsa DARA) was top qualifier with a time of 1:48.7, followed by

Photos by author

Quarter Midget Pylon

Gale Helms (Skyglass Minnow) and Austin Leftwich (L'il Gem).

Finals were flown the next day, between refreshing morning showers. From the very first heat, it was a repetition of the qualifications. Seldom did all four planes get in the air. Again, the idle rule was taking its toll. Few crashes occurred and, in the only mid-air of the

contest (between D.C. May and Austin Leftwich), both planes were able to land safely.

Tom Baker, flying his own design Minnow and an ST 15, was only able to manage 13th in qualifications—but in the finals he got it all together and emerged the winner. Austin Leftwich, after getting a zero as a result of a mid-

by Dan Dougherty

If we define racing as a closely grouped pack of airplanes going around the pylons in fairly close proximity, and often changing places, then we can perceive the QM event at the NATS for what it was—good racing.

Good racing was achieved primarily through dependability, and this dependability was in direct proportion to the idle rule. There was a lot of talk from the Formula I racers that the idle rule got in the way of good racing, but the NATS results proved the opposite.

The idle rule kept the racers closely packed, as many fliers with fast engines found it to be a stumbling block. A zero on the ground during the idle test stopped even last year's NATS winner, Austin Leftwich. To his dismay, he had his first idle failure in 1½ years at Lake Charles.

Where else but in QM could Tommy Baker, a real hot-shot in Form I, fly so slow, yet so consistently that he could win? Even more surprising is that Tommy found himself a NATS Champ

in only the second QM race he had ever entered.

There were those who flew faster than Baker, such as Tom Christopher, Jim Rogers and Bill Helms, but they didn't fly steadily and with the continuous performance that makes one a winner in QM. It's really not a matter of beating the clock (although good times are important), but a matter of keeping it all together.

QM at the NATS was a fascinating admixture of the luck factor, which is often pilot decision in faint disguise. One such ill-fated decision was made by young Steve Sica (who also flies Form I). This 15-year-old damaged his plane in the second round of qualifications.

During the third round he and his Dad repaired the model. Ready to fly in the fourth round, Steve and his Dad closely evaluated their flight time. After much soul searching, the decision not to fly was made; the first-round time looked good enough to make the cutoff. When the top 20 names were posted, Steve's was 21st by only a fraction of a second. Lady Luck had done a turn. Steve did receive the Best Junior Award,

air with D.C. May, still managed second place. This brings out an important point to remember: You may not have the hottest engine in the world, or the fastest airplane, but, if you are consistent and finish every race, you can win the Nationals.

Quarter Midget racing is off to a good start and, hopefully, will continue to gain popularity. Make no mistake about it though; this is racing in the full sense, and to win takes that old formula: (Skill) ± (Luck) = Success.

which should be solace enough for anyone.

And what of Lady Luck when Gale Jacobsen folded a wing in level flight from some undetected damage sustained in a previous mid-air? And the case of Dave Pierce, who didn't win a heat, yet placed fifth overall by consistently grabbing seconds and thirds, further emphasizes the way to beat Lady Luck—hang in there and don't tempt her.

The emphasis on safety was rather high at the NATS. Many fliers were surprised that their models underwent a *complete* safety check, even down to the clevises, when they were processed. And it paid off, for (other than one mid-air) there were no serious mechanical or safety problems encountered.

Because of these things, interest in QM is on the upswing. Fliers are really reacting to an event where they can fly comfortably, inexpensively and safely—competing against the best of them on equal terms. If Tommy Baker can become a champ in two races this year, maybe someone else out there who hasn't even flown a QM can be next year's NATS winner.

RC Scale by Claude McCullough



Bob Wischer really has it all together this season. Fresh from a triumphant victory at the '74 AeroOlympics, he and his Emeraude captured the NATS Class II crown.

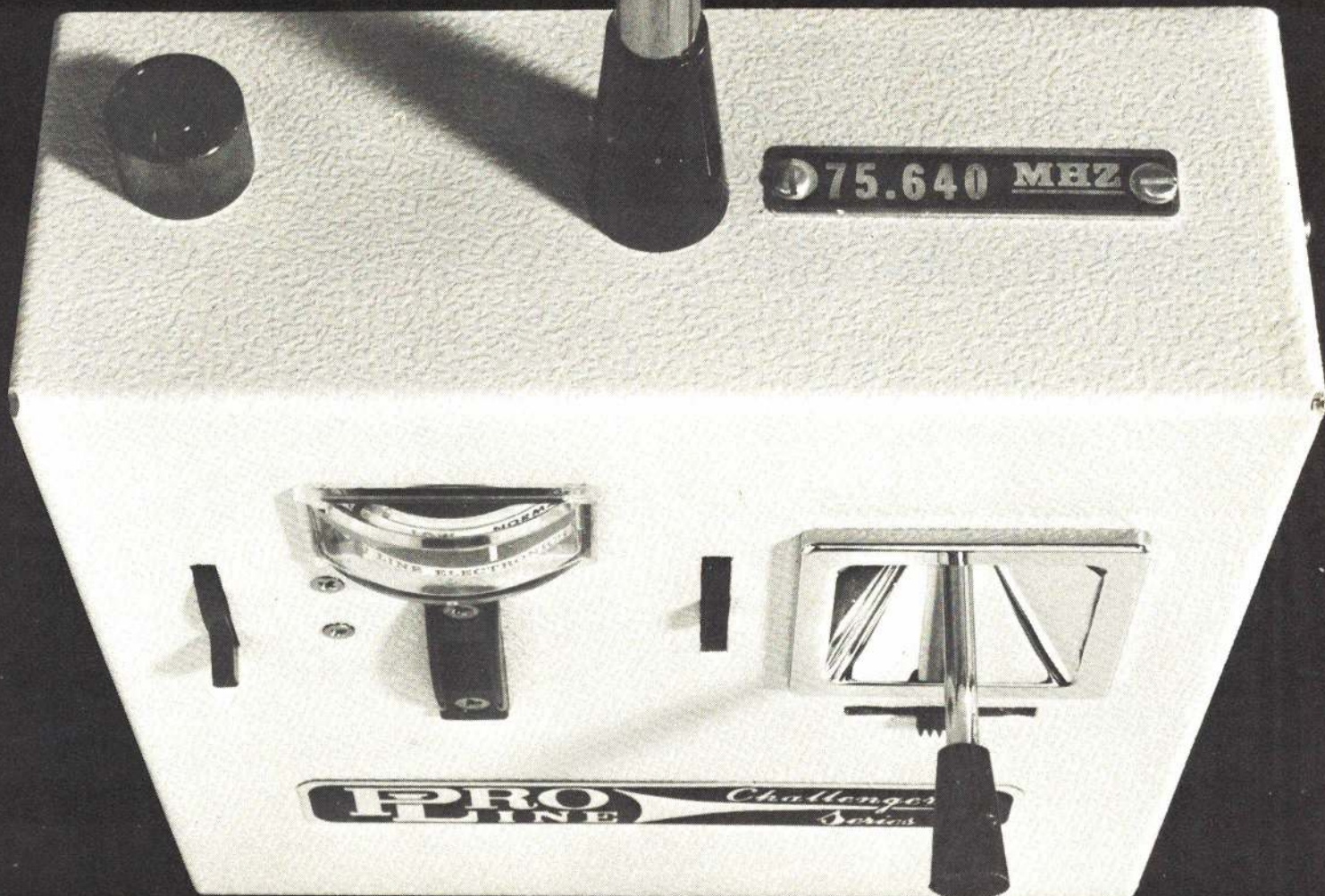
Any doubt remaining that Sport Scale was destined to be anything but popular was erased by the first running of the event at the NATS. The 20-entry field was a multi-colored mixture of many different types, competently flown.

The top ten aircraft in the final results were: FW-190, P-47, Acro-Star, Pitts Special, P-38, Beech Bonanza, Stormovik, PT-17, P-40 and PT-19. Claims have been made that the rules favor or discriminate against one type of aircraft or another. This list indicates that one of the most important requirements for continuing success of a Scale contest has been met; an opportunity for any kind of prototype to be selected and have a chance of being competitive.

A lot of fliers have been promoting changes in the rules to call for automatic maximum scoring for scale operations like retracting gear. The one-two placing of retract gear types doesn't sup-

(Continued on page 60)

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TOP LEFT: Pleased as punch! Dan McCann of Pylon fame took top honors in Class I Scale with his Shrike. **BOTTOM LEFT:** Good 'ole Platt is back. In true form, Dave took first place in Stand-Off Scale. **TOP RIGHT:** Shades of Bob Hoover! Soon to be kitted, McCann's Aero-Commander is one lover of a scale machine. **CENTER RIGHT:** No matter what your drinking habits, you'll be able to get a Jug soon from Top Flite. Dan Santich flew the prototype to second place in Stand-Off Scale. **BOTTOM RIGHT:** A true champion, Hazel Sig was the first lady to fly in the NATS Scale event. Of course, she flew Sig's ever-popular Clipped-wing Cub.

(Photos by author)

RC Scale

port any arguments that they are at much of a disadvantage when judged under the present "according to scale-like qualities" outlook. It must be remembered that these mechanical gimmicks are being flown against airplanes which can't be equipped with them and are doing maneuvers instead.

If it is fair for a Spitfire to get full points for getting up its gear, why isn't it fair for a Great Lakes to receive maximum points for doing a loop? And by the way, why does a P-51 get to fly around with an unretracted tail wheel, when anyone who tried that with a P-39 nose wheel would get zonked?

Among the contestants were long-time "super-scale" types like Maxey

Hester, Bud Atkinson, Dave Platt and Bob Underwood. Most of the rest were new to NATS Scale competition, evidently drawn by the Stand-Off Scale emphasis on scale appearance without measuring and nit-picking. A good trend is the appearance of top caliber Pattern fliers like Don Coleman and Jerry Nelson (third and fourth). The combination of realism and good flying promises a good future and made for an interesting, crowd-pleasing affair.

A sort of "battle of the kit prototypes" went on as one feature. Dave Platt, one of the originators of the Stand-Off concept, had his new FW-190 doing smooth and precise patterns that spoke of good basic design. Dan Santich, who had taken over as Top Flite's designer when Dave left, was close on his heels with their new P-47, also a sharp-looking, clean-flying model.

At one time in the final round both planes were in the air at the same time, their flight patterns overlapping in the middle of the area. You almost expected a dogfight to break out, complete with rat-a-tat-tat sound effects.

In this particular matching, Dave's higher scale score helped him reverse the results of World War II and the Focke-wulf came in first, Santich placing second. We'd like to be able to give you a scoop on when these new ships will be in the box and available but, considering the supply situation for kit makers, no one wanted to go out on a limb and name a date.

Jerry Nelson's fourth-place Pitts showed fine aerobatic ability and the classic chunky appearance of its prototype. Designed for his new, proposed biplane stunt event, it is scheduled to appear soon as a Midwest kit.

For the first time in a number of years, Scale was graced by a lady flier, Hazel Sigafoose, who flew the Sig model of the full-size Clipped Wing Cub that she also pilots. Hazel had fun and a good-natured line, "I placed fourth... from the bottom!" Multi-engine fans were entertained by Joe Alexander's fifth-place P-38 and J. Bunzi's Douglas DC-3. The Lockheed looked great streaking back and forth, and on close examination proved to have many detailing features that would have done credit to an AMA Scale entry—those fine special tires, for openers. The DC-3 flew a bit fast for the appearance of scale speed, but it seemed to handle well; though the last landing bumped a lot and sandpapered some of the nose off on the runway. Evans' huge J-2 Cub cruised around easily, proving once again that a large model is not necessarily dangerous. Sid Axelrod must have had to increase production of Mono-Kote when this behemoth was covered.

A rules proposal was due to be made before the Sept. 1 cutoff date that Sport Scale be advanced from a provisional to an official event. The Nationals experience indicates that this move will have considerable support.

The severe decline in AMA RC Scale entries brought comment that, as had been predicted, the event would be wiped out by the rise in popularity of Sport Scale. There may be a grain of truth here, but there are more logical reasons. Just the overall decline in Nationals contestants compared to previous years accounts for some reduction, plus the fact that several probable entrants burned up their vacation time at the Scale World Championships as contestants or spectators.

Considering that the total number of RC Scale airplanes present in the three events was 31, the net result is actually a good percentage increase in RC Scale interest on the total NATS contestant base. Far from being a hindrance, my feeling is that the group of new fliers in

Sport Scale is going to be producing a number of scale nuts who will want to move up to the challenge of super-detailing called for in AMA Scale.

Splitting the entries into Class I (Novice) and Class II (Expert) brought some criticism. In the first year of operation the rule (three points for first, two for second and one for third, multiplied by the number of contestants until you reach 100 points and become a Class II Expert), for all practical purposes, made a Novice of everyone who wanted to be. You can declare yourself an Expert, but then you must remain one. Originally, five of the 11 AMA scalers were so entered. Before flying, two reconsidered the finality of the action and flew as Novices. There will be a little confusion initially, but this basic system of advancement has had a good record in RC Pattern events. It has brought new competition fliers to the ranks by giving them a chance to get started without having to go head-to-head with Experts.

Originally scheduled for Wednesday and Thursday, Aug. 14-15, it appeared that radio time could be found on Sunday afternoon for AMA Scale after Sport Scale, because of the smaller number of entries flying. This re-scheduling had the advantage of allowing judges and scale officials, as well as the AMA Scale contestants, the choice of going home four days early—but it took some searching to locate everyone and tell them of the change in plans.

A few contestants who were flying Sport Scale, also, or had minor work to do on their planes to prepare them for flying, were put under pressure by the change. Consequently, there was some restlessness among the natives. In the end, the last-minute switch came off without too much dislocation. Sport Scale had four rounds (where the rule book only calls for three) causing one contestant to complain about having to fly so much in the heat. Besides, you were supposed to be consistent and not need a large number of flights to get a good one. Maybe, but it's kind of nice

to get just *one* more try at the brass ring. AMA Scale traditionally has been flown on the basis of as many rounds as there are time for, and six were squeezed into the time allotment.

Dan McCan topped the Class I results with his glittering Aero-Commander Shrike, a beauty that took two years to complete, including making the fiberglass fuselage plug. He will be taking the Testor's Best Finish Award back to California with him, too, if he can find room for the big packing crate required to transport it.

Larry Smith came in second with a smooth Zlin Akrobat, though on the last flight something put it down hard out in the boondocks on the other side of the runway. Ray Coletti's Fokker D-7 was third, Ralph White's P-51 fourth, and Don Neil fifth with an F6-F. Bob Underwood had the rare twin-engined Lockheed Alcor, equipped with a 90° rotation rearward (P-40 style) modification to the Rom-Air units. It flew well, but was damaged after several flights when it snapped on a takeoff.

World RC Scale Champion Bob Wischer wasted no time going to the top of the results board in Class II and staying there, proving beyond question that 1974 is his year. Charlie Viosca placed third with his Sig kit box label Cub J-3. My Shinn 2150 placed second, but the name that should be on the trophy is Jim Grier. Laid low by a collection of pilot and airplane ills, I had thrown in the towel and was not going to fly. He found and cured the model troubles, revived the pilot in his air conditioned motor home, and then ramrodded us to the flight line and through the last two rounds. It is the sportsmanship and friendliness of guys like Jim who make this the great hobby it is.

While on the subject of assistance, many thanks to Tom Stark, Mike Stott and Bob Wischer, for taking pictures when I couldn't hack it; and to Larry Jensen and the many others who lent a hand along the way.

CL Scale by Mike Stott

There were some new faces and new airplanes around the CL section of the scale cage this year. Most outstanding from a scale fidelity standpoint was Bill Koster's sensational Dornier DO 335A-O. Eleven years went into the construction of the push-pull fighter. Operating features included flaps, bomb drop with bomb bay doors, retracting gear with functional shocks and wheel brakes. The fine details of access doors, machine guns, dummy engines and the aluminum covering were amazing.

During research for accurate information, so much data was collected that he was able to draw his own three-views which, along with his historical material,

have been published in *Air Combat* and other magazines.

Soon after arriving at Chennault, Bill ran across an old flying buddy, Ralph Burnstine. When Ralph heard that Bill hadn't been doing any flying for two years, he dug out an old Corsair from his car and helped out, in a typical scale flying gesture, with some practice flying sessions to get Bill ready for the big day.

The Dornier had two engines installed, but to get the CG in the right place for proper balance, the rear Super-tigre 19 with an 8" extension shaft had to be removed, leaving an Enya 45 in the nose. In the flight circle, this wasn't enough power to lift the 7½ lb. airplane off safely, and Bill wisely decided not to

take off. Since he didn't get in a qualifying flight, the scale score was not announced, but it had to have been the highest of any scale model at the NATS. We will have to look out for him when he gets the Dornier flying.

Bright red and beautiful is the way to describe Ernie Violett's new deHavilland Comet "88" racer. It not only ended up in first place in CL Scale Open, but took home the Sterling Award for the best scale model, any class—plus a check for 100 bucks, the only cash prize of the NATS.

The finish was polyester resin over lightweight glass cloth on the planked areas. The rib stitches on the fabric-

(Continued on following page)



TOP LEFT: Eleven years in the building, Bill Koster's DO 335A-0 was unveiled at the NATS. Since it didn't make an official flight, its static score was not posted. TOP RIGHT: An elegant racer won CL Scale. Ernie Violet's deHavilland Comet "88" also captured the Sterling Award for best scale model. CENTER LEFT: Bill Rutherford almost completed a loop with his Yak 18. The Sheik is Duke Fox, discussing what all sheiks discuss...fuel! CENTER RIGHT: Mike Stott's Meyers 145 could have done much better had it not been for some sour engine runs. BELOW LEFT: After long and arduous work, our photographer finally got the entire CL Stand-Off Scale contingent together. Left to right, they are Lew McFarland, with Lew's Akromaster (see this issue of AAM), and Mike Stott with his Tigercat. BELOW RIGHT: Cathy Burnstine fires up her Thorp-18 for a first-place win in Senior CL Scale.



(Photos by author)

CL Scale

covered parts were the best I have ever seen. The canopy opens and flaps are fitted. It took two years to build the 7¼ lb. model, then one more year to repair and refinish after a test flight that was a success until the gear wouldn't come down. The neat, white, "Dunlop" brand

name lettering on the wheels was accomplished in a simple fashion. He had a rubber stamp of the logo made and used that to imprint the tires. The Comet flew well in the gusts at Lake Charles and he took and held the lead without having to use his retract gear.

Ralph Burnstine returned with his Thorp T-18, flush riveted and with other small details included since last

year, to place third. One clever trick was the way he got the trademark on the Du-Bro tires used on his model. PVC repair liquid for Naugahyde upholstery (obtainable at auto supply stores) was applied to the tire with a hypodermic needle. After drying, it was heat-treated with a MonoKote iron and literally became part of the tire—the "Goodyear" looking like it had been molded in when

the tire was made. Ralph thinks that special tread designs can also be done this way.

Another returning model was my battle-scarred Meyers 145. Just before the NATS I put in a new electrical control system using insulated lines and servos to control the Webra 61 throttle, Rom-Air retract gear and flaps. Unfortunately, I didn't get it to flying as well as I would have liked, but it did go from fourth in static judging to second place in the final results by making the best score during flight judging. (Someday I will get that thing to land!)

Tom Fluker had a cute little P-40 that flew well in the wind, but he needed more options and placed fourth. Bill Rutherford's fifth-place Yak 18 was a smooth and steady performer. After a safe flight in the first round he decided

to go for broke, and in the second round tried a loop. A couple of inches more and he would have had it made, but the nose gear caught the ground and ended the flight. He told me that his next maneuver would have been Inverted Flight. Maybe next year we'll see this!

In Senior CL Scale, Cathy Burnstine won with a Thorp T-18, almost as good looking as her dad's and with a better flight. (Ralph had some motor trouble.) Dan Arhelger flew his Spirit of St. Louis Ryan NYP to second spot in Senior. Junior CL Scale went to Bruce Matthews and his familiar Volksplane.

CL Sport Scale, in its first year in the rule book, was a great disappointment with only two entries. They were closely flown and made an interesting

combination. Lew McFarland had a semi-scale Akromaster stunter and did a lot of precision aerobatics for his points. My scale Grumman Tigercat, using electrical controls and insulated lines, went the mechanical options route by dropping the gas tank, retracting the gear and using flaps, winning first.

When I proposed this event for the rule book I thought that, considering the large number of semi-scale stunters around, it would take right off. It has at local meets. Maybe next year we can have people like Al Rabe, who design their stunters more toward scale than semi, get into the act. Sport Scale, which is easier to run for contest officials and doesn't need so much detail, is really catching on in RC, and there isn't any reason it shouldn't do the same in CL, given time to get started.

CL Stunt

by Lew McFarland and Wynn Paul

(Photos by author)



ABOVE: Keith Trostle (left), PAMPA President, keeps good company with the Senior Stunt winners. Alan Adamisin V-tailed it to first place; Doug Stout (far right) took second; and Mark Sullivan was third. LEFT: Bob Gieseke, CL Precision Aerobatics World Champion, put it all together for a first place at the NATS. His most ardent supporter, wife Anna Mae, stands with him in victory.

Just to state that the stunt winners at the 1974 Nationals were Joe Musumeci, Jr. in Junior, Alan Adamisin in Senior, and Bob Gieseke taking Open and the Walker Cup would be a total understatement of the intensity of this year's keen competition.

Probably only those involved will appreciate the competent manner in which Event Director Keith Trostle and Assistant Director Frank McMillan (ably assisted by many of the Precision Aerobatics Model Pilots Association members and wives) ran the event.

Joe Musumeci, Jr., flying a Gieseke Nobler, led all the way as he moved up from his '73 second place to win with 440.67 points. Kenny Stevens (Lexington, Ky.) finally broke the third-place jinx he had carried for three straight years and placed second with 393.3. Defending Champion Bobby Peterson, 12

years old and from Los Angeles, had his handle break with a resulting crash which might have put him out. However, the combined talents of Bob Whitely, Jack Sheeks, Wynn Paul, Bob Gieseke and Remel Cooper managed to get his plane back together so he could put up his second flight.

Bobby's patched-up Tempest flew him to a third place with 341.0.

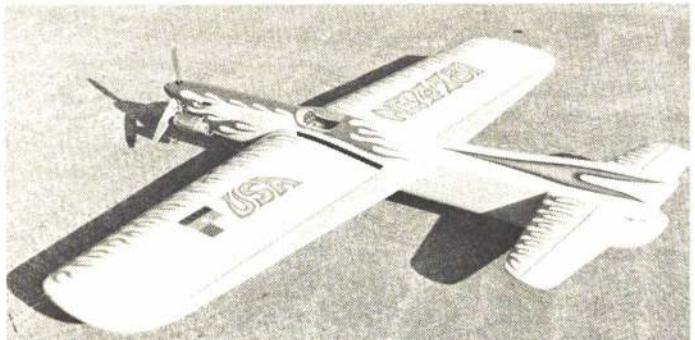
Alan Adamisin continued his winning ways in Senior Stunt as he edged out Doug Stout by a slim 1.3 points. Alan, with 438.0, said, "I knew I needed to work on my Square Eight and all the bottoms; I was nervous." Doug Stout, with a Fox 35 and a foam wing, said, "This year I had a better plane and lots of practice. I was better prepared than last year." Mark Sullivan, Morristown, N.J. finished third in his first Nationals with 388.7. The winning plane, an original by Alan, used a Max

35 with a built-up spar-less wing.

Open Stunt qualifications on Saturday resulted in several new faces making the final 18 slots, as well as three former champions. Five fliers made the finals for the first time: Jim Lynch, Rich Leroy, Neal Thompson, Tom Dixon and Ted Fancher.

The first round of the finals saw Bob Gieseke and Gene Schaeffer, just back from first and sixth places, respectively, in the FAI competition, tied for first with 548. Defending Champion Al Rabe, with a new P-51 Mustang, was close behind at 537.8. Bill Simons and Les McDonald rounded out the first five places. Six of the 18 finalists were using foam wings; eight of the finalists were using S.T. 46 engines.

The second round saw Gene Schaeffer fail to improve his score, as he dropped to 539.8. Les McDonald got to within a half-point of Schaeffer's



ABOVE: Joe Musumeci, Jr. flew his Gieseke Nobler to top honors in Junior Stunt. ABOVE RIGHT: Pilgrim's Progress, by Jerry Pilgrim, garnered 19 of a possible 20 points in appearance judging. He finished seventh overall. RIGHT: Wynn Paul and his striking Falkirk Lady, or PAMPA Special. They finished ninth. BELOW: Birds of a feather. Bill Rutherford (left) and Al Rabe flew twin P-51s. Al's design will appear in a future AAM. BELOW RIGHT: A family affair. Joe (Sr. and Jr.) Musumeci (left), Art and Alan Adamisin, and Bob and Joe Gieseke.



CL Stunt

second-round score. Then the rains came—just before Rabe's chance to make it three Nationals in a row. After a 30-minute storm, the skies cleared and "Lake Chennault" drained, allowing the event to continue. Rabe scored 547.1 to keep his third spot. Simons had a great flight and scored 545.8 to move into fourth.

Then the Master with the pipe and the red airplane took over and showed how he won the World Championship. Bob Gieseke scored a 563 to annex his third Nationals victory. His Fox 35 sounded as if it had 400 HP when it counted. Even though, in his words, "This is two real pressure flights in two weeks—that's pretty tough," Bob showed himself to be the champion he is as he completed the "Triple Crown of Stunt Flying."

Later that afternoon, Bob won the Walker Cup for the third time, beating Alan Adamisin and Joe Musumeci, Jr. Bob said, "This Nationals had less fliers in stunt, but the competition was probably the best I've seen. There were a lot of good flights and only a few points separated the top ten."

PAMPA scored another first as trophies were awarded for the first time for sixth through tenth place in Open Stunt. These were sponsored by the stunt organization. Those places went to Bob Hunt, Jerry Pilgrim, Bill Rutherford, Wynn Paul and Lew McFarland.

Precision Aerobatics for the 1974 Nationals finished up with the first annual PAMPA banquet, attended by some 125 people, where AMA President John E. Clemens spoke and awarded the trophies.

And the NATS just wouldn't be what it is without those little points of

human interest. One can only surmise the strong heritage of Stunt as an event of the future by a glance at the familial ties within the circles. Each Junior and Senior had a faithful father in the background, offering more than a mechanic's assistance.

And there was a wife or mother launching a model.

Just to see Donna McFarland or Cecelia Paul pitching in gave a new flavor to the day's flying—a flavor of personal attention and involvement.

And George Aldrich (Mr. Nobler) getting enthused with helping a relative beginner, Coby Garcia, get it all together.

And the local boy (Kensley Newlin) making good by doing only loops and still getting a fifth-place trophy. . . how could he lose, since there were only five entries. But that's what the NATS is all about.

Free Flight

by Dick Mathis

The NATS has a special meaning to most modelers, and especially to those of us who have grown up flying in National Championships all around the country since the late 1940s. To be a NATS winner is to be a very special modeler. It is something one never forgets, no matter how many times he is declared National Champion.

It is presumed that the quality of flying and competition at the NATS will be the highest in the land, and that the flying site and officiating will be conducive to such excellence.

This year's site, Chennault AFB, was chosen with the needs of free fliers very much in mind. It was acceptable, especially when compared to Oshkosh last year. Model retrieval was a real chore, due to the swamps, with their sparse trees, but at least motorcycles could be used. The old air base was big enough to contain most flights, even with moderate wind.

The weather was unusually bad for Lake Charles, with two days of intermittent rain, one day of strong wind, and a couple of bland ones when it was breezy and cool. If some of the swamps could be cleared—at least pathways for motorcycles—and the weather would cooperate, it would be a good free flight site.

