american aircraft modeler

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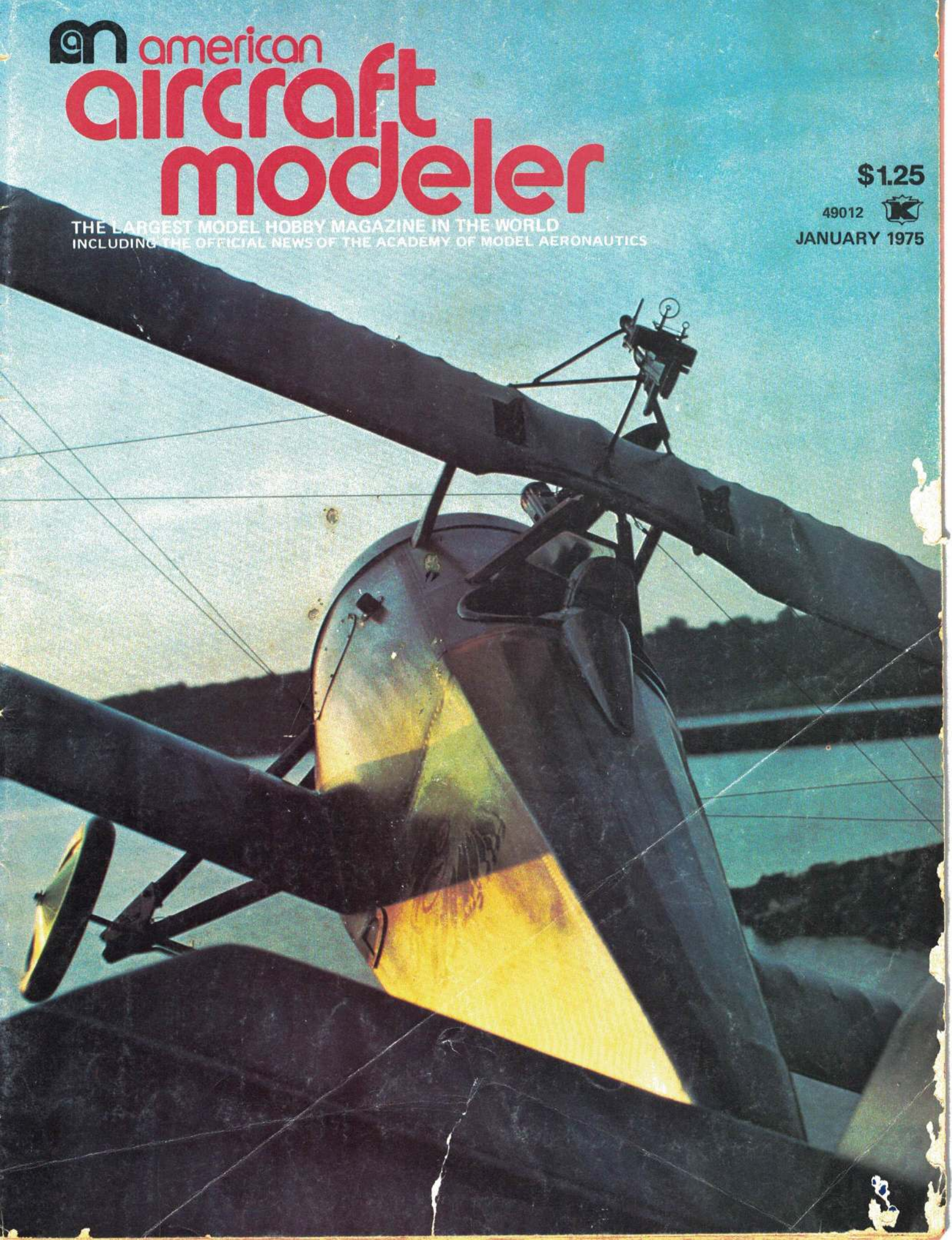
JANUARY 1975



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Scientific Beginner Models are better than profiles...here's why:

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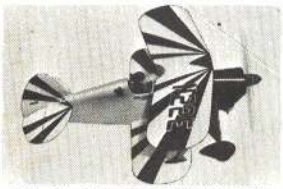
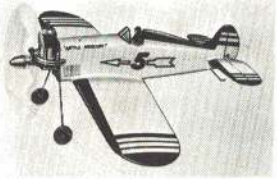


Kit 20 **LITTLE STINKER**, 18". Popular aerobatic speedster.



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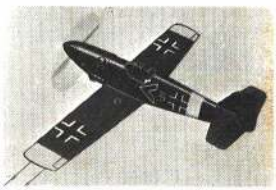
Kit 70 **F-51 MUSTANG**, 21". Famous WW II fighter.

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



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

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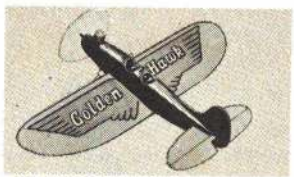

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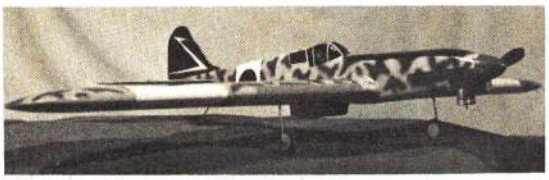
american aircraft modeler

VOLUME 75, NUMBER 1 JANUARY 1975

COVER STORY

An exciting angle on Charley Johnson's (House of Bi-Planes) VK Nieuport 17. Since this month's cover transparency is courtesy of Coverite, you can guess what the bipe is covered with. *(Photo by Michael Furman).*



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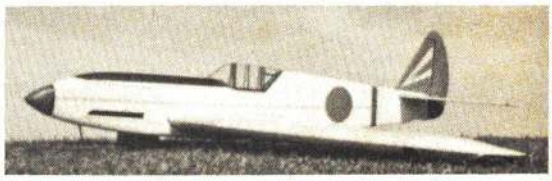

MODELS

FEATURES

CONTEST REPORTS

WHERE THE ACTION IS

DEPARTMENTS

ACADEMY OF MODEL AERONAUTICS

A substantial discount for a subscription to **American Aircraft Modeler** is offered to members of the **AMA**. Write directly to the **Academy of Model Aeronautics** for further information. (See ad, page 121)

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For mounting engines - large or small. Includes 4 each of Bolts, Flat Washers, Lock Washers and Blind Nuts. 16 pcs.

MB-256 No. 125 . . . . . **39c**
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4-40 x 1-1/4"
MB-632 No. 128 . . . . . **45c**
6-32 x 1-1/4"

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4 Sets 98c

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BN440 No. 135 4-40 . . **25c**
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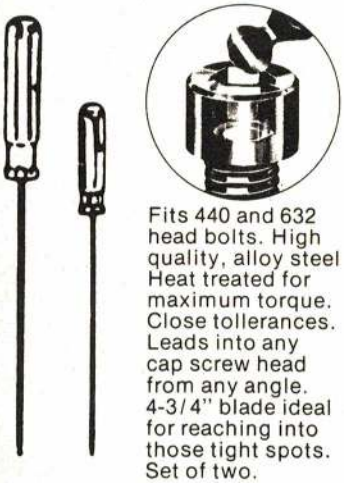
SOCKET HEAD BOLT BALL WRENCH SET



Fits 440 and 632 head bolts. High quality, alloy steel Heat treated for maximum torque. Close tollerances. Leads into any cap screw head from any angle. 4-3/4" blade ideal for reaching into those tight spots. Set of two.

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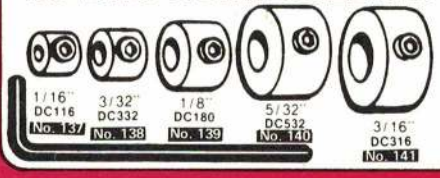

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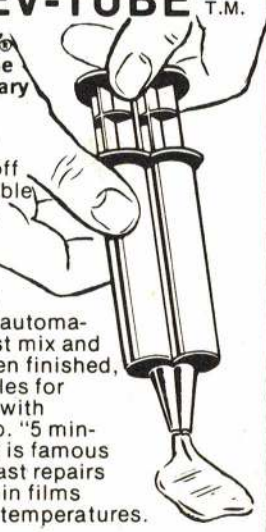

Just snip off end of double nozzle and push out equal parts of epoxy and hardener - automatically. Just mix and apply. When finished, close nozzles for future use with special cap. "5 minute" epoxy is famous for super fast repairs - even in thin films and at low temperatures.

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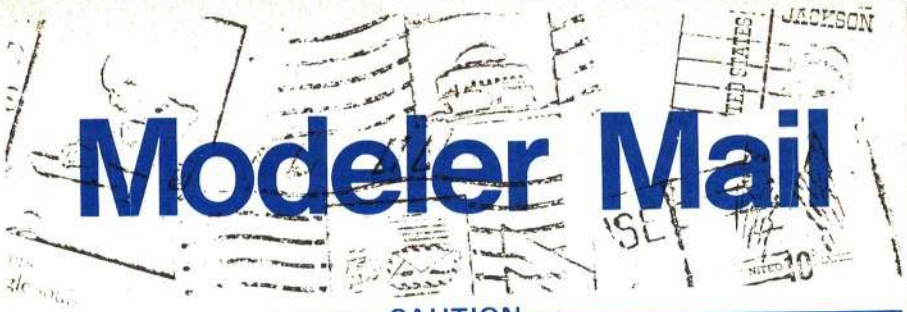

Modeler Mail

CAUTION

Any modeler building the Handyman's Retracts which appeared on page 68 of the December issue should be warned of the potential danger of misusing an aerosol spray can as a retract storage container. While the retract system, as shown, worked well when AAM built a test set, the manufacturers of such cans warn that they will explode if pushed to 50 lb. of air. We urge all modelers to substitute a Rhom-Air or comparable storage cylinder.

The Bayou Blahs

Even though I did not attend the Lake Charles NATS, I consider this attack (see Editorial, November **AAM**) on the South and the NATS very low and very poor taste.

The NATS is, has been, and will be a "National Championship." It is the largest traditional contest in the United States. That is as it should be. At the NATS, endurance should be part of the game. The real champion is the one who overcomes all the obstacles. The "Indy 500" isn't always won by the fastest car.

Mr. Potega speaks of few entrants in some events. Considering some of the names, just two or three would make it a real contest. At any major championship contest, normally those competing have previously qualified. Maybe our NATS will be much better when those competing are truly qualified.

Mr. Potega is concerned over a lack of spectators. Is the NATS required to furnish a cheering section for the gladiators in the arena? Champions don't need cheers. Leave that for those that are really unsure of their talent. Joe Blow of Streetsville is just as amused by a Sunday fun fly as a National Championships. Anyway, the Bayou country of Southern Louisiana has so much to offer that most people have more activities than time to do them allows.

Now Mr. Potega thinks the modelers are unhappy getting what they want. He is the only one that has told me this, and I've talked to several. Did he have to put out some effort to cover the events this year? Shame! What about those that were *working?*

Since Mr. Potega has no experience in working at a NATS, yet he knows lots of answers, then he must be very, very observant, very smart, or simply a typically ignorant bitcher searching for national fame through the news media. Since his observations are so lacking in facts, and he has not demonstrated any knowledge of anything concerning competitive modeling, geography, weather, contest logistics, or people, then one can only assume the third category above for Mr. Potega.

Mr. Potega, you must know ways to critique an event, even if you must personally confront those responsible. But come, come gentlemen, such garbage in a national magazine—surely *even you* can do better than this.

Horrace D. Cain
Mt. Prospect, Ill.

I have confronted those responsible. That's why I wrote the Editorial—to confront the modelers, like Mr. Cain, who allow their servants (the AMA) to run a NATS such as the one at Lake Charles. Mr. Cain, as AMA's District VI RC Contest Coordinator, has been "confronted" by a 1,000-word personal reply from me. I trust that he will use his office to make sure I never again have to write such Editorials, or ever *again attend or compete in such a NATS.—php*

Just finished reading your Editorial "Bayou Blues." I don't normally write letters to Editors, but your article deserves my response.

(Continued on page 86)

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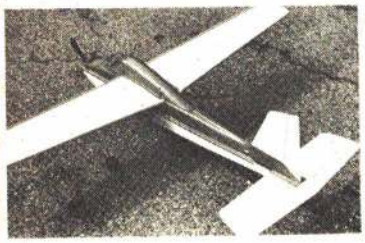

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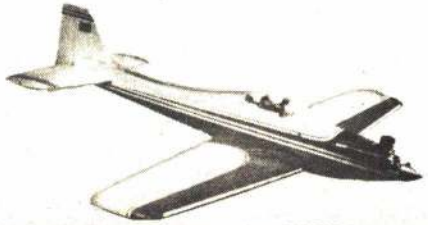

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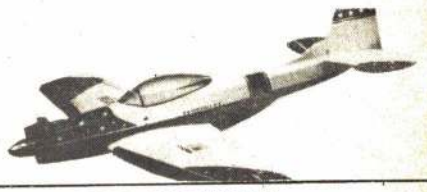

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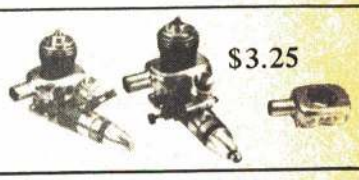

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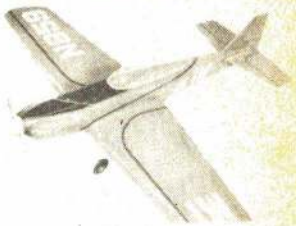

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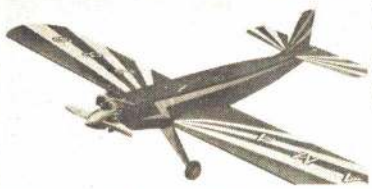

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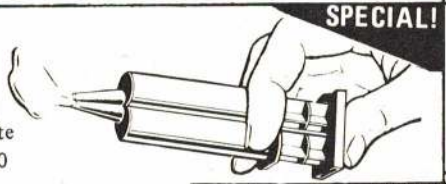

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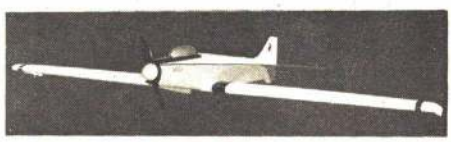

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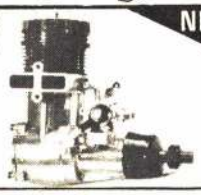
Please write or phone for price



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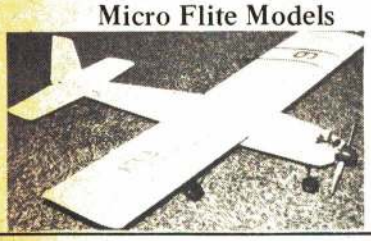

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THE ABORTED MASTERS TOURNAMENT

"YES, DOROTHY, THERE IS A KANSAS" (WIZARD OF OZ)

Since we had some space in this issue of **AAM** *originally reserved for the Masters Tournament coverage, and since Don's report is topical and editorially significant, we are presenting what would normally be his Where the Action Is copy here*—php.

The 40 top pattern fliers in the country assembled at Hutchinson, Kan., during the weekend of Oct. 5-6 to select the three-man U.S. team to compete in the Pattern World Championships to be held in Switzerland in 1975. *The thing was a total disaster!* The wind blew so hard that, for the first time in my memory, a contest was cancelled due to high winds.

You may be asking yourself: "Why in the world was he in Kansas for such an event when the wind blows there all the time?" I honestly don't know—it was one of those mysterious decisions, apparently based on the merit of a *free* site, centrally located. But one very necessary element was overlooked: flying conditions! The average winds for Hutchinson, Kan., during October, I understand, are reported to be 18 mph. It was certainly that and much more! We had winds at times averaging 25-30 mph and gusting to 40 mph. It *is* possible to sport fly in winds of that velocity, but to try and select the three best fliers in the U.S. to compete in Europe is a different matter.

A number of us arrived at Hutchinson a couple of days early for practice. We flew, but had to quit at times, due to great difficulty in getting the aircraft safely on the ground. During one session, we had to literally grab my Phoenix out of the air to get it safely down (Brave man who caught it!). It was totally impossible to perform crosswind recognizable maneuvers since, at times, the aircraft would be crabbing 45° to maintain track!