The quality of flying was consistent with past Nationals, that is, from beauti-

ful to pitiful. Most of the top "name" fliers showed up, with a good bunch from California, Chicago, Texas, New York, Oklahoma, Indiana and Florida. Somewhere along the line, however, a lot of free fliers decided to stay home, since entries were down by almost half in some of the more popular events, such as 1/2A and HLG. RC and UC experienced the same problems. The effect of this relatively small turnout was particularly felt in the Junior and Senior age groups (16 juniors in 1/2A Gas, for example!). Even with the reduced turnout, it was still a huge contest.

One expects to see the latest in design trends at the NATS, but there is not much to report, since everyone appeared to be refining old designs or building kits. There was virtually no new thinking in evidence, something that I find extremely disappointing, since the NATS should be a seedbed of ideas.

The NATS is an important event, with all the magazines reporting on every blown glow plug and overrun. The attendant publicity can make or break reputations, and a win or two for a manufacturer's new (or old) kit is worth \$\$\$. A good showing at the NATS can mean the difference between whether a design will appear in a magazine construction feature, or even become a kit. With such opportunities, many fliers

have spruced up their acts so they will receive more publicity. I think this makes it more fun, and much more professional, whether it only means wearing a shirt with a team or club name on it, or going full bore with toolboxes, motorcycles, cars, airplanes, etc., all painted with matching messages. There is a definite trend to such "show business."

All the officials were volunteers, and very few complaints were heard. There was even some praise, which was highly deserved. Timing chores were handled by volunteers and contestants, with few long waits needed to get a timer for a flight.

Cleverly, I have arranged my report in day-by-day order, with only the top two places reported for each event (the reader should refer to the AMA section for the full list).

WEDNESDAY

Outdoor free flight competition oozed off to a soggy beginning with threatening clouds and periodic drizzle making thermals scarce and trimmed airplanes even scarcer.

The A-2 Nordic towline fliers were particularly affected, as soggy stabilizers created stalls, and the cool air produced few maxes. After a bad start, Dane Finn Bjerre triple-maxed to first place in Open. Unfortunately, the breeze was too strong for anyone to use the circle

(Photos by author)

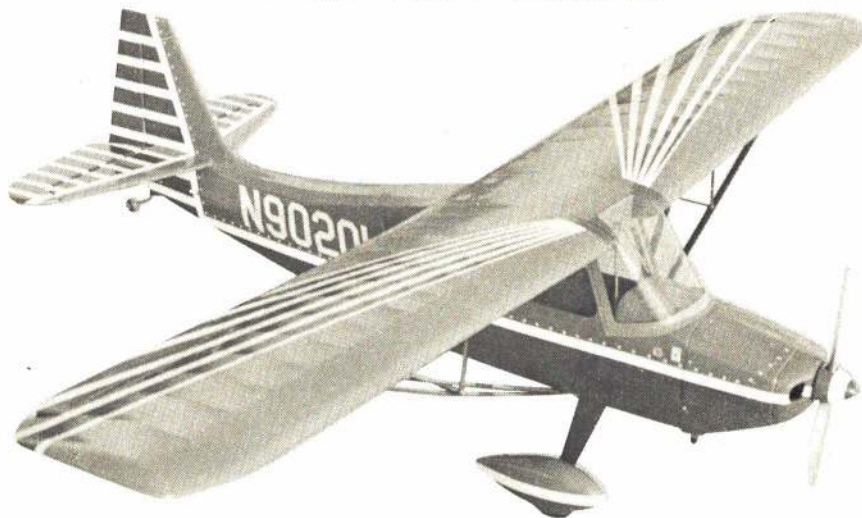


LEFT: Sixteen-year-old Randy Sezor won Senior Class B with a Tartar 610. **BELOW:** A 5 1/4-oz. Satellite 250 by Hulan Mathies was the hottest thing on the field. He took first in 1/2A Open. **RIGHT:** First in Nordic A-2 was Finn Bjerre of Denmark.



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HIGH-LIFT WING SECTION



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KIT RC-30
\$37.95

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(3-Piece, Authentic Scale Appearance)
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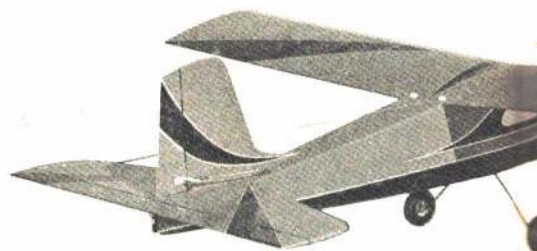
WINGSPAN: 69"
ENGINES: .40 to .50
WING AREA: 740 Sq. In.

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Maxey Hester's Citabria scale design responds gently to the controls, but will also stunt in the tradition of its full-size lightplane counterpart. Ideal for beginners in scale RC flying or Sport Scale competition.

LEARN TO BEGIN WITH R

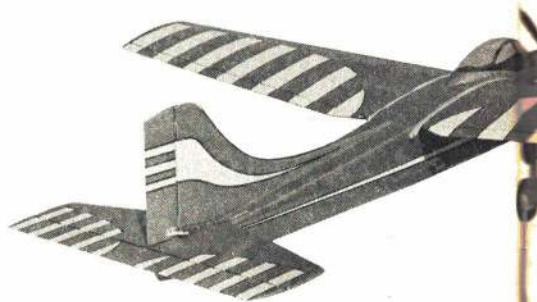
Modelers often want to start RC with a large or scale model that is complicated to build, but flies fast. In almost every case, this is a mistake. A model with radio control should be with an inherent stability that gives the student pilot time to think and develop good flying techniques. The Kadet, which will fly hands-off, is the perfect model. The sturdy balsa construction can take the punishment of rough flights. A high-lift, flat bottomed wing responds to control movements. Ground handling, take-off and landing are outstanding due to the tricycle shock absorbers. This easy-to-build model has become THE



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Designed by: Claude McCullough

SIG
KIT RC-31
\$27.95

LENGTH: 42"
WING SPAN: 57"
WEIGHT: 4 lbs.
ENGINES: .19-.29

KIT FEATURES

Instructions For Installing Radio Equipment
Complete Illustrated Building and Flying Instructions
Handy Printed Fuselage Sides; Build Internal Structure Directly on the Wood
Nylon Nose Gear Bearing
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Molded Nylon Surface Hinges
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no want to move up from aileron controlled airplane. maneuvering and aerobatic e fliers to do a creditable othor airplanes are readily nt down to the full stalling on a wing. This enables made. Coupled with the ounted gear, the superior his a fine performer from ate trainer on the market.



Designed by: Claude McCullough

SIG
KIT RC-32
\$32.95

LENGTH: 62"
WING SPAN: 62"
WEIGHT: 5-1/2 lbs.
ENGINES: .35-.50

KIT FEATURES

Precision Cut Foam Wing
Sleek Bubble Canopy with Molded Framing
Jet Style Molded Plastic Cowling
Handy Printed Fuselage Sides and Bottom-Build Directly On the Wood
Sheet Balsa Wing Covering
Sheet Balsa Tail Surfaces
Pre-Bent Torsion-Bar Landing Gear
Rugged 5/32" Formed Nose Gear
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COMPLETE HARDWARE PACKAGE CONTAINS:

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Nylon Nose Gear Bearings
Nylon Nose Gear Steering Arm
Tuf-Steel R/C Links
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Nylon Screws for Bolt-On Wing Attachment

EQUIPMENT

Free Flight

tow to advantage, but it was easy enough to hold gliders on the line and wait for thermals. Strangely, few contestants were patient enough to do this. Generally, it appears that A-2 glider design and construction are better refined than flying techniques.

Two exceptions to this rule were Californias Brian Van Nest and Randy Secor, who placed first and second, respectively, in the Senior age class. Doug Marsh was the Junior A-2 winner, with a comfortable margin over Bruce Mathews of Kansas. What the A-2 event needs is a popular kit to stimulate Junior and Senior interest (there were 14 entries between the two classes). Open was little better with only 34 entries.

B Gas was less affected by the weather, with a good joust between Mark Heller, flying a modified Galaxy, and Hulan Matthies, using a Satellite 450. Heller's five maxes were too much, but Matthies appeared to have the hotter device. Supertigre 23s were almost universal, with most airplanes in the 450-600" square class. Everyone seemed to have difficulty with overruns. The rules allowed an 11-second motor run with VTO launch, and 9 seconds if hand launched. Most of the ships would do the 3-minute max on just an 8-second motor run.

The younger age class winners managed to max out as well, with James Coverchill taking Junior and Randy Secor (you will see his name several hundred times in the results) beating 14 other Senior fliers. Randy used a Tartar, Red Johnson's pylon design that has done so well this year. Distressingly, there were very few design-trend innovations except for the obvious movement to smaller planes for hot climb.

The Midi Pearl kit was quite prominent, as was the Satellite design. Fred Calhoun Jr. won second in Junior with a Satellite. Another popular design was the Rambunctious-Starseeker-Evil Ways series of variations on the same theme. This is another event that needs some new kits, although I have always wondered what Class B contributes to free flight, since most of the airplanes are merely Class A designs with the bigger motors, which are very scarce in the first place.

THURSDAY

1/2A Gas, as usual, had a relatively large entry, but not nearly as large as in the so-called "good old days" when the Navy sponsored the NATS. As a result, it was almost possible to hear oneself think, and to marvel at the power the latest Cox 049 puts forth. There were about 40 entrants (in past years it went way over 300), with only 16 of them Juniors—a bad sign. The low entry level does not mean the quality of flying was down, though, because there were fly-offs in all age classes.

Young Steven Spence flew his Tornado (a Jetco kit) to first in Junior,



The "California Champ," George Perryman, gives a ballet launch to his rubber old-timer.

under the auspices of his dad, Henry. Hoosier Kevin Hayes topped Randy Secor in Senior, and Hulan Matthies strung five maxes together (including one on a 5-second motor run) to beat Harry Murphy. It takes skill and luck to win 1/2A at the NATS. Besides having the hottest airplane (a honkin' Satellite 250, weighing 5.25 oz.), Hulan managed to hook his last thermal the positive way, when, as he waited for signs of lift, an unknown A-1 flier towed up to his toolbox and launched into a boomer. A pleased Bob Hunter could not stifle a giggle as his protegee's plane rose easily into the winning max.

I restrained myself from taking the traditional photo of Carl Goldberg doing his hallowed official flight in 1/2A.

Bill Hunter weighted down his Unlimited Satellite 450 and flew FAI with some success.



You can see what it looked like if you check any previous Nationals reports for the last hundred years—Carl has never missed one. I asked him why he doesn't build a new, more competitive ship, and he responded with the welcome news that he has one in the works—with a kit likely. It will be high-thrust in layout.

As George Perryman stated, "Like the ol' boys say, anybody too proud to piggyback don't make too many maxes." George then proceeded to look for someone to piggyback on, as he stood poised with his Wakefield fully wound. Unfortunately, George hit his tobacco pipe when he released and this made his model do funny things. In fact, quite a few well-known Wakefielders made their models do funny things in the warm, choppy wind, which made launching critical.

Houstonian Frank Pearce won a tight battle with Ralph Lipori in Open, making 19 seconds more on the first flyoff round. Bobby Dunham was the better of two entries in Junior-Senior Wakefield. As the rules now stand, with weak climbs and very complex model requirements, it is fallacious to expect younger fliers to take to this event, when they can get cheaper thrills elsewhere. The models of the Open fliers were almost all of a high standard and generally were well-flown.

A-1 towline glider seemed to be revitalized this year, with quite a few first class airplanes in evidence. This event drew almost as many Junior contestants as 1/2A. Of these, Bruce Mathews was the victor with almost 11 minutes, more than a minute ahead of Barry Paillet. But the clear master of all was Randy Secor, who is one of the smoothest 16-year-old fliers ever. He handily bested all the Senior and Open class fliers by almost maxing out.

Many of the gliders featured high aspect ratio wings, which a few years ago were considered impossible for A-1s.

These small towliners don't handle as well as A-2s on tow but make up for it with an ability to ride spotty thermals. The open winners were Jim Haught and Mike Ransom.

FRIDAY

Usually, FAI power at the Nationals suffers from a lack of top-name fliers. As a result, it has never enjoyed much status as an important event. This time, however, it was a donnybrook, with all the famous fliers one could desire, and an appropriate enough assemblage of exotica to impress all. Variable airfoil wings were not rare, nor were screaming Rossi's.

The fact that the humble Midi Pearl kit (a supposed beginner's FAI) captured first in Junior (Doug Marsh), first in Senior (Larry McFarland), and second in Open (flown by its popular designer, Bill Chenault) should be noted, since it is the closest that one design came to dominating any event at this Nationals.

Perhaps the advent of the McNeil Cup (and the attendant factory special Rossi that the winner receives) has injected some much-needed prestige into the event. The new owner of the cup and engine is Chuck Markos, who flew the only perfect score of the event with his fiberglass winged "ParFAI." Third place in Open was won by Tom McLaughlin, with by far the hottest airplane in the vicinity. A downdraft was its undoing as he dropped 2 seconds behind Chenault. Recent team member Henry Spence blew up two airplanes in midair, while last year's winner, Dave Rounsaville, blew up one, and Reid Simpson also planted a "powertree," as some of the favorites experienced difficulty handling the Rossi's power and the wind.

Unlimited "rubbah," as my Northern friends refer to it, was a walk-away for Jim Lewis of Georgia, who put four maxes up early and watched everyone else fight the wind. Three seconds short of a perfect score—which would have given him a chance for a flyoff with Lewis—was an old master of the art, Bob Dunham of Tulsa. Lewis' airplane was the "Little Daddy," designed by George Perryman, which gives it two Mulvihill Trophies (the oldest perpetual trophy in U.S. modeling) to its credit. "It just goes to show," according to Perryman, "what a good ol' Southern boy can do with a good airplane."

Randy Secor, flying a "Godfather" design by his mentor, Bob White, handily added first place in Senior to his list, and narrowly missed a shot at Lewis and the Mulvihill. The Junior winner was southern California's own Penny Johnson. The wind hurt this event more than others, because of the fragile nature of the machines.

SATURDAY

Hand Launch Glider is a popular event, but it is not taken as seriously as it could be. Most of the serious HLG fliers in the U.S.A. were absent, and the quality of flying was not high. It was



Jim Lewis unleashes his Quail rubber speed winner—55 mph!

difficult to pick lift in the choppy wind, and once lift was encountered, spin-ins were frequent. No one managed a max-out, but an unusual event occurred regarding the Tulsa Gluedobbers Perpetual Trophy which goes to the high time. Mike Stoy, a Senior, was the winner, flying a built-up original. He's from Illinois. His closest Senior competitor was Gerald Comp.

Five seconds behind Stoy for the Gluedobbers Trophy was Jim Lewis (College Park, Ga.) the Open Winner. William Jenkins, in a late finish, made 334 seconds, just 2 seconds behind Lewis. John Dougherty, of Arkansas, bested Tommy Grertz for Junior, flying an M&P Flash.

Jim Lewis also was top man among the Coupe d'Hiver rubber fliers. The wind hurt the already marginal coupe performance. Ken Baur, the 1974 Senior National Champion, won Junior-Senior, with Keith Gordey and 5-year-old Stephanie Perryman in second and third place. This is another class which does not appear to have fulfilled its promise as a beginner's event. The motors are so small that there is no margin for error if one is to have a satisfying flight.

Clipper Cargo, where Cox .020s get hernias trying to lift prodigious weights for 40 seconds, was won by Mike Ransom of Oklahoma. This is a potentially interesting event with a good premise, but there were only 11 entrants.

Class C Gas was very competitive, with 70 entrants. Satellite 1000s were in abundance, as were the Starduster 900s. The Starduster's papa, Sal Taibi, did it to everyone with five straight maxes plus change. Every few years, Sal will do that. Ralph Feazel flew a Bean Bogan (the same one he won the NATS with in

1964, I believe) to second place. Fred Calhoun Jr., one of the Satellite City citizens, took Junior, followed by Bruce Mathews. To complete the list of max-out winners, Ron St. Clair and Larry McFarland flew off for first and second in Senior, with St. Clair's Neptune topping McFarland's Rambunctious 747.

SUNDAY

The Satellites came into their own with the appearance of almost perfect weather (for a while at least) on the last morning of the meet. Those 450s really honk, with Rossi 15s dragging only 20 oz. Hulan Matthes beat teammate Bill Hunter by 5 seconds after five maxes apiece. Close behind was "Mr. Show Biz Jr.," Mike Hallum of Longview, flying his own design Star-Seeker.

(Continued on page 129)



Rudy Kluiber's electric FF winner. Modified Mattel power unit.

Whizard

DESIGNED BY OWEN KAMPEN



SPECIFICATIONS

Span--40 $\frac{1}{2}$ in.

Area--240 sq. in.

Length--30 in.

Power--.049 to .051.

Functions--Rudder-Only;

Rudder-Elevator; Rudder-Elevator-Throttle.

An ideal sport airplane for .049-.051 engines and single, two, or three channels. Features sturdy crutch fuselage construction, foam wing, band sawed parts, formed landing gear, and photo illustrated instructions.

Because the financial and emotional investment is low in the Whizard, you will find yourself doing more gutsy things flying this airplane and enjoying it more than ever before. Fun is the major characteristic of the Whizard.

13L105 WHIZARD KIT \$18.95

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DESIGNED BY OWEN KAMPEN



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This airplane offers more excitement and ability-to-perform than ever seen before in its size class. All of the advantages of small airplanes are maintained: it builds fast, it is economical on fuel, it transports easily, it can be flown in the smallest of fields with no need for a runway. With all of these advantages, it still has the outstanding performance to challenge the best of fliers.

All parts are band sawed and precision sanded with foam wing.
(Ace has a 1 3/8" spinner available for this plane: 37L78-\$1.25.)

13L107--Pacer Kit
\$19.95

SPECIFICATIONS

Span--40"

Length--30"

Weight--Approx. 22 oz. all up

Engine--Cox Tee Dee .049 or .051

Functions--Ailerons/elevator or
coupled ailerons-rudder/elevator

ACE R/C INC.

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A new addition to the Digital Commander series of kits is a powerful 180° retract servo kit.

It utilizes the sturdy and popular Goldberg mechanics which produces power plus for tri-gear systems with a transit time of about 3 seconds.

The amplifier is the same one used in the Digital Commander Bantam and Linear Servos modified to give 180° of travel. It has proven itself to be easily built and dependable in thousands of servos.

Because this servo is fully proportional and can be built with either 90° or 180° of total throw, it can be used in other auxiliary function applications where lots of power is needed and transit time is not critical: flaps, large spoilers, brakes, moveable canopies, and release systems are a few examples.

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Available in Bantam (rotary output) which measures 1 1/2 x 1 7/16 x 3/4 in or Linear (linear or rotary output) measuring 1 13/16 x 1 7/16 x 7/8 in. Available assembled for an additional \$8.00.

14G20 BANTAM SERVO KIT \$21.95
14G20L LINEAR SERVO KIT \$22.95
ADD \$8.00 FOR ASSEMBLED UNITS.

This receiver features voltage regulated circuitry with AGC and double tuned front end. An 8 bit shift register in the IC decoder offers up to eight channel operation of positive or negative pulse servos with three or four wires.

Plastic case measures 1.45 x 1.72 in. Weight is 1.4 oz. Connectors are not furnished. Please specify frequency.

12G18 1-8 RECEIVER/DECODER KIT \$34.95
ADD \$5.00 FOR 72 MHZ.

The Flite Pak kits come with a 1-8 Receiver/Decoder, the number and style of servos specified, plus the switch and Dean's connectors necessary to make a complete airborne flite pak less batteries.

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12G18-4 FLITE PAK w/4 BANTAMS \$114.95
12G18-2L FLITE PAK w/2 LINEARS \$76.95
12G18-4L FLITE PAK w/4 LINEARS \$116.95
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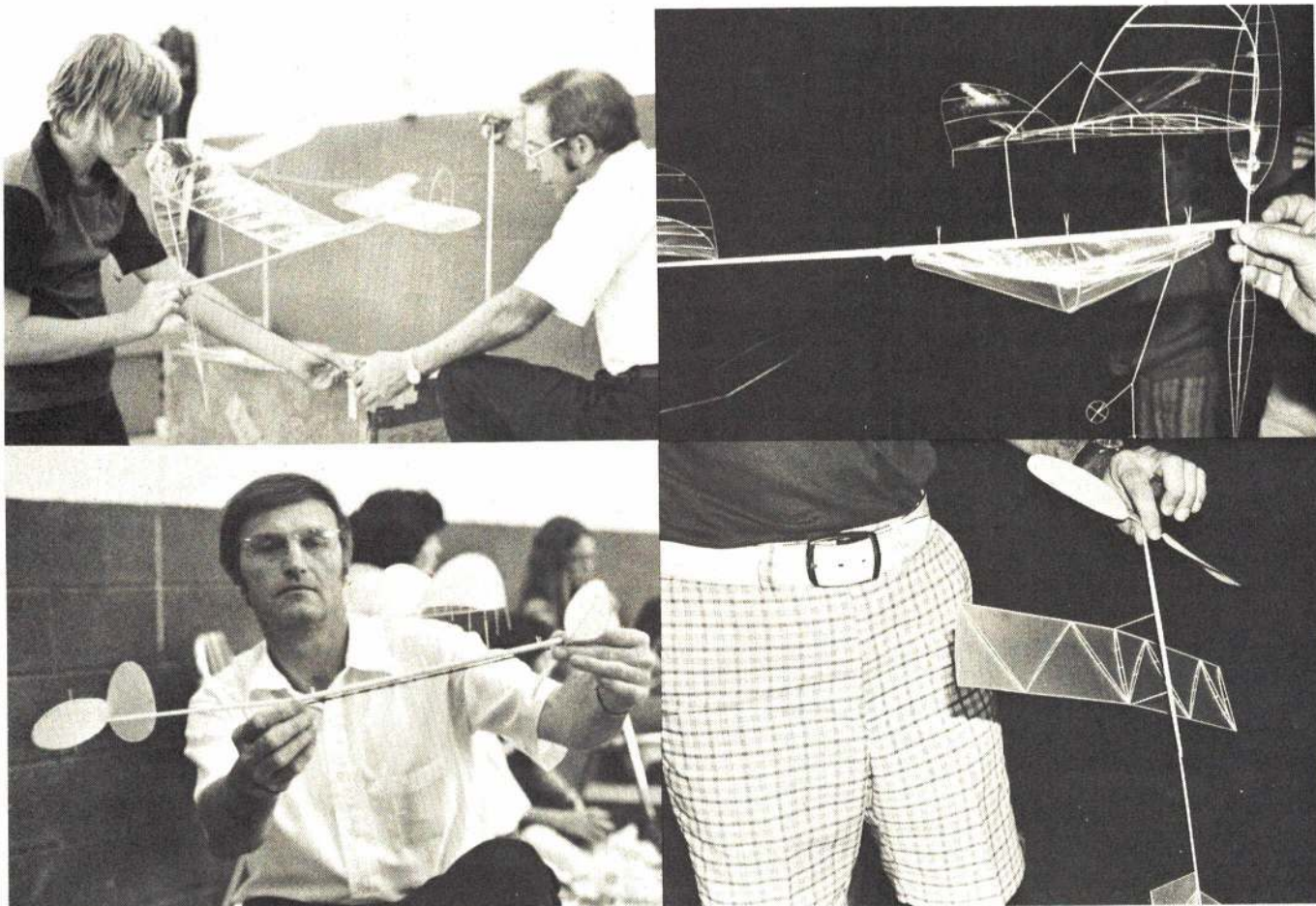
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Indoor

by Bud Tenny



TOP LEFT: Jim Clem (right) serves as strategy advisor to son Jimmy, who is now the Junior National Indoor Champ. **TOP RIGHT:** Bob Randolph tried a removable pod/landing gear on his cabin model. The Contest Board disallowed it because the pod does not entirely house the motor. **BOTTOM LEFT:** Stan Chilton with his "high thrust" paper stick model. **BOTTOM RIGHT:** Tony Schott sported built-up ribs on his Easy B model.

Indoor at the NATS was an event greatly changed over previous National Championships—new sites, new events, a new part of the country, and many entrants who had never entered an Indoor NATS before. All of these factors had the potential for making subtle changes in the outcome of the whole NATS Championship picture. A new Indoor format was part of the experiment of expanding the whole NATS, which in turn was made possible by excellent facilities.

Initial plans were for the Indoor activities to be held in the Goodyear hangar in Spring, Tex. Then, Lake Charles officials made available the Sports Arena in their magnificent new Civic Center. This facility offered both high (97 feet) and low (55 feet) ceilings. As in the past several years, the Chicago Aeronuts club sponsored the popular PennyPlane event, which they helped to originate.

Attendance at the Indoor NATS seemed to suffer somewhat from two

causes: the location was relatively remote from the large centers of indoor model activity, and the Indoor World Championship had been held only a month before. Many fliers, faced with a hard choice, chose the more prestigious World Championship. Also, most modelers in the general area (600-mile radius) had flown little or no Indoor previously. Junior attendance was down noticeably.

Several years ago, when Category Championships were added to the NATS, it became possible for specialty fliers to win a championship without flying the broad spectrum of events needed to qualify for National Champion. With both high- and low-ceiling sites and six events in each (Indoor Stick, Paper Stick, Cabin, FAI Stick, Hand Launched Glider and Indoor Scale), an aspiring Indoor Category Champion for 1974 suddenly had a real challenge. He had to declare his six events in advance. In this decision had to be weighed the expected competition, his best models and skills, and, most importantly, not flying in too many events in one day.

Charles Markos, of the Aeronuts, put together the best package, flying HLG, Paper Stick and FAI Stick in high ceiling and HLG, Paper Stick and Indoor scale in low ceiling. Although he earned no first-place trophies with this meld of events, he placed higher with his choice of activities than did runner-up Dan Domina (Plainsboro, N.J.) who garnered less than 1% fewer championship points. In previous years, the Indoor Category Champion usually chose Indoor Stick, Paper Stick and Cabin, and had to win or place in each to become Champ.

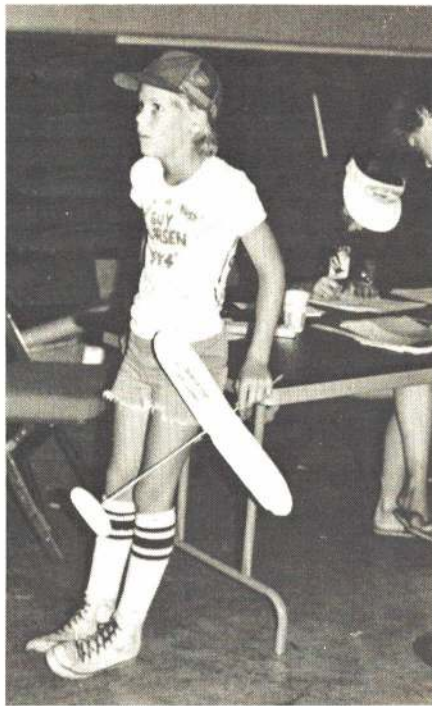
Junior National Champion Jimmy Clem, Dallas, Tex., is strong in both Indoor and Control Line speed flying. The availability of extra categories served him well, as he earned 382 points out of a possible 400 with his selection of events. These points gave him a head start over Barry Paillet (Glen Head, N.Y.), who is also a strong indoor flier. Without the extra events, the Junior Championship might well have slipped away from these two fliers.

The indoor flying conditions were different this year, catching many ex-

perienced fliers napping. Essentially no indoor flying had ever been done at either site, so none of the "hometown boys" had the edge of knowing how flight conditions would change from hour to hour. In many past NATS, knowledge of this pattern of change has helped local fliers schedule their flights to advantage. At the typical indoor site of past NATS, conditions would steadily improve all day, beginning to be acceptable for serious microfilm flights about 1 p.m. On Monday, a mid-afternoon rain cooled the arena prematurely. After that, models would suddenly get only part of the way to the roof. The models looked OK in the air, with low rpm (rpm is the most sensitive measure of model trim), but the models were sinking much too rapidly in the cool and turbulent air.

The next day, in Lake Charles, it happened again. Rain at 2:30 p.m. killed the good conditions shortly after Dan Domina's outstanding 44:27 two-flight total was posted. This left everyone else driving hard against the steadily cooling air. One model required 40% more power at 8 p.m. to make the same flight time as it made easily at 2:30 p.m.! As a result, Dan's nearest competitor scored almost 11 minutes less.

The PennyPlane event was held at the Goodyear hangar, in what can best be characterized as strange air conditions. The event began at 5 p.m., but cloudy weather outside had dictated turning on the hangar lights. By 7 p.m., hot spots on the floor under the strong



Guy Larson took second place in Junior low ceiling.

overhead lights were causing local thermals and turbulence. Several models followed an unusual flight path—up and toward the wall, down the wall without touching, then out into the updraft again. Models that were well-trimmed and had lots of power hung in this weird

pattern for good flight times. Other models, especially those marginal in power, did less time than they might have otherwise. The flight times show a clear demarcation, with a minute spread between first and third, a 2½-minute gap to fourth and then a close grouping to the end of the list.

In the Easy B competition, fliers were at a slight disadvantage, in that the heavier models could not be allowed to share the air with the superlight microfilm models. As a result, certain periods of time were set aside for Easy B flying, with other model types flying only at their own risk. Even so, the event was well-attended and hotly contested, with experienced and inexperienced fliers battling it out.

A lot of family activity is beginning to turn up in Indoor, with father-son teams and family support of younger fliers. Jimmy Clem, Tommy Giertz, Barry Paillet, Guy Larsen, William Schlarb and Marguerite Valerius were all high-placing Juniors and Seniors whose fathers were on hand with advice and support. Bob and Bobby Dunham of Tulsa, Okla., are well known in both Indoor and Outdoor FF circles. And the entire St. Clair family (Al, Mrs. Verna St. Clair, Randy, Donielle and Jim) entered several of the Indoor tests. Al, a member of the first Air Force NATS Team (1951 NATS), has instilled his scrappy spirit and determined approach into his whole family. This was their first Indoor activity, but all made their

(Continued on page 130)

Helicopter

by Walt Schoonard

(Photos by Faye Peoples)



LEFT: It was nip and tuck right down to the last flight, when Ernie Huber put in a nearly perfect performance to emerge victorious. **RIGHT:** Mike Bosch (right) had the contest in his pocket until Huber's last flight. Both flew Kavan Jet Rangers.

Superb weather except for gusty wind highlighted the 1974 Helicopter NATS. Local members of the LARKS Club and volunteers from the surrounding area were most friendly and

helpful. The local deputy sheriff, J.C. Cooper, gave tremendous assistance with day and night security and site readiness. Trustees from the sheriff's prison compound mowed the flying site all day Saturday. They also helped pitch

tents and put up security ropes. The locals seemed to be as enthused about model activities as the competitors.

The contest drew 15 fliers from both East and West Coasts, Southern and Central parts of the U.S., and as far

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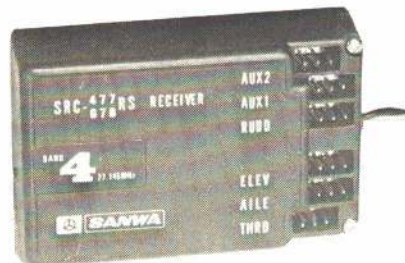
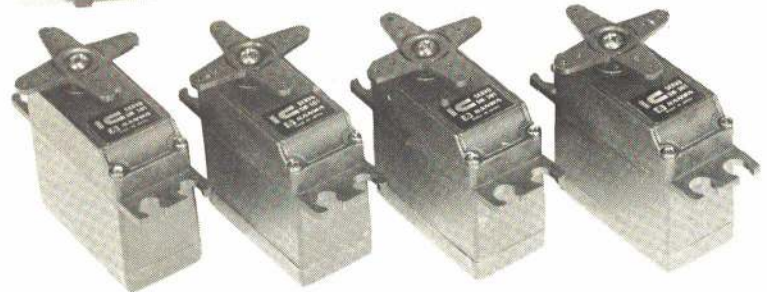
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Helicopter

away as Nuremburg, Germany.

This was the first RC NATS helicopter event that required precise maneuvers, and the scores were tabulated from the total flight time and landing points. The course layout proved to be exceptionally challenging, and the procedure of flying maneuvers in a precise manner showed itself to be feasible as well as a hard task for the expert and rank novice alike.

Mike Bosch, who is the German national helicopter champion, came and competed. His self-conduct and character make him a tremendous representative of his nation, and the quality of his flying was almost beyond belief. He flew a Kavan Bell Jet Ranger, and was sponsored by the Kavan factory.

It turned out that, because of the wind conditions, the collective-equipped machines did well. For precise maneuvering, a collective pitch-machine is a must. Of course, the pilot's skill is still a vital factor, and the fixed pitch machines were flown with skill by some of the American pilots.

Faye Peoples did an outstanding job with the only scratch-built helicopter at the meet. The machine is superbly designed and the workmanship is flawless. It flew as well as it looked.



Bill Ellis won Scale with his supreme rendition of a Jet Ranger.

The meet emphasized the fantastic advancement of the state-of-the-art in the last year. The rules that were used proved that the average helicopter pilot could fly in a contest and compete safely. The meet also demonstrated that the rules will have to be improved con-

stantly in order to keep pace with the technology. The tasks remain challenging, and the human element in the judging should be kept to a minimum.

Mike Bosch, 20 years old, demonstrated precise maneuvers almost beyond description. His Jet Ranger did

The Scale entries: Ed Walthers' Cobra in the foreground, with Jet Rangers by Bill Ellis, Horace Hagan and Ernie Huber completing the lineup.



Helicopter

loops, stall turns, high-speed Figure Eights only inches from the ground, knife-edge flight, and downwind take-offs. While climbing, he flew tail-first downwind headings, 360° right and left spinning takeoffs and descents, right and left climbouts while spinning crosswind, upwind, downwind, and wherever. He also had his helicopter so perfectly trimmed that he could turn his back on it and fly hands off. This was done in 15 mph winds, without the aid of gyros.

It goes without saying that he is a fantastic showman, and yet an individ-

ual who seems to be quite humble. Mr. Kavan is to be congratulated and thanked for going to the expense of bringing Mike Bosch to the NATS to show what can be done with an RC helicopter.

The finale of the meet was a simultaneous flight demonstration by Mike Bosch and Ernie Huber. They did leapfrog flying over one another, head-on high speed approaches and, to everyone's amazement, instead of just passing when they approached, they immediately turned away from each other—one right and one left. The maneuvers that were done by these two pilots would amaze the best pilots of the Blue Angels team. Those who missed it missed a great opportunity to see an intriguing demonstration.

Howard Grady and Ron Wiench, both of the Du-Bro team, offered a superb exhibition of the versatility and ruggedness of the new Du-Bro Shark. This easy-to-construct-and-bolt-together, American-made machine would be an outstanding asset to anyone as a learning machine as well as for competition. The model's ruggedness was demonstrated by the fact that one tipped over while landing, and was repaired before the next flight.

These helicopters, as well as the other fixed-pitch machines, did have some difficulty in the gusty winds, especially in executing the soft landing part of the maneuvers. Nevertheless, two of them were flown to a second and third place in the Novice category.

Ed Walther, from Winter Park, Fla., flew two exceptionally beautiful Schluter Cobras. One is the same helicopter he learned to fly on, and he has had it for over 19 months. After burning several hundred gallons of fuel through this machine, it still looks as if it was only a day old. This was his first NATS competition.

The second Cobra he flew had such impressive workmanship and detail that it took first place in Scale. All the scale machines, in order to be static-judged, had to be flown in competition to prove they weren't just museum pieces.

The judges were all untrained people—none of them had ever seen an RC helicopter contest. The rules permitted us to train these people in about 15 minutes. The complaints heard from some contestants as to the validity of the judges' decisions were insignificant and few.

The judges showed an uncanny ability to be concise, objective and conscientious, considering the fact that they had never seen RC helicopters fly. But that fascination did not deter them from their duties.

The most disappointing aspect of the meet was the very low entry. Fifteen contestants at a national event is not very rewarding, considering the amount of effort and expense required to stage such a contest. Those who didn't attend lost an opportunity to see tremendous flying by all of the contestants in each of the categories. They also missed seeing a truly superb display of workmanship as well as some innovations in RC helicopters never before seen at a flying event.

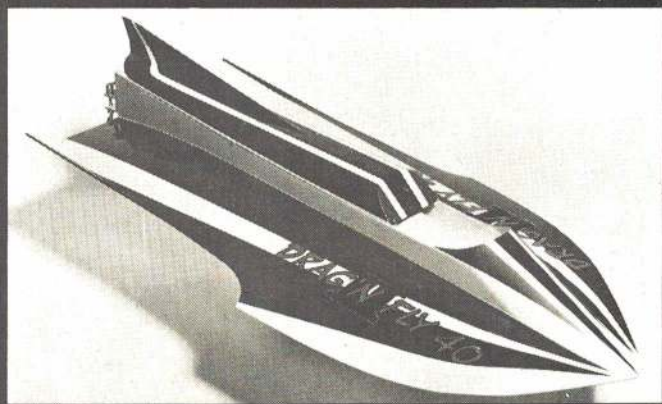
The spirit of cooperation among the fliers was particularly noteworthy. Contestants were loaning parts and helping their closest competitors, so that no one would miss a flight. This demonstration of sportsmanship is a common thing in RC sport activities. Putting on a national helicopter event 1,100 miles away from home was well rewarded by the comments of the contestants, the spectators and of the AMA officials who observed the proceedings. It proved that RC helicopters have come of age. Next year, it should be considered as a regular, sanctioned event at the NATS.



ABOVE: The only original machine on the field was Faye Peoples' scratch-built model. BELOW: Huber and Bosch put on an amazing display of aerial prowess. Here their Jet Rangers play leapfrog. Bosch later did several loops.



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LAST OF A BREED

Aloha, Charley, Aloha!

by Patricia Groves



Although U.S. Navy observers were present at the Army's first military trials in September, 1908, until 1910 the official Navy Department position was that "the development of an aeroplane has not progressed sufficiently at this time for use in the Navy."¹

Then, on Nov. 14, 1910, when Gene Ely flew a Curtiss pusher off a specially constructed deck on the cruiser Birmingham and landed safely ashore, the secretary of the Navy was finally persuaded to recommend to Congress the "maintenance of an aerial corps."

Two months later, Ely landed a Curtiss pusher on the deck of the USS Pennsylvania in San Francisco Bay, and stayed aboard for nearly an hour before returning safely to the San Francisco Peninsula. Then, within a matter of days, Glenn Curtiss made the first suc-

cessful flight with an airplane capable of "taking off and alighting upon the water."

By February 17, the Pennsylvania was anchored off San Diego, and Curtiss felt sufficiently comfortable with the technique to fly up to and land alongside the cruiser, and be hoisted aboard. His "hydro-aeroplane" was then lowered back into the water, and after restart (in itself a major accomplishment), it was flown back to Curtiss' winter quarters on North Island.

Even before these early experiments in launching airplanes from ships, the world's naval authorities were divided into two camps. One held that it would be better to make a ship self-sufficient by providing space for the launching and landing of seaplanes on battleships, with aviators aboard each ship, while the other faction felt it would be better

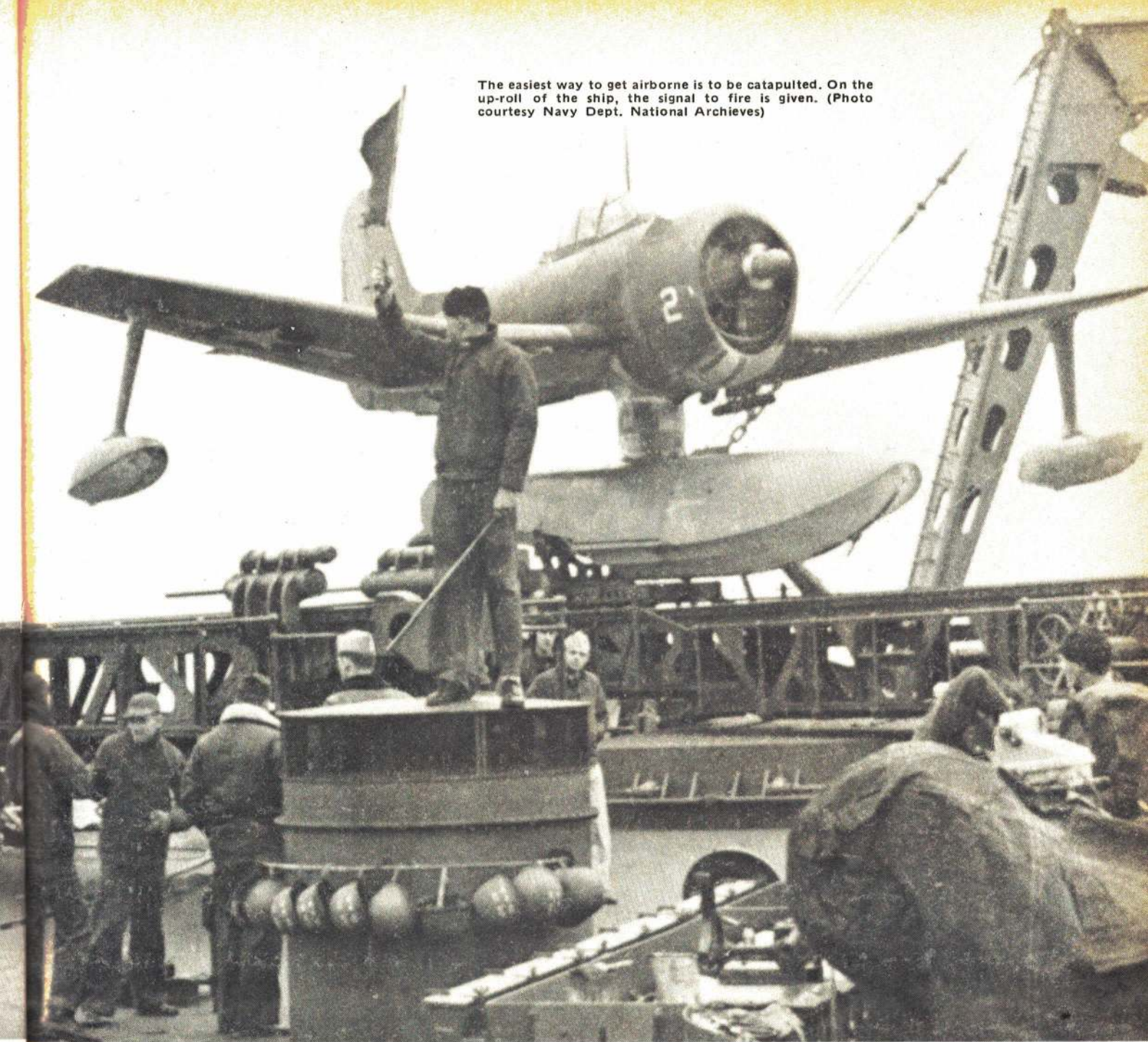
to have regular "seaplane carriers" which would provide ship squadrons with an air service.

But this posed a problem. It would be illogical to expect a cruiser in action to slow down in order to launch or hoist in an airplane. Yet, having capital ships independent would, on the other hand, keep from concentrating all air equipment on one ship which could be destroyed by enemy action, depriving the whole squadron of an air service. On the horns of a dilemma, the Navy explored its options.

While the aircraft carrier (per se) evolved with a glamour and tradition peculiar to its circumstances, the air arm of capital ships of the fleet traveled a somewhat oblique course.

After a soggy false start, Lt. T. G. Ellyson and a Curtiss AH-3 were launched from a compressed air catapult

The easiest way to get airborne is to be catapulted. On the up-roll of the ship, the signal to fire is given. (Photo courtesy Navy Dept. National Archives)



on Nov. 12, 1912. Although speedy recovery of an aircraft while under way at sea would pose a problem until 1933, launching techniques continued to improve through experience and the technological surge that came with World War I. By the middle Twenties, the more efficient black powder catapult was perfected, and installed on various warships during major overhaul. Early air units were then assigned from various land-based Observation and Scouting (or VO/VS) squadrons.

Not only was it an insult to the "purity" of ship design, but the installation of aviation paraphernalia (catapult, crane) necessarily resulted in dislocation of sailors and their equipment. And naval aviators were (and still are) referred to as "brown shoes" while real sailors were in the "black shoe" Navy.

On April 18, 1933, the first success-

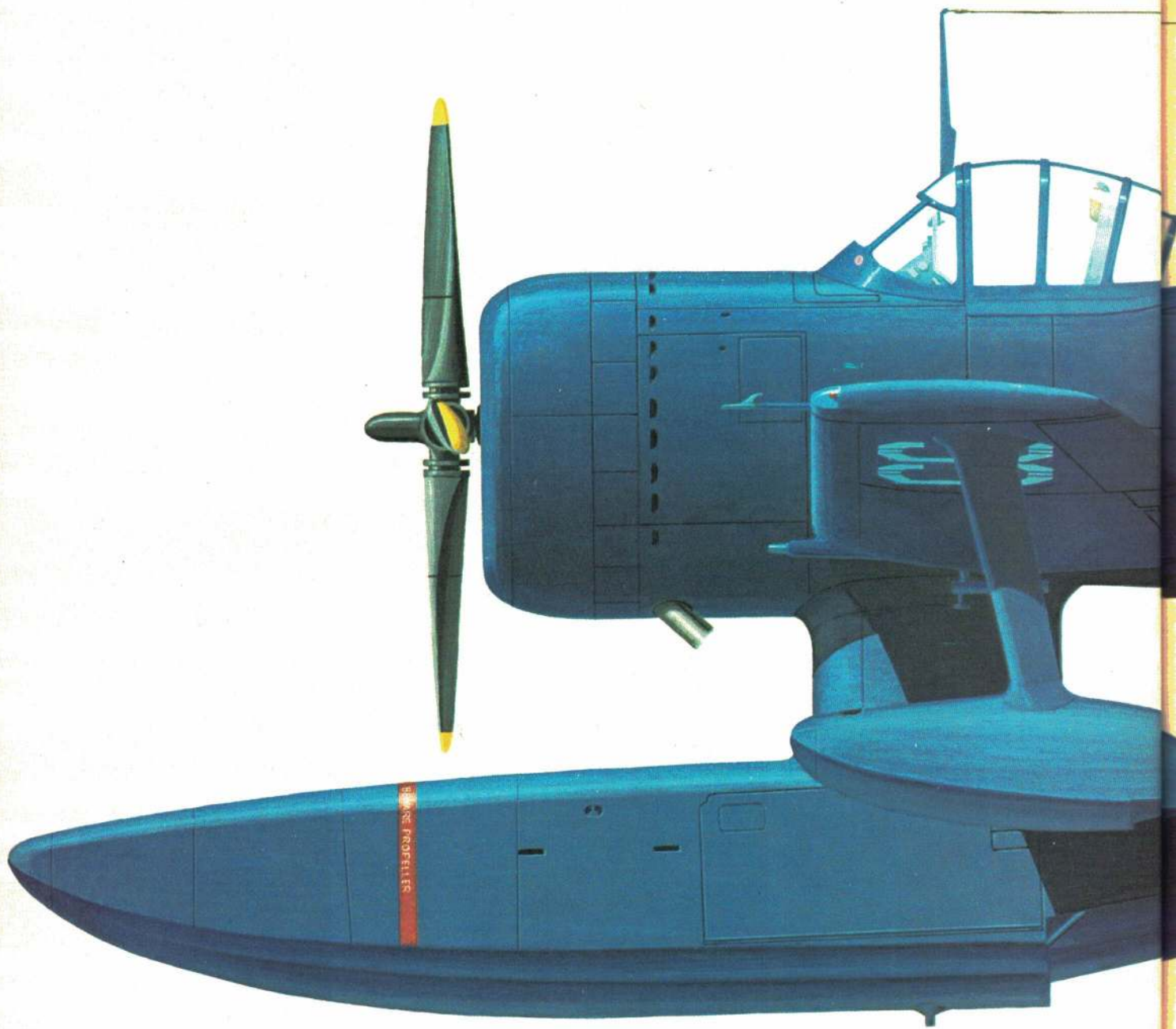
ful sea-underway recovery came when Lt. G. A. Ott landed an O2U alongside the USS Maryland, and taxied up onto a "sled" (somewhat like a cargo net) being dragged by the battleship.² When a hook on his float was caught in the webbing, Ott cut power and let the airplane settle back and be carried along with the ship. A cargo hook was lowered, and the plane hoisted aboard.

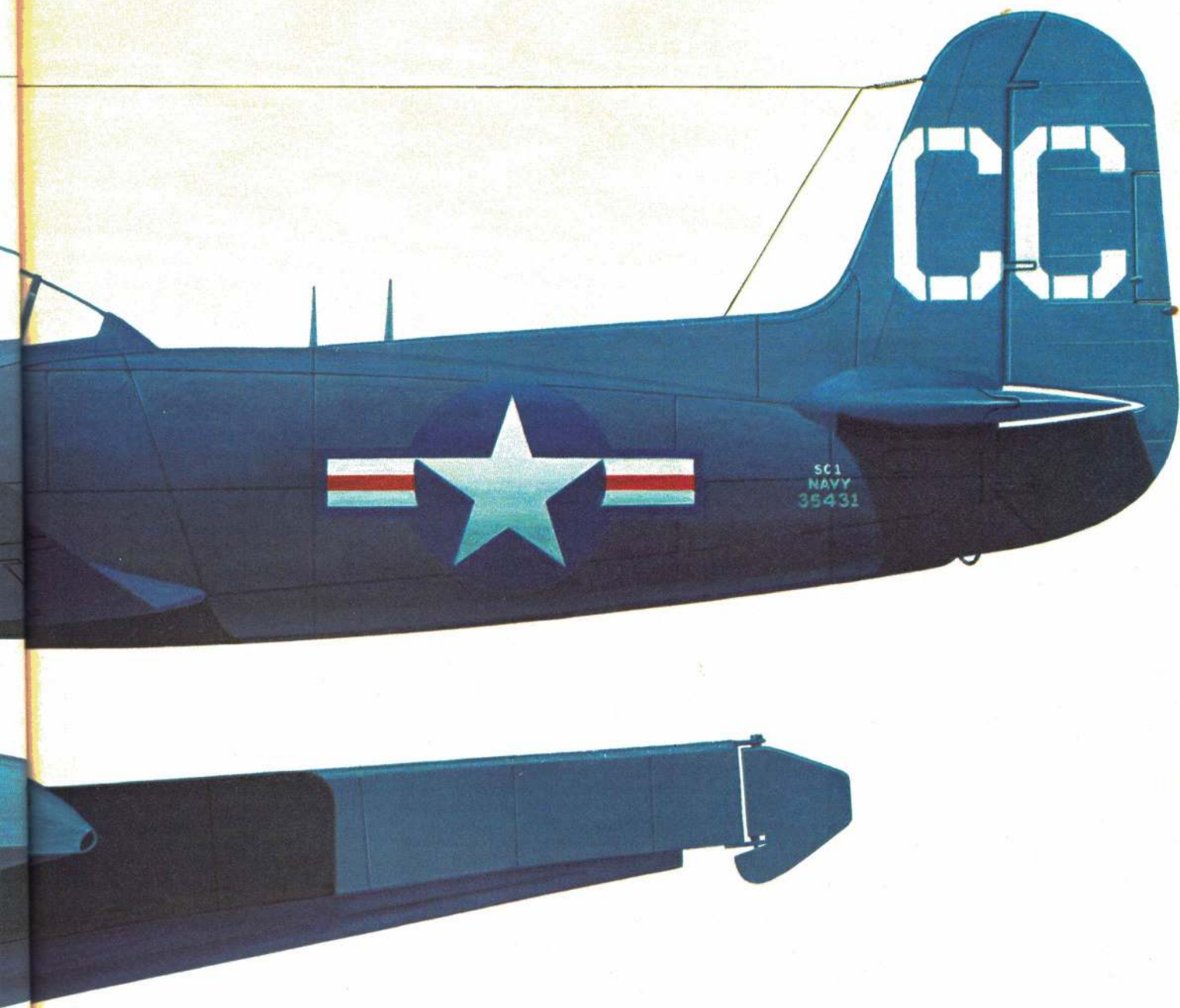
During the Thirties, U.S. Navy aircraft, equipment, and launch and recovery techniques improved and changed as mission requirements slowly solidified. Due to a shortage of shore-based facilities in the Pacific, the aircraft carrier developed. There was a brief but disastrous flirtation with dirigibles (which also carried airplanes aboard). Land-based equipment was

acquired for expanding naval air stations. And then there were the shipborne seaplanes of the VO/VS squadrons in the Fleet Battle and Scouting Forces.

When the European powers squared off against one another in the opening days of World War II, world naval strategy was pretty much a continuation of the 1914-1918 War. Battleships, although vulnerable to attack within range of land-based planes, were still considered "the backbone of the fleet," and superior on the high seas.³

But, by mid-1941, it became all too apparent that with or without battleships, a surface fleet couldn't perform its traditional role unless it commanded the air above the sea. Some two weeks after the U-boat sinking of the British battleship, HMS Barham, in the Mediterranean, Japanese carrier-based aircraft





WES / HARRISON

Seahawk



Rugged enough for rough seas, 1350 horses pulled a 4-blade, 10' 2" constant speed prop made for rapid ROWs. (Photo courtesy Smithsonian)

attacked Pearl Harbor, clobbering much of the American battleship inventory.

By this time, U.S. cruisers and battleships carried from two to four seaplanes assigned to various Observation and Scouting squadrons. Already a curious breed, the VO/VS squadrons became more so after December. After Pearl Harbor, these warships then operated as a unit of ship and airplane. And aviation duties of the men aboard were in addition to regular shipboard assignments, making them, in a sense, neither fish nor fowl.⁴

For most of the war, the VO/VS squadrons performed their "eyes of the fleet" duties in standard Navy floatplane reconnaissance and scouting aircraft—the lumbering two-seat Curtiss SOC's and Vought OS2Us. But since these slower airplanes were vulnerable, the Navy issued a bid invitation to a single-seat, scouting floatplane which would perform much like a fighter.⁵

In June, 1942, Curtiss-Wright Corp. submitted a proposal for an airplane with combined armament and performance sufficient to fly combat against most aircraft, yet still slow enough to shadow the enemy fleet for long periods of time. Called the Seahawk, its prototype (the XSC-1) was first flown Feb. 16, 1944, and production was under way by that summer.⁶

Introduced into squadron service in October, 1944, the SC-1s patrolled the skies over the Atlantic and Pacific fleets, searching for bogies above and below, spotting for naval gunfire, and performing air-sea rescue duties. If troops being convoyed overseas viewed such seaplanes catapulted off battleships and cruisers as a curiosity, so did the sailors.

When war became peace, the VO/VS squadrons rapidly decreased in number. By April, 1949, the last one was decommissioned, and those SC-1s that remained (out of 567 produced) were

scrapped, mothballed or assigned to training units.

But, in the meantime, many SC-1s and aviators had been catapulted into the wild blue, and scooped up out of the sea. One was Lt. (j.g.) Charles E. Roth, USN, who, by the time he reported to the USS Providence in 1947, was fully qualified to wear a black shoe on one foot and a brown one on the other.⁷

An Annapolis graduate and assistant navigator on the Augusta at war's end, he signed up for flight training. Pleased that a qualified deck officer should show so much interest in one of the lesser sciences, the Navy Department granted his wish. Charley was sent to

fly school and indoctrinated into the whole nine yards.