In addition, the winds were so high that it was very hazardous carrying your aircraft. In one instance, an assistant and model were blown over while trying to set the aircraft down on the runway. I sprained my wrist hanging on to my plane in the high winds. Ralph Brook did an unpowered liftoff at zero ground speed, when he gave his ship up elevator while testing the controls!

When the winds got so high that we couldn't safely fly, we held impromptu beer can races. The procedure was to place an empty can on the runway and let the wind sweep it away! Poor Ralph Brook wondered where all the flying beer cans came from while he was practicing on the far downwind end of the runway!

How many Figure Ms have you done in which the second wing over is downwind of the first? How about a Top Hat leaning 45° into the wind, or five-sec. rolls that end in the next county, or landings at near zero ground speed? Well, that's how it was!

After much discussion on how to judge under such conditions (do you judge track or aircraft attitude?), we began the contest Saturday morning. It soon became apparent, after the first few flights, that precision flying and proper judging of same was very difficult under the conditions.

For the first time, to my knowledge, the fliers decided to assume control of the situation by petitioning the AMA to halt the contest and wait for better conditions. The fliers then voted to wait until early 1975 to select a team at *a more suitable site to be selected by vote of the fliers.*

The whole situation was extremely

(Continued on page 92)

And then the rains came. NATS scene at Lake Charles, La.

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DON PANEK with 1/4 Midget Miss Dara, trimmed with Multi-Stripe. The numbers and letters are cut from Wide Multi-Stripe. Don says, "I was extremely pleased with the ease of application and the adhesive power of this tape. When you are trying to finish a model for a deadline like Toledo, the results in relation to the time spent outweigh painting hands down." The Miss Dara is a new kit from House of Balsa, Long Beach, Calif., and was displayed at Toledo '74 with numerous favorable comments on its finish and trim.

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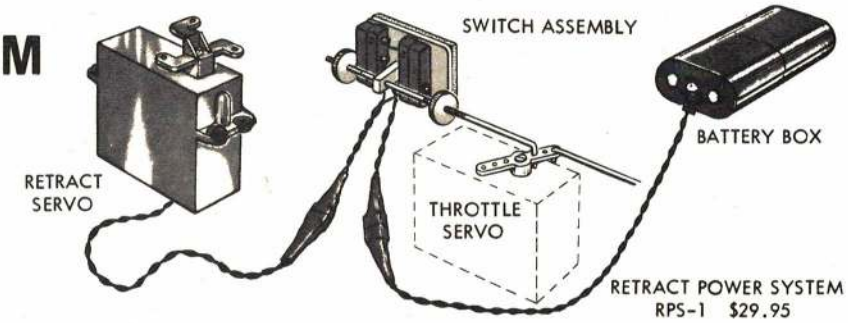
At last! A way for 4-Channel flyers to easily get into retracts. Our new power system is ready to go - just add 2 penlite cells, mount the trim-switch on your throttle servo, connect the retracts and that's it! When your throttle and trim levers are both moved all the way up or all the way down, your retracts will do the same! Servo has ample power, easily handles tri-gear operation.



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RPS-1 $29.95

FLIGHT PROCEDURE 1. Take off using throttle stick fully advanced in normal manner. After take off, advance trim lever to limit, and gears will retract.

2. Leaving trim at maximum, perform flight maneuvers as usual, retarding and advancing main throttle stick as desired. Even with full retard, gears will remain retracted.

3. On preparing to land, first bring trim to full retard. When ready, retard throttle stick fully and hold for 3 seconds so gears will extend and lock. If necessary to add throttle to lengthen approach, gears will remain extended.

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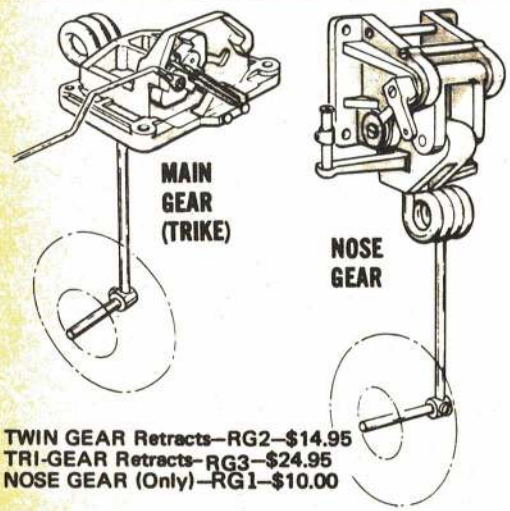

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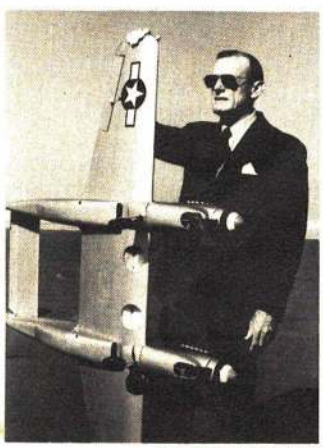
HIS BIG "BETTY JO" SET 2 RECORDS!



COL. R. E. THACKER, USAF, in March 1947 flew the Twin Mustang "Betty Jo" non-stop from Honolulu to New York, setting 2 records - speed between the 2 cities, and distance for a fighter (5100 miles). His model "Betty Jo" uses Orbit radio and CG Retracts. Col. Thacker says, "I have 3 sets of your gears. Have used them since they first became available. I've worn out 1 airplane, but not the gears - they're reliable."

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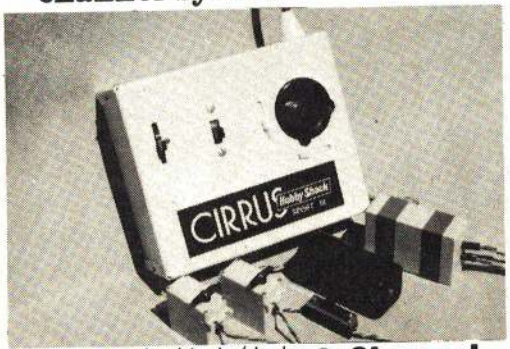

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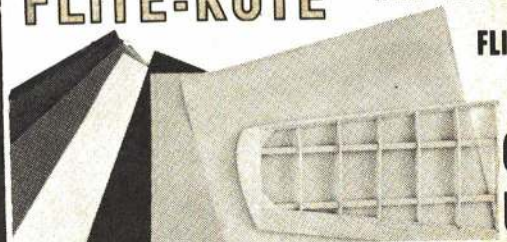

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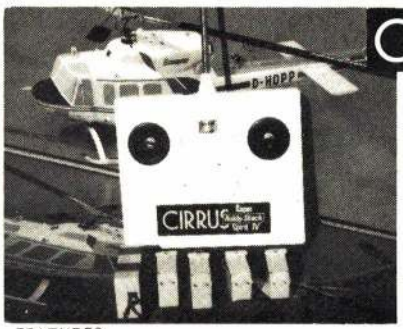

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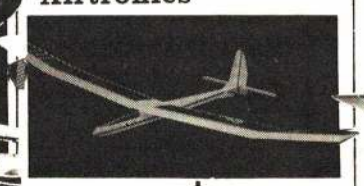

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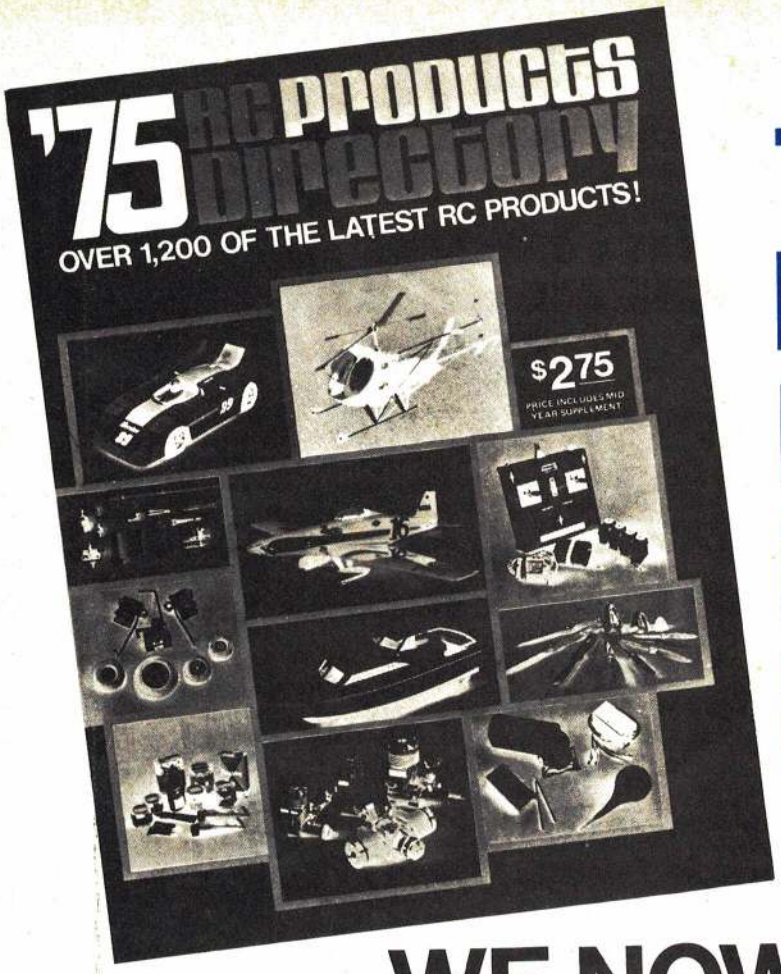

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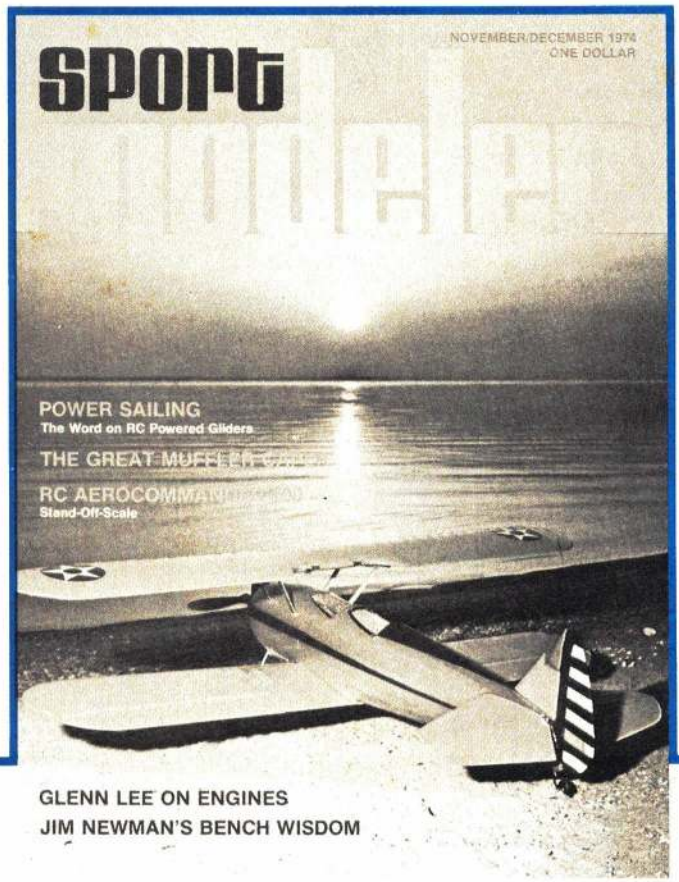
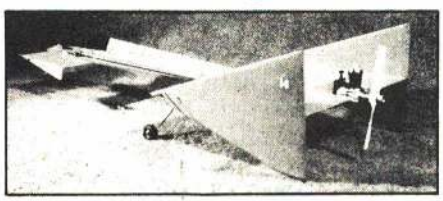


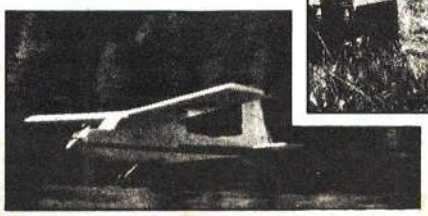
GLENN LEE ON ENGINES
JIM NEWMAN'S BENCH WISDOM

In this issue:



THE BLUE THING

AERO-COMMANDER 100



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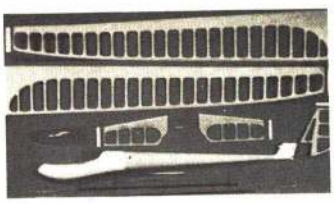

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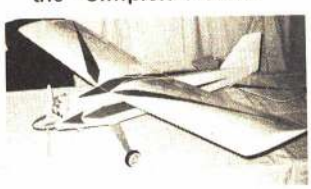

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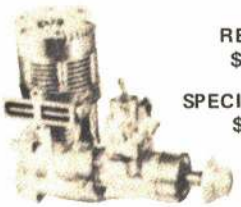

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In addition to all of the items listed and shown in this ad, TOWER HOBBIES carries all of the following lines: Austin Craft, DuBro, Goldberg, Robart, Rocket City, Sonic-Tronics, Su-Pr-Line, and Tatone ACCESSORIES; Ambroid, Devcon, Hobby Poxy, Southern 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 Poxy, and K & B SuperPoxy 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.

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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! For first class mailing, send $1.00. FREE WITH ANY SIZE ORDER.

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Modeler's Bookshelf

by James Nordhoff

BUILDING AND FLYING SCALE MODEL AIRCRAFT
By Walter A. Musciano
Herman Publishing, 245 pages

Although its adherents probably represent a majority of model airplane enthusiasts, CL seems to be generally overlooked by authors. Walter Musciano helps fill this gap by devoting most of his book, *Building And Flying Scale Model Aircraft*, to planes for the circular set. It will be of as much value to the flier making the move from ready-built plastic jobs into simple profile and trainer kits, as to those entering the area of more sophisticated scale aircraft.

Just enough theory is given to supply some insight into the "whys" of design, but not so much that confusion results.

Plans and building notes for eight CL models are included, starting with a very basic Aeronca Sedan and ending with a jet-powered model of the Shooting Star. In between are multiwingers, a fine-looking Vickers Wellesley, the twin Mustang and a King Cobra in the 100 mph-plus range for those who like to spin around faster than most of us. Musciano also offers a section on CL seaplanes which can add an interesting dimension to the sport for many fliers.

With all its emphasis on CL, the book doesn't ignore other scale flying. There's a handsome ½A Curtis Racer, designed as a FF model, that's a natural for a conversion to single channel, and a Douglas Mailplane bipe rubber-powered job is also included. Completing the coverage of scale planes are plans and notes for a solid-fuel, Heinkel 162 jet and a towline Waco glider. There's a section on RC, plus plans for a 65" Cub, but fortunately technology has outstripped the equipment described, so it's interesting only as a memory piece on how awkward things used to be.

The book is a good one for the progressive CL modeler. Numerous illustrations of fair-to-good quality provide all-important detail for the aircraft covered and dozens of others. All this, and building tips from a man who has been at it long enough to know, make the $7.95 price tag reasonable.

JUST FOR FUN. . .

A book telling you everything you always wanted to know about hang gliding—and perhaps a bit more—has been written by Dan Poynter. He calls the sport "skysurfing" and covers it from historic beginnings (Otto Lilienthal, Chanute *et al*) to the current state of the art. An exhaustive listing of kits and plans available is included. *Hang Gliding* is fun reading and has interesting sections on aerodynamics, design and construction techniques. If you can work out a way to servo-actuate a parallel bar, this book can help you be first on the slope with a Rogallo wing. (See April AAM for an RC hang glider.) It's a $5.95 paperback.

Schweizer Sportsmanship Award

Full-scale aviation manufacturer honors RC sailplaner. /by Jim Gray, Secretary, Harris Hill L/D

On Sept. 14, at a banquet attended by over 100 fellow sailplaners and their families from the U.S. and Canada, Donald Clark of Kensington, Md., became the first recipient of the Schweizer Sportsmanship Award. . .a Steuben Glass eagle, symbolizing the epitome of soaring flight.

The unique trophy, donated by Harris Hill Lift-Over-Drag, the sailplane club in Elmira, N.Y., was presented to Clark by Ernest Schweizer of Schweizer Aircraft Corp., leader in full-scale sailplane production in the U.S.

The award is perpetual in nature, and will be given annually to the man or woman who best represents the ideal of gentlemanly and sportsmanlike conduct through his or her efforts in RC soaring. The recipient is chosen from a group of candidates nominated by RC sailplane groups throughout the nation, and he or she need not be a championship soaring pilot or even a keen competitor.

Clark is one of the founders of the National Soaring Society and an early member of the League of Silent Flight.

He is a quiet, unassuming man; a dedicated gentleman and sportsman whose actions speak louder than words among his fellow pilots and associates. Don's efforts are unselfish and represent the highest motives and ideals. His name

(Continued on page 117)

Photo by Ken Cooper

Ernest Schweizer (left) presents Sportsmanship Award to Don Goughnour of Red Lion, Pa., who accepts on behalf of Don Clark, 1974 winner of the Steuben Eagle trophy.

Graupner

BELL 212 Twin-Jet

The helicopter is only as good as its mechanics

The GRAUPNER BELL 212 TWIN JET has the precise mechanics manufactured by the HB engine factory.
All major assemblies are preassembled, inspected and adjusted.
The special HB 61 STAMO engine has been specialy designed for this model.
In short the GRAUPNER BELL 212 TWIN JET with its precision mechanics has reached a new level of technical acheivement in R/C helicopters – "the helicopter is only as good as its mechanics."

Ind. No. 80
Quickie kit MECHANIK
(mechanical parts)

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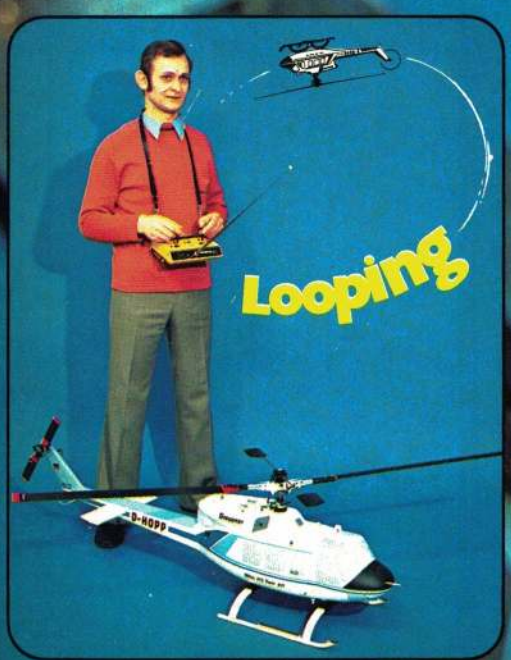
For more details obtain the GRAUPNER 27 FS complete catalog with the 1974 new releases.

Contact your favorite dealer for prices.



With a standard GRAUPNER BELL 212 TWIN JET, Dieter Suhr was the first to perform inside loops with a R/C helicopter, truly a remarkable advancement in helicopter aerodynamic

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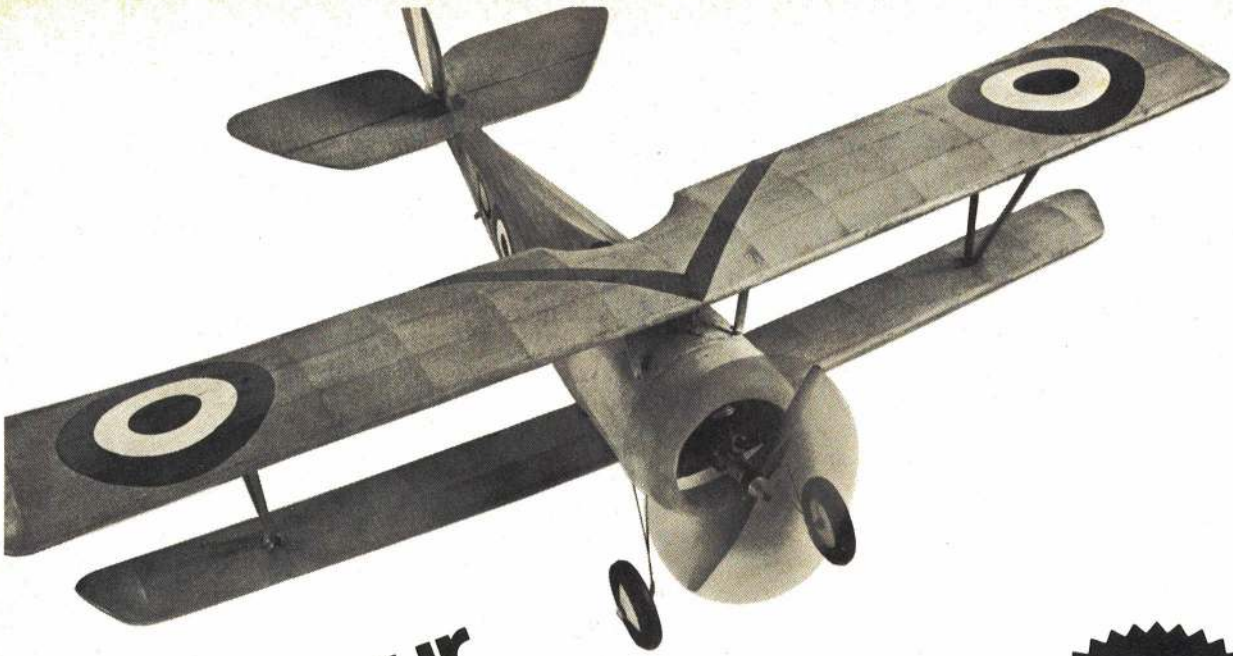
Guest Editorial by Jack Fraher

BURNING ISSUES

On page 106 of the August, 1974 issue of AAM an advertisement inquires: *"Is anyone listening? Do you have something important to say? Are there unanswered questions in your life?"* Well, here are some of the questions and issues I feel are important.

I began reading model magazines at the age of eight, in an effort to discover why my Bantam-powered Baby Miss Behave failed to fly with the precision I had expected. I continued to read them,

(Continued on page 86)



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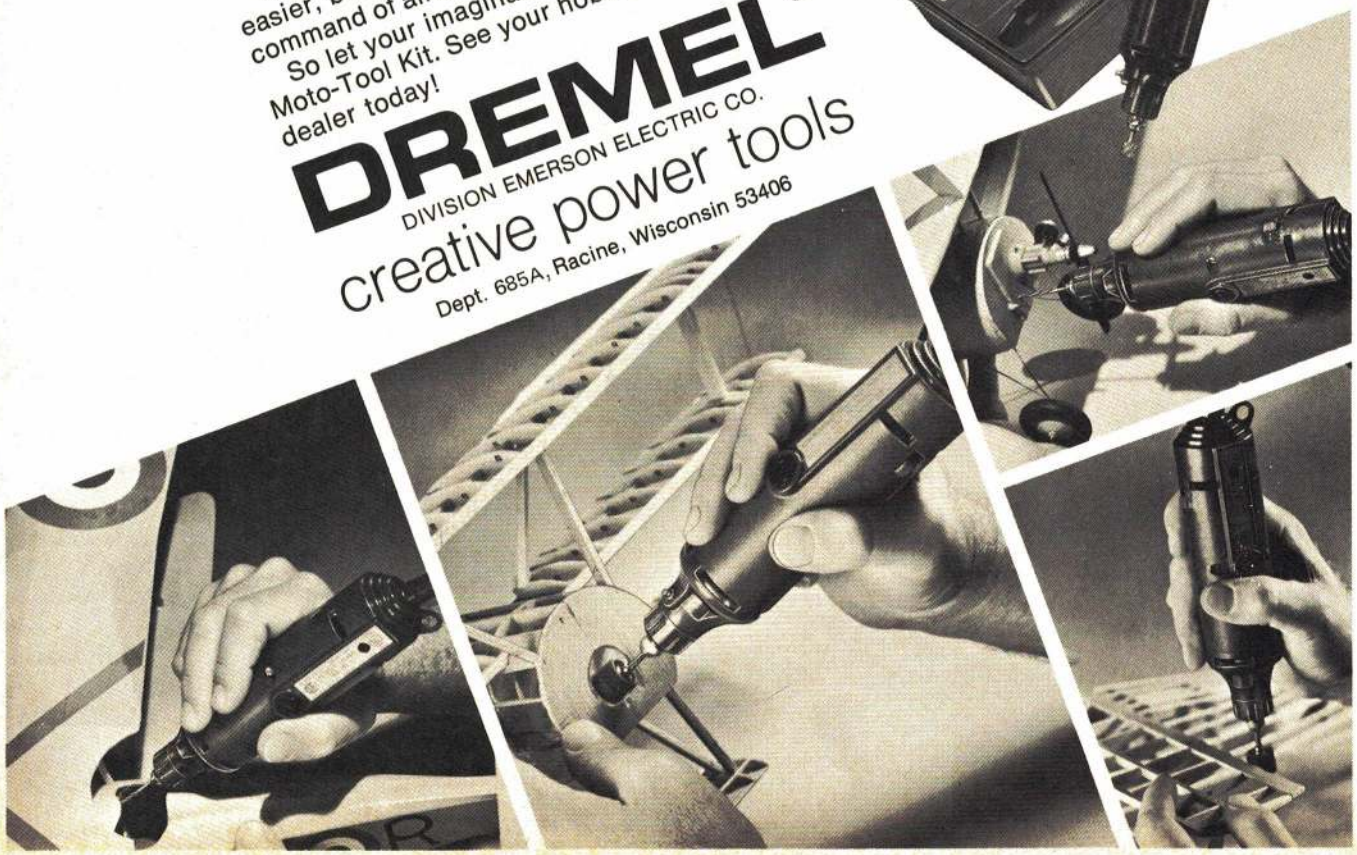



USA
N9373

Bob Gieseke

Within two weeks, he captured not only the World title, but won the NATS and was awarded the Walker Cup. / by Wynn Paul

To win the World Championship in any activity takes a great amount of dedication, skill, and hard work. For Bob Gieseke of Irving, Tex., it has meant five attempts in the World Championship meet, 12 years of top-level competition, and hundreds of gallons of fuel consumed in practicing his art: Control Line Precision Aerobatics.

Bob Geiseke represented the USA in the FAI World Championships in 1964, '68, '70, '72, and '74 before becoming World Champion in Model Airplane Precision Aerobatics on July 28, 1974. His name has become a byword of stunt flying among the closely knit stunt enthusiasts. But few outside this circle know of him because of his lack of concern with publicity. However, anyone who has ever been to a Nationals or FAI team tryout will find his name quite conspicuous on the score sheet, because he is always up with the leaders, if not in first place.

Bob completed what can be called the Grand Slam in model Precision Aerobatics last year. He had won the first leg back in September, 1973, when he was the first place qualifier for the FAI team and, thus, won the right to go to Europe for the World meet. He then won the FAI World title in July, 1974, beating 46 performers from all over the globe. Thirteen days later, he won his third National Model Airplane Championships Precision Aerobatics title. Then, three hours later, he won the Walker Cup, symbolic of overall stunt supremacy in the U.S., beating two excellent younger fliers.

The World CL Stunt Champion with his notorious Nobler and just a few of his laurels.

With these accomplishments one would think that, after 12 years of competition, Bob might consider retiring from the strain of contests. "I've still got one more plane in me for this winter, and I've just *got* to go back and defend my title," he said, while getting ready for the Walker Cup fly-off at the Nationals in Lake Charles, La.

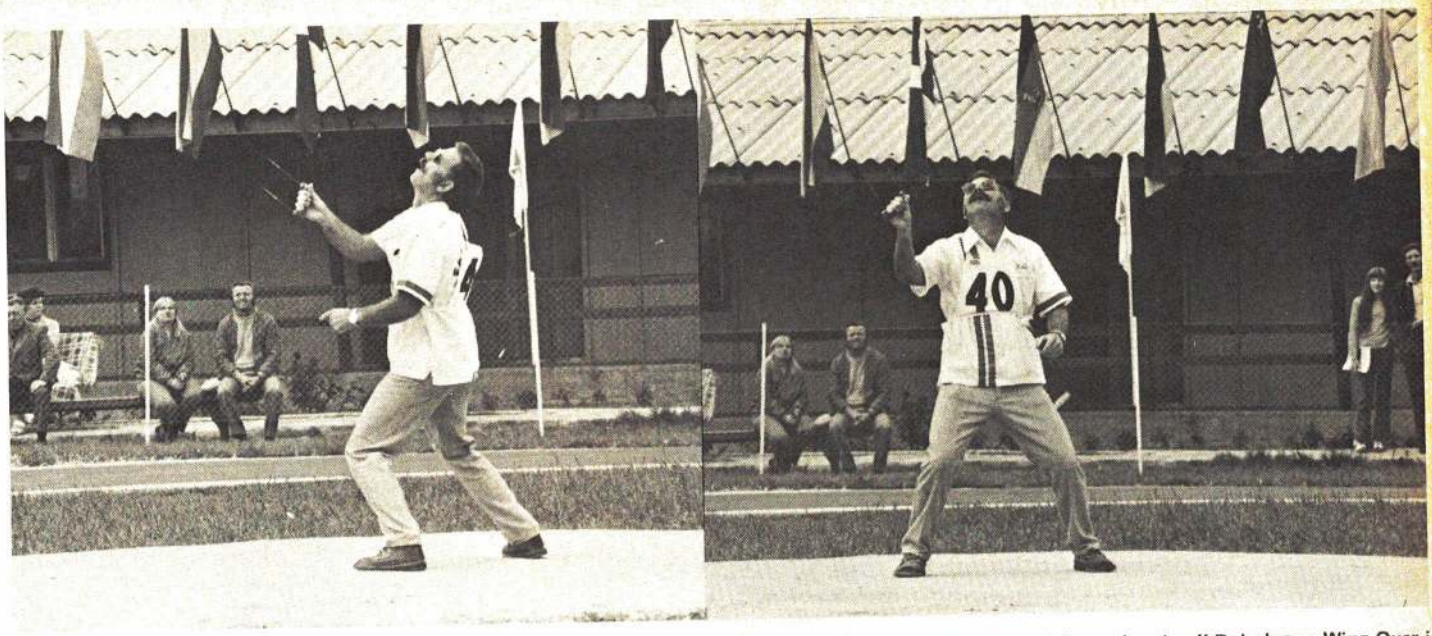
Bob's father taught him to fly on his 10th birthday back in Greenville, Ill., in 1942. His Dad flew models and Bob recalled, "I asked my Dad to let me fly so we wouldn't lose any more models. Dad never flew again."

Bob attended the Spartan School of Aeronautics in Tulsa in 1951-'52, studying meteorology. He entered the Air Force for a hitch from 1952 to 1956. Braniff Airlines offered him a job in Dallas in March of 1956, and he's been there ever since as a meteorologist for pilots in North and South America.

Bob started flying in competition in 1952, but then quit until 1959. Then he returned, flying among other planes a Veco Smoothie with a green head Torpedo 35. "I crashed more airplanes than you can shake a stick at," he said of his early competition. "In 1960, I took a notebook to the Nationals and bugged everybody with questions. Jim Silhavy flew a blue Nobler so well that I decided to use that basic design."

Bob first flew in a Nationals in 1962, and was tied with eventual winner Lew McFarland in the first round of qualifications; but he scored low in the second round, and didn't qualify. In 1963, an elevator horn broke, cutting short his Nationals' hopes.

The tryouts for the 1964 FAI team were held in May of that year, and Bob



"I can't do a Wing Over without the pipe." Bob does a Wing Over in C

won a place on the team that left in the summer for Budapest, necessitating his missing the U.S. Nationals. Bob flew the first of his "Gieseke Noblers" that year and placed eighth in the World Championships. That first Nobler was painted red, and they still are, although they now sport a blue and white stripe on the fuselage.

Bob has a reputation for being an advocate of lots of practice. "I started flying a lot in 1959, and I try to get in somewhere between 300 to 500 flights a year. A lot of those flights are to get the airplane in trim. After that, about 50 flights and I can be ready for anything," he said. He usually starts in April or May and practices every day, weather permitting. "Sometimes, I purposefully go out when it's too windy so I can get used to wind flying," he said.

He used to practice at Garland, Tex., about 20 miles from his home, and had to take an extra pair of shoes each day to wade through the mud, getting to the circle. He now practices at Texas Stadium in Irving. He uses a stooge about 75% of the time, although his brother, Don, and his older son, Joe (age 16) have been a great help to him. In his words, "Don really helped me before he moved away, and now Joe is great. Joe has a better ear for engine runs than I do. I go by what he says."