But tradition dies hard in the Navy. When it became apparent that the potential admiral showed no inclination to get back into full-time black shoes, the ingrate was dropped into the first available VO squadron to ponder the error of his ways.

But with Charley, a tour on the USS Providence (with its SC-1s) was fine. He liked ships and he liked airplanes. Shoes were just something to keep the holes in your socks from showing.

In spite of its ungainly appearance, the SC-1 was maneuverable, easy to fly, and in slow flight—*magnifique!* Although imbued with a forgiving nature,

A "Charley Recovery:" An SC-1 from the USS Chicago is chasing "the sled." Visible in the photo is the pick-up hook. (Photo courtesy Smithsonian)



it was, nevertheless, an airplane one had to stay *with* all of the time. Any fiddling around with your E6B, for instance, resulted in unusual attitudes for the unwary. (Autopilots had been removed.)

On a water takeoff, all one could see was cowl, because up front a buxom R-1820-62 engine was turbo-supercharged and ready. You say you want to go? OK. Give it full right rudder, aim 20° to the right of the wind, and 1,350 horses will take you in a screaming arc to the left. Surprising, perhaps, but a joy to power-starved VO/VS pilots whose only alternative was the lackluster OS2U, so underpowered that in calm water, it was in danger of being passed by the average swimmer.

On the day an SC-1 pilot makes his first sea-underway recovery, he is performing before divine Providence—and the crew as well.

The first thing is to find the ship. Preferably, your ship. But, assuming the navigation has been reasonably accurate and the gentlemen on board truthfully conveyed their intended course (a nagging doubt that is not entirely without foundation), then that gray sliver riding a sea of blue below is your target. By her hull number (82) shall ye know her. It is indeed the Providence, and how could a 610-foot length of steel seem so small?

Dropping down and circling at about 300 feet overhead will be interpreted as either a request to be shot out of the sky or, a request to come aboard. In the absence of black puffs of smoke, you may assume that preparations are under way to accept you, and the captain will so signify by running up the "C" (or Charley) flag.

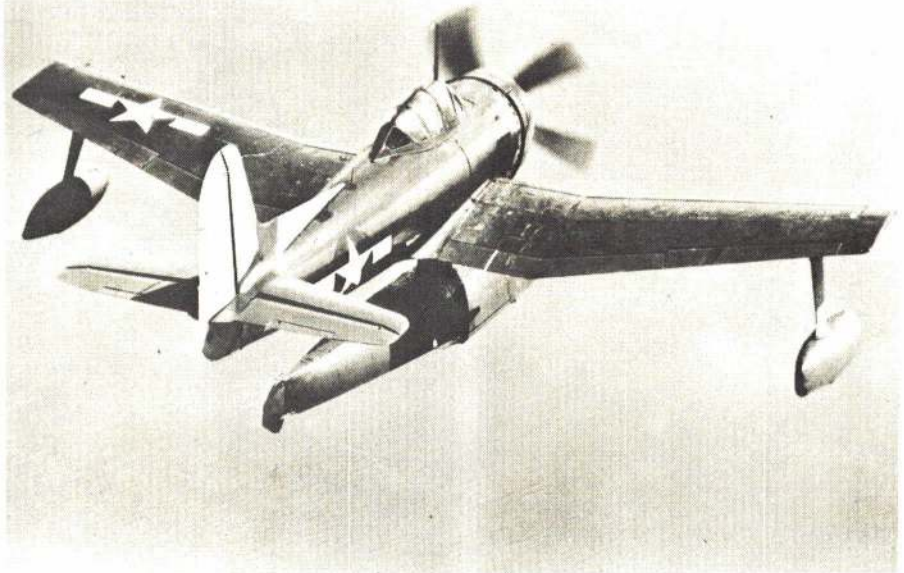
Below you, 10,000 tons of ship is travelling at about 15 knots, or standard speed, and this must be reduced to eight knots before you can hope to get aboard. So first, the captain will turn the ship 45° out of the wind to the right. After he's done that, down comes the Charley flag.

Then, just as you're flying alongside him, he'll start a 90° turn through the wind. What you're going to do now is whack that airplane around and make a 360 + 90° turn as he's doing his 90. And, as he's turning, he's translating—skidding, knocking the tops off the waves, so that if everything works out perfectly, he winds up 45° out of the wind to the left, and you're landing into the wind across his slick.

When you touch down, you're lined up right about amidships and aimed right at him. As you skip across the wake, the numbers will get bigger and bigger and bigger until all you can see is 82 staring you right in the face.

Then, at just the right moment, you will stop, because if you don't you will go off into the rough and everyone will jeer. So stop, and turn into the ship, and begin chasing down the sled they're towing.

Now, even though it's about this time that the cooks usually come out and throw garbage over the side, do you



Of all-metal construction, the Curtiss SC-1 had an abrupt dihedral in its tapered outer wing panels. (Photo courtesy Smithsonian)

take this personally? No, indeed, you just keep watching for that sled.

It's about 12-15 feet long and 3 feet wide, canvas-backed with heavy rope cross straps. Taxi up onto the sled, and cut power—for only the daring keep their engine running. Then, as the airplane drifts back, the hook on the bottom of your float will engage one of the ropes. If not, immediately begin chasing that ship across the wide blue sea. Literally.

But, assuming success, pull the release on the top of the cowl, and two doors will open to reveal the hook-up mechanism. Although you're bouncing

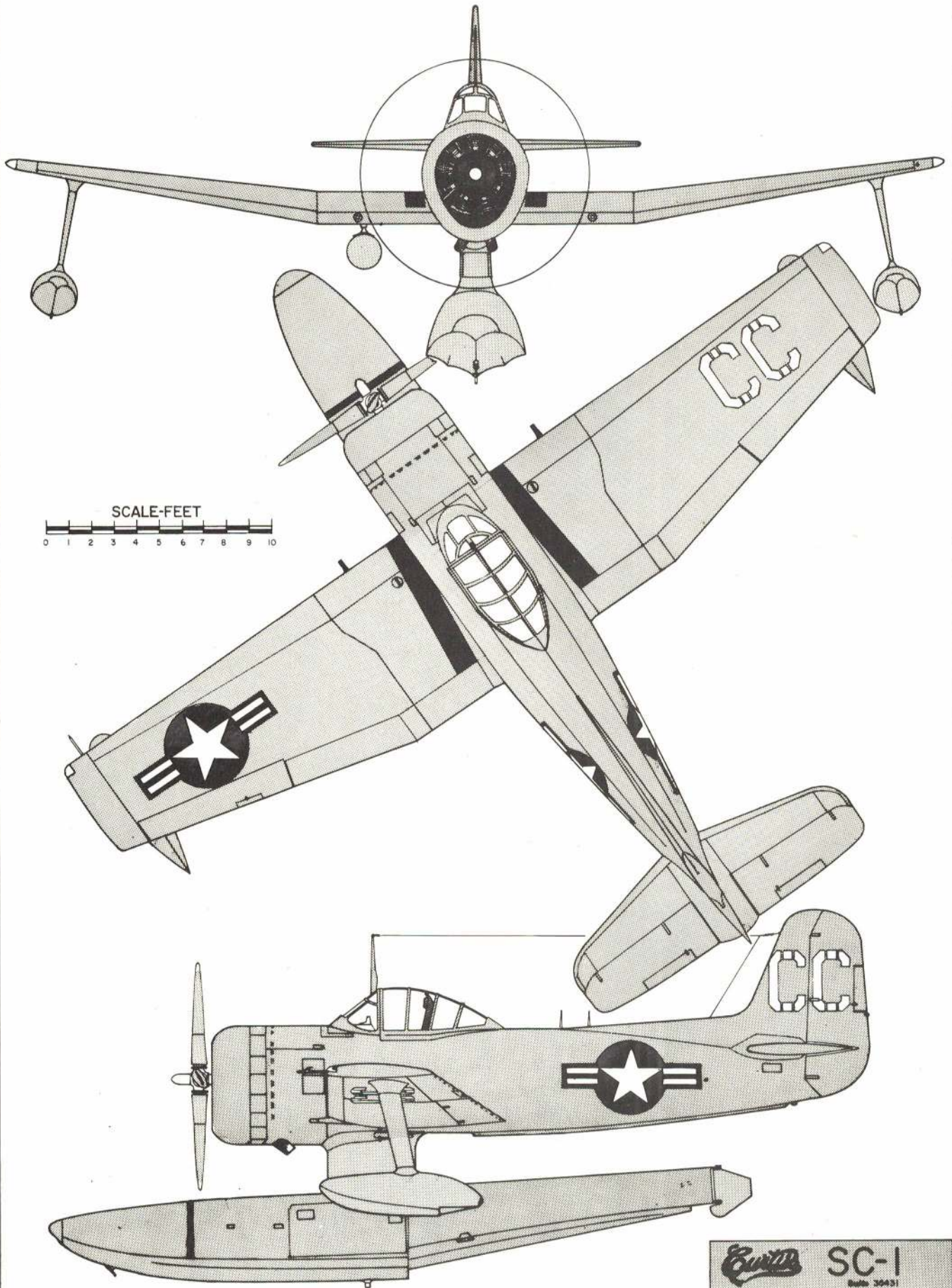
along, stand up in the cockpit—gracefully please—and reach up for the hook that the bo'sun is aiming right at your head. Grab it and hook onto the plane.

As the crane reels you in, you may think you've aged 30 or 40 years, but the whole procedure has taken only about three or four minutes.

Occasionally, especially in a rough sea, you'll bounce out of the sled. If you think eight knots is slow, look at a ship that's doing eight knots while you're doing zero, and you know you're 2,000 miles from the nearest land. Now that's lonesome! (Continued on page 118)

Manually folded wings collapsed back to the width of the horizontal stab. Beaching gear has been attached to the float. (Photo courtesy Smithsonian)



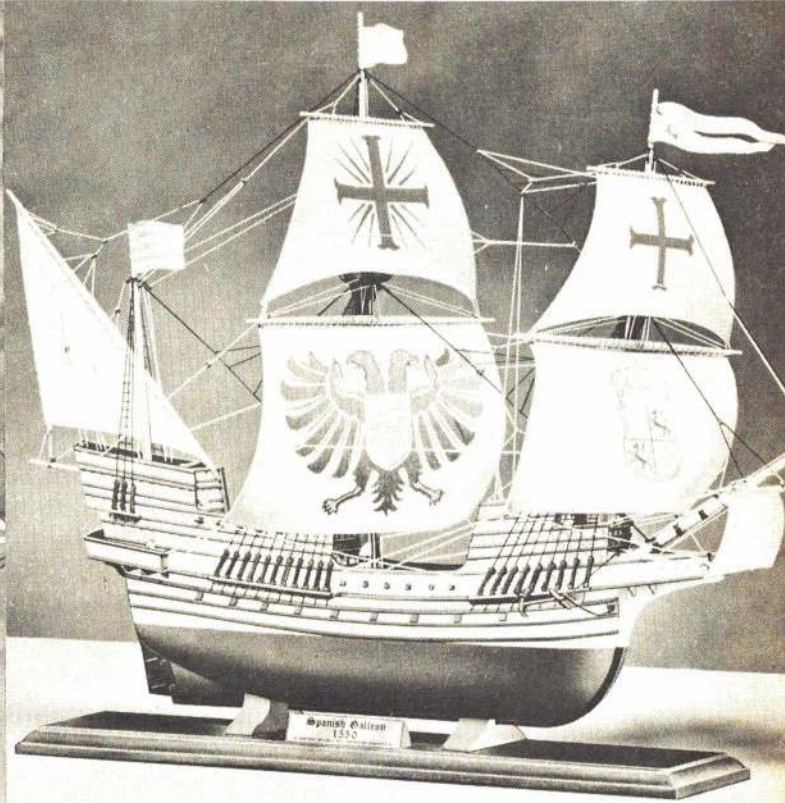


SCALE-FEET
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Curtiss SC-1
BuNo 29431
Flown By Lt.(jg) Charles Roth
USS Providence (CL 82) 1947
W.D. Geyer



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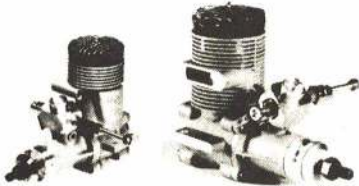
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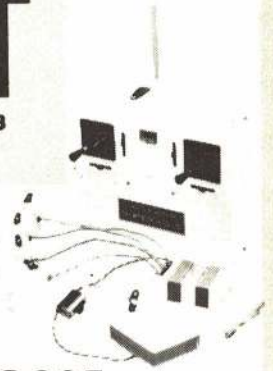
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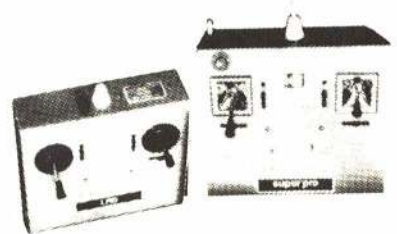
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or, how to make



ABOVE: Bottom view of conventional cowling shows mounting and venting of a plastic tank. The tank is secured with foam rubber. BELOW: Removal of tank is accomplished by pulling forward and rotating, after engine has been removed.



Consistency is the cornerstone of control line stunt flying. One of the most persistent obstacles to consistency is the fuel system. While the various stunt engines on the market vary considerably in fuel drawing characteristics, virtually all can provide reliable performance, given a proper fuel system.

Since the fuel tank and its venting are so critical to optimum engine runs, it should be made removable. The arguments for a removable tank are overwhelming. A removable tank allows (1) the tank to be shimmed to equalize running speeds upright and inverted, (2) various venting systems to be tried, (3) easy repair of leaks, (4) easier construction and painting, and (5) selection of fuel capacity to suit conditions.

The RC plastic tank offers several advantages over the metal tank. First, plastic tanks are lighter than metal ones. For example, a six-ounce metal tank can weigh 2½-3 ounces, whereas an equivalent plastic tank weighs approximately 1½ ounces. A plastic tank is considerably easier to make than a metal tank. A plastic tank enables you to see exactly what the plumbing is doing, whereas a metal tank always involves an element of blind work. A plastic tank is inherently cleaner, having no metal filings, loose solder, or flux to contaminate the system. A plastic tank allows more flexibility in aircraft construction. Finally, the reliability of the plastic tank, when properly made, is equal to that of the metal tank.

The first step in providing a good fuel system is to design a fuselage to permit both easy removal and vertical shimming of the tank. There are several ways to do this, without compromising strength of the fuselage. In general, a hatch or cowl weakens the structure, and should be avoided if possible. Several removable systems are shown in the photographs. The exit point of the vents is not critical, and should be placed to accommodate the removal of the tank.

There are basically two types of venting systems—conventional venting and uniflow, both of which can be run on muffler pressure. In a uniflow system, the vent open to the outside air is continuously covered by fuel; while in the conventional system, the vent is not covered by fuel. In general, a uniflow tank will hold its setting throughout most of the flight, but will frequently go slightly rich near the end of the run. The conventional tank will gradually go

fitting Murphy's Law... your fuel tank work. / by Robert Baron

leaner (faster) linearly as the flight progresses.

The degree of leaning out depends on the tolerance of the engine to changes in fuel head. A Max 35 (having a low fuel draw) will lean out more than a SuperTigre 46 which is relatively tolerant of fuel head changes. The choice of tank depends on the requirements of the particular aircraft. Some planes may require the increased speed provided by a conventional tank, while others may fly better with a uniflow tank. In both cases, the tank usually runs smoother when assisted by muffler pressure. Muffler pressure is obtained by tapping a standard 4-40 pressure tap, such as that made by Fox, into the muffler. The location of the pressure tap is not particularly critical. The pressure fitting is then plumbed to the vent or vents open to the air.

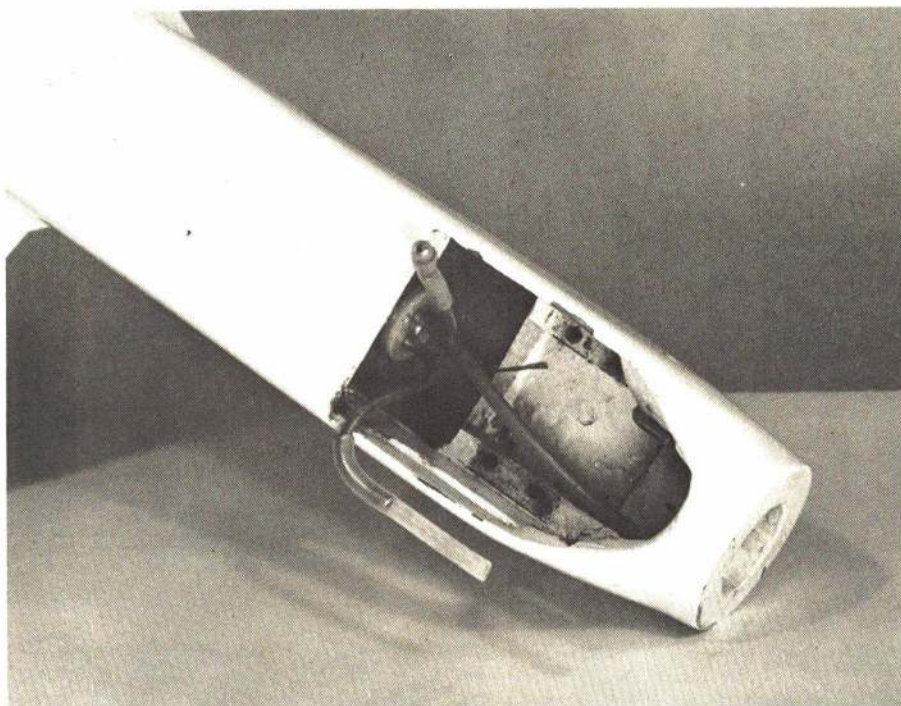
UNIFLOW TANKS

In plumbing this type of tank, the uniflow vent (the vent open to the outside air) should be located near the rear of the tank and to the outside, next to the fuel pickup line. The end of the uniflow vent, which is inside the tank, must have an inside diameter of approximately 3/32" (standard 1/8" OD tubing). The outside portion of the uniflow vent can have an opening as small as .060", without adversely affecting the runs.

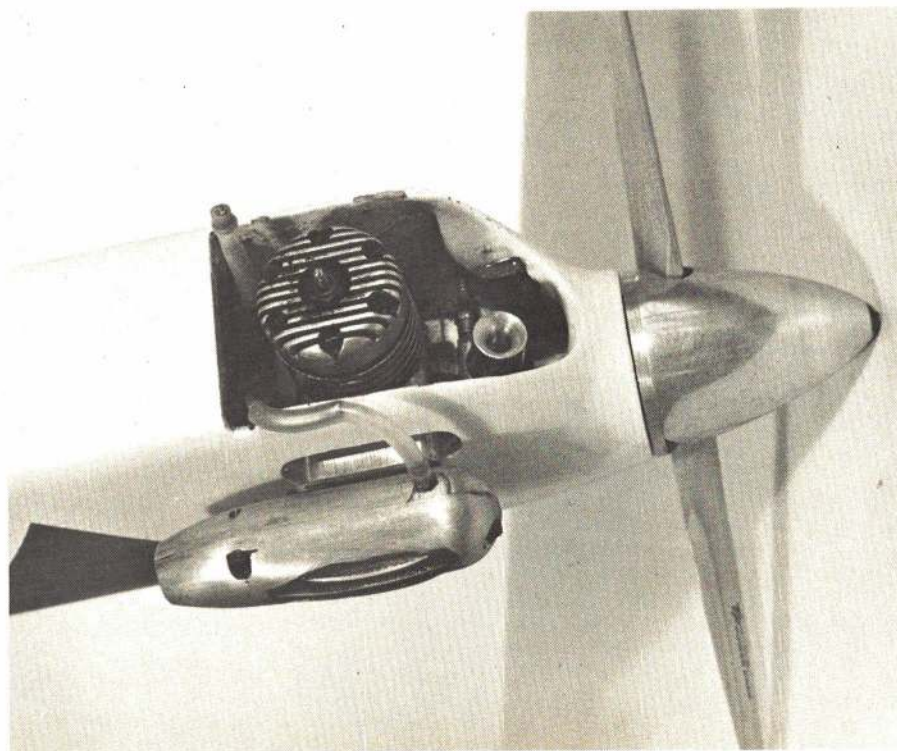
It is convenient, with most tanks, to have an overflow vent which is capped before flying. The fuel cap is most easily made by forcing a 4-40 screw head into a piece of fuel tubing. Placing the threaded portion of a screw into fuel tubing *will not* make an air-tight seal, and should never be used as a fuel filler cap. This is particularly critical on uniflow tanks which do not tolerate small leaks as readily as do conventional tanks. In the case of plastic tanks, both the uniflow and pickup can be placed on flexible lines with weights attached. Do not use baffles of any kind with a uniflow venting system.

CONVENTIONAL TANKS

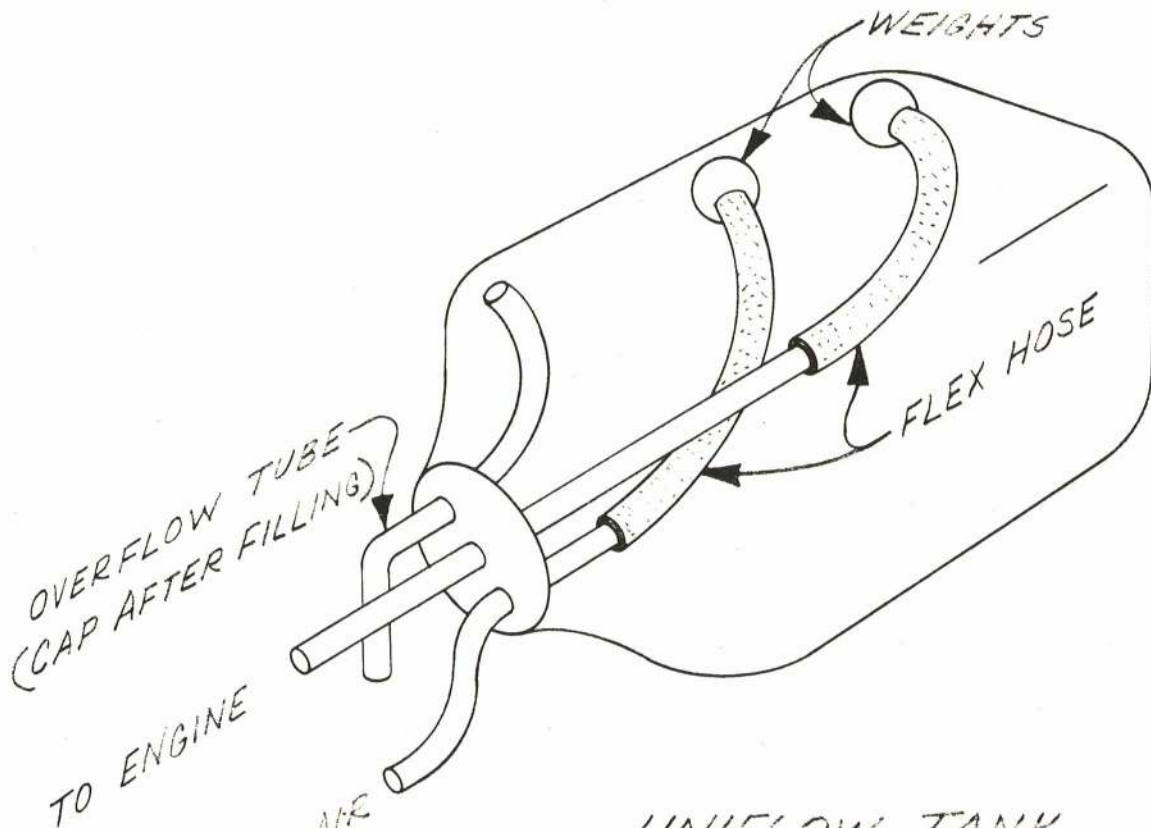
A single, properly located vent works as well or better than two vents. As each additional tube is a potential failure point, there should be a minimum number of tubes—namely a fuel pickup, vent to air or muffler pressure, and an overflow vent. The vent to air tube should end at the front inside wall of the tank. For convenience, this vent should go to the top of the tank so that fuel does not run out while the plane is on the ground. The other end of this vent need not be above the level of the



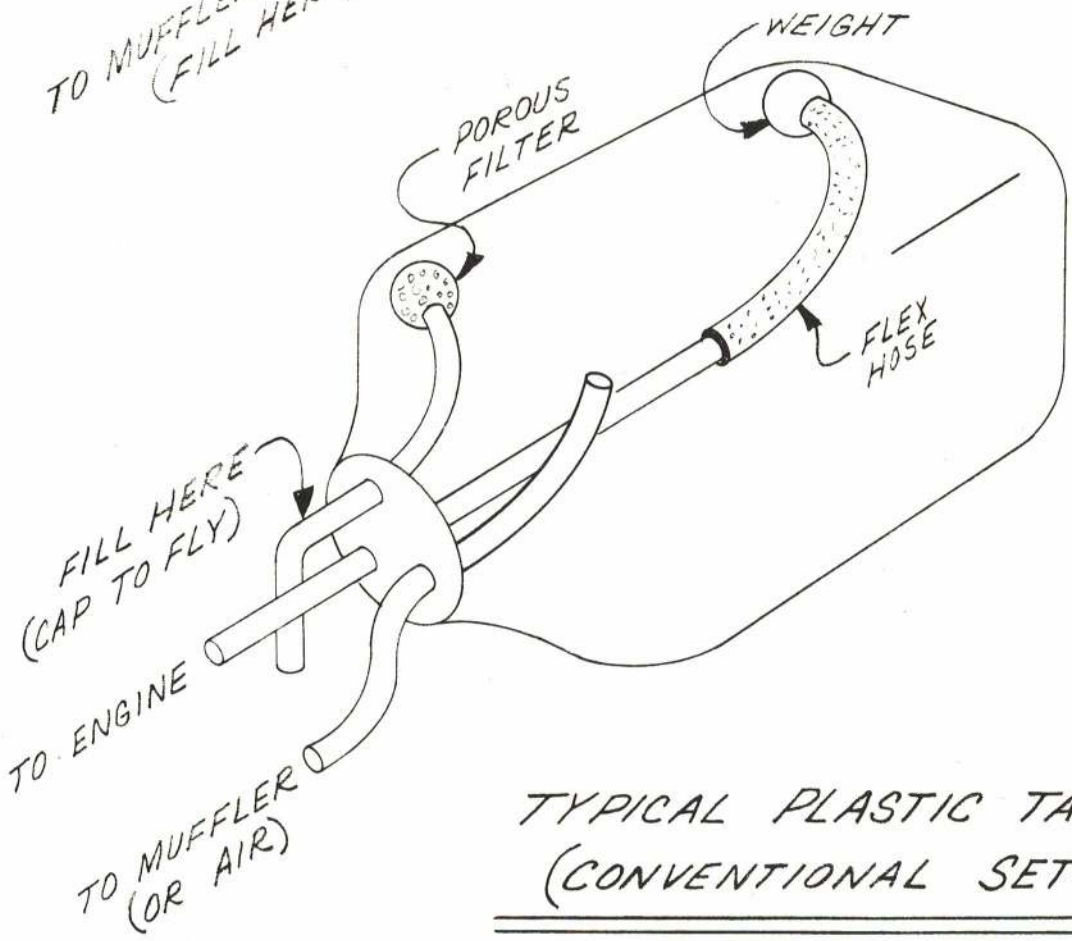
ABOVE: Nose section of an uncowed fuselage, which still permits removal of a six-oz. plastic tank. BELOW: Muffler pressure and overflow vent are shown for a Supertigre 46 installation. Note the screwhead in the overflow plug.