Bob's international competition record has been nothing short of sensational. Starting with his eighth place in 1964, he placed third in 1968, second in 1970, sixth in 1972 and first in 1974.

In 1970, Bill Werwage of Berea, Ohio, and Bob completed a one-two sweep of the world, a feat which was reversed last year when Bill finished second. Bill has the distinction of winning the World Championships twice in a row: 1970 and '72. Bill's three trips and Bob's five have prompted some to suggest that they leave a couple of planes over in Europe so they don't have to keep transporting them back and forth.

The U.S.A. team has won the World Team title in Precision Aerobatics every time since 1964. In '64, it was the unofficial title, and in 1966, a World Jim Walker Cup was established for the team title. Bob has been on that championship team five times, more than any other man.

Why does the United States team do so well in international competition?

"Competition is better here in the States," Bob says. "There are more good fliers in the Nationals than at the last several FAIs. There are probably a dozen really good fliers in the world, and four to six who are capable of winning the whole thing.

"One thing that helps us is that the U.S. team goes early enough to get practice. It seems to me that the other countries don't practice enough. The U.S. team comes trudging in with their oily

Bob and wife, Anna Mae, watch the action at the '74 NATS. *(Photo by Wynn Paul).*

n Czechoslovakia. Note the pipe is in his left hand! *(Photo by Laird Jackson).*

airplanes while all the others are eating supper," says Bob.

One thing enviously pointed out by Bob, "Model flying in Europe is a professional sport. Plotsin, the Latvian stunt and team race flier, gets paid to teach people how to fly models. Top model fliers are accepted as sports idols in Europe."

Gene Schaffer, sixth place this year in Czechoslovakia, said, "The Czech team had just returned from a three-week camp where they flew airplanes all day long." That's pretty demoralizing when you figure that Gene had to dodge bottles and free flight models at his old practice field in Astoria, N.Y., and Bill Werwage shares the field with Ringmasters and slow combat ships.

However, Bob feels that the FAI meet is a wonderful contest: "There is a spirit of competition among countries—with everyone getting along. The Russians come across the dining hall to shake hands with the Americans. There were no politics this year; there have been in the past, but not significantly. Almost everybody is sweating engines and flaps." He thinks the model sites in Europe are very good. Many have a clubhouse. This year's site at Hradec Kralove, Czechoslovakia, was excellent. There were three paved circles.

Besides the red Gieseke Nobler, Bob's other trademark is the ever-present pipe in his mouth when flying. "I started smoking a pipe in 1952. I can't do a Wing Over without the pipe. The other maneuvers, I can feel the air on my ears," he said. His beloved 10-year-old pipe, a veteran of all FAI meets, was ceremoniously buried on the circle in Czechoslovakia after Bob's winning flight.

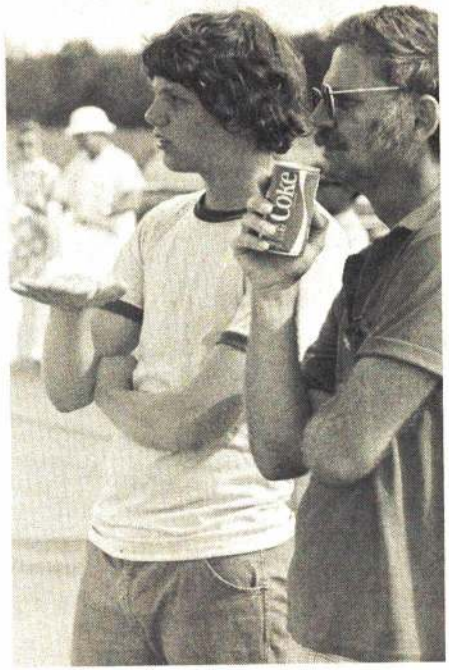
Bob's slow flying style is in sharp contrast to the New York quick-corner style, and to the Midwest soft corner and small-figure style. "I've always flown slow. It's probably more difficult and when it's off it looks terrible, but that's my style" he asserted.

Gieseke gathers the pieces of his 10-year-old pipe, digs a hole on the spot where he just completed his last world competition flight, and ceremoniously buries the briar. Next year, sans pipe, he says that he's "just got to go back and defend my title." *(Photo by Laird Jackson).*

He has used Fox 35s since the first of his Noblers and puts them together himself, although in the past he has used engines from Don Jehlik. The '74 engine used parts from six Foxes, and there is "no engine work, as such." His Gieseke Nobler is slightly modified from the original. Same basic airfoil, slightly longer span, more area in the elevators and flaps and different wing tips. "Joe helps me in building, too; we discuss things, and it really helps a lot," Bob notes.

This super-competitor feels that the stunt event ". . .is getting more competitive; the quality is getting better, even if the quantity is less. Stunt is a hard event; maybe fewer people are interested because of the difficult road to success."

AMA President John Clemens, a fellow Texan, says of Bob, "He is quiet, unassuming, every bit the gentleman; helpful and doesn't hold back on secrets; it's a pleasure to congratulate him because he is such a gentleman and I've known Bob as long as anybody."



The Master and son Joe talk about a flight at Lake Charles. "We discuss things; it really helps a lot." *(Photo by Wynn Paul).*

Bob's wife, Anna Mae, and their four children, Joe, Christy, Linda, and Max, all attended the 1974 Nationals to see Bob wrap up his Grand Slam. Anna Mae said, "The FAI was an extreme relief. I knew it would happen, and I was convinced this was the year."

This year, that red Nobler will be flying again as Bob makes his bid for another berth on the FAI team. "This skill event has intrigued me since way back. It's individual competition—you and the airplane," he observed at the conclusion of a somewhat reserved and reluctant interview at the Nationals. All of Bob's competitors know that, when the new pipe and the old Fox start up in '75, they will get all the competition they need from the World Champion and gentleman—Bob Gieseke.

Czechoslovakian flower girl salutes Bob with a bouquet. *(Photo by Laird Jackson).*

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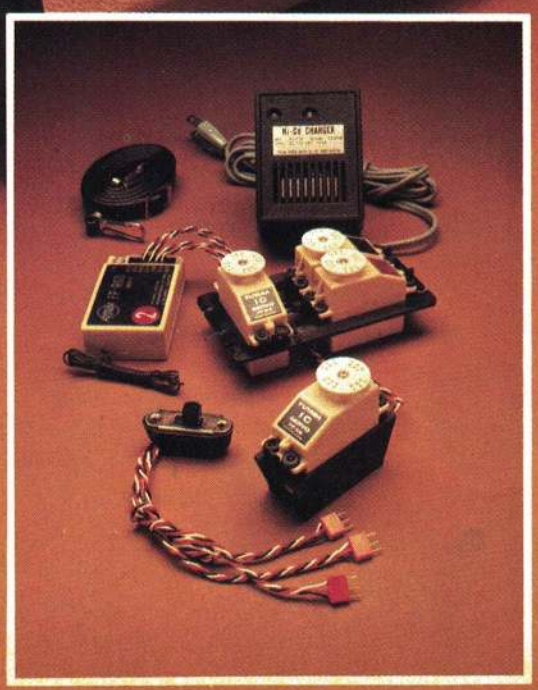

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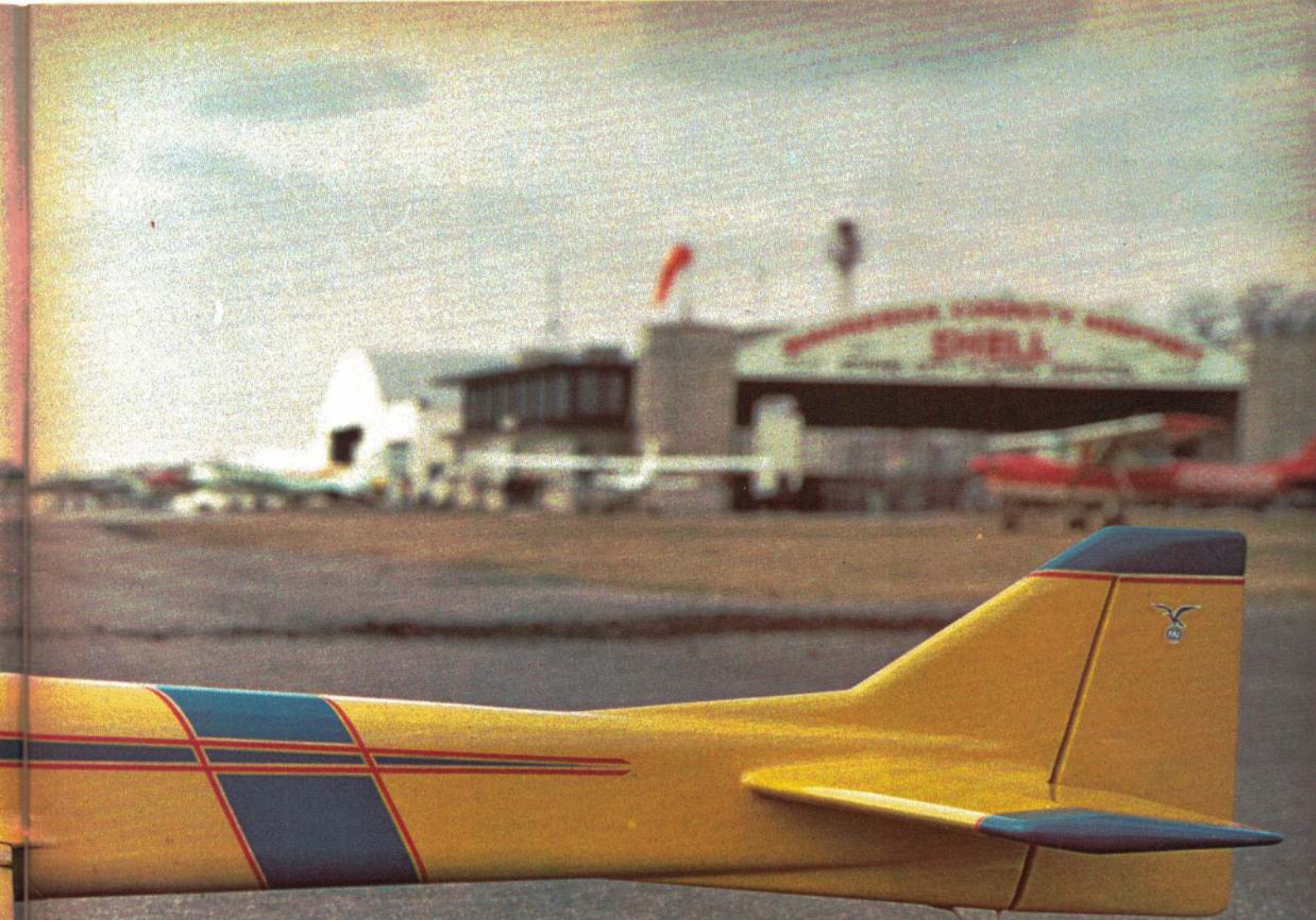
THE SEQUEL

So you've never built a pattern ship. Just follow the Sequel sequence and you're guaranteed success. (Part 1 of two parts) / by Carl Weber

The Sequel is a pattern ship of unexcelled quality, with features that make it ideal as a first scratch-built project. Possessing no bad characteristics, it will give the novice in pattern competition a fair shake with every flight.

Realizing that most magazine construction articles assume a high degree of building skill and knowledge on the part of the readers, AAM *decided to present the Sequel as a step-by-step, pictorially detailed article. All the little "hints" are included, so that the reader who has shied away from a pattern plane can now build a competitive ship. Even the experienced modeler can gain from building a Sequel, since the performance of this bird can equal the best piloting skills.*—php

Encouraged by a first place win in C Novice at the Glenview NATS in 1971, I set out to catch those good guys in the white hats. By mid-1972, Gary Brautigam and I had established ourselves in C Expert on the Midwest Circuit. Later, we seemed to improve our style, but we just could not "clean up our act" enough to breathe down the leaders' necks. Sure, we had a



few firsts, seconds and thirds, but usually we fell back in the pack (about fourth to tenth), depending on the wind. When the wind blew, our scores would sag.

One problem. . .we just would not settle down to a one-design approach. Just like little kids (we really are at heart), when we'd see Ron Chidgey fly the Tiger Tail. . .that was it! So I built one, and found that, somehow, Ron put that extra something into his performance. The same with Norm Page—he could land his Mach I steadily in a hailstorm! Suddenly, it dawned on me that, after 31 RC ships (all different), I'd better pick out the features of all the planes I had built and incorporate them in a plane designed for my own clumsy style.

Gary and I had proven the "presentation" idea during the summer of '73. We would appear on the field wearing white flairs, white sneakers, and red, white and blue shirts, with planes to match. Believe me, the judges got to know us a little better at each contest. The team idea really caught on, as we brought home a little bread from the area contests. We even won a color TV (note: in the raffle draw-

ing. . .well, it *was* won at an RC contest!) Norm Page often suggested that, in order to really get to the top, one must design a good bread-and-butter airplane, right for his own style! So, after goofing up six takeoffs and six landings at the "crosswind Oshkosh NATS" (the stuff in between was great—like eights and nines), and noticing that 33 1/3% of the qualifying score was for takeoffs, landings and spots, Gary and I concurred that this was enough! We'd design a winner for '74.

After experimenting with a swept-wing Mach I, I decided that I was more comfortable with a wing of that configuration. . .more stability in the looping maneuvers. After chatting with Jim Kirkland, before his untimely death, I was convinced that a constant radius leading edge, quite blunt, was the way to go. Very little dihedral is necessary with this wing, a la A-6 Intruder, with 1" under each tip, or ¼" under the center, inverted. When I saw Dean Koger's Super Duck fly at Davenport, I was convinced that the flying stab was a great instrument in smoothing out maneuvers, without creating drag. As short a nose moment as possible seemed to make sense, since this close couples that gyroscopic effect ahead of the CG. A longer tail moment would permit smaller tail surfaces; thus, less crosswind effect. When Bob Violett showed up with his Flying Fork, I knew that a flying stab could be made strong and effective.

Since I wanted to use a Kraft-Hayes tank, instead of the hard-to-get Revlon bottle (I think Norm Page bought them all!), the front end had to be a little more blunt. The engine was canted to bring the pick-up nearer to the needle valve level. Since we use muffler pressure (I think we were some of the first to apply this principle), tank placement is not too important. But, since Murphy's Law prevails, I tried to design out anything that might go wrong. . .go wrong. . .go wrong. . .go wrong.

Watching Jim Martin fly knife-edge prompted me to bring the wing chord center line up into the fuselage, 1" below the thrust line. Also, the flying stab was placed 1" above the thrust line. I tried to build a lifting section design to the fuselage sides. A thick fin and rudder also should help in moving that center of drag back, well beyond the CG.

Of course, Kirkland's diamond stab conformation was a must. . .a little thicker to accommodate the Flying Fork apparatus. Intruder tips were incorporated, to spill the air cleanly at the ends of the wing. A 16.2% root chord section (with the apex back at about the CG) and 14.2% tip chord section (with the apex sweeping toward the leading edge) should give good penetration, clean rolls, picture-slow main gear landings, and optimum takeoffs. Other significant concepts were easy, basic construction, a la Kaos, clean lines like the Nutcracker, and balanced side areas fore and aft of the CG.

A good aluminum engine mount is a must. . .either the Tatone or the Fox mount. I'm certain that this method of mounting (if everything is solid and tight) reduces the vibration effects on the vital parts (the radio, not you) and gives about 500 more rpm. You need that extra "tiger in the tank" to pull you through those unbelievable FAI maneuvers!

Many interesting discussions with my good friend Dr. Hollis Boren, in Tampa, Fla., prompted me to do some homework on airfoils, side areas, Reynolds Numbers and aspect ratios. He pointed out that my formula for aspect ratios, as used on the plans, was for rectangular wing planforms only. The correct method of calculating A/R for tapered sections is to square the span of the wing, and divide by the area in square inches. This comes out about the same. (The Sequel has proven out its design theory rather well. In its first year of competition, the plane has placed in *every* contest entered. Many of these were major contests, such as Chicagoland and the Huntsville, Ala., affair. With the help of such a reliable performer, I was able to make the cut and fly at the masters Tournament.)

CONSTRUCTION

Building Techniques. You've heard them all, but maybe you need a push!

Visit your local shop, and drive the hobby dealer nuts by going through every piece of balsa in the place. Remind him that you are planning to buy a new seven-channel rig from him, so that he won't chase you out when you sight down every stick or sheet of balsa for trueness, correct grain and lack of warps. The stuff keeps up with the price of gold in London, so remember—you pay as much for the scrap pieces as you do for the good ones! Spend a little time, start with good, true lumber, and you can build a true ship.

A warped flying surface is good for one thing. . .to smack little kids when they come into your shop to borrow glue or paint! Don't put it on your airplane. I use our pool table top to check out every flying surface, incidence included. Just be certain to carefully level your pool table top, or you might end up with an aileron in the side pocket! Keep your ships light. . .use glue sparingly (it really adds up). It's always easier to add 2 lb. of lead than it is to subtract 2 oz. of weight after your bird is sprayed and rubbed out!

Buy two sets of plans! (**AAM** *is so*

Amy Weber displays her dad's favorite airplane.

convinced that this method of construction is first-class that we are offering a special price on a two-plan package. See our Plans Service page for details.—php)

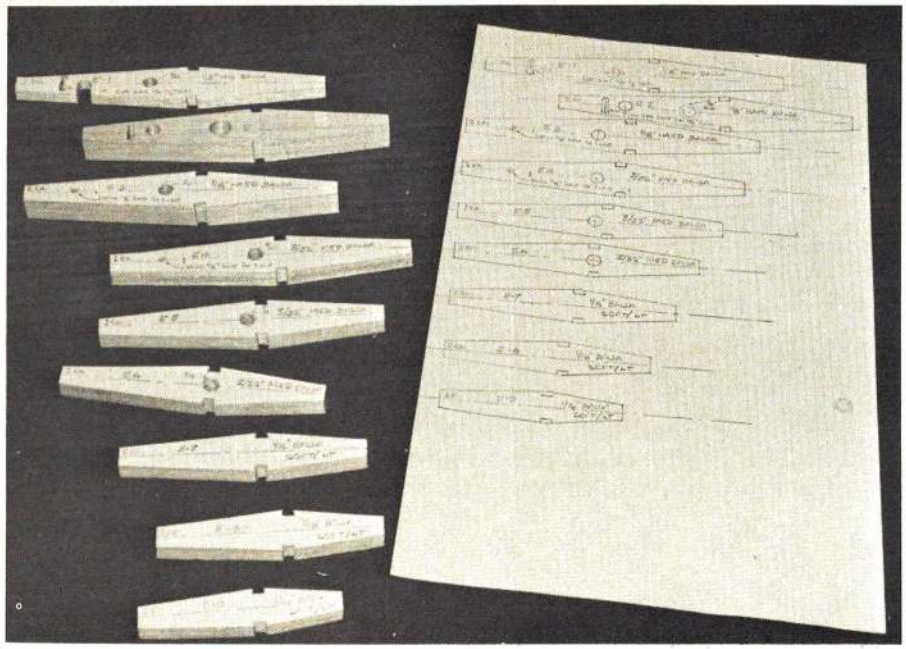
Make one set expendable by chopping it up into small parts. Determine how many sets (kits) you wish to make, including one for your best flying buddy, then rough-cut lumber of correct thickness, grade, grain and weight. Now stack the rough places, using small pieces of double-sided Scotch tape between layers. Put the printed plan part on top also with double-sided tape. Now, rough-cut about 1/32" around perimeter.

Using a medium grit disk on your sander, start the final shaping of parts. Just sand the line off each part. Now cut notches where necessary with a Zona saw, or on a jig saw. Drill holes in parts where shown (drill press if possible, again to assure uniformity through the stack). Now step back and admire your smooth, perfectly kitted airplane. Leave the stacks together, and peel off the parts as you build. . .it saves a lot of shuffling, and the part number is always on the top piece, until you peel it off to build.

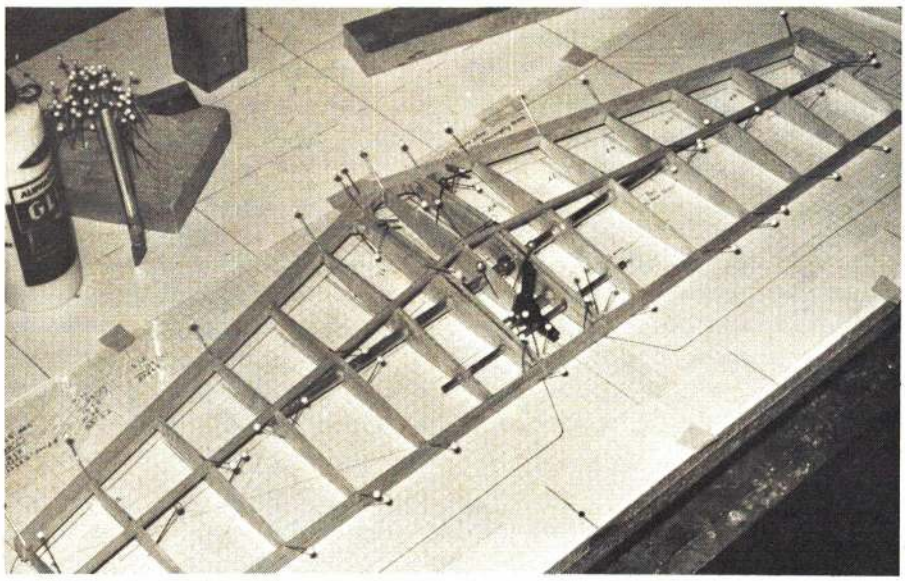
You'll need the completed stab while building the fuselage, so get the hardest part done first. The diamond stab is built flat (that's another reason I like it), and eliminates the "lap type" technique. Set the rear spar in place on the plans. A slight bevel on the bottom side will bring each rib end flush with the spar. Slide ribs over the flying stab tubing (see Violett's instructions, too). I use a fiberglass arrow shaft through the aluminum kingpin tube, epoxied inside. It is lighter and stronger than the dowel provided, and you can extend it beyond the aluminum tube for more rigidity.

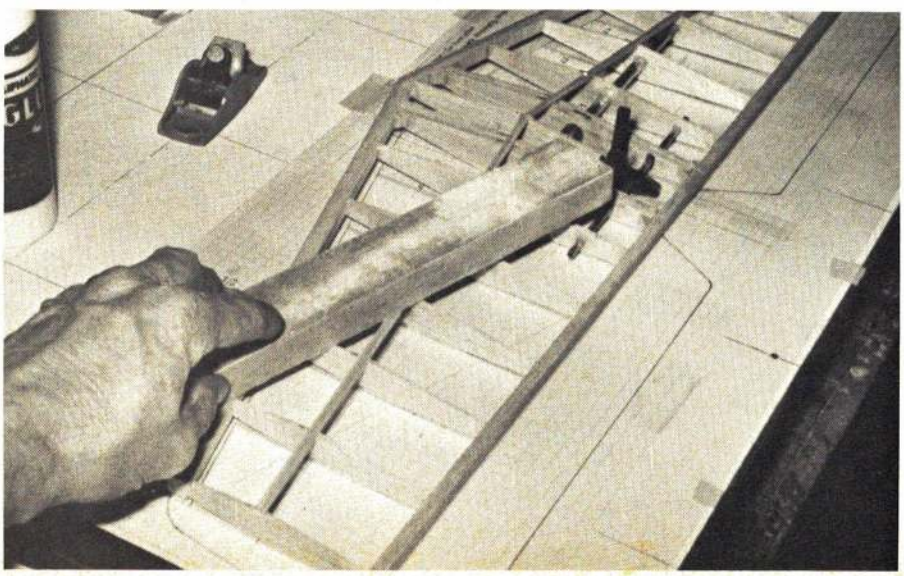
When all is in place, mix your 5-min. epoxy and glue carefully and quickly. Caution: remember not to epoxy any points that are bearing or sliding contacts. Visualize the center section floating free of the two ends, except the turning point around bearings. Add the remainder of the ribs. Add center spruce longeron, and leading edge. With small plane, bevel the LE and TE to conform with rib shapes.

Lightly sand the bottom of stab after glue has set to prepare for planking. Time now to add the little TE ribs. At this point, just scribe LE, TE and

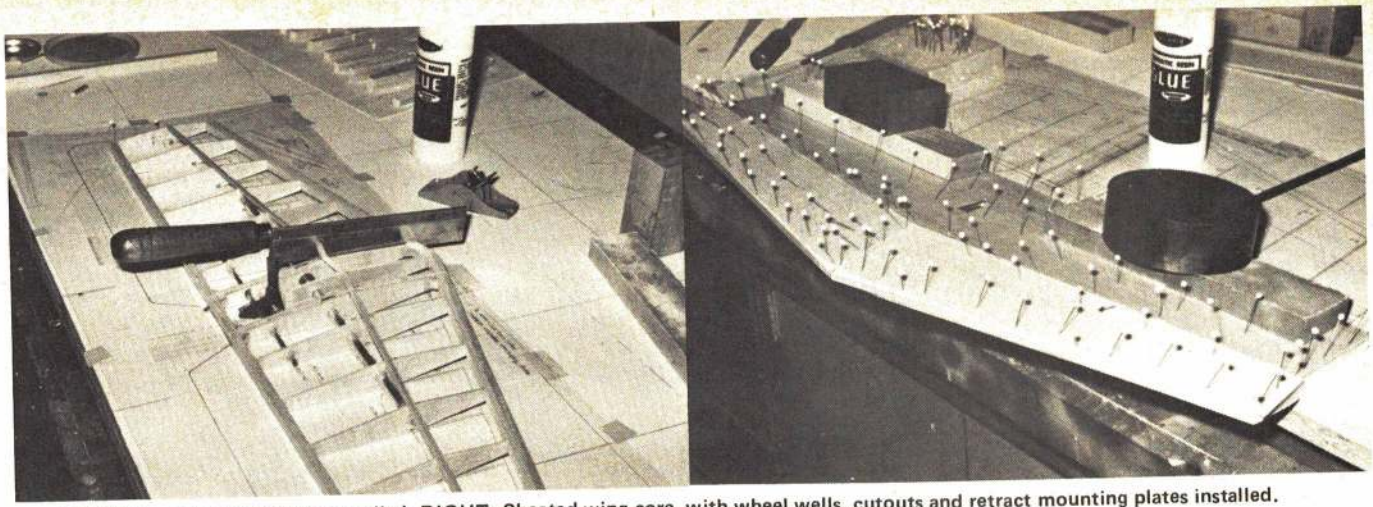


Using the plans as templates insures accuracy in building the model, as well as easy identification of parts. Here, the stab ribs are cut and sanded to shape.





TOP: The diamond-airfoiled stab was originated by Ed Kazmyrski on his Taurus, over a decade ago. BOTTOM: Sandpaper, rubber-cemented to a straight block, helps "level" the ribs.



LEFT:The stab, ready to be installed. RIGHT: Sheeted wing core, with wheel wells, cutouts and retract mounting plates installed.

spar with a razor saw. Don't cut all the way through! You want to keep the stab flat and in one piece until it is completely planked, shaped and sanded.

Turn stab over, and plane and sand smooth. Now, rough-cut the 1/16" planking to shape. Plank the top rear first, blocking it dead flat on the board. Now plank the bottom rear and, while still weighted and pinned, plank the front of the stab. Let everything dry overnight while still weighted flat, top side down.

Next morning, before work, plane and sand to shape. Now, finish cutting through the spars, leading and trailing edge and planking. Wow! Look at the flying stab. It *moves,* provided you used the epoxy sparingly! Now add tips and final sand. At this point, I covered and primed the flying stab (except center section where it will join the fuse).

Fuselage: Proceed with cutting out all fuselage formers, sides and doublers, using the same system with cut-up plan and double sided tape. It's fun, and fast! Drill holes, epoxy in blind nuts, attach engine mount and test engine placement and thrust.

Cut the triangular stock, as per plans, and glue to the fuse sides. Add the 1/32" doubler with contact cement (Weldwood, *not* the water base cement). Lay sides over plans and scribe the location of the main bulkheads.

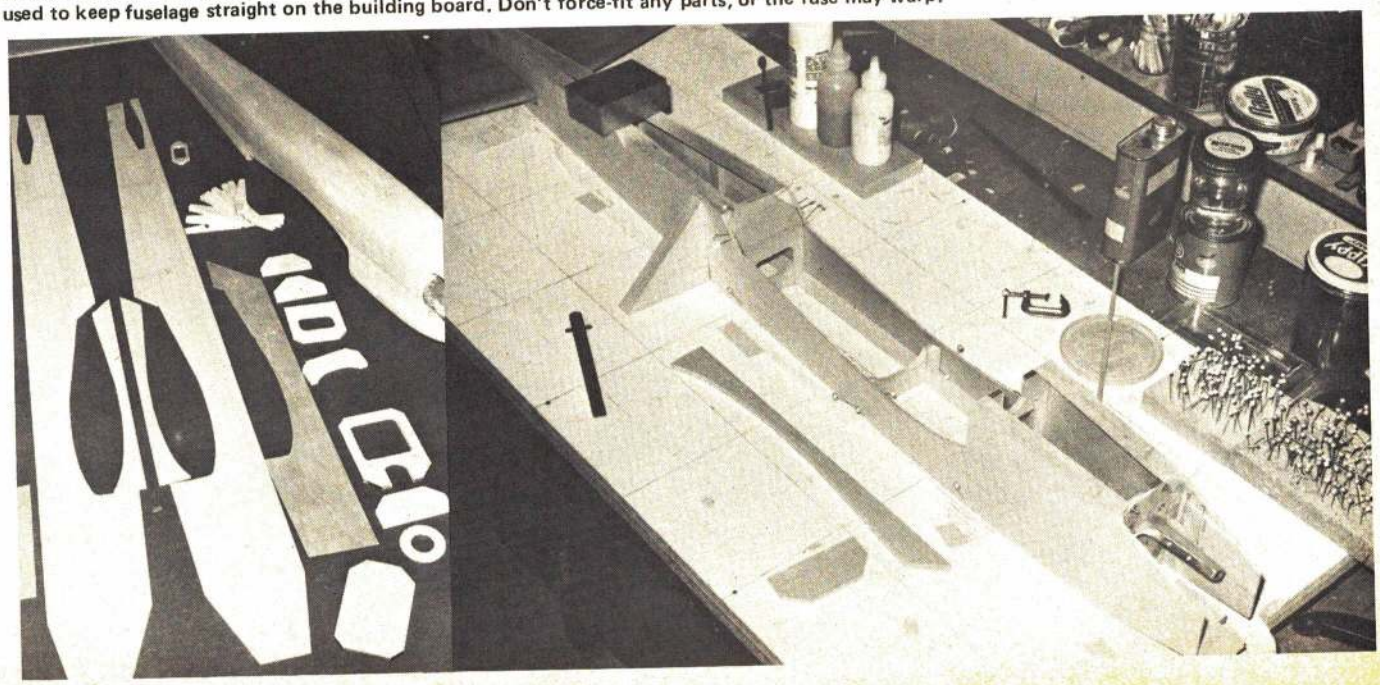
With the top view of the plans taped to your *flat* building board, lightly spot-glue the formers (remember to build the fuse inverted) directly to the plan in exactly the right positions. The plane can be built completely inverted, so that everything, including flying stab and thrust lines, can be true. Block the formers 90° to the board (I use small triangular blocks of balsa, trued 90° on the sander).