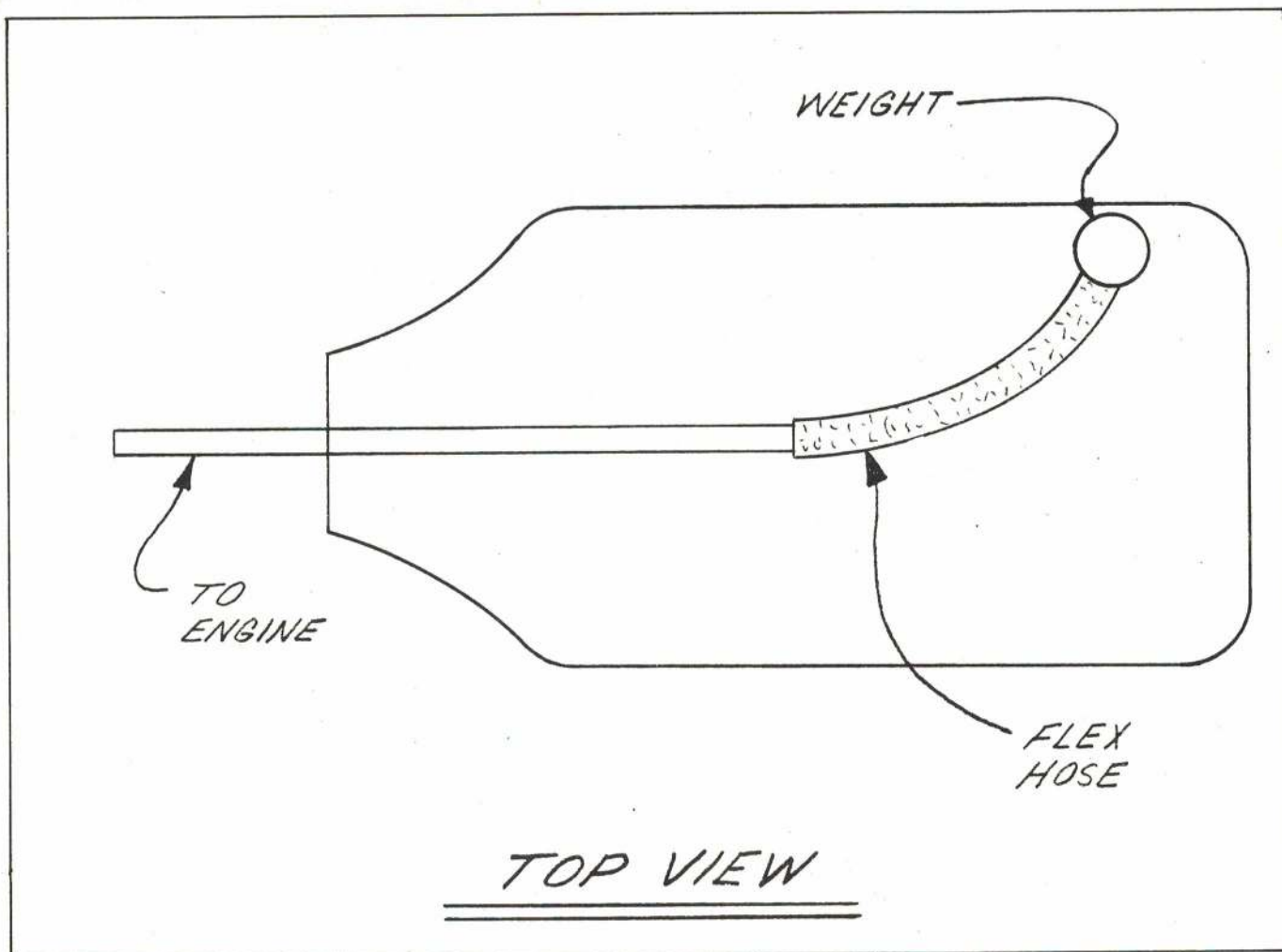
Photos by Author



UNIFLOW TANK



TYPICAL PLASTIC TANK
(CONVENTIONAL SET-UP)



tank, as is done so often. It is easier and more clinical to run this vent out the bottom of the plane and plumb it to the bottom of the muffler (see photo).

PLASTIC TANKS

In forcing the various tubes through the rubber seal, the tubes must be round and straight across the rubber seal. When inserting the tubing through the rubber seal, do not drill out or cut any of the rubber away, but simply puncture the rubber with the tubing. Porous clunk weights are not recommended for use in the pickup line, as they go lean as soon as any part of the weight is exposed to air. Typically a tank with a porous pickup will run fine for about two-thirds of the flight, at which time the engine will go dead lean.

The porous filter is recommended on the filler tube as it does prevent dirt from entering the tank. The brass pickup tube should go approximately halfway into the tank, with the last half using a flexible hose with a weight. This arrangement will direct the open part of the weight against the outside of the tank, and will result in consistent runs which use virtually all the fuel each flight (see sketch 3).

HINTS FOR AVOIDING PROBLEMS

Before installing the tank, cap all but one of the tubes and pressurize the remaining tube with a squeeze bulb, while submersing in water. The tank must not show any air bubbles in order to work

properly. This is a good time to check that the filler cap is sealing properly.

When building any tank, be careful to file and sand away all the burrs on both the pickup tube and any vents that are capped. Frequently, a very small burr will tear the fuel line and cause a leak. Similarly, an overflow vent with a burr will eventually tear the filler cap and cause a tank failure.

When shimming the tank to get equal runs, both upright and inverted, use sheet balsa to raise or lower the tank. Foam rubber between the tank and fuselage bottom will hold the tank in place. Shimming the tank is a trial-and-error process. Having the center of the tank in line with the needle valve is no assurance that the engine will run as well inverted. If the engine runs faster right side up or speeds up on inside loops, you must raise the tank relative to the engine. This adjustment is critical to smooth flying, and must be done carefully. Unless the engine and tank are grossly out of line, a 1/16" shim adjustment is recommended at any one time.

Fuel line filters are a potential problem, because they create two additional points in the line where leakage can occur. A fuel filter is a miniature fuel reservoir, which can cause the engine to run differently on inside and outside loops, if not located in line with the spray-bar. I have had more success using no line filter, but using a porous filter on the end of the filler tube. The feed

line from the tank to the engine should be as straight as possible, and not go up and down to clear any structure. Route the fuel line in such a manner that it is not pinched or cut.

The fuel filling system is another area that merits special attention. If you store your fuel in metal cans, it is recommended that you transfer the fuel through a filter into a glass bottle prior to flying. A fuel system that is closed to the outside air keeps things as clean as possible. Electric fuel pumps and the brake fluid pumps both keep the system closed to outside air when not in use. Opening up your fuel can and dipping in with a fuel bulb is almost sure to pick up dirt in a relatively short period of time.

When you have done all of the above and your engine still appears to have tank problems, you simply remove it, say a few choice words, and re-install it. For reasons that escape me, this last technique has worked on a number of occasions. If that doesn't work, you might look into gliders.

(Outwitting Murphy's Law usually entails more than merely removing the tank and re-installing it. Remounting of a spinner into a more compatible balanced state, more solidly bolting down the engine, etc., can often provide a better engine run. Re-installing the tank may put it into a better position to not vibrate, thus preventing foaming of the fuel—php)

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GETTING STARTED IN R/C

(Continued from page 18)

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SEASQUARE

(Continued from page 48)

the wing and stabilizer must be correct, and the center of gravity must be where it is shown on the plan. Also check the vertical fin and rudder to see that no offset is built in. The motor should have no incidence built in, but an error toward right thrust is preferable to left thrust.

Check the system for correct direction of motion of the control surfaces. Not long ago, an expert flier crashed a friend's new plane on its maiden flight because the ailerons were hooked up like flaps! In another case, a new plane was very unstable when flown by two different experts—the third one discovered that the CG was at 50% of the

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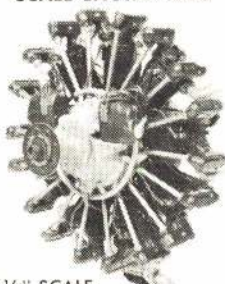
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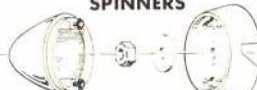
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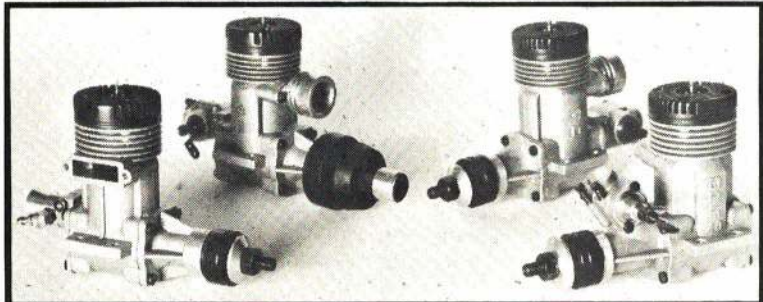
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FRONT INTAKE / REAR EXHAUST	SPA-RC	REAR INTAKE / REAR EXHAUST	SPP-RC
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STP-12x4	12x4	1.10	STP-16x6	16x6	2.50
STP-12x5	12x5	1.10	STP-17x4	17x4	3.00
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(Continued from page 94)
borne. In the air, the pattern maneuvers come out as well as many a pattern ship performs them. Inverted and knife-edge flight are done in very creditable fashion. Aileron rolls are acceptably axial with a minimum of elevator correction. Outside loops are round and easy with a 35 engine.

All told, Seasquare GT is an ideal first seaplane for the flier who has learned to fly a four-channel model. Build it and enjoy the fun of water flying at its best.

SAILPLANE QUIZ ANSWERS

Here are the answers to the Sailplane Quiz which appeared in last month's AAM (page 50). If you didn't take the quiz, don't peek at the answers, but go back and try the questions. An 18-year-old, Alan Druschitz, got nine out of ten correct. How did you fare?

(1) A (6) D

(2) B (7) A
(3) B (8) B
(4) 1/3 (9) B
(5) B (10) B

Sorry that space limitations don't permit an explanation of each answer. If there are some you don't understand (or don't believe), contact your nearest college's department of aerodynamics or physics.

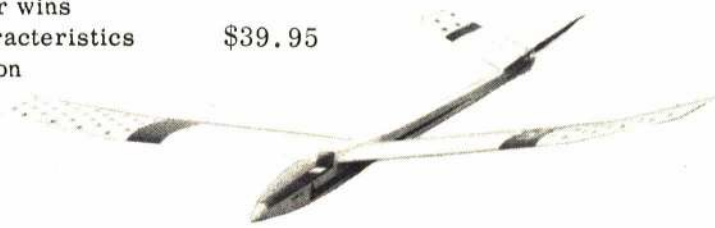
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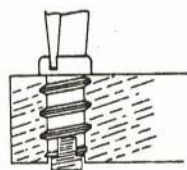
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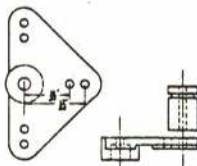
Sport Winch Kit, order direct \$59.95

Dealers and jobbers inquiries invited.

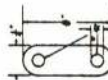
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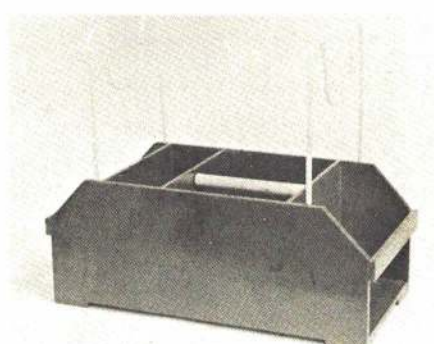
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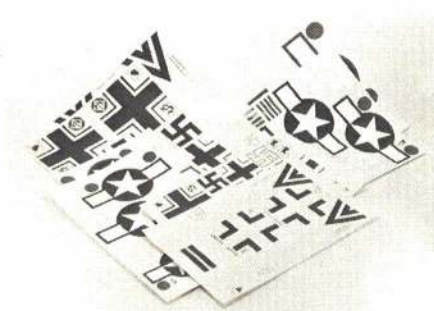
Paasche/Spray Touch-Up Kit. Any free-flowing paint such as a lacquer, enamel, or dope, can be used to touch up, stripe or spray modeling items with this trio of air guns. The touch-up kit includes (1) thumb-controlled spray gun for touching up in round or fan-shaped pattern areas; (2) flow pencil for applying thin stripes without masking; (3) fingertip control, H3 airbrush that can be used for all kinds of fine work. Kit comes with instruction booklet, material containers, and hoses for coupling to an air compressor (not included). Paasche Airbrush Co., 1909 Diversey, Chicago, Ill. 60614.



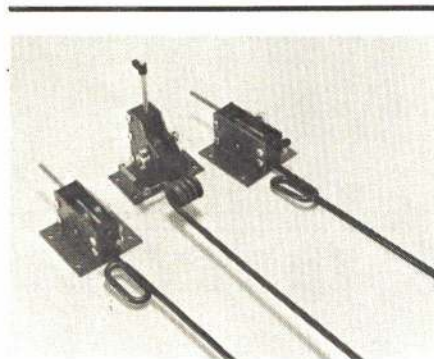
Mini-Flite/AT-50. An advanced RC trainer follows the Mini-Flite BT, or basic trainer series. Although the AT-50 has a semi-scale appearance, it still retains aerobatic capabilities. Kit is designed for quick and easy construction, 4-channel control, and a 19 to 35 engine. Model weighs 3½ to 4 lb. The all-balsa kit sells for \$34.95. Mini-Flite Co., 48 Princeton St., Redbank, N.J. 07701.



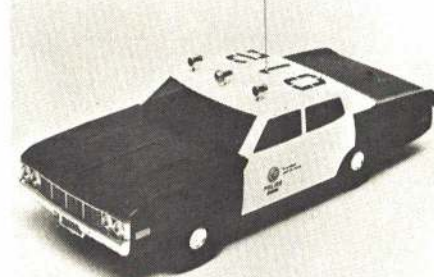
DAE/Flight Box. This simple and rugged flight box is available in both assembled and kit forms. The box is constructed entirely of plywood, with all joints dadoed for extra strength. Finished version is completely painted and ready for installation of your equipment. Both units have removable plane carriers. The price of the finished flight box is \$22.95, and the kit is \$12.95. DA Enterprises, P.O. Box 335, Haubstadt, Ind. 47639.



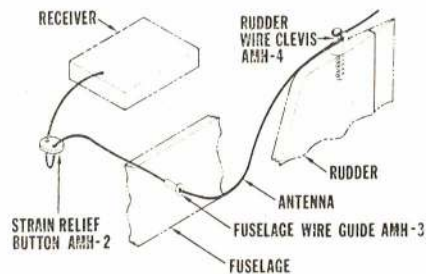
Platt/WWII Decals. Stand-off scale and scale modelers will be interested in these Luftwaffe and U.S. decals. The Luftwaffe set contains various crosses and swastikas, as well as stencil decals for more accurate reproduction of German aircraft. Included in the U.S. set are Army and Navy insignias of various sizes. Each style is available in two sizes, large and small, selling for \$3.98 and \$2.98, respectively. Dave Platt Models, Inc., 1300-C W. McNab Rd., Ft. Lauderdale, Fla. 33309.



B&D/Retracts. These retracts are an improved version of the Violet Aero System, redesigned for greater strength and durability. They feature hard anodized struts, new molded rotolocks, and a beefed-up steering arm assembly. Gears have a generous overlock of 3/16" for noncritical linkage adjustment. Tricycle gear are priced at \$39.95, and conventional are \$24.95. B&D Enterprises, Box 2268 Pike's Station, Rockville, Md. 20852.

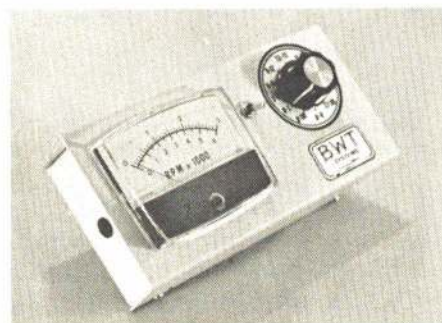


Cox/Patrol Car. For the younger car-modeling crowd is this new engine-powered model of NBC-TV's "Adam 12" police patrol car. The 13½" model is molded in impact resistant plastic, comes complete with a Babe-Bee 049 engine. Steering patterns are obtained through one of four cams provided for oval, slalom, Figure 8, or mystery patterns. L.M. Cox Manufacturing Co., Inc., 1505 E. Warner Ave., Santa Ana, Calif. 92705.



Typical wing tip Skid Plate installation

EK/Accessories. If you happen to be plagued with scuffed wing tip problems, EK is making these new wing tip accessories which can be mounted on RC gliders or single-wheel CL models. The item might also make a good tail skid for pattern ships. The new antenna mounting hardware makes antenna installation simple, and reduces strain and wear on the wire. Package includes strain relief button, exit outlet and friction connector. These are only two of many nylon accessories recently released by EK Products. Package of four wing tips is \$.49, and antenna hardware is also \$.49. EK Products, 3233 W. Euless Blvd., Hurst, Tex. 76053.



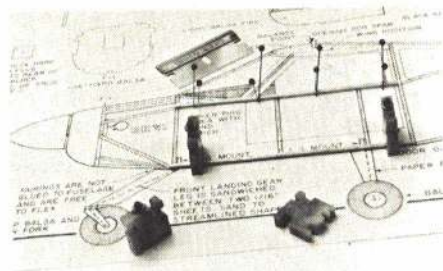
BWT/Accutac. Truly a precision instrument, this expanded-scale tachometer is accurate to within plus or minus 1%. The optical tachometer contains an impressive list of four IC's, 83 transistors, and one diode to achieve its high accuracy. The unit features an expanded scale, achieved through turning the knob on the right side of the tach to one of 11 separate rpm ranges. This achieves an effective 17½" expanded scale meter for highly accurate readings. Well-made unit is a great bargain since the parts alone could cost more than the entire unit if they were bought separately. Unit carries a one-year guarantee on parts and labor, and sells for \$79.95. Buy soon—tach is due for a substantial increase January 1. TNT Services, 4523 Keeler Dr., Columbus, Ohio 43227.



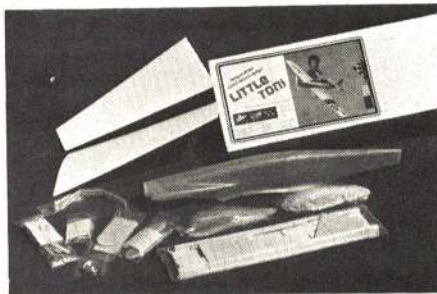
Peck-Polymers/Nesmith Cougar. A Peanut-scale model designed by Clarence Mather, this semi-scale ship set the world's Peanut-scale endurance record at 9:29 min. The kit of this ship is complete except for glue and dope. A few extras included are mylar press-on decals, construction photos, three-views, nylon thrust-bearing, plastic propeller and wheels. Each kit sells for \$3.49. Peck-Polymers, P.O. Box 2498, La Mesa, Calif. 92041.



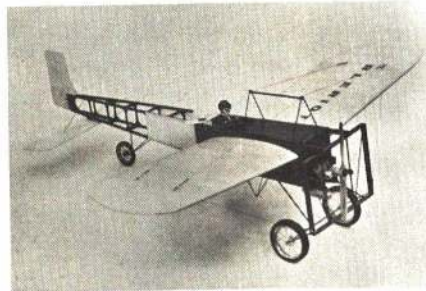
Philann/Club Emblems. These finely detailed embroidered emblems are made of colorfast threads, and they are washable and durable. If your club is looking for an outlet for patches, send a sketch for a quote. Prices vary according to size, color, shape and quantity desired. Philann Embroidery Co., Inc., P.O. Box 95, N. Bergen, N.J. 07047.



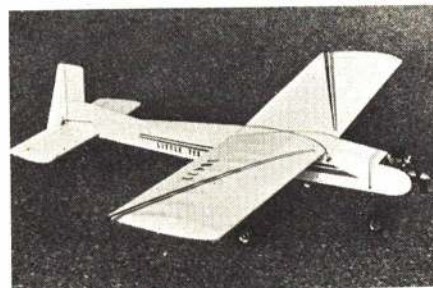
K&K/Pin-downs. We've all heard of pin-ups but who's ever heard of a pin-down? These are new modeling tools designed to prevent splitting wood and increase hold-down strength. There are four different styles of pin-downs, each one designed for a slightly different purpose. They are made of polyethylene plastic so that glue will not adhere to them. The picture shows the difference between using pin-downs and pins to secure balsa stringers on a fuselage plan. A pack of eight to ten of the tools sells for \$1.25. K&K Products, P.O. Box 665, Allentown, Pa. 18105.



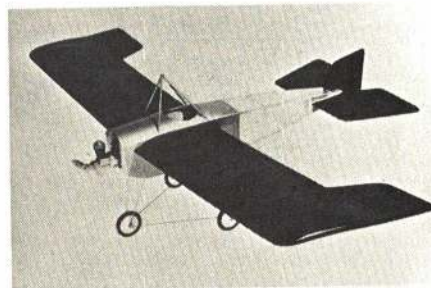
Prather/Lil Toni. Without a doubt, this kit is one of the finest fiberglass and foam kits ever produced. Terry's design of this scale Formula 1 racer combined with good product engineering has made this a highly competitive airplane. All balsa parts are machined for accuracy and quick building, and the epoxy-fiberglass fuselage is lightweight and relatively pinhole-free. Included with the kit are special wheel axle retainers, wheels, joined wheel pants, and all hardware necessary to complete the kit. A comprehensive instruction booklet is also provided. \$99.95. Prather Products, 1660 Ravenna Ave., Wilmington, Calif. 90744.



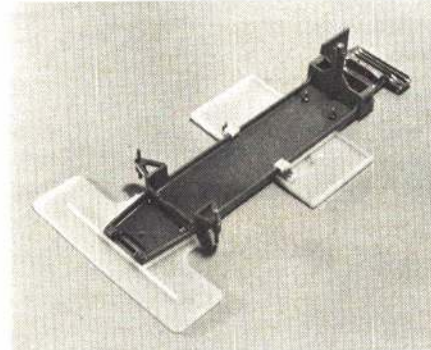
Royal/Bleriot. An interesting scale subject is this nostalgic French airplane featuring an open tail framework for low weight and low wing loading. The kit has a scale ratio of 1-7/8 inch to 1 foot, and a basic balsa construction. Plane has a 51 3/4" span, and is designed for 3-channel radio, and a 35 to 40 engine. \$49.95. Royal Products Corp., 790 West Tennessee Ave., Denver, Colo. 80223.



Casburn/Little Tex. An addition to Casburn's line of balsa kits is this simple trainer designed for 2-3-channel radio, and 15-20-size engines. Kit has a typical Casburn style, jig-built fuselage with a steerable nose wheel bearing, pre-installed. The wing is semi-symmetrical so that it's easily built directly over plans. Included in the kit are pre-formed landing gear, die-cut ribs, and hinges. \$29.95. Johnnie Casburn Manufacturing, 5821 E. Rosedale, Ft. Worth, Tex. 76112.



Peterson/1915 Lincoln Beachey. An antique style semi-scale version of the 1915 Lincoln Beachey is available in two sizes. For sport fliers, the 25" span plane uses .010-.020 size engines, and is strictly for free flight. The larger version, with a 36" span, is for .049 power and is suitable for small RC systems. Both kits are balsa and hardwood constructed. Look for more antiques from this manufacturer soon. Small version sells for \$8.75, and the larger version, \$9.95. Peterson Products, 44935 W. 10th St. West, Lancaster, Calif. 93534.



JoMac/Pan and Bumper. Molded for high strength, the bumper shown on this chassis may be installed on any Jerobee RC car to protect the car and body from damage and scratches. The pan, shown mounted on the sides of the chassis, can be mounted to all Jerobee frames to provide extra space for radio gear or a large tank. This also lowers the CG, which improves handling characteristics. Price of the bumper is \$2.49, and the pans sell for \$2.98. JoMac Products, 12702 N.E. 124th St., Kirkland, Wash. 98033.



R&S/"Perfect Paint." New model paint flows well and may be applied by spraying, brushing, or even rolling on. Paint dries smooth in four to six hours and has little odor. Due to a unique base, the material can be applied over all dopes, epoxies, metal, fiberglass, and MonoKote, and will not attack foam. Fuel resistance is also high. There are 11 glossy colors: red, light blue, royal blue, yellow, orange, light green, spring green, aluminum, purple, black, and white. Also available are flat black and white, clear, and flat satin. A 4 oz. can is \$1.39, and 8 oz. sells for \$1.99. R&S Hobby Products, Inc., P.O. Box 61, Oaklawn, Ill. 60453.

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0242/PAZMANY PL-1—A great scale subject from Nick Zirolli. Formerly a military trainer,

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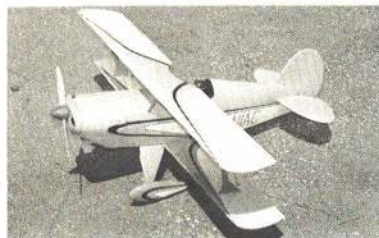
1041/ECLIPSE—RC Sailplane. The biggest soarer yet, this 16-footer is designed for maximum duration flying and cross-country records. Geodetic wing and V-tail on a fishing pole fiberglass boom. Two huge plan sheets with complete building data. Three-function radio required. **\$4.75**

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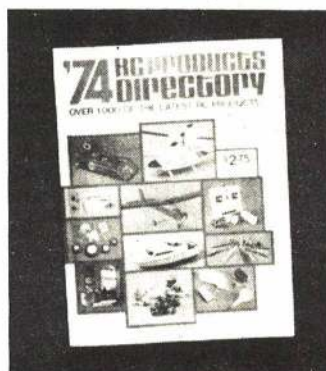
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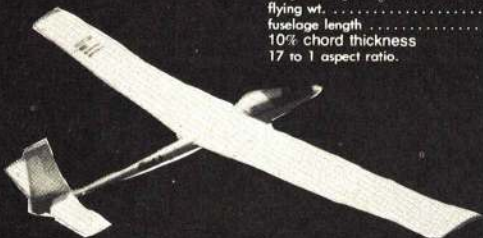
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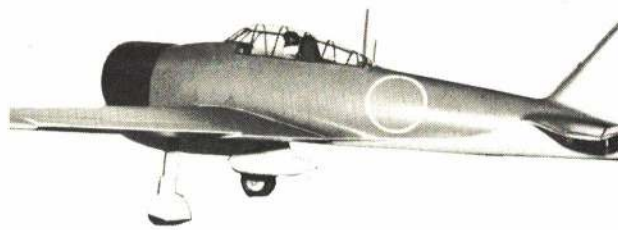
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MILLER (TWICE) CHAMP

(Continued from page 50)

alley of pines. "But," said Rhett, "all of a sudden there it was, flying straight and level back out of the trees."

As a matter of fact, it would seem that Lady Luck was dealing pairs during that period, because Jim Kirkland drew his share a short time thereafter. Rhett was helping Jim trim out a new plane for the upcoming NATS and, between flights, they had removed the wing of

Kirkland's plane to make a minor aileron trim adjustment. Both fliers must have been concentrating hard, because they forgot to hook up the retract and aileron servos when they reassembled the plane.

Kirkland, according to Rhett, upon realizing that the two servos were uncoupled, reduced his throttle, dropped to a six-foot altitude, and gently turned the plane onto the final approach with only rudder, making a perfect landing.



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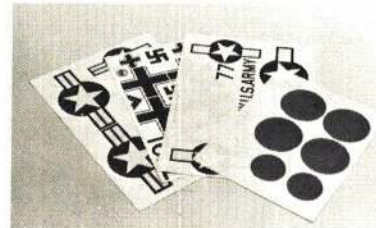
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A real insight into what special qualities have given Rhett the ability to become National Champion lies in his attitudes about competition itself. When asked precisely what goes through his mind when flying in a contest, Rhett replied, "You need total concentration when flying. You can't be thinking about another airplane in the air, or about your last maneuver, or become apprehensive about your next maneuver. You have to be concentrating totally on the maneuver you're doing that very minute."