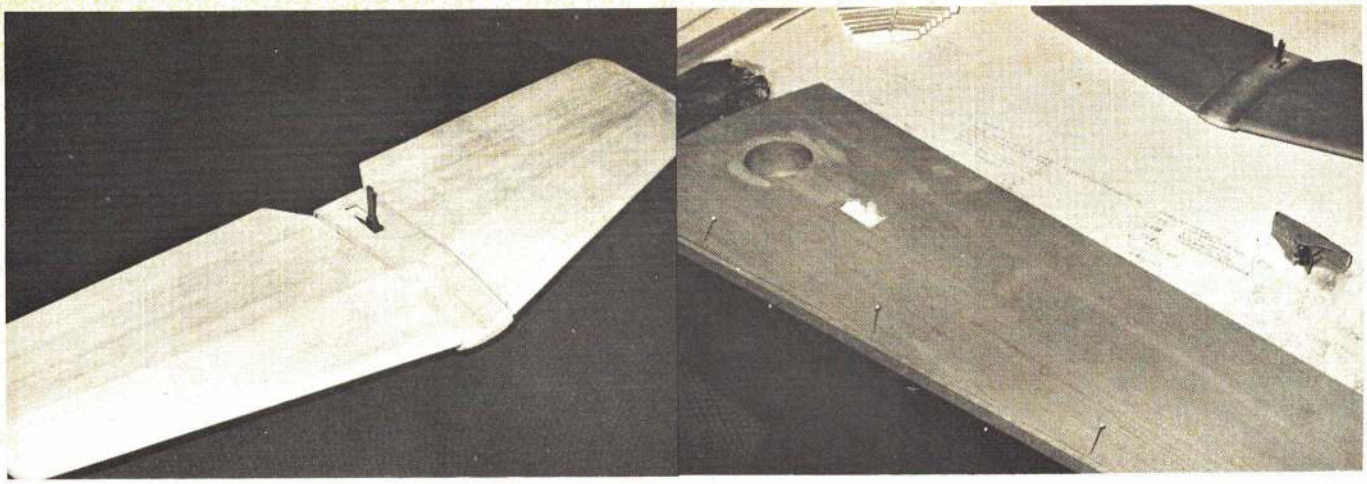
Check the side pieces previously glued up, to be certain that they fit like a glove. With a little sanding and chipping, you are ready to epoxy the sides to the formers. . .just the center three! When these are set, insert the stab, pull the sides together front and rear, square up everything, and wait for the aliphatic resin to dry (or if you are a genius, use 5-or 15-min. epoxy for this).

Now add the bottom rear sheeting and start building your mountain of shavings. Rough-cut the top block, but don't glue it on.

Wing: After sanding the foam cores lightly, line the wheel wells with 1/64" ply, then epoxy in the retract gear

BELOW LEFT: The parts of the fuselage must be cut and aligned accurately. Take your time. BELOW RIGHT: Note the triangles, weights, etc., used to keep fuselage straight on the building board. Don't force-fit any parts, or the fuse may warp.





LEFT: Cut out center section of stab with a razor saw. RIGHT: When planking stab, use weights, boards to hold everything in place as glue dries.

blocks, and glue on the trailing edge.

With the core cradled in its original form blank, sheet the bottom first. Then cut out the wheel wells and retract holes. Now, sheet the top of the wing, keeping the cores in their cut-out blanks to assure true shape. A 1/8" warp in the wing half at this time spells disaster. If you goof, better to start over again. Use the bad one for a canoe paddle!

The LE added, it should be shaped to a constant 3/8" radius. Add the tips; shape them and hollow them out. Cut the 1/4" LE stock wide enough so that, if it warps slightly before applying, you need not force the warp out.

Cut and shape the ailerons full length. When you are satisfied with the fit, tack-glue the whole piece to the trailing edge and final sand to shape.

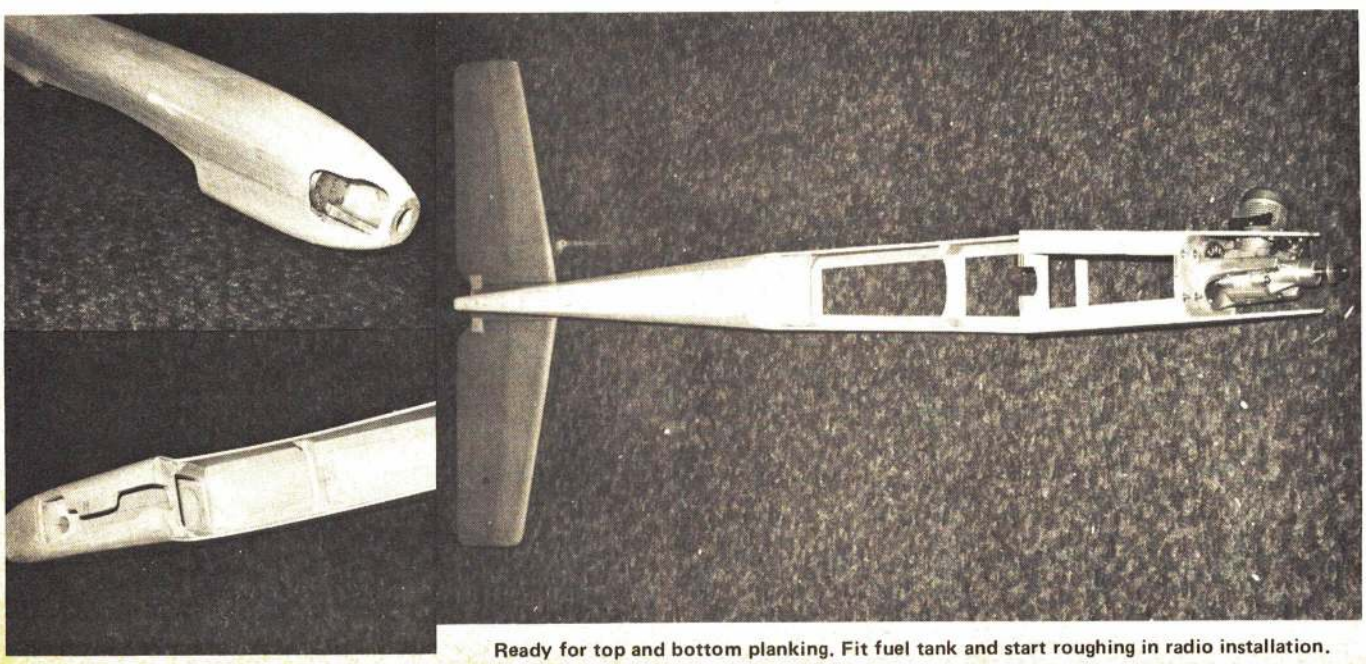
Remove the finished ailerons, cut off center sections, and hollow out for torque tubes. Prepare torque tubes Kirkland-style, using Rocket City threaded torque arms and three sizes of brass tube, from 1/8" up. Use a high silver content solder, making sure the tubes and rods are clean and lightly sanded. Be certain that the joints run, by osmosis, deep into the tubes, to make a super-strong torque tube.

Now, fit the wing to its saddle. Check for exact incidence (0°). Check that the wing is level with the fuse sides and stab. The fuse top is still completely flat at this point, so now is the time to double-check all alignments. Run a pencil line the full length of the fuselage along the thrust line. Use this for a reference line after the top block is added and shaped. Scribe a similar line down the center of the fuse top block. The top block can be attached now. The nose bottom block and nose blocks are now added, cut out and shaped. With the triangular bracing added, the engine cut-out is complete.

Now that your Sequel is beginning to look like an airplane, we'll leave you to admire it until next month. If you get bored in the interim, take your spare plan set and start another one. Most competition fliers have learned the wisdom of having two identical planes, and I urge that you adopt this approach to flying. The second Sequel will go together really fast.

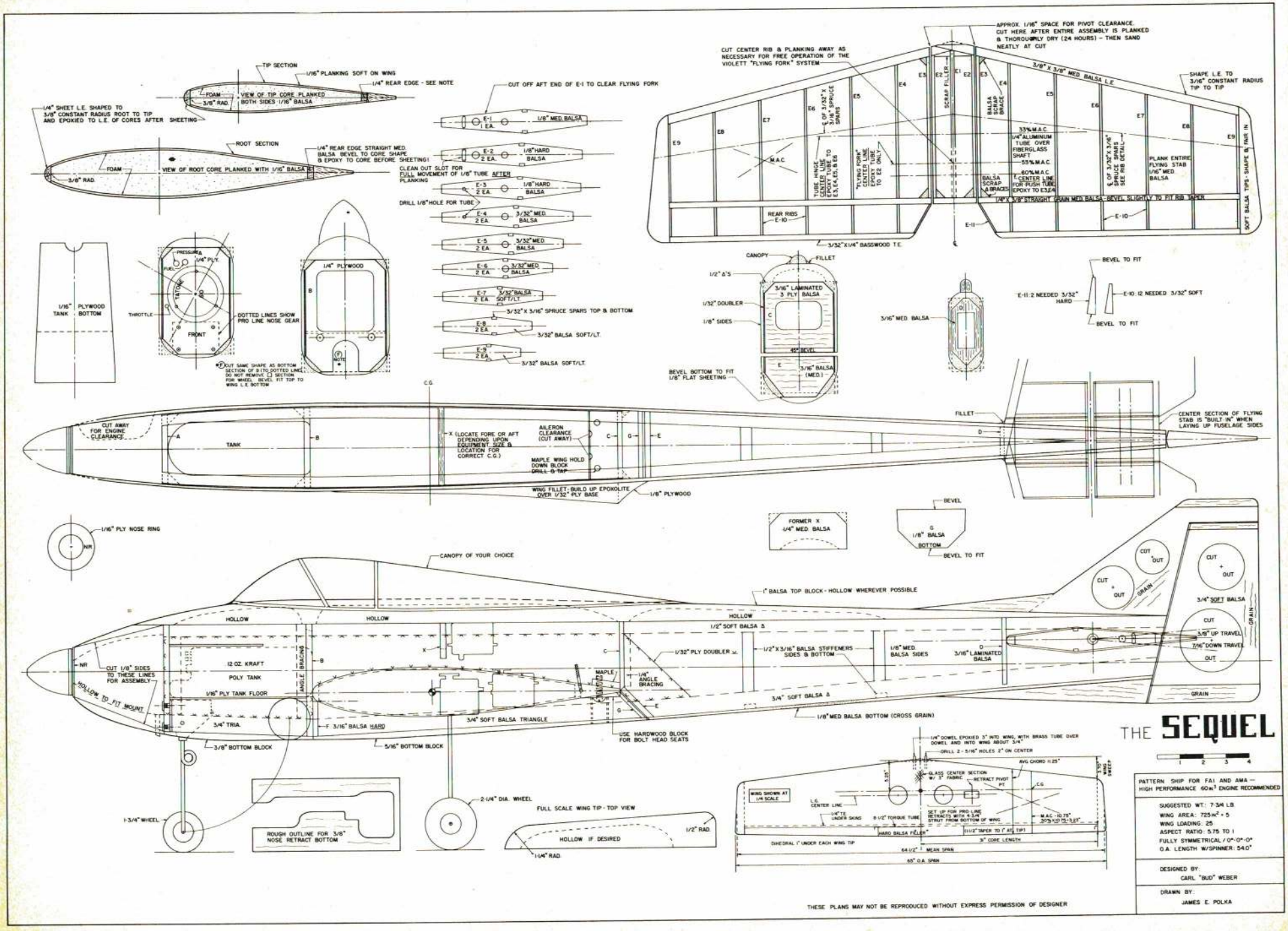
Next month we'll complete the model, and we'll even throw in some handy hints on getting a good, light finish. So, stay tuned!

Detail views of the nose, Check the engine (with muffler and spinner) to make sure that all items have proper clearance. The nose gear unit can be fitted into place now.



Ready for top and bottom planking. Fit fuel tank and start roughing in radio installation.

FULL-SIZE PLANS AVAILABLE—SEE PAGE 100



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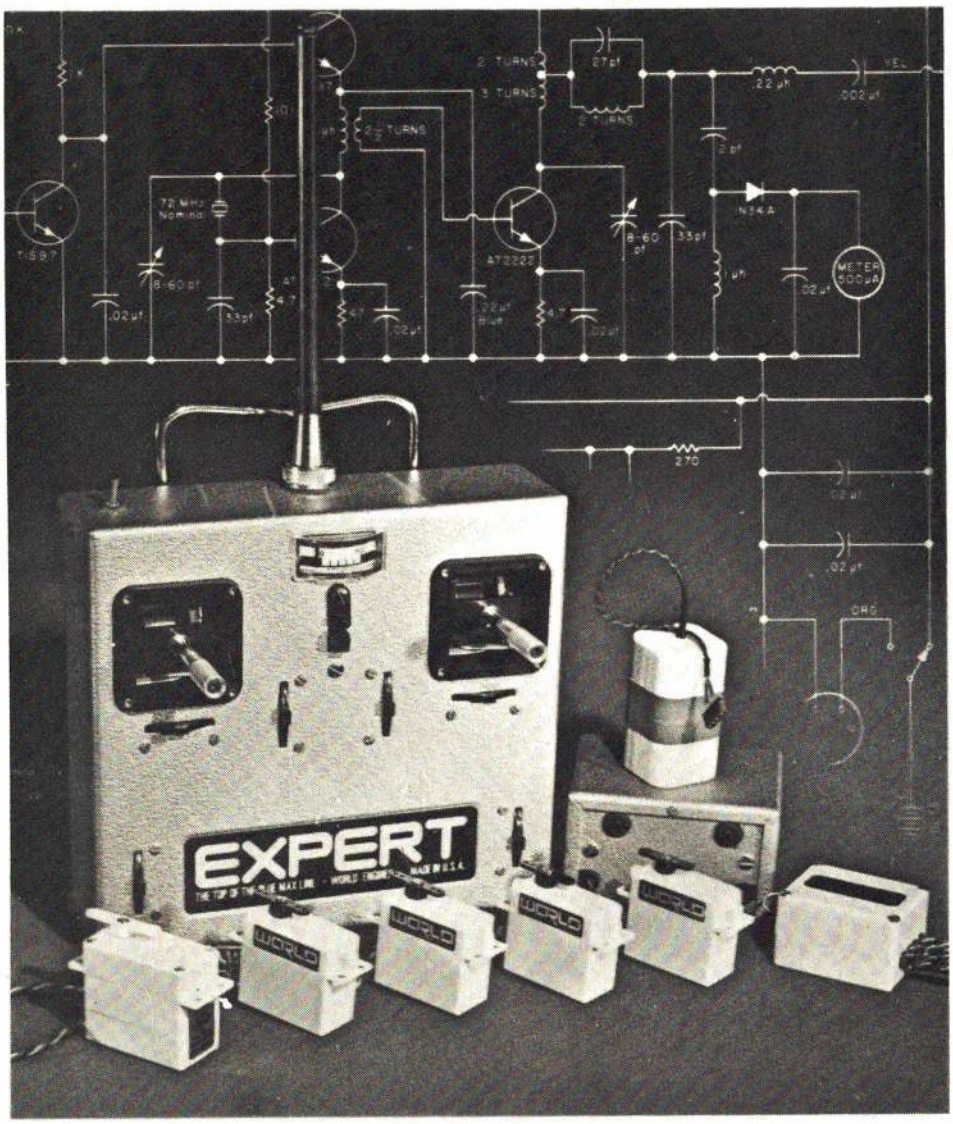

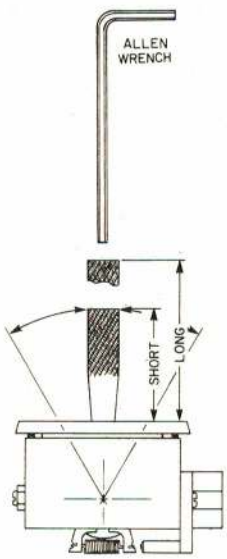

The sticks are adjustable in length with a collet type lock. Keep them short if you fly with your thumbs. Stretch them long if you fly with thumb and finger.

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The radio pictured above has been in development and prototype stage at World Engines for well over two years. We originally introduced our Expert Series with open gimbal sticks using metal gimbals. Because we were using drill jigs to fabricate these gimbals, we were getting some variations that just were not good from a production standpoint. Recently our Dave Brown has finished a cam operated mold for our new 5 oz. Newbury to make glass-filled nylon gimbals. The cams in the mold permit us to cast stops and bearing holes in two planes thereby eliminating any drill jig work and giving us a repeatable accurate fiberfilled nylon casting. These sticks were first exhibited at the 1974 Toledo Show and the reaction that we received at the show was very positive from a number of contest-type pattern flyers. We have continued to improve the RF link between transmitter and receiver and also have upgraded both our decoder and servo amplifier. The price of $399.00 may seem high to you until you realize that we are offering a retract servo along with four other servos which puts this 7 channel Expert Series set right in the ballpark competitively priced.

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WORLD CAPITOL OF FREE-FLIGHT MODEL AIRPLANE CHAMPIONSHIPS TAFT, CALIF. U.S.A.