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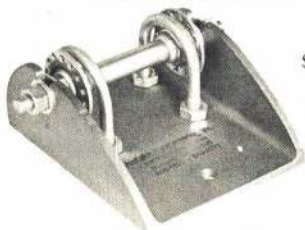
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"I can't just go out and fly for fun. I have to be practicing some maneuver: loops, rolls, snaps, etc."

Rhett's advice to novice fliers, delivered somewhat self-consciously, is

(Continued on page 107)

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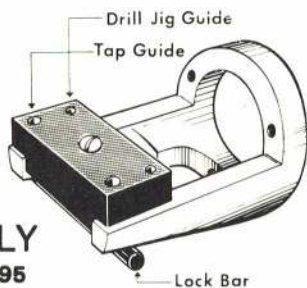
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well worth remembering. "Get help when you need it, and practice."

Rhett unhesitatingly attributes much of his success to his father, Rhett Jr., and his mother, Marjorie. Rhett Jr. has helped his son with much of the time-consuming work of building, and his mother has silked many a wing. Rhett himself builds when he can and has developed a quite sophisticated process for applying a painted finish.

The whole family makes weekend

trips to their flying site in Bainbridge, Ga., where both father and mother actively critique Rhett's flying. During these sessions Rhett usually puts in ten flights, often burning a gallon of fuel.

In school Rhett is actively involved in student affairs, participating in student government and working as business manager for the yearbook. He especially enjoys mathematics and science and is particularly interested in

(Continued on page 118)

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Sweetater Dix	99.50	79.99	O.S.	List	Hobby Barn	Spitfire	\$59.95	\$41.99
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Miss BS	79.95	65.99	J.P. Models	List	Hobby Barn	KP 5 ch. Sport System	\$319.95	\$239.99
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RCM Sportster	\$34.95	\$25.99	Kraft Kits	List	Hobby Barn	3 ch. System	169.95	139.99
RCM Basic Trainer	29.95	19.99	Wingmaster	\$29.95	\$22.99	6 ch. System	299.95	239.99
RCM Trainer	49.95	36.99	J&J Kits	List	Hobby Barn	World Expert Series	List	Hobby Barn
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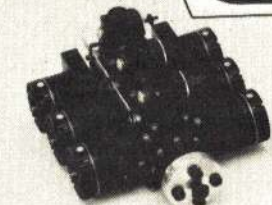
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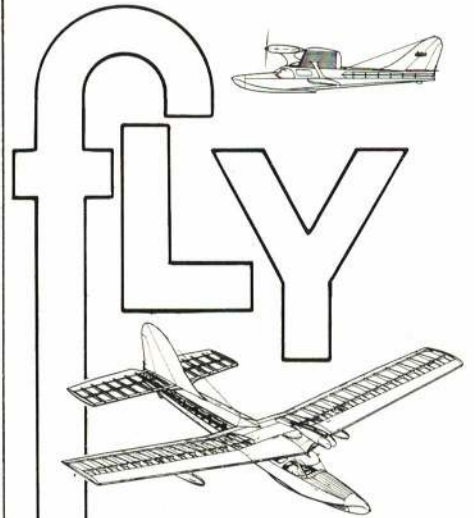
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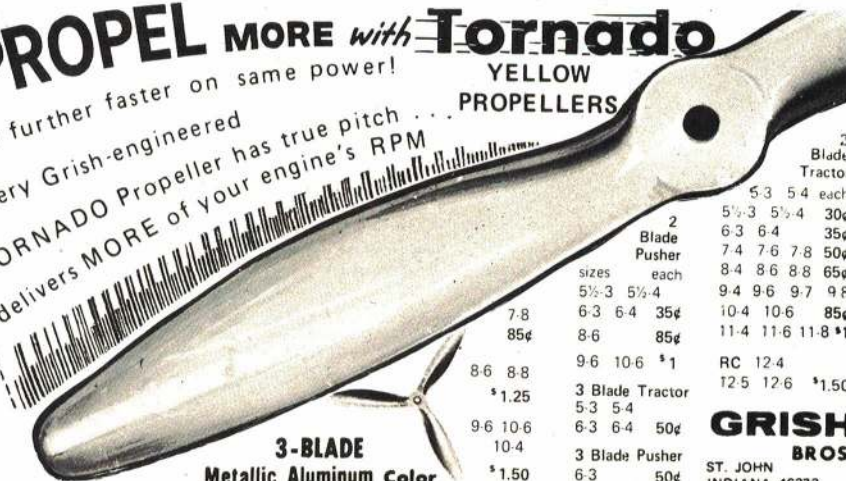
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Behind the Scenes at the 'Most' Nats

Before it started the 1974 National Minature Aircraft Championships had a lot going for it. It had the most competition events ever—65—and the most space ever available to fly them in. It also had the most unknowns. Would enough people come to make it all worthwhile? Would the weather be too hot and humid? Would there be too many mosquitoes and other miserable creatures? Would the stretched out schedule be workable?

There were financial worries, too. It was expected that this would be a most expensive Nationals in one particular area, travel costs for officials. Most of the recent Nats were held in locations where many Nats officials didn't have to travel very far. But this one would require long distance "importing" of many more officials. Also, previous travel allowances had to be boosted in the current inflationary period.

The big question behind such worries concerned the number of contestants to be expected. In previous years when the Nats was held in Dallas—the nearest comparable site—attendance was always the least of any Nats, mostly attributed to the typically very hot Texas weather. Without enough contestants, the financial problems would multiply because the fixed Nats costs would go on, and there might not be enough attendees to help share them.

In addition to these concerns, there was a problem caused by the international AerOlympics event held a month earlier in New Jersey. The AerOlympics required some key people who would not be available to help with the Nationals, since they couldn't make both events. And even among those who could help in both, some might be so worn out from the AerOlympics, that they would be ineffective for the Nats.

To sum up, this Nats had many worries for those responsible for organizing and operating the event. In addition, they felt an obligation to improve on the 1973 Nats which had been an unhappy experience for many participants. The 1973 problems could be written off due to the fact that they were natural for such a major event being run for the first time without outside help or sponsorship. But for 1974 similar thinking would not be accepted. AMA was expected to do better.

The 1974 Nats was better, far better than most had hoped for. For many it apparently was the best Nats ever—a lot of them stopped by Nats HQ on the way to say so. Free Flyers

(continued on page AMA 6)



People are what make the Nats the outstanding event it is. Not all can be shown, but in these pages are some of the key people who deserve much credit. Above: President John Clemens presenting AMA's Distinguished Service Award to key officials of the LARKS Club. Left: Pat Kendall (L) and Leeann Smith who handled RC Pattern tabulation with calculators loaned by the Heath Company. (Thanks, Heath, and thanks to K & B Manufacturing for supplying FAI and Quarter Midget fuel.) Lower Left: Larry Bolich (L), energetic PR Director for the City of Lake Charles, and John Embry, the LARKS member who set in motion Lake Charles for the Nats site. Below: Les Hard rode herd on the daily Nats News and also hand-lettered innumerable signs.



NATIONAL CHAMPIONS

GRAND CHAMPION
Mark Valerius, Houston, Texas

JUNIOR
Jimmy Clem, Dallas, Texas

SENIOR
Kenneth Bauer, Orange, Calif.

OPEN
Mark Valerius, Houston, Texas

CONTROL LINE CATEGORY
Glenn Lee, Batavia, Ill.

FREE FLIGHT CATEGORY
Randy Secor, Covina, Calif.

INDOOR CATEGORY
Charles Markos, Deerfield, Ill.

RADIO CONTROL CATEGORY
Dan McCan, Thousand Oaks, Calif.

SCALE CATEGORY
Frederick T. Stark, Florissant, Mo.

AMA CLUB TEAM
Chicago Aeronauts (Robert Watson, Charles Markos, Charlie Sotich, Keith Gordey, Robert Hayes)

NATS TEAM
Dixie Whiz Kids (Jim Bradley, Patrick Hempel, Robert Elder, Mike Langlois, Brian Pardue)

PERPETUAL TROPHIES

MULVIHILL (longest flight regardless of age, Unlimited Rubber): James Lewis, College Park, Ga.

TULSA GLUE DOBBERS (high time regardless of age, Outdoor HL Glider): Michael Stoy, Woodridge, Ill.

JIM WALKER TROPHY (winner of Junior-Senior-Open flyoff, CL Stunt): Bob Gieseke, Irving, Tex.

STOUT INDOOR (high time regardless of age, Indoor Cabin): Robert Randolph, Loma Linda, Calif.

TESTOR'S (best model finish, regardless of age): Dan McCan, Thousand Oaks, Calif.

STOUT COMMERCIAL (high time regardless of age, Indoor Stick): Winner subject to Contest Board review concerning new Stick event introduced this year.

DICK BLACK (high time regardless of age, Coupe d'Hiver): James Lewis, College Park, Ga.

STERLING MODELS (highest Scale static score in any category, qualifying by official flight): Ernie Violet, College Park, Md.

DANNY BARTLEY (National CL Champion): Glenn Lee, Batavia, Ill.

McNEILL CUP (high time regardless of age, FAI Power): Charles Markos, Deerfield, Ill.

EAA PLAQUES (best homebuilt Scale aircraft in categories indicated): FF, Tom Stark, Florissant, Mo.; CL, Ralph Burnstine, Danville, Ill.; RC, Bob Wischer, Delafield, Wisc.

1974 NATS SPONSORS

Approximately 800 awards were provided through the contributions of the following:

Ace Radio Control, Inc., Al's Hobby Shop, Am-broid Company, American Aircraft Modeler, Andrews Aircraft Model Co., Inc., Aristo-Craft Distinctive Miniatures, Competition Models, L.M. Cox Mfg. Co., Inc., Dumas Products, Inc., EK Products, Inc., Flying Models Magazine, Fox Motors, Chuck Gill Models, Inc., Carl Goldberg Models, Paul K. Guillow, Inc., Heath Company.

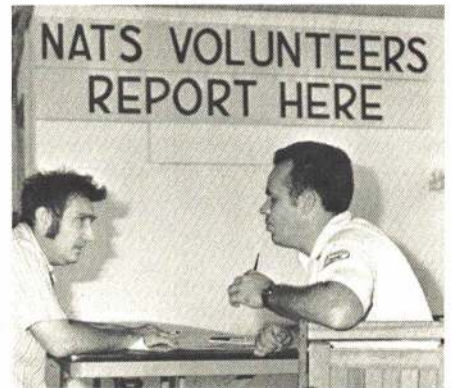
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Pettit Paint—Hobby Poxy, Progress Manufacturing Co., R/C Modeler Magazine, Ross Power, Semco Mufflers, Sig Manufacturing Co., Inc. Space Age Fuels, Sterling Models, Inc., Sullivan Products, Testor Corporation, Top Flite Models, Inc., Tornado Propellers, Leo A. Weiss, Williams Brothers, World Engines, 20/20 Graphics.

1974 NATS ENTRIES

No. of Entrants	Jr.	Sr.	Open	Total
Entries by Event	108	139	778	1025
Indoor High Ceiling				
HL Glider	10	17	25	52
Stick	5	7	16	28
Paper Stick	8	6	18	32
Cabin	1	4	5	10
FAI Stick	2	7	16	25
Indoor Low Ceiling				
Stick	3	6	14	23
Paper Stick	4	5	16	25
Cabin	2	4	5	11
FAI Stick	2	6	14	22
Easy B	8	5	17	30
HL Glider	14	17	37	68
Scale	2	2	10	14
Free Flight				
1/2A Gas	27	44	144	215
A Gas	21	39	144	204
B Gas	8	22	103	133
C Gas	6	20	96	122
FAI Power	6	12	55	73
Wakefield Rubber	0	3	20	23
Unlimited Rubber	12	10	37	59
Coupe d'Hiver	3	6	32	41
A-1 Towline Glider	17	16	49	82
A-2 Towline Glider	4	17	56	76
HL Glider	35	36	108	179
Rocket Power	6	6	41	53
Rubber Scale	2	2	17	21
Gas Scale	4	3	22	29
Peanut Scale	3	2	22	27
Payload	3	2	27	32
Cargo	1	2	12	15
Helicopter Cl. III	0	0	6	6

	Jr.	Sr.	Open	Total
Radio Control				
D Pattern Expert	0	6	66	72
D Pattern Novice	0	2	25	27
B Pattern	0	1	24	25
A Pattern	5	8	41	54
Scale Class I	0	0	12	12
Scale Class II	0	0	3	3
Sport Scale	0	0	33	33
Form. I Pylon	2	7	84	93
FAI Pylon	0	3	31	34
1/4 Midget Pylon	2	7	63	72
Task I Soaring	0	3	42	45
Control Line				
Scale Racing	18	14	64	96
Mouse Race Cl. II	9	13	63	85
Rat Racing	8	10	61	79
B Proto Speed	6	4	13	23
1/2A Profile Proto	23			23
1/2A Proto	11	7	16	34
FAI Speed	5	8	13	26
1/2A Speed	15	10	19	44
A Speed	8	7	22	37
B Speed	6	5	22	33
C Speed	8	7	19	34
Form. 40 Speed	7	3	20	30
Jet Speed	2	5	13	20
Stunt	6	10	51	67
Combat	13	24	93	130
FAI Combat	0	5	29	34
Slow Combat	9	13	57	79
FAI Team Race	0	0	8	8
Scale	7	2	8	17
Sport Scale	1	0	4	5
Navy Carrier I	1	0	12	13
Navy Carrier II	1	0	11	12
Profile Carrier	4	3	24	31
Dive Bomb & Strafing	0	2	5	7



Above Left: RC Pattern judges had to contend with the morning sun as did the flyers. Above Right: Ned Barnes (R) of the LARKS Club was in charge of volunteer official recruitment; here he's chatting with Bob Vojslavek concerning requirements for CL events of which Bob had overall charge. Below: All-gal tabulation crew, Yvonne Baker, Midge Olson (chief) and Lois Bigelow, did an outstanding job. Frank Nantais, behind, was statistician.





Clean Competition—The Soaring “Nats”

PRESIDENT'S MEMO

After watching the flying competition for a couple of hours I was so very impressed by how sparkling fresh and clean everybody looked! Everyone looked like they had just showered and put on fresh clothes. Was this actually a model airplane flying meet? Then it suddenly dawned on me why the competition looked so clean. There wasn't a drop of blood or oily fuel slopped on anyone! It was Radio-Controlled Glider Soaring.

This appearance of personal neatness about everyone was because this was a Sailplane Soaring meet, where there were no backfiring engines with razor sharp propellers and no oily fuel required to feed those engines. Of course if you are an RC Soaring flyer you are accustomed to this “sanitary” condition, but if you haven't before attended one of these great Soaring Nationals, the cleanliness and the quiet calm of everything comes as a bit of a pleasant shock.

One hundred and eighty-eight contestants came from twenty-two states to compete hopefully for the honors of winning in a national championship event and carrying home some of the prized “hardware.” And to coin a phrase, it was a “proud crowd” because nearly everyone there was wearing his local club insignia. Some wore shirts or jackets with the club emblem printed on the back or shoulder, or perhaps they were even embroidered. Some wore sewed-on “patches” or sported decals on equipment boxes and planes, but all expressed the pride of belonging to their local group and being identified with the sport of aeromodeling.

The championships were held on the airport grounds of Lewis University, with the excellent cooperation of the University. Lewis University is located near the city limits of Lockport, Ill., some 30 miles from Chicago. With the mentioned excellent cooperation from Lewis University, the meet was practically self-contained. The school's dormitories took care of the housing problems, and the cafeteria handled the meals and a handsome banquet. All of these fine accommodations were just a stone's throw from the flying site, and within easy walking distance.

I discovered that there is another great “plus” in Soaring with RC Sailplanes. There is no need for acres and acres of hard-to-find and hot-in-the-summertime concrete takeoff and landing area. Launch area problems in Soaring are as minimal as can be found in aeromodeling. You simply find the right size area, free of obstructions, then mow the grass, set up the portable launching winches, and away you go. It will be cool because grass or bare ground does not reflect the summer heat as does concrete.

Soaring with a winch-and-cable launch is a very *non-violent* activity, with power being used for only a few seconds, aimed *away* from the crowd, applied to only *one* model at a time, and all in such an atmosphere of quiet that it will never offend the neighbors.

How is a flying site like Lewis University Airport discovered? By some wideawake aeromodeler like Dan Pruss. Who is Dan Pruss? He



AMA President John Clemens, right, presented his own hand-crafted President's Achievement Award to Dave Burt during the 1974 RC Soaring Nats in recognition of Burt's organizational work in establishing the event as truly national. AAM photo by Bill Coons.

is a model Soaring enthusiast who has been one of the real developers of the art right from the start. He found the Lewis University site because he was hunting for a place to fly his own Sailplanes. He explained his problem to the authorities, got permission, and found it so ideal that he wanted to share his discovery with other Sailplanners. When Dan later approached the University about the possibility of holding a national meet there, the university reasoned that since they had aeronautical courses in their curriculum it would be excellent publicity at little investment. The marriage has been a happy one and should lead to a great future.

Each competition assumes it's own personality, and I enjoy seeking out the things that make it unique. This meet had cool weather, keen competition, paper sheets on the dorm beds, and watermelon to eat on the field. Have you ever slept on paper sheets? Don't snicker! In the interests of economy the dorm beds were furnished like that. They are fresh and personal and completely satisfactory as long as you don't toss around and wad them up. To avoid wadding them up I recommend that you simply fasten the corners down with masking tape. I even made some of my friends more comfortable with a foot or so of masking tape. I hope to have the masking tape concession at the next meet!

A welcome visitor to the meet was a Chicago hobby distributor, John Osborn of Midwest Model Supply, who appeared with a trailer loaded with cold watermelons. John cut the melons with a sharp machete and fed everybody in the place. It was a much appreciated gesture and added another bit of the unique to the Soaring Nats.

The competition itself was run so smoothly and so well that it could easily have been just taken for granted. All of the fun of flying was topped off with an excellent banquet put together by John Nielsen. Here the awards were given out, along with a zillion door prizes. At the banquet I had the privilege of giving my President's Achievement Award to hard working Dave Burt for the great amount of organizational work he has put in over the several years of getting the Soaring Championships to really soaring.

A symposium was held on the day after the meet, July 25th, where the final decisions were made to organize Radio Control Soaring under one national banner. The **National Soaring Society** was formed, with a hard working organizer, George Durney, as president. The avowed purpose of the new 1,000-member organization is the administrating and furthering of the sport of Radio Controlled Soaring, directed democratically by a president and a fifteen-member Board of Directors, offering representation in all of the eleven districts of our national governing body, the Academy of Model Aeronautics.

With a personal salute to “whisper flying,” I offer congratulations and best wishes from all of the Academy of Model Aeronautics membership to a proud new special interest organization, the **National Soaring Society**, and to the leaders who put the whole cloth together from so many fine threads!

John E. Clemens
AMA President



FREE FLIGHT OUTDOOR

1/2 A GAS

Junior	Seconds
1 Steven Spence	592
2 Andrew Barron	538
3 Eric Munger	499
4 Richard Colonna	478
5 Carl Linstrum	468
Senior	
1 Keven Hayes	685
2 Randy Secor	631
3 Gary Byrd	595
4 Robert Elder	538
5 Gerald Comp. Jr	524
Open	
1 Hulian Matthies	900
2 Harry Murphy	814
3 David Bevan	812
4 Gerald Comp	687
5 Gene Wicks	636

A GAS

Junior	Seconds
1 Matthew Simpson	537
2 Andrew Barron	519
3 Richard Colonna	502
4 Douglas Marsh	499
5 Jimmy Clem	470
Senior	
1 Randy Secor	1057
2 James Van Nest	538
3 John Dodson	533
4 Bob Scully	525
5 Thomas Riley	509
Open	
1 Hulian Matthies	1027
2 Bill Hunter	1022
3 Robert Hallum	955
4 Grady Turner	792
5 Raymond Johnson	791

B GAS

Junior	Seconds
1 James Coverdill	660
2 Fred Calhoun, Jr	540
3 Andrew Barron	522
4 Steve Calhoun	516
5 Douglas Marsh	341
Senior	
1 Randy Secor	687
2 Joseph Mekina	668
3 Gerald Comp. Jr	648
4 Ken Bauer	611
5 Bob Scully	600
Open	
1 Mark Heller	900
2 Hulian Matthies	875
3 Charles Markos	816
4 Raymond Johnson	749
5 Stan Chilton	720

C GAS

Junior	Seconds
1 Fred Calhoun, Jr	640
2 Bruce Mathews	444
3 Douglas Marsh	372
4 Steve Calhoun	307
Senior	
1 Ran St. Clair	708
2 Larry McFarland	678
3 Robert Dunham II	657
4 Randy Secor	540
5 Bob Scully	509
Open	
1 Sai Taibi	976
2 Ralph Feazel	900
3 Hulian Matthies	837
4 Gerald Comp	823
5 Bryton Barron	811

FAI POWER

Junior	Seconds
1 Douglas Marsh	845
2 Andrew Barron	673
3 Bruce Mathews	554
4 James Coverdill	354
5 Steve Calhoun	180
Senior	
1 Larry McFarland	719
2 Tom Scully	670
3 Robert Dunham II	597
4 Robert Coverdill	571
5 Randy Secor	491
Open	
1 Charles Markos	900
2 Billy Chenault	885
3 Tom McLaughlan	883
4 Bryton Barron	875
5 Bill Hunter	863

PAYLOAD

Junior	Seconds
1 Gregory Mills	131
2 Daniel Murphy	8
Senior	
1 Chris Hotz	3
Open	
1 George Pharr	437
2 Harry Murphy	423
3 Mike Fedor	380
4 Clayton Hornbeck	365
5 David Rounsaville	362

CARGO

Junior	Grams
1 Gregory Mills	406
Senior	
1 James Whitman	552
Open	
1 Mike Ransom	1316
2 Donald Monson	1200
3 Martin Richardson	1030

HELICOPTER CL III

Junior	Points
No flights recorded.	
Senior	
No flights recorded.	
Open	
1 Glenn Lee	122.7
2 Herbert Jordan	20.0

ROCKET POWER

Junior	Seconds
1 Gregory Mills	222
2 James Damare	82
3 Andrew Barron	69
4 Fred Calhoun, Jr	60
5 Douglas Marsh	4
Senior	
1 Joseph Mekina	102
2 Mark Wood	12
Open	
1 Charles Markos	481
2 William Jenkins	449
3 Jim Bradley II	417
4 Lee Campbell	407
5 Rudy Kluber	342

WAKEFIELD RUBBER

Junior	Seconds
No flights recorded.	
Senior	
1 Robert Dunham II	517
2 Keith Gordey	459
Open	
1 Fred Pearce	1052
2 Robert Lipori	1033
3 Robert Dunham	864
4 Dale Hornish	808
5 George Perryman	740

COUPE D'HIVER

Jr.-Sr. Combined	Seconds
1 Ken Bauer	519
2 Keith Gordey	275
3 Stephanie Perryman	253
4 James Van Nest	213
5 Jim Watson	198
Open	
1 James Lewis	562
2 Robert Lipori	546
3 James Clark	517
4 James Scarborough	422
5 Mark Valerius	410

UNLIMITED RUBBER

Junior	Seconds
1 Flaxen Johnson	383
2 Jon Watson	239
3 Jim Watson	228
4 David Watson	196
5 Greg Mills	156
Senior	
1 Randy Secor	518
2 Joseph Mekina	460
3 Bob Scully	429
4 Robert Dunham II	410
5 Ken Bauer	345
Open	
1 James Lewis	720
2 Robert Dunham	537
3 Fred Pearce	528
4 Mark Valerius	521
5 Martin Richardson	511

A-1 TOWLINE

Junior	Seconds
1 Bruce Mathews	654
2 Barry Pailet	584
3 Steven Spence	556
4 Andrew Barron	495
5 Matthew Simpson	442
Senior	
1 Randy Secor	866
2 Robert Elder	655
3 Joseph Mekina	650
4 Gerald Comp. Jr	644
5 James Van Nest	631
Open	
1 Jim Haught	832
2 Mike Ransom	734
3 Blaine Miller	700
4 William Jenkins	693
5 Lee Campbell	678

A-2 TOWLINE

Junior	Seconds
1 Douglas Marsh	540
2 Bruce Mathews	513
3 Carl Linstrum	214
4 Jon Watson	126
Senior	
1 James Van Nest	732
2 Randy Secor	611
3 Robert Elder	550
4 Mark Wood	524
5 Larry McFarland	499
Open	
1 Finn Bjerre	792
2 Frank Parmenter	754
3 James Lewis	744
4 Charles Markos	741
5 Jim Bradley	708

HL GLIDER

Junior	Seconds
1 John Dougherty	194
2 Tommy Giertz	188
3 Guy Larsen	173
4 James Bayly	164
5 Andrew Barron	140
Senior	
1 Michael Stoy	341
2 Gerald Comp	325
3 Joseph Mekina	245
4 Stephen Robbins	238
5 Robert Dunham II	218
Open	
1 James Lewis	336
2 William Jenkins	334
3 Victor Nippert	298
4 Glenn Lee	297
5 John Singer	290



Above: Dr. John Martin took 3rd in Indoor Scale with his Stahlwerke RII. Below: Carl Linstrum, 6-1/2, is a good flyer—3rd in A-2.



RADIO CONTROL A PATTERN

D PATTERN EXPERT

Jr.-Sr.-Open	Points
1 Rhett Miller	14700
2 Jim Whitley	14295
3 Bill Salkowski	14210
4 Jim Martin	14205
5 Dave Brown	14150
6 Mike Mueller	14070
7 Steve Buck	13715
8 Steven Ellison	13710
9 Norm Page	13610
10 Steve Helms	13530
11 Don Lowe	13405
12 Phil Kraft	13400
13 Al Dupler	12960
14 Ron Chidgey	12960
15 Jim Osborne	12960
16 Ed Keck	12960
17 Tony Bonetti	12950
18 Jim Odden	12900
19 Wayne Abernethy	12885
20 Bob Smith	12650
Best Senior	
Rhett Miller	14700

D PATTERN NOVICE

Jr.-Sr.-Open	Points
1 Michael Stokes	4365
2 Thomas Walker	4300
3 James Vanderwalker	4290
4 Rusty VanBaren	4235
5 William Lippincott	4190

B PATTERN

Jr.-Sr.-Open	Points
1 Tony Howze	516
2 J E Hogan	505
3 William Constant	497
4 Dale Adam	488
5 Thomas Golsen	465
Best Senior	
Tony Howze	516

Jr.-Sr.-Open

1 Terry Nitsch	577
2 Gregory Kieliszek	551
3 Bob Williams	536
4 Merle Hyde	527
5 Duane Reetz	526
Best Senior	
Clifford Hiatt	469
Best Junior	
Bill Rutledge	523

FORMULA I PYLON

Jr.-Sr.-Open	Points
1 Gale Helms	26
2 William Preis	25
3 Larry Leonard	25
4 L K Nogy	24
5 Dan McCan	24
6 Jim Martin	24
7 Jimmie Witt	23
8 Harold Coleson	23
9 Jim Maki	23
10 Whit Stockwell	23
11 Steve Sica	22
12 Steve Ellison	22
13 Ronald Schorr	22
14 J. R. Bertken	22
15 Kenji Nakamura	21
16 Marvin Kowalewski	21
17 Edward Rankin	20
18 Charles Shaw	20
19 Thomas Pownall	20
20 Gregory Doe	20
Best Junior	
Steve Sica	
Best Senior	
Jim Nickles	

FAI PYLON

Jr.-Sr.-Open	Points
1 Kent Nogy	28
2 Walter Riess	28
3 Thomas Pownall	25
4 Ron Schorr	22

Points	Junior
577	Larry Leonard
551	Adam Sattler
536	Jim Stegall
527	Robert Brogdon
526	Jim Booker
526	George Zautner
526	Cliff Telford
526	Steve Ellison
526	William Williamson
526	Bill Helms
523	Robert Reuther III
523	Charles Brunner
523	Tom Baker
523	Manuel Sierra
523	Arthur Arro
523	Larry Jolly

QUARTER MIDGET PYLON

Jr.-Sr.-Open	Points
1 Tom Baker	19.0
2 Austin Leftwich	16.0
3 Danny Dougherty	15.5
4 Robert Reuther	15.0
5 Dave Pearce	13.0
Best Junior	
Steve Sica	
Best Senior	
Anthony Galicia	

RC SOARING

Open Class Glider (J-S-O)	Points
1 Cecil Haga	2985
2 Gary Gibbs	2836
3 Ken Cashion	2655
4 Ronald Vick	2618
5 John Gunsallus	2498
Standard Class Glider (J-S-O)	
1 Claude Frost	1996
2 Paul King	1668
3 Louis Faerman	1666
4 William Williamson	1639
5 Bill Weesner	1614
Best Senior	
Richard Wilson	846



Above: Dick McGraw's RC Sailplane was the Windfree. Below: The Akro Star was Mark Sadler's entry in RC Sport Scale.



Doug Stout, a Senior CL Stunt entrant, flew his own design airplane to second place.

Behind the Scenes

(continued from page AMA 1)

in particular, even though they had some retrieving problems, were a much happier group than they had been at Oshkosh the year before. Control Liners and Radio Controllers also were generally happy. RC Formula I and FAI Pylon Racing people praised their site as the best yet.

It wasn't all rosy, but it obviously was pretty good for most people. It was the easiest Nats ever for getting around. There were so few restricted areas that most people could simply drive wherever they wanted to go at any time. There weren't any restricted hours of operation either. Although contestant and official bumper stickers for cars were issued, to distinguish them from general public vehicles, they weren't really necessary. Control Line and Free Flight test and fun flying went on constantly—flyers could simply find their own part of the field to fly on, without anyone telling them they couldn't do this or that. Free Flight retrieval had the greatest freedom ever at a Nats for cars or motor bikes. Obviously, there was lots of room—so much so that RC officials had problems deciding where to fly from!

One of the disappointments was the lack of help for many events. Only about half of those who had previously volunteered to work at the Nats actually showed. This made it harder for those who did come. The new events especially felt the pinch. RC Quarter Midget and also Thermal Soaring managed, but just barely. However, although these were brand new to the Nats, they ended up successfully. The other RC events did better with manpower, but CL events

also shared the lack of personnel. In general, it was a case of too few doing too much, but the job did get done and happily for most contestants.

The weather turned out to be different from what most people expected. Sometimes it got as hot and humid as had been feared. But there was nowhere near as much of this as had been anticipated. The first week of the Nats, in fact, was comparatively mild. There were some whopping rain storms, but none of these lasted long enough to seriously hurt the flying schedule. Evening hours were also available when schedules had to be stretched to make up for weather interruptions. Free Flight Scale, however, had its usual luck of too much wind. It doesn't seem to matter when and where FF Scale is scheduled; wind has plagued this event for several years in a row.

Most amazing was the localization of the rain. It often showered on one part of the field without bothering other parts. During the Sunday afternoon air show, for example, it rained only on the show—two hundred yards away Control Line Stunt finalists continued uninterrupted, and about a mile and a half away (still on the same airfield!) RC Scale didn't get any rain at all. Likewise, on the final day, RC Pattern didn't get any rain while the HQ hangar area was drenched. The net effect of the rain pattern was the development of a general attitude of ignoring the rain or simply waiting for it to go away.

Indoor events went on for four straight days (and nights) from 9 am to 9 pm, but split between two widely separated sites: high ceiling at Spring, Texas (near Houston), and low ceil-

ing at Lake Charles. Both sites were enjoyed, but the consensus seemed to be that only one site was necessary and there was lots of pro and con regarding both.

The Goodyear hangar in Texas was a good first-time Nats Indoor site as was the Civic Center in Lake Charles. Apparently, however, the Goodyear site was not enough higher to justify the extra travel distance, especially since the smooth but lower-ceilinged Civic Center made the latter equivalent to a higher building. Regardless, there was more Indoor flying scheduled than ever before, so there were not many complaints.

Talk of snakes prevailed, but there were few to be found and no cases of snake bite were reported. The real problem turned out to be red ants. Many people got ant bites, and a few required shots of penicillin at the local hospital when severe swelling developed. But that was the most serious problem. The most pleasant surprise was the lack of mosquitoes in what should be prime breeding country for these pests. The evenings were particularly bug free—even the concentration of lights in the headquarters hangar area didn't cause any bug problems. Evenings were generally pleasant.

Enough contestants came to wipe out the worries about numbers—over a thousand, plus hundreds of mechanics, family members, and helpers. They filled all the area motels and all the available college dormitory space in five separate buildings. The only lack of people involved campers—there were some but not as many as had been expected.

Because activities were spread out so much



First of the 1974 Hall of Fame awards was presented to Sal Taibi during the Nats Old-Timer Banquet. Shown (L-R): Taibi, President John Clemens, and John Pond, banquet organizer.

INDOOR

STICK—HIGH CEILING

Junior	Min./Sec.
1 Jimmy Clem	14 44.6
2 Dan Brown	11 40.5
3 Carl Linstrum	2 59.0

Senior	19 18.9
2	16 04.0
3	9 47.5
Open	
1 Bud Tenny	19 16.2
2 Dan Domina	19 08.6
3 Stan Chilton	19 00.0
4 Steve Brown	18 39.9
5 Howard Haupt	16 34.0

FAI STICK—HIGH CEILING

Junior	Min./Sec.
1 Jimmy Clem	26.47
2 Dan Brown	26.04

Senior	45 39
2	35 14
3	27 21
Open	
1 Rudy Kluber	126.7
2 Mike Fedor	121.1

Open	
1 Stan Chilton	47 34
2 Dan Domina	38 19
3 Charles Markos	38 01
4 Steve Brown	37 45
5 Jesse Shepherd	35 42

PAPER STICK—HIGH CEILING

Junior	Min./Sec.
1 Dan Brown	13 28.9
2 Jimmy Clem	11 08.2
3 Donielle St. Clair	3 49.5

Senior	14 46.6
2	13 08.7
3	12 12.5
Open	
1 Robert Randolph	18 06.0
2 Stan Chilton	17 30.4
3 Richard Doig	16 51.5
4 Charles Markos	16 45.5
5 Howard Haupt	16 06.4

CABIN—HIGH CEILING

Junior	Min./Sec.
1 Dan Brown	2 21.8

Senior	12 11.3
2	9 30.4
3	8 50.5
Open	
Anthony Schott	8 37.8

HL GLIDER—HIGH CEILING

Junior	Seconds
1 Jimmy Clem	93.2
2 Matthew Simpson	87.2
3 James Bayly	83.8
4 Dan Brown	59.3
5 Tommy Giertz	53.2

Senior	121.0
2	118.1
3	108.2
4	108.0
5	104.9
Open	
1 Rudy Kluber	126.7
2 Mike Fedor	121.1

3 Jim Haught	110.4
4 Mike Ransom	109.4
5 Phillip Sullivan	106.3

STICK—LOW CEILING

Junior	Min./Sec.
1 Dan Brown	15 37.8
2 Jimmy Clem	12 54.0

Senior	14 12.2
2	11 39.0
3	8 36.7
Open	
1 Robert Randolph	20 02.8
2 Dan Domina	20 02.3
3 Steve Brown	17 51.1
4 Richard Hardcastle	17 26.1
5 Roman Szymula	16 51.1

FAI STICK—LOW CEILING

Junior	Min./Sec.
1 Dan Brown	27.17
2 Jimmy Clem	21.37

Senior	28.28
2	27.01
3	22.58
Open	
1 Dan Domina	44.27
2 Robert Dunham	33.29
3 Steve Brown	32.47
4 Charles Sotich	29.56
5 Richard Hardcastle	29.38

PAPER STICK—LOW CEILING

Junior	Min./Sec.
1 Dan Brown	15 32.2
2 Jimmy Clem	10 47.5
3 Barry Pailet	7 53.8

Senior	11 37.6
2	11 08.0
3	9 16.0
Open	
1 Robert Randolph	14 51.2
2 Daniel Belieff	14 39.2
3 Dan Domina	14 31.0
4 Charles Sotich	13 38.9
5 Charles Markos	13 30.0

EASY B—LOW CEILING

Junior	Min./Sec.
1 Jimmy Clem	5 52.8
2 Donielle St. Clair	2 28.0
3 Jim St. Clair	1 28.9

Senior	8 09.0
2	6 32.7
3	6 00.0
Open	
1 Richard Hardcastle	11 39.2
2 Stan Chilton	10 28.5
3 Allan Vollmer	10 08.0
4 Mark Valerius	9 23.1
5 Rolfe Gregory	9 02.4

CABIN—LOW CEILING

Junior	Min./Sec.
1 Barry Pailet	5 35.5
2 Dan Brown	5 28.6

Senior	9 31.7
2	8 08.8
3	5 56.7
Open	
1 Robert Randolph	12 50.7
2 Anthony Schott	10 40.2

HL GLIDER—LOW CEILING

Junior	Seconds
1 Tommy Giertz	81.6
2 Guy Larsen	80.1
3 Barry Pailet	76.6
4 James Bayly	76.6
5 Douglas Marsh	66.2

Senior	92.2
2	90.4
3	80.1
4	79.3
5	77.0
Open	
1 Rudy Kluber	100.6
2 Dan Domina	97.1
3 Paul Shalior	95.8
4 Richard Doig	92.6
5 Charles Markos	90.6

over the huge airfield, the usual crowded Nats atmosphere was missing. It wasn't really a lack of people—they were simply scattered. Combat for example, was located far away from the other Control Line events in order to use a better grass area. The RC, CL, and FF areas were actually completely out of sight of each other during much of the Nats.

The college dorms were especially great. The air-conditioning was actually overdone, and the use of blankets was common until thermostats got adjusted to provide *less* cooling! The college cafeteria was not available for meals, but there were enough other good and reasonably priced eating places to minimize the food problem. Also helping the eating situation was a large variety of food concessions in the airfield hangar. Besides the usual hot dogs, hamburgers, and soft drinks, there was pizza, soft ice cream, watermelon, roast beef, iced tea, coffee, and other pleasantly unique food items for a Nats.

Contributing to the generally happy mood that prevailed during the Nats was the genuinely hospitable community spirit. It was constantly plain that Nats contestants and officials were welcome everywhere. Those staying in motels often commented on the friendly atmosphere toward AMA people. Similarly, those in the dorms frequently praised the cooperation and helpfulness of college personnel.

The climax of this spirit came during a special session of the Lake Charles City Council when the AMA president and the executive director were presented keys to the city and were made honorary citizens. Other gifts were presented during the Sunday air show, including a pair of the governor's cuff links given to the AMA president. No doubt about it—Lake

Charles people were happy to have us there. They even had billboards at the east and west entrances to the city welcoming AMA and the Nats to Lake Charles.

But maybe there's too much of a good thing. Well into the second week of the Nats some of the officials were really dragging. For some who had been on hand since a week before the Nats began, it was a very long operation. However, this didn't seem to be the basic problem with the long Nats. Rather it was the lonely ending caused by the nature of the schedule.

Free Flight ended after only five days, and so did Control Line except for Slow Combat which provided a sixth day. But RC, including the unofficial Helicopter event, went on for twelve straight days! Included for the first time was Quarter Midget Pylon Racing and two classes of Thermal Soaring. But making room for these required Pattern to go into the second week. Originally, AMA RC Scale was supposed to share part of the second week with RC Pattern, but when only a few AMA Scale entries appeared it was decided to run them off on the same day (Sunday) as RC Sport Scale. This left Pattern all alone for the last four days to finish up the Nats, and there were gripes about Pattern being isolated and ignored.

Contributing to the feeling was the field clean-up going on while Pattern was all alone during the second week; most of the headquarters' staff had gone back to Washington, and most concessions were closed down. Some RCers even mentioned missing seeing CL and FF flying; in contrast to other years when most of them ignored any other event besides their own.

As a result of this lonely second week, some new thinking is currently going on concerning

next year's schedule. Most likely is a slow start-up with simultaneous finish for all events rather than this year's tapering off. Chalk up the experience to an experiment that solved some problems but created others.

The 1974 schedule also made it awkward to find a natural time for the usual Nats RC banquet. Pylon ended on Saturday, but Pattern didn't start until the following Monday. There was also transmitter processing for Pattern and Scale on Saturday and Sunday nights. So the RC banquet gave way to a general Nats banquet on Saturday night. It was fairly successful and indicated that such a banquet would be a good thing for future Nats, but a better schedule has to be worked out to prevent the lack of RC participation.

A spectacular sight on the first Tuesday night was the processing hangar. In addition to the usual Free Flight and Control Line model processing, there were 115 RC Pylon models being measured and judged! The hangar was absolutely jammed with people and models. It all went very smoothly, but it was a long night—the RC processing went on until one am Wednesday morning. It was another problem with the new schedule that caused the crowding—not desirable, but it added some special flavor to the Nats (the one time that everybody seemed to be at the same place at the same time) and most everyone stayed cheerful through the long night.

Throughout the Nats a special group of people kept things under control and earned tremendous praise and respect. These were the people who were behind the bid to have the Nats at Lake Charles, and they followed up by providing a fantastic amount of backup support before, during, and after the 1974 Nats. Ap-

SCALE

RC AMA CLASS I

Junior
No flights recorded.

Senior
No flights recorded.

Open	Points
1 Dan McCan	685.0
Shrike Aero Commander	
2 Larry Smith	609.5
Zin	
3 Raymond Colelli	537.5
Fokker DVII	
4 Don Neill	520.0
5 Robert Underwood	515.0

RC FLIGHT ACHIEVEMENT

Robert Underwood
Alcor C61

RC AMA CLASS II

Junior
No flights recorded.

Senior
No flights recorded.

Open	Points
1 Robert Wischer	794.5
Emeraude	
2 Claude McCullough	738.0
Shinn 2150A	
3 Charlie Viosca	486.0
J-3 Cub	

RC SPORT

Jr.-Sr.-Open	Points
1 Dave Platt	179.5
F W 190 D-9	
2 Dan Santick	161.5
P-47	
3 Don Coleman	163.0
Wagner Acrostar	
4 Gerald Nelson	159.5
Pitts Special S15	
5 John Alexander	158.5
P-38	

CL AMA

Junior	Points
1 Bruce Mathews	307
Volkspane	
2 Tom Fluker	174
Bearcat	
Senior	Points
1 Cathy Burnstine	364
Thorp T-18	
2 Daniel Arheiger	226
Spirit of St. Louis	
Open	Points
1 Ernie Violet	483
DeHavilland Comet	
2 Mike Stott	466
Meyer 145	
3 H R Burnstine	438
Thorp T-18	
4 Thomas Fluker	402
5 William Rutherford	323

CL SPORT

Jr.-Sr.-Open	Points
1 Mike Stott	172
F-7-F Tiger Cat	
2 Lew McFarland	166
Spinks Akromaster	

FF OUTDOOR PEANUT

Junior	Seconds
1 Norman Read	32.1
Piper Vagabond	
2 Guy Larsen	25.7
Pietenpol Aircamper	
Senior	Seconds
No flights recorded.	
Open	Points
1 Frederick Stark	233.6
Heinkel HE 119A	
2 Ted Dock	205.0
Piper Vagabond	
3 John Martin	99.5
R M 9 Romanian Lightplane	
4 Bill Caldwell	83.5
5 Douglas Holland	73.6

FF OUTDOOR GAS

Jr.-Sr.	Points
1 Scott Gesner	416
Piper J-3 Cub	
2 Bruce Mathews	327
Loening M-8	
3 Fred Calhoun, Jr	310
Skyfarer	
Open	Points
1 Frederick Stark	606
Loening M-8	
2 Victor Nippert	381
Porterfield Collegiate	
3 Gene Simpson	363
Fokker EIII	
4 Lee Webster	329
5 Victor Larsen	313

FF OUTDOOR RUBBER

Jr.-Sr.	Points
1 Fred Calhoun, Jr	60.25
Skyfarer	
Open	Points
1 Frederick Stark	145.75
Wittman Tailwind	
2 Andrew MacIsaac	114.50
Iroh Eaglet	
3 Ralph Kuenz	89.55
Grumman Wildcat	
4 William Wargo	42.75
5 John Martin	31.50

INDOOR AMA LOW CEILING

Junior	Points
1 Barry Pallet	89
Helio Courier	
Senior	Points
No flights recorded.	
Open	Points
1 Frederick Stark	139.9
Monocoupe 90AL	
2 Charles Markos	135.5
Westland Widgeon	
3 John Martin, Jr	120.4
Stahlwerke RII	
4 Andrew MacIsaac	111.9
5 Charlie Sotich	101.0



Above: RC Pylon processing and judging crews (here shown checking FAI specs) worked into the wee hours of the morning to handle the many entries. Below: Signs shown are just two of many which welcomed the National Contest and AMA member participants.



proximately twenty members (and wives) of the Lake Area Radio Kontrol Society (L.A.R.K.S.) worked constantly to keep many details of the Nats operating. They painted all the circles on the airfield, emptied trash barrels, provided water and ice to events, acted as timers, flagmen, and other officials, transported equipment all over the field, posted signs, put up tents, mowed grass, loaded and unloaded trucks and trailers, repaired and assembled Nats gear, installed air-conditioners in the headquarters offices, made electrical hookups for events and concessions, swept floors, installed over two miles of field telephone wire, roped off and barricaded thousands of feet of the airfield, erected the Scale and trophy cages and shelving (then disassembled same), unpacked over 800 trophies, and much more.

Blue-shirted LARKS were everywhere all the time. Some took two and three week vacations from their jobs and used all of it for Nats work. They were on hand by eight each morning and typically worked until eight each night. The effort was so outstanding that AMA's Executive Council voted the LARKS the AMA Distinguished Service Award. Nats Executive Committee members also noted that the LARKS provided the greatest local area Nats support effort ever seen—an incredible and marvelous example of how an AMA chartered club can contribute to an event such as the Nats.

The LARKS effort is a strong factor favoring a return of the Nats to Lake Charles for 1975. This, plus the excellent (and huge) Chennault Airfield, the great hotel and dormitory facilities, the very favorable community backing, makes the Lake Charles package a difficult combination to beat. Backers note that 1975 conditions will be even better—many wooded and heavily shrubbed areas of the airfield will be cleared, buildings and grounds are to be improved, two more motels will be available, a new interstate highway right to the airfield will be open.

Meanwhile, even though the second week's weather produced several days of the extreme heat and humidity that had been dreaded, many RC Pattern flyers noted that the conditions, otherwise, were near perfect—still air most of the time for precise maneuvering. The event—and the Nats—ended with calm and relatively cool weather for trophy awards on the airfield; it was a peaceful twilight evening with many people saying they would be happy to come back again next year.

It was a great Nats, mostly a smooth running and happy one. The rough spots were comparatively minor, especially considering that this was only the second Nats in over 25 years to be organized and operated by AMA on its own: a grand achievement. With a better field layout and schedule to blend rather than isolate events, the 1975 Nats should be the one which proves that AMA can do even better.



Sign on AMA trailer is similar to others displayed at the main gateways to Lake Charles.

Contest Calendar

Official Sanctioned Contests of the Academy of Model Aeronautics

Note: For quick response and as a favor to those staging, administering and directing the contest, be certain to send a stamped, self-addressed envelope along with your request to the listed Contest Director (CD) for additional information.

Oct. 5-6—Chicago, Ill. (AA) C.P.C. Regional RC Championships Site: SAC Field. A. Zinkel CD. 406 Strieff Ln. Glenwood, Ill. 60425 Sponsor: Chicago Pylon Club

Oct. 5-6—Van Nuys, Calif. (AA) Silver 25th Annual Anniversary Scale Contest Site: Sepulveda Basin C. Hatrak CD. 3825 W. 144th St. Hawthorne, Calif. 90250 Sponsor: Rockwell Int'l Flightmasters

Oct. 5-6—San Diego, Calif. (AA) M.B.P.T. 6th Annual West Coast CL Championships Site: North Island N.A.S. J. Peterson CD. 1605 Borana St. San Diego, Calif. 92111. Sponsor: Mission Bay Prop Twisters

Oct. 5-6—Honolulu, Hi. (AA) 6th Annual 50th State RC Championships Site: Bellows Air Force Station T. Welden CD. 838 Kaahue St. Honolulu, Hi. 96825 Sponsor: Kapiolani RC Club

Oct. 5-6—Spokane, Wash. (A) October RC Fest Site: Shaw School C. Mink CD. E. 8408 Bridgeport. Spokane, Wash. 99204 Sponsor: Barons Model Club

Oct. 5-6—Albuquerque, N.M. (AA) SWAT 10th Annual FF Meet Site: Academy J. Bicknell CD. 12329 Princess Jean. NE. Albuquerque, N.M. 87112. Sponsor: South West Aero Team

Oct. 5-6—Winston-Salem, N.C. 1974 RC Fallies Site: Winston-Salem C. Holland CD. 3517 Fernwood Dr. Raleigh, N.C. 27612. Sponsor: W.S.R.C.

Oct. 6—Sacramento, Calif. (AA) 6th Northern Calif. FF Council Contest Site: Sacramento W. Ghio CD. 329 Redondo Ct. Stockton, Calif. 95207. Sponsor: Stockton Gas Model Association

Oct. 6—Salem, Ohio (A) RC Short Circuits Soarama Site: Quaker City Drag Strip J. Marshall CD. RD #5. Lisbon, Ohio 44432. Sponsor: RC Short Circuits Inc.

Oct. 6—Mesquite, Tex. (A) Southwest 1/4 Midget Championships Site: Samuels Park East R. Lewis CD. 207 Leda Dr. Dallas, Tex. 75218. Sponsor: Dallas RC Club

Oct. 6—Wyandotte, Mich. (B) Indian City Fun Fly Site: Wyandotte E. Lynn CD. 3167—22nd. Wyandotte, Mich. 48192. Sponsor: Indian City RC Club Inc.

Oct. 6—Nashville, Tenn. (AA) Nashville FF Jamboree Site: Nashville D. Stewart CD. 128 8th Ave. S. Nashville, Tenn. 37203. Sponsor: Nashville FF Society

Oct. 6—Memphis, Tenn. (AA) Volunteer State Super Meet Site: McKellar Park L. Goldsmith CD. 4086 Viscount Ave. Memphis, Tenn. 38118. Sponsor: Memphis Prop Busters MAC

Oct. 6—Columbus, Ohio (A) Fall Fun Fly Site: Lockbourne AFB J. Everett CD. 4661 Larkhall Ln. Columbus, Ohio 43229. Sponsor: Capital City Controllers

Oct. 6—Lincoln Park, N.J. (A) 16th Annual Model Air Show Site: Club Field G. Kalinowski CD. 39-13 Wrenonah Dr. Fair Lawn, N.J. 07410. Sponsor: Garden State Circle Burners, Inc.

Oct. 6—Indianapolis, Ind. (AA) Octoberfest Third Annual Meet Site: Castleton Square B. Ash CD. c/o Paul Hoffman 8637 Skyway Dr. Indianapolis, Ind. 46219. Sponsor: Indy Sportlines

Oct. 6—Durham, Conn. (A) Flying Aces Club Fall Meet Site: Durham Meadows R. Thompson CD. Hat Shop Hill. Bridgewater Conn. 06752. Sponsor: Flying Aces Club

Oct. 6—Piscataway, N.J. (AA) Central Jersey 1974 Eastern States RC Championships Site: Rutgers University Practice Field E. Shulman CD. 1114 Raritan Rd. Clark, N.J. 07066. Sponsor: Central Jersey RC Club

Oct. 6—Yorba Linda, Calif. (A) Quickie 500 RC Race Site: Yorba Linda Water Site F. Hever CD. 10226 Homage. Whittier Calif. 90604. Sponsor: RC Bee's Orange Country

Oct. 6—Shawnee Mission, Kans. (A) Mid-America Miniature RC Pylon Races Site: Shawnee Mission Park C. Perkins CD. 5009 W. 67th St. Prairie Village Kans. 66208. Sponsor: Shawnee Mission RC Club

Oct. 6—Webster, N.Y. Rochester Aero Modeling Society Fly for Fun Site: Webster J. O'Brien Jr. CD. 570 Denise Rd. Rochester, N.Y. 14616. Sponsor: Rochester Aero Modeling Society

Oct. 12—Omaha, Neb. (A) M.A.S.S. Monthly Soaring Meet Site: The Grass Pad J. Simpson CD. 2686 Forbes. Omaha, Neb. 68123

Oct. 12-13—Waggaman, La. (AA) 13th Annual CC RC Fall Carnival Site: Waggaman S. John CD. PO Box 7153. Metairie, La. 70011

Oct. 12-13—Monroe, N.C. (AA) MR/CC Air Races Site: Monroe RC Club B. Helms CD. 800 Tyvola Rd. Charlotte, N.C. 28210. Sponsor: Monroe RC Club

Oct. 12-13—Summerville, SC (AA) Charleston RC Society Pattern Site: Hwy 78 D. Martin CD. 4 Constellation Dr. Charleston Hgts. SC 29405. Sponsor: Charleston RC Society

Oct. 12-13—Abilene, Tex. (AA) Abilene RC Annual Site: Sea-Bee Park R. Howard CD. Rt. #4. Box 190. Abilene, Tex. 79601. Sponsor: Abilene RC

Oct. 12-13—Elsinore, Calif. (AA) Max Men Annual FF (Cat. II) Meet Site: Lake Elsinore T. Hutchinson CD. 10726 Arrowwood Temple City, Calif. Sponsor: Max Men of Southern California

Oct. 12-13—Galeville, N.Y. (AA) Skyscrapers FAI FF Challenge Site: Galeville F. Tartaglia CD. 58 Dollard Dr. N. Babylon, N.Y. 11703. Sponsor: Brooklyn Sky Scrapers

Oct. 12-13—Nashville, Tenn. (A) Fall 1/4 Midget Rally Site: Percy Warner Park W. Sweeney CD. 3924 Plantation Dr. Hermitage, Tenn. 37076. Sponsor: Middle Tennessee RC Society

Oct. 12-13—Salina, Kans. (A) SAFE District RC Championship Meet Site: Old City Airport Salina D. Moden CD. 410 Hart Salina Kans. 67401. Sponsor: Salina Accurate Flying Eagles

Oct. 13—El Paso, Tex. (AA) 1st Annual El Paso RC Glider Contest Site: Burnett Field R. Brown CD. 9624 Albacore. El Paso, Tex. 79924. Sponsor: El Paso RCers

Oct. 13—Sepulveda, Calif. (A) San Vaalers FF Monthly Site: Sepulveda B. Hunter CD. 10701 Sharp Ave. Mission Hills, Calif. 91340. Sponsor: San Vaalers M.A.C.

Oct. 13—Gainesville, Fla. (A) Flying Gators Sailplane Contest Site: Club Field R. Schofield CD. 4138 NW 33rd Place. Gainesville, Fla. 32601. Sponsor: Flying Gators MAC

Oct. 13—Orange, Mass. (A) NERCAM Frost Bite Fly-In Site: Orange Airport. W. Army CD. 15 Rhodes St. Millbury Mass. 01527. Sponsor: New England RC Modelers

Oct. 13—Texas (AA) Annual FF Meet Site: Pending W. McCormick CD. 3800 Shellbrook. Ft. Worth, Tex. 76109. Sponsor: Ft. Worth Planesmen

Oct. 13—Portland, Ind. (AA) C.I.A. Fall FF Meet Site: Portland H. Murphy CD. 3824 Oakwood Blvd. Anderson, Ind. 46011. Sponsor: Central Indiana Aeromodellers

Oct. 13—Lincoln Park, N.J. (AA) 16th Annual CL Model Air Show Site: G.S.C.B. club field J. Miske CD. 415 Clifton Blvd. Clifton, N.J. 07013. Sponsor: Garden State Circle Burners, Inc.