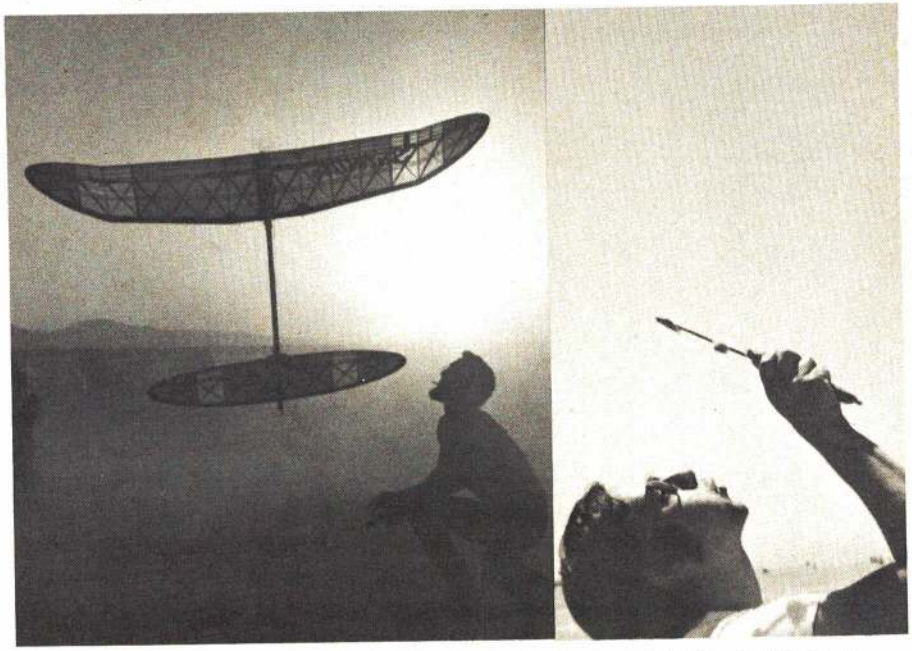
by Bob Meuser

You pull off Interstate 5 just north of Bakersfield onto the two-laner that snakes through the low foothills on its 30-mile route to Taft, and check the map. Off to the left should be Lake Buena Vista, 10 miles on a side. But what you see is a puddle surrounded by lush green farms, the product of piped-in water. You later learn that the "lake" came out second-best in a duel with the sun ages ago. You take a good look at the farms, for they are the last green spots you'll see for three days. From there on it's only sand, sage, and a few turkey vultures circling high, and a pair of inappropriately named marsh hawks zigzagging at what might be called treetop altitude, if there were any trees. Then on past the oil pumps, looking like giant praying mantises performing a solemn ritual dance in unison, and finally into Taft.

You ask a native where to turn off. "At the big sign that says something about model airplanes," he says. There it is: World Capital of Free Flight Model Airplane Championships—Taft, California, U.S.A. How presumptuous can you get, you wonder. Three days later you decide it is an understatement.

Two more miles and you're there: A long row of recreational vehicles, a half-mile square, bulldozed flat, surrounded by nothing except the Kitty Litter works half a mile downwind to serve as a reassuring landmark when chasing the models. You can't tell direction by the sun at Taft—it is always directly overhead. Pick a spot between two sumptuous, air-conditioned motor homes and pitch the battered tent. Good thing it isn't dark yet, for the Coleman lantern is on the bottom, as usual. Slip on your club T-shirt so you won't be mistaken for a local or a common tourist who has strayed from the course, fuel up the motorcycle and see if it will start, then back into town for a burger and shake.

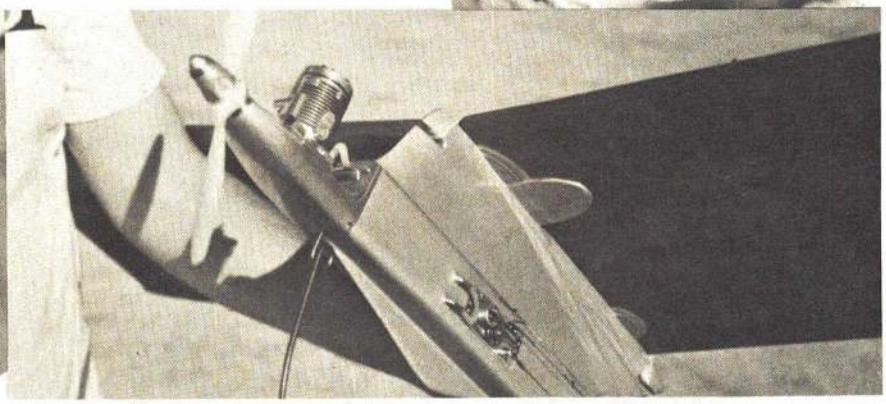
Share a table with a bunch who flew in from Dallas in a DC-3; think about something else when they describe the airsickness, then back to the field. Promenade the line of tents and house-trailers to see who made the scene, rap



LEFT: Bill Hunter sundowns his Satellite. RIGHT: Blow cattail fluff to find thermal.

Greg Xenakis won Junior A/1 Towline with his Tadpole, designed by father George.

ABOVE LEFT: By the sea, by the sea. . .no, just an overview of Taft. ABOVE RIGHT: Yes, they do fly models at night. It has its problems, but it's a great way to beat the heat. BELOW LEFT: Two points! Peanuts are athletic, also. This is not a faked shot. BELOW RIGHT: John Warren displays the neat front end of his Gysob Class C job.



with a guy reassembling a Cox Tee Dee by Coleman light, wonder whether there are a million stars up there or a billion, then into the sack, and sweet oblivion.

Ten minutes later, it seems, someone shines a hundred searchlights in your face, another sticks the exhaust of his Rossi in your ear, and you decide it must be morning already. But it still doesn't compute.

A guy removes the lid from a huge box. Inside you see a thousand models, all shapes and sizes—and all orange. A funny-looking Coupe d'Hiver rubber-powered model drifts by, reminding you of something you saw in a foreign magazine. Nope, you decide, it's all a dream, and you give sleep a second chance. You smell frying bacon and burnt castor oil, try to decide whether it is possible to smell in a dream, and conclude that it's all disgustingly real. The officials have assembled their bistros, it's eight o'clock, and the battle is on.

* * *

The guy with the orange models turns out to be Jim Scarborough—he has unloaded the Size 8 box from the top of his Size 2 car the night before—and he is assembling the model which will help earn him top spot in A-Gas later in the day. The quaint Coupe belongs to Pierre Chaussebourg of France. By early afternoon, he will have posted a score that even Bob White could not beat.

The Old-Timers are off in the corner by themselves. Have you ever seen a Forster 99 spark-ignition engine? Otto Bernhardt has one in the engine room of his huge Powerhouse, and wins the 30-sec. Antique event with it. Many once-familiar models appear reincarnated in HO-gauge with 020 engines; Bob Oslan wins that event. The Old-Timer rubber power models—the usual collection of Korda Wakefields, a deep-chested Englehardt-Baker Cal Champ—put up creditable flights despite the obesity demanded by the old fuselage cross section rules. Ray Behrens goes for four five-min. maxes plus a 1:21 to win: a score that would be good enough for third place in the modern Unlimited Rubber event. Tiny Matt Johnson, a Junior flying in competition with the big guys, puts up his simple little Bruno Marchi-designed stick model for three maxes to take second place. His dad Ernst won the event in 1972 and 1973.

By early afternoon, Pierre Chaussebourg metamorphoses into Bob White, and takes third place, too. Seeing him run around under that scorching sun all day, you would almost think he enjoyed it. Jim Quinn, who flies regularly with Bob, comes in second. Greg Xenakis' A/1 Towline Glider bloops off the end of the towline on his attempt for an eighth max, giving him a Junior National Record, while his dad is still out looking for his model from the sixth flight.

The FAI Power event—free flight's ultimate status symbol—has five in the fly-offs after the five qualifying three-min. flights. By the eighth flight the field is down to two. John Warren, top man at the Taft team selection semi-finals, goes up with a four-sec. motor

(Continued on page 93)

getting started in R/C

by Jim McNerney

What is a Good Radio?

Like every other manufactured product, there are good radios and not-so-good radios. Unfortunately, there is no independent Consumers' Union for RC equipment to rate radios in relative order. Magazine reviews either say that all radios are great or publish technical data without recommendation or comparison.

Ideally, if you're shopping for a radio, you'd like to go down to the local hobby shop and make your own comparisons on the spot. Few hobby shops can afford the overhead to carry even one of each of the major radio brands. Even if they did, the superficial qualities you could examine there tell only a small part of the story of relative quality. The hobby dealer, unless he is an active RCer, is not always a reliable source of information either. If he is a volume dealer, he is aware of what sells best. This can be an indicator. He will also be aware of customer complaints, but don't take this information as gospel.

Your local radio control club, being a significant aggregate of experience, can be helpful. This will afford you an opportunity to examine several brands and configurations of RC equipment. You can also get an insight into reliability and performance. Again, use caution in your evaluation of the dope you get this way. Each of us tends to be very opinionated. We become fiercely loyal to one brand or another and may not be completely objective in our evaluations. Therefore, it's a good idea to look for specific data, and keep the subjective judgments ("It's a piece of junk," "Greatest thing since the wheel") to a minimum.

In order to prepare you for your own evaluation, here are some ideas about how to evaluate a radio. We'll talk about five general categories:

(1) Appearance
(2) Performance
(3) Reliability
(4) Service
(5) Personal preference

We'll discuss each of these in some detail to help you formulate your own checklist.

Appearance: There's some esthetic value in the color of the boxes but, other than that, the only use is in distinguishing one brand from another. You *can* tell if the engineering is sound and the workmanship is good. Here are some things to check.

Transmitter

(1) *Antenna:*

Is the mount rugged and electrically sound?

Is there sufficient friction between each segment to insure it won't collapse during use?

(2) *Stick Assemblies:*

Is stick action smooth, without "slop" at the center?

Is spring action firm but not stiff?

Do trim levers set easily and stay put after setting?

Are stick assemblies ruggedly constructed to survive accidental dropping?

(3) *Case:*

Is there an output meter? Does it register RF output or just battery voltage? Is the meter easy to read and interpret?

Is there a charging jack or a built-in charger? (An external, transformer isolated charger is more desirable to reduce shock hazard.) A carbon zinc battery is less desirable than nickel cadmium.

Is the case strong and rugged? Do the sections fit together well? Is it designed to limit intrusion of dust, fuel, etc. into the stick mechanics and electronics?

Is the case easy to handle? Are controls accessible and easy to operate?

Receiver

(1) *Case:*

Is the case small enough to fit into the size aircraft you intend to fly? (Allow for proper padding of the receiver.)

Is the case ruggedly constructed to provide maximum crash protection?

(2) *Plugs:*

Are plugs mounted on leads or integral to the case? If on the case, is there a pigtail provided to facilitate aileron servo hookup?

Are plugs polarized?

Are plugs or plug leads marked or color coded for the functions they control?

Are plug contacts positive and firm?

(3) *Internal:*

Are component boards securely mounted?

Is there sufficient clearance between components?

Is antenna strain relief provided?

Are circuit boards clean, free of resin and coated with a light spray of clear protective material?

Switch Harness

Is the switch separate from, or integral with, the battery? (Separate is more desirable.)

Is there an integral charging plug?

Does the switch seat firmly and positively, both on and off?

Are mounting provisions available for both the switch and the charging plug?

Are plugs polarized and color coded?

Is there an easy method for identifying the receiver and battery plugs?

Are leads long enough? (At least 5" from the switch.)

Battery

Is the case rugged enough to protect the cells from moderate crash damage?

Is cell capacity large enough to handle six to eight flights? (More about this under "Performance" next month).

Are cells joined by spot welded and soldered straps?

Are chafing and strain-relief provisions incorporated for the wire leads?

Servos

(1) *Cases:*

Are cases smooth, tight-fitting and rugged?

Are case sections held together with screws or are they taped? (Taping is less desirable.)

Are mounting lugs strong, rugged and provided with vibration isolation (grommets)?

Are seams tight?

(Continued on page 99)

We know what you'll be doing December 25th

When you get a Hobie Hawk for Christmas, the rest of the year is bound to be great! And what's more, you aren't stuck oohing and aahing over socks and ties you didn't want.

The Hawk is the kind of present you dream of getting, but seldom do. It's beautifully designed and surprisingly strong — easily one of the most rugged sailplanes in the industry. You can choose a Hawk kit to finish yourself, or completed, ready for the RC gear. Either way, you get a fully detailed instruction and operation manual, plus a lightweight, hi-density foam carrying case.

Let's face it, there are a lot of dull things you could get for Christmas — but the Hawk isn't one of them.

HAPPY HOLIDAYS
from Hobie Model Company.

HOBIE HAWK *Bird of Play*

Specifications			
Weight	30 ounces (less RC)	Wing area	590 sq. inches (4.1 sq. ft.)
Wing span	98 inches	Wing loading	9.2 ounces (w/8 oz. RC)
		Overall length	42 inches

Hobie Model Company
2026 McGaw Ave., Irvine, California 92705 • (714) 979-2880 • A Division of Coast Catamaran Distributors & Dealers: Ask about our new pricing structure.

TONY(S)

Smooth in the corners, precise in the overheads, it also exudes those all-important impression points. This Tony is a retract-equipped CL stunter. / by Archie Adamisin

Retracting landing gear—the thought again went through my head. Today was like any other day with a plane: small butterflies in the stomach and moist palms. The funny thing is that this was not just any new plane. As I rolled out the lines, a scary thought raced through my mind. What if the plane doesn't fly or the gears don't work? Just as an extra check, I cycled the gear before putting the Tony into the circle. The retracts worked perfectly. There was no more stalling, the time had come and there was no way to get out of it. Everyone was ready; nobody wanted to miss it. Friends had cameras loaded, and all attention focused on me and my new creation.

(Continued on page 43)

Smooth in the lift, precise in the maneuvers, it also exudes those all-important impression points. This Tony is a soaring version of a CL stunter. / by Paul Denson

It must be that old "Yankee Ingenuity" that prompts a model builder to attempt something new. There seems to be no other reason why this whole thing transpired. A U-control plane flying in the lift at Torrey Pines Gliderport? Absurd!

We have heard guys brag about our cliff. They say that you can fly golf balls at Torrey if you could find small *(Continued on page 42)*

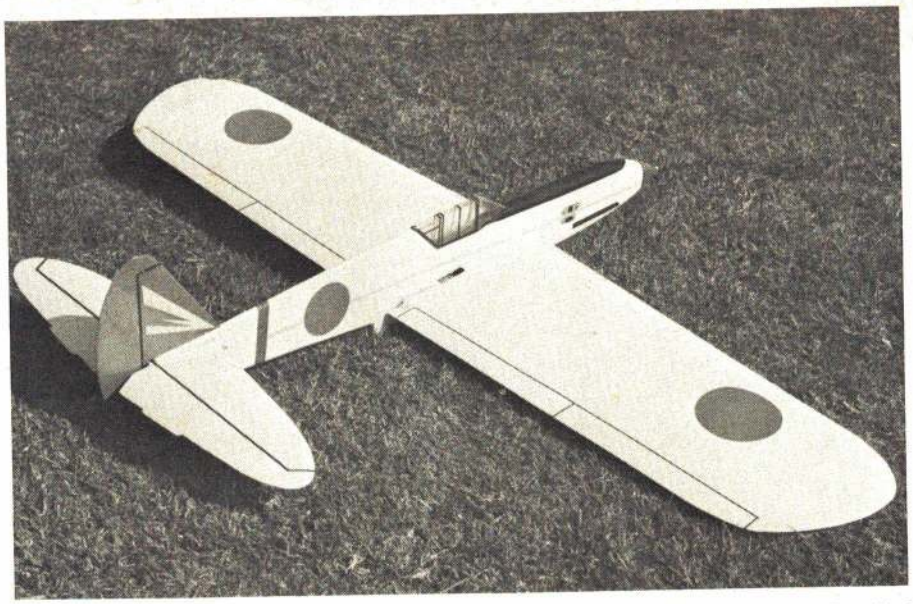
enough servos. So why not a CL model for slope soaring? The first attempt along these lines was Midwest's profile Messerschmitt (a kit plane—"Yuuuuch!" from the purists), closely followed by another plane from the same line, the Bell King Cobra. A few weeks later, the third plane—a beautiful, well-detailed profile Mustang—made its appearance. They flew—in fact they flew like nothing else at the cliff. Try a Vertical Eight, starting at the bottom, with a Cirrus. Try a Four-Point Roll with any glider. With three channels, the King Cobra can knife edge in a moderate breeze. These planes can fly inverted indefinitely. No problem with turns, since it uses no rudder in the turns.