Oct. 13—Curles Neck, Va. (AA) Brainbusters Fall FF (Cat. II) Bash Site: Curles Neck. A. VanDerDor. 120 Tileron Dr. Newport News, Va. 23602. Sponsor: Brainbusters M.A.C.

Oct. 13—Visalia, Calif. (A) Sky Kings FF (Cat. II) Meet Site: Manzanillo Ranch. E. Souza CD. 514 A S. Bridge St. Visalia, Calif. 93277. Sponsor: Sky Kings

Oct. 13—Greenville, S.C. WCRF Fun Fly Site: WCRF Field W. Andrews CD. 8 Sutton Dr. Taylors, S.C. 29687. Sponsor: W.C.R.C.

Oct. 13—Ft. Lewis, Wash. (AA) Fifth Annual FF (Cat. III) Power Bash Site: Harts Lake Prairie H. Smith CD. 1417 NW 191st. Seattle, Wash. 98177. Sponsor: Boeing Charter Hawks

Oct. 19-20—Bedford, Mass. RC Helicopter Symposium 1974 Site: Hanscomb Field. B. Fish CD. 17 Salmi Rd., Frammingham, Mass. Sponsor: Charles River Radio Controllers

Oct. 19-20—Phoenix, Ariz. (AA) 4th Annual FF Arizona State Championships Site: Phoenix. E. Raphael CD. 3622 W. Brown. Phoenix, Ariz. 85021

Oct. 19-20—Oklahoma City, Okla. Southwest Model Hobby Fair Meet Site: Fair Grounds R. Freeland CD. 1628 W. Main. Oklahoma City, Okla. 73106

Oct. 20—Rockland City, N.Y. 4th Annual Flying Circus & Auction Site: Ripples of Rockland G. Rifkin CD. 18 Carmen Dr. Nanuet, N.Y. 10954. Sponsor: Rockland City RC Club

Oct. 20—Canoga Park, Calif. (A) San Fernando Valley Silent Fliers Bi-Monthly Meet Site: Pierce College H. Van Paassen CD. 20749 Vose St. Canoga Park, Calif. Sponsor: San Fernando Valley Silent Fliers

Oct. 20—Washington, D.C. (AA) October Feist Site: Anacostia N.A.S. W. Sanders CD. 9735 52nd Ave. College Park, Md. 20741. Sponsor: Sky Landers of Washington

Oct. 20—Miami, Fla. Miami Ugly Stick Race Site: 11201 SW 24th St. W. Williamson CD. 8300 NW 38th St. Coral Springs, Fla. 33065. Sponsor: Broward County RC Association

Oct. 20—Van Nuys, Calif. 8th Annual Northrop "Flying Wing" Contest Site: Sepulveda Basin C. Hatrak CD. 3825 W. 144th St. Hawthorne, Calif. 90250. Sponsor: Northrop Model Aircraft Club

Oct. 20—Glastonbury, Conn. (A) SAM-7 Old Time Fall Rally Site: Meadow Road A. Vollmer CD. 1608 South Ave. Stratford, Conn. 06497. Sponsor: Society of Antique Modelers Chapter-7

Oct. 20—Tucson, Ariz. (A) TRCC Fall Warmup Site: TRCC Field R. Angus CD. 6640 N. Columbus. Tucson, Ariz. 85718. Sponsor: TRCC

Oct. 20—Midland, Tex. (AA) Chaps Ukie Tournament Site: Hogan Park E. Rodgers CD. 3405 Princeton. Midland, Tex. 79701. Sponsor: Flying Chaparrals

Oct. 20—Phoenix, Ariz. (AA) Air-Zona Fall CL Race Site: Turf Paradise T. Kiday CD. 6544 N. 13th St. Phoenix, Ariz. 85014. Sponsor: Air-Zona M.A.C.

Oct. 20—Chagrin Falls, Ohio (AA) CFFS Flying Aces FF Scale Contest Site: Savage Road Rt. 422 & 306 R. Brown CD. 4909 N. Sedgewick. Lyndhurst, Ohio 44124. Sponsor: Cleveland FF Society

Oct. 26-27—Niantic, Conn. (AA) Southern New England RC Championships Site: Camp McSkill A.M. Schindler CD. Bolduc Dr. Box 532 RFD #4. Ledyard, Conn. 06339. Sponsor: RC Prop-busters, Inc.

Oct. 26-27—Las Vegas, Nev. (AA) L.V.R.C. Annual Meet Site: Mint Gun Club L. Vance CD. 5096 Morris St. Las Vegas, Nev. 89120. Sponsor: Las Vegas RC Club

Oct. 27—Palos Park, Ill. (A) 3rd Annual Turkey Fun Fly Site: 107th St. & Rt. 45 B. Johnson CD. 1004 61st St. Downers Grove, Ill. 60515. Sponsor: Palos Park Radio Control Club

Oct. 27—Atlanta, Ga. (A) Atlanta RC 1/4 Midget Rally Site: Bolddcrest Rd G. Jacobson CD. 2205 Bretley Terr. College Park, Ga. 30349. Sponsor: Atlanta RC, Inc.

Oct. 27—Bridgewater, Mass. (AA) Fall '74 FF & Indoor Meet Site: Bridgewater S. McCorrison CD. 29 Wheeler Cir. Stoughton, Mass. 02072. Sponsor: New England Wakefield Group

Nov. 3—Valkaria, Fla. (A) Valkaria RC Meet Site: Valkaria Airport W. Williamson CD. 8300 NW 38th St. Coral Springs, Fla. 33065. Sponsor: Indian River Control Society

Nov. 3—Sacramento, Calif. (AA) Northern Calif. FF Council FF (Cat. II) Meet Site: Waegell Field R. Douglas CD. 5303 Calderwood Ln. San Jose, Calif. 95118. Sponsor: Oakland Cloud Dusters

Nov. 3—Livingston, N.J. (A) The District II CL Racing Championships Site: G-V Controls C. Schaefer CD. 514 N. Chestnut St. Westfield, N.J. 07090. Sponsor: Livingston Flying Tiggers

Nov. 10—Greenville, N.C. (A) Fall RC Pylon Meet Site: Stokes Farm W. Waggoner CD. Rt. 1, Box 221T. Bethel, N.C. 27812. Sponsor: Greenville Flight Club

Nov. 10—Visalia, Calif. (A) Sky Kings FF Meet Site: Manzanillo Ranch S. Sciacca CD. 1631 S. Burke. Visalia, Calif. 93277. Sponsor: Sky Kings

Nov. 16-17—El Monte, Calif. (AA) RC Pattern & Sport Scale Meet Site: Whittier Narrows D. Burkhalter CD. 6130 Monterey Rd. #15. Los Angeles, Calif. 90042. Sponsor: San Gabriel Valley RC League

Nov. 17—Sepulveda, Calif. (A) San Vaalers Monthly FF Contest Site: Sepulveda R. Ohly CD. 9425 Olney St. Rosemead, Calif. 91770. Sponsor: San Vaalers M.A.C.

Nov. 29-Dec. 1—Miami, Fla. (B) NMPRA RC Championship Fly-Off Site: Richmond Naval Base W. Williamson CD. 8300 NW 38th St. Coral Springs, Fla. 33065

Nov. 29-Dec. 1—Tucson, Ariz. (AA) RC Winter Nationals Site: Marana Air Park R. Angus CD. 6640 N. Columbus. Tucson, Ariz. 85718. Sponsor: Tucson RC Club

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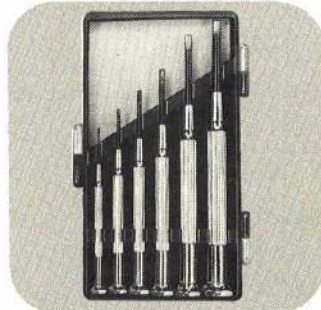
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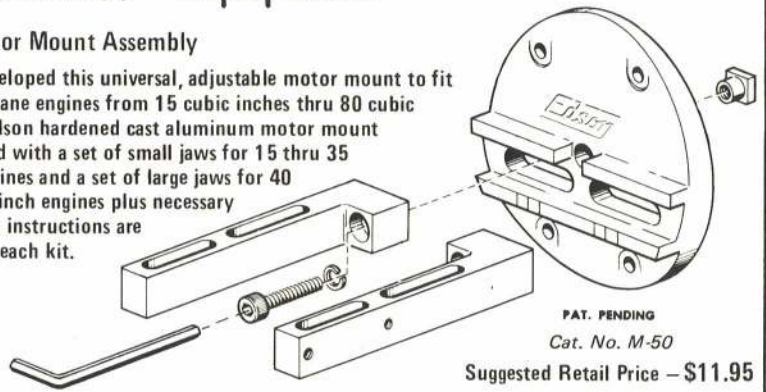
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MILLER/Continued from 107

biology, giving some thought to pursuing a medical profession. Rhett has managed to combine his hobby and school by developing a smoke-filled wind tunnel project to test airfoil sections in a science fair. Between school and flying Rhett enjoys swimming, water skiing, and bass fishing.

When asked, before the '74 NATS, what his chances for success at gaining a berth on the Internats Team were, he

summed up in his own words: "Any competitor, regardless of age, when he goes to a contest, goes to win." Rhett went to Lake Charles with that single-minded determination. . . and it paid off.

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(Continued from page 83)

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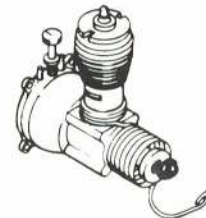
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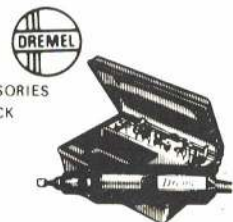
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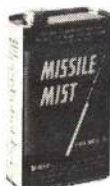
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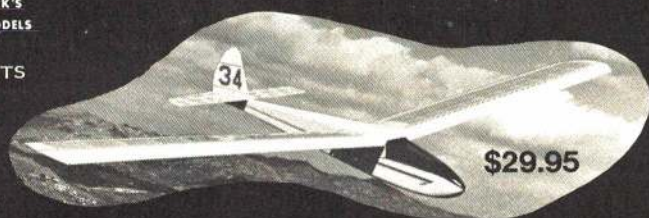
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Continued from page 118)
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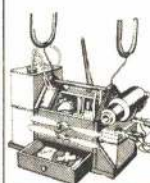
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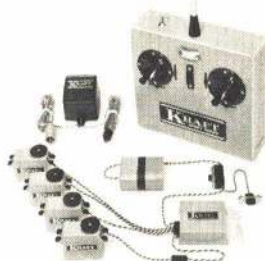
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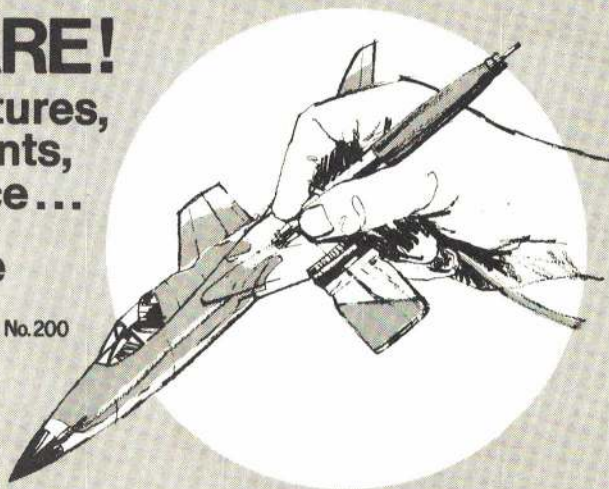


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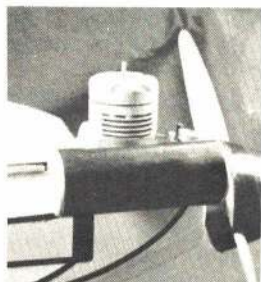
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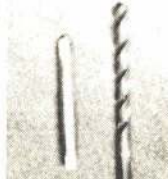
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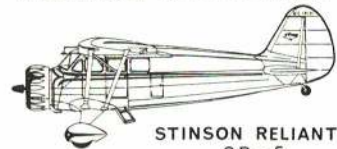
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down the ship that's now a tiny speck upon the horizon.

NOTES

1. Henry Woodhouse, *Textbook of Naval Aeronautics* (New York City, Century Co., 1917.)

2. NAVAIR 00-80P-1, *United States Naval Aviation, 1910-1970* (Washington: U.S. Government Printing Office, 1970.)

3. Peter Padfield, *The Battleship Era* (New York City, David McKay Co., Inc., 1972.)

4. Fred C. Dickey, Jr., "The Sling-Shot Flyers," (*Journal of the American Aviation Historical Society* (Vol. 6, No. 2, 1961.) Only adding fuel to the Devil's Island syndrome associated with the VO/Vs squadrons, was the paperwork set-up of these units. Without any close attachment to ordinary naval aviation channels, they often experienced great difficulty getting resupplied. The VO/Vs squadrons (according to Dickey) became adept at filling their own requisitions. When the Providence was inventoried in 1947, it was found to contain, among other oddities, a box of parts for the left flaps of several SNJs.

5. Thetford & Maycock, *Aircraft of the Fighting Powers*, Vol. VI (England: Harborough Publishing Co., Ltd., 1945.)

6. Curtiss-Wright Corp., *Airplane Division Report No. 20499* (Second Revision) Nov. 24, 1944.

7. Charles E. Roth

Herb's Hobby Haven

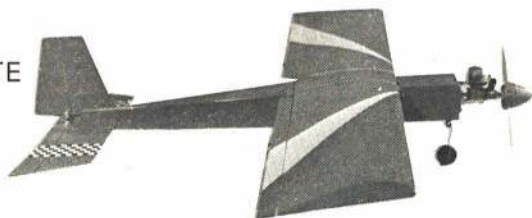
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NATS/PYLON

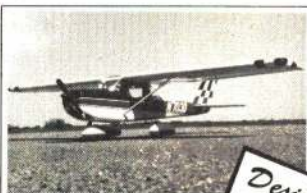
(Continued from page 56)

I as the only other official racing event, with two classes in high density areas like southern California. I'd like to see Form I viewed as the international (FAI) racing event, differing only in fuel from our present event. If I understood him correctly, this is pretty much the view of Bob Violett, as expressed at the NMPRA Open Meeting at the NATS. His discussion was lucid and totally persuasive; indeed, it was one of the high points of the week. It was obvious, too, at the meeting and elsewhere that there is little sympathy for the view that Formula I should be slowed down by

(Continued on page 127)

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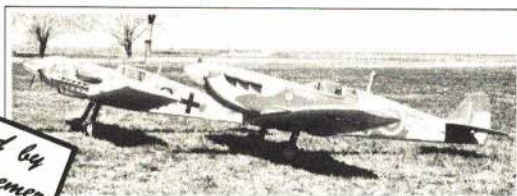
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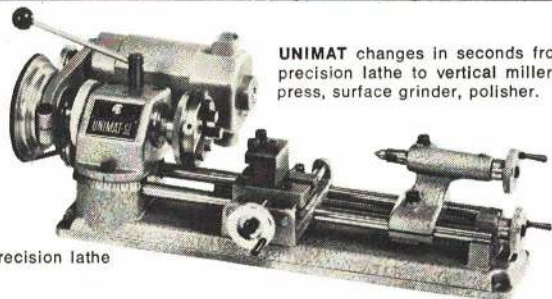
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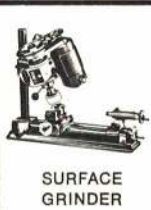
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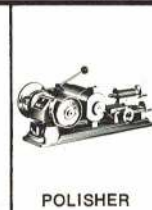
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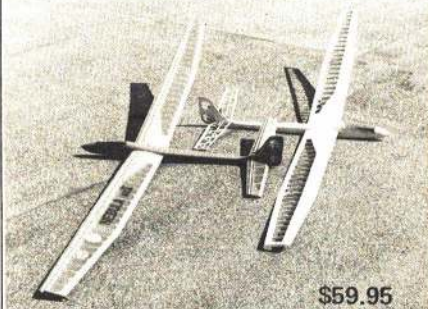
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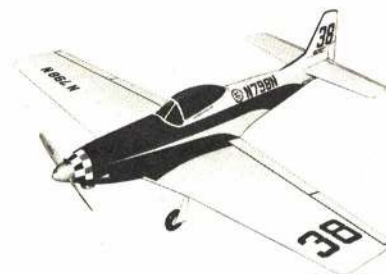
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(Continued from page 125)

some arbitrary restriction. I could find no one who likes the idle proposal (that idea doesn't work well even in QM).

All in all, it was a highly interesting and satisfying Nationals. If you didn't make it this year, I hope we'll see you next year—probably in Kansas; or the year after next, probably in California (Hallelujah!). Anywhere, if you want my opinion, except Louisiana—not because of the site, or the people, who were both great; but because of the climate which, at least in August, is far from ideal.

NATS/RC PATTERN

(Continued from page 53)

A lot of pre-NATS discussion about the maneuver framing requirements (300 feet out and high) proved meaningless, as there was no evidence of any significant attention given by the judges to these criteria. Some contestants changed their flying style to meet the criteria and others flew their own style.

Jim Martin made a valiant attempt to slow his Banshee down in his first three finals' flights, but poured it on with his old fast and open style to pull into fourth on his last flight. Dave Brown flew his fast, open style and nailed down fifth. Rhett Miller and Bill Salkowski flew compact, consistent

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(Continued from page 127)

patterns and placed first and third. Whitley flew his usual style and placed second. It will be interesting to see the future trends in the pattern.

Aircraft types used in competition were quite varied. The Phoenix 5 and 6 designs were quite popular, with Bob Smith's T-2A also showing a good entry. Many other kit designs, such as the Kaos and Mach I, also were in evidence, plus a lot of original designs. It is obvious that if maneuver sizing and framing becomes a big issue, then a trend to slower speeds and lower wing loadings will be required.

Quite a variety of engines were used. Most seemed to have found the power and technique for performing the new and more difficult D Pattern. Phil Kraft introduced his new Pattern engine, and the way that it pulled his very large original design showed its capability. Several of these prototype engines were in use.

EDITORIAL

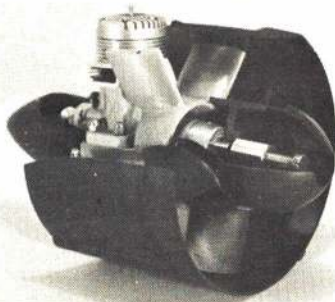
(Continued from page 35)

year (Prather vs. Violet)? And what about the poor dude who *drove* all the way from Wisconsin to see Scale on Wednesday and Thursday, only to find that he had missed it!!?

It is felt essential that the powers that be carefully investigate the Lake Charles affair and appraise its pros and cons. If the NATS is a fliers' event, then the fliers deserve more consideration in

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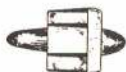
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what is *their* contest. On the other hand, if the thrust of the NATS is for spectators, then, too, it has failed. Without the contestants, we can never have true national champions, and without spectators we cannot give our hobby its much-needed promotion.

These thoughts should not be taken as sour grapes, nor read as a blanket condemnation of the people who worked so hard to provide us with a NATS. The above comments are to be understood as not only the reaction of the general tenor of comments heard at Lake Charles. It is hoped that serious thought will be given to NATS '75 before we unhearingly harken again to the siren song of, "y'all come back real soon now, ya hear."

NATS/FREE FLIGHT

(Continued from page 69)

The greatest glory belonged to Randy Secor, who beat all the Open times with a new Senior National Record of 1057 seconds. By now, the alert reader may have guessed that Randy is the new National FF category champ. Randy almost doubled the score of his buddy, Brian Van Nest, who placed second. Mathew Simpson flew a Tornado to first in Junior, edging Andrew Barron of Florida, and Richard Collona of Houston, Tex. All these kids are sons of well-known fliers.

It was encouraging to see what everyone could do given good weather. Even the cantankerous Rocket (Jetex) planes were flying well. Greg Mills, Joe Mekina, and Charles Markos were the Junior, Senior, and Open winners, respectively.

After all this, there were still a few with enough energy to go off and fly ROW unofficially, setting two new National records. The "pond" was conveniently filled by a sudden thunderstorm.

For all its poor weather, swampy re-trieving, skimpy turnout, and other problems, it was still the NATS. It is traditional that one leaves the Nationals more in love with free flight than ever, and with more friends than when he arrived.

The tradition goes on.

PLANS SERVICE PAGE 100/101

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NATS/INDOOR

(Continued from page 73)

fliers and worked hard to learn. The whole clan wore identical T-shirts, with "The Saints" emblazoned on the back.

Two encouraging trends were apparent this year. A strong contingent of fliers ranging from the mid-teens to the mid-20s (the group which usually is missing at the NATS) were on hand and copped much of the hardware. Also, new ideas and approaches to design and flying turned up, with much of this development spurred by the Seniors and college-age fliers.

Of the new ideas, Stan Chilton's "high thrust" Easy B and Paper Stick designs had the greatest visual impact. With the wing and tail in their normal location, and the tailboom flying level, an upward-tilting motor stick placed the prop and thrustline of the model about 2" higher than normal. It looked as if the model had been stepped on and improperly repaired—but Chilton's Easy B placed second and his Paper Stick took second in the high-ceiling event.

Jeffrey Annis (Brown Deer, Wis.) who is a mechanical engineering student at the University of Michigan, had an unusual propeller design on his Penny-Plane and FAI Stick models. One had to look twice to note the extra linkages, but this prop design may lead to a new level of performance in low- and medium-ceiling flying. It is torque-variable, shifting to high pitch to slow the climb during the power burst, and then shifting to lower pitch for more efficient cruise and better resistance to turbulence during the latter part of the flight.

Walter Lounsbury (Kansas City, Mo.) had a low-ceiling glider modeled after NASA's experimental, antisymmetrical SST. It is sort of a fun project, and any experienced modeler just *knows* it won't fly—but it flew well! Walter's major development activity is in computer designing of indoor models and propellers, and he is getting useful material. It is truly encouraging to see the younger fliers take more than a cursory look at the dynamics of their models!

The '74 Indoor NATS, while somewhat of a disappointment from the entry statistics, was flown at exceptional sites and provided a new and refreshing change of pace for this annual competition.

Glenn Lee, AMA District VI VP, warms up with his oversize IHLG.

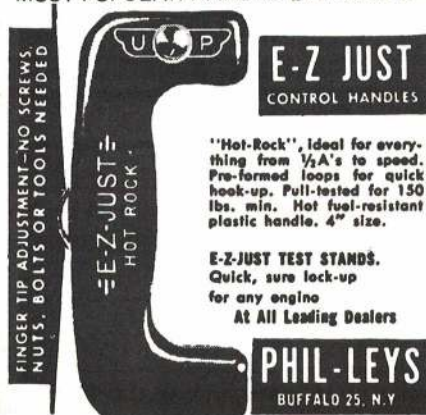


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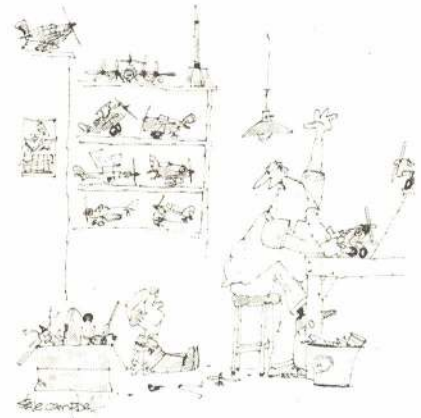
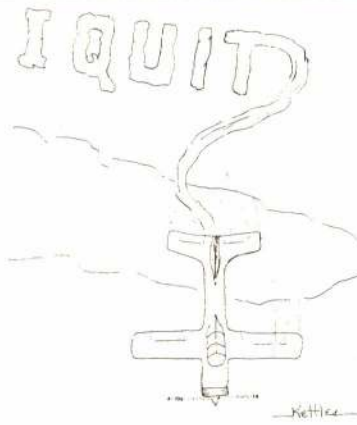
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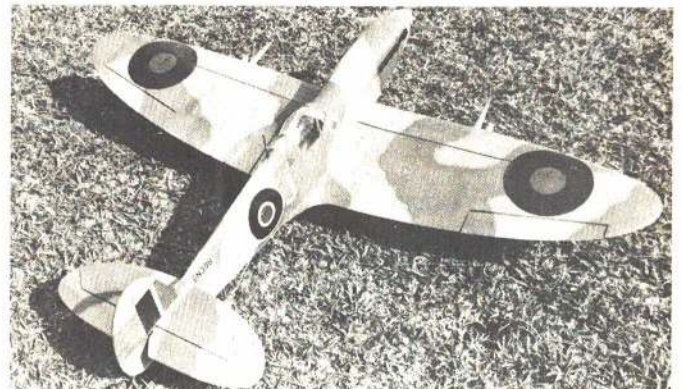
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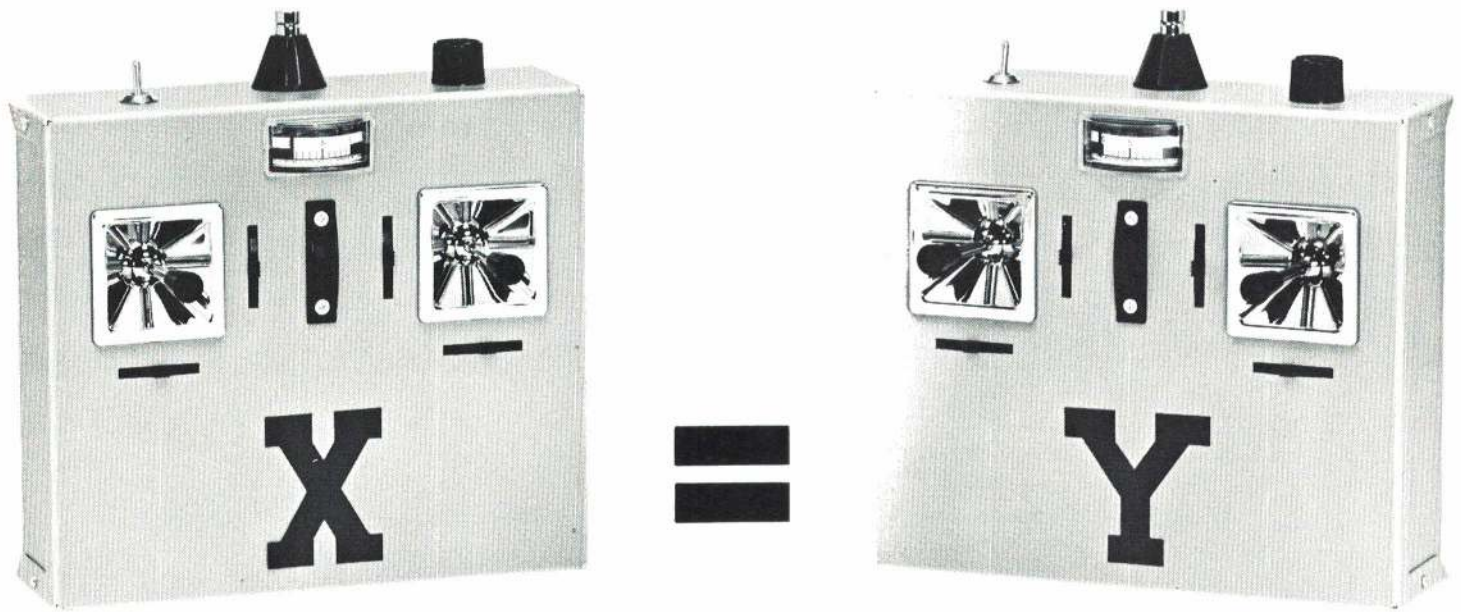
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