These stunts really happen regularly, and it is beautiful seeing two WWII combatants having a dogfight, just like they did back in the '40s over the Channel. You feel as though you are standing on the White Cliffs of Dover, watching a Mustang on the tail of a Messerschmitt. These two guys are having a ball, using maneuvers designed by WWI Aces to get the Red Baron off their tail. To see one of these profile jobs flying among the Windfrees, Cirruses and other soaring type planes makes the soaring giants look unreal. These are *real* looking airplanes.

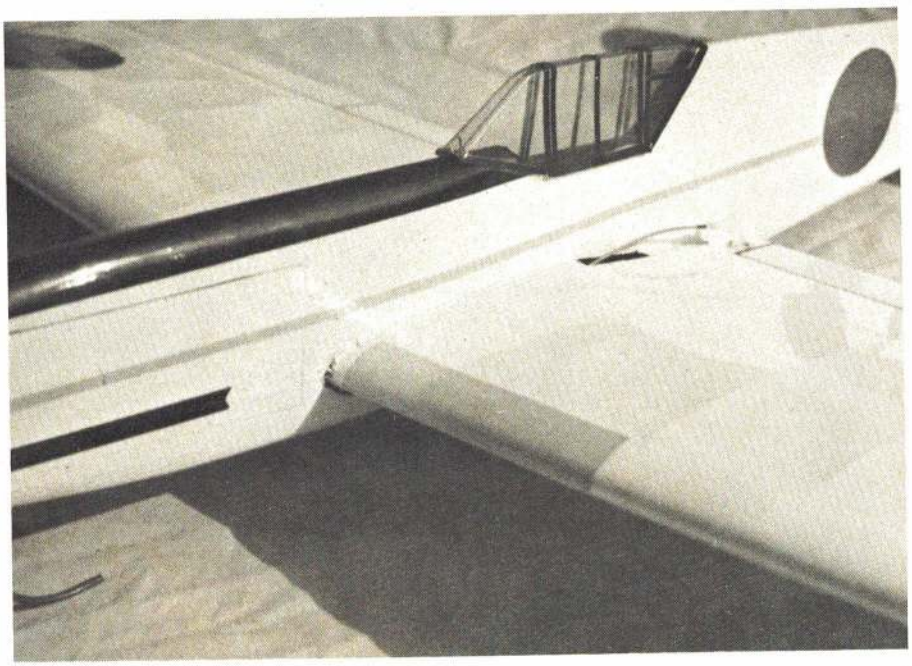
We decided, rather than using one of Midwest's kits for this article, to select a design of our own. We thought of you purists, who absolutely refuse to build a kit. We further decided to keep the design along WWII standards. So we looked for a plane equipped with an inline engine and found the Tony. The Tony is similar enough to most profile kits that you can follow our building instructions to modify any of them.

For those of you who are not as fortunate as we to have the perpetual lift of Torrey Pines, we have had a ball flying the Tony in a small park (the high school athletic field) using a hi-start. The venerable Editor of this magazine suggested to the authors that we might try catapult launching *(Editors are sadists—php)*. We discussed this at great length with a number of the Torrey Pines Gulls members; our final conclusion was, if he wanted a plane catapulted, *he* would build it and *we* would be glad to try the catapult launch from behind a three-foot-thick concrete bunker. These planes fly exactly like

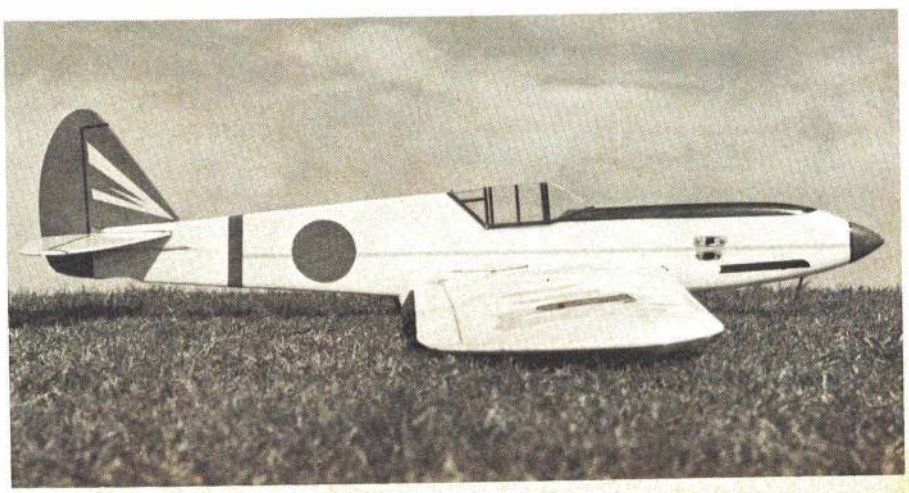
(Continued on page 44)

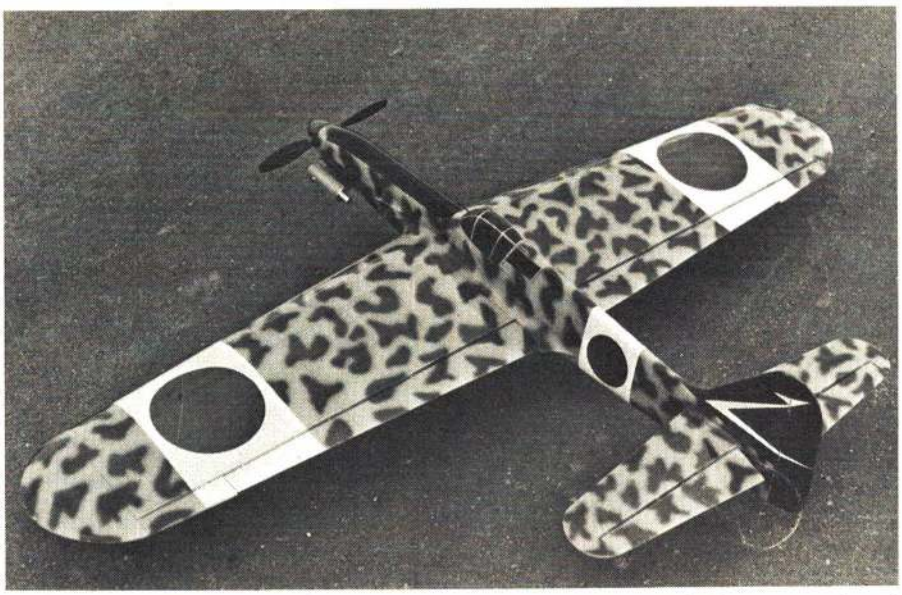


It's not surprising that the Tony shown here strikingly resembles a CL model. Notice that all of the areas and moments are from today's CL profile kits.



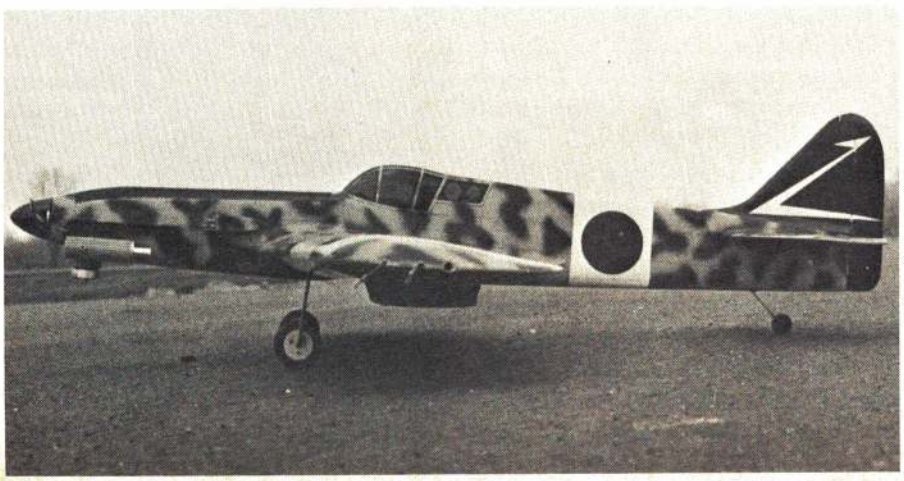
ABOVE: The access hatch in the side of the fuse, ahead of the wing, covers a flat battery pack and the elevator servo. BOTTOM: In profile, the profile fuse really comes into its own—you really can't distinguish it from a built-up version.





Adequate areas and moments ensure stable stunting with this Tony. And—it's retract equipped.

ABOVE: A neatly done canopy adds that final touch to any model. That's where the attention focuses on any plane. BOTTOM: The distinctive profile of this famous WWII fighter retains its integrity as a CL stunter, even though the nose has been lengthened.



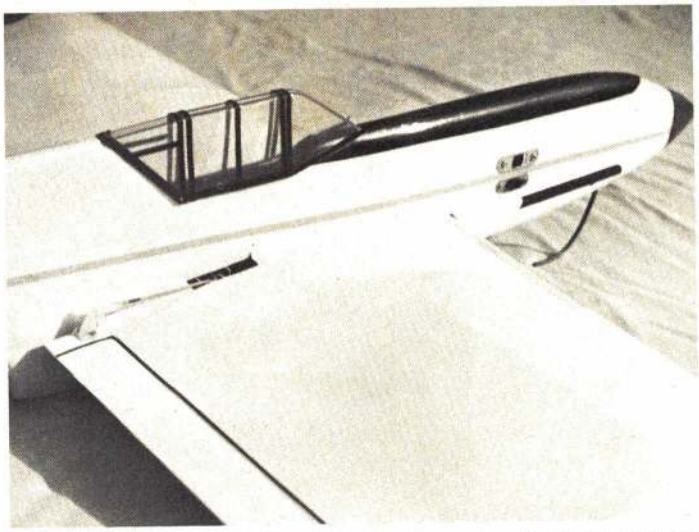
After filling the tank and priming the engine, I once again cycled the retracts *(Come on Archie, the suspense is killing us—php.)*, and again they worked. The motor fired up on the first flip and we were off. As the Tony started to break ground, I hesitated, then hit the switch. . .the wheels came up. My obsession of the past months was suddenly a reality. I flew 10 or 12 laps, just getting the feel of a model with no wheels. I then went through the Pattern. Although the Tony was a bit nose heavy, it turned the corners of the Wing Over very crisply. Going on through the inside loops, inverted flight, and outside loops, the model tracked extremely well.

As I started the squares, I decided to open them up to about 50°. This gave me the chance to fly the airplane "through" the maneuver a little more, and also to give the airplane a little room to roam on the first flight. Again, as in the Wing Over, the Tony went through the corners very quickly, with no wobble or yaw problems. The triangles are the maneuvers that usually determine how good an airplane really is. The Tony made these look as though they had been drawn with a T-square and triangle. Both of the Horizontal Eights were done with very little effort on my part. As in the previous maneuvers, the Tony seemed to coast through. The remainder of the Pattern was completed with about the same relative ease.

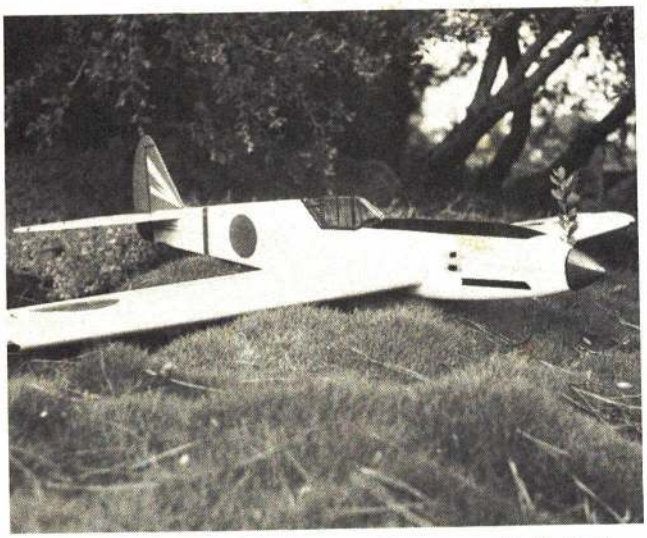
As I finished the Four Leaf Clover, I again felt butterflies. Would the wheels come back down and give this splendid bird an opportunity to fly again? I waited until I heard the motor sputter before I hit the switch. As I hit the switch, the motor quit. The wheels had gone up with little or no effort—they also came down as effortlessly.

I can't really express the feeling that ran through my system as the Tony rolled to a stop. I guess it was a feeling of accomplishment, of having started something and having seen it through to the end, even though many people had told me that I was just wasting my time and that the idea wouldn't work. In all, the Tony has been flown to date 14 times, by five different people, and all had the same thing to say. Retracts are definitely an improvement over the conventional landing gear system, not

(Continued on page 45)

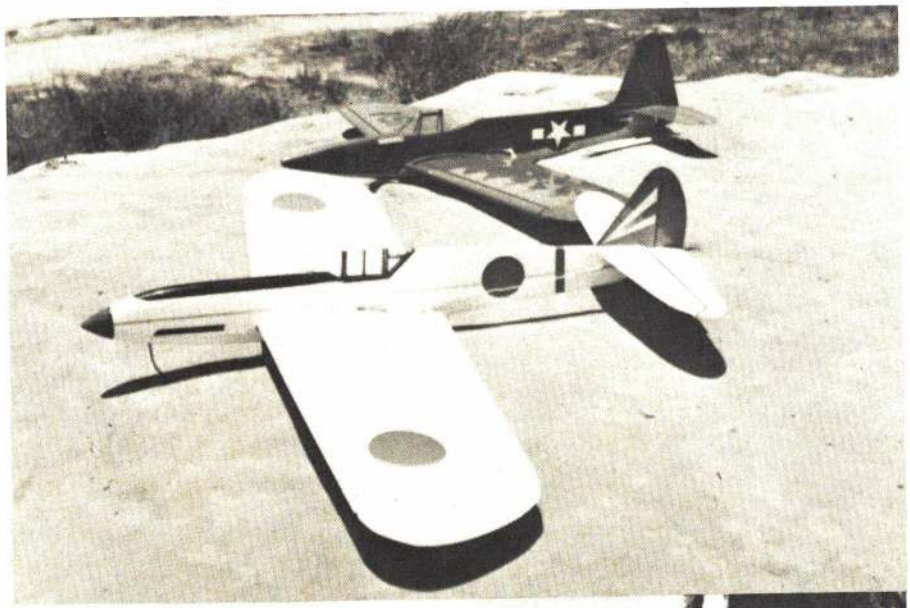


The aileron linkages exit in a convenient manner. Since the model is one-piece, nothing needs to be disconnected.



In the shade of a tree, the Tony rests between aerobatic flights.

their full-scale counterparts. Put them in an altitude, and they stay in this altitude. If you trim for level flight, the plane will fly level. Put it into a bank, it stays in that bank. At the tremendous speeds that you would get from a catapult, any slight movement of the controls would be so exaggerated that something surely would part company from the rest of the plane. If you trim the model beforehand on a winch or hi-start, the excess speed and lift of a catapult would probably precipitate the wildest loop ever seen. We would be glad to hear from any of you fliers with enough "Yankee Ingenuity" (guts) to fly the Tony from a catapult.



ABOVE: The Tony in the company of a Kingcobra, which is converted to RC from the kit produced by Midwest. RIGHT: Sharon Powers poses with the Tony in front of historic Presidio Park in San Diego, Calif.

CONSTRUCTION

Wing: Let's start by building the wing. Years of experience seem to indicate that once the wing is built the plane is built. First, make a template of aluminum or stiff cardboard to the shape indicated on the plans. Use this template to cut all of the 1/16" medium hard balsa ribs to shape. Sand the ribs, using No. 400 wet or dry sandpaper, and use a soft plastic sponge as your sanding block—this rounds the edges slightly. Since your are not going to sheet or cap-strip this wing, you will get a smooth job when you are ready to cover.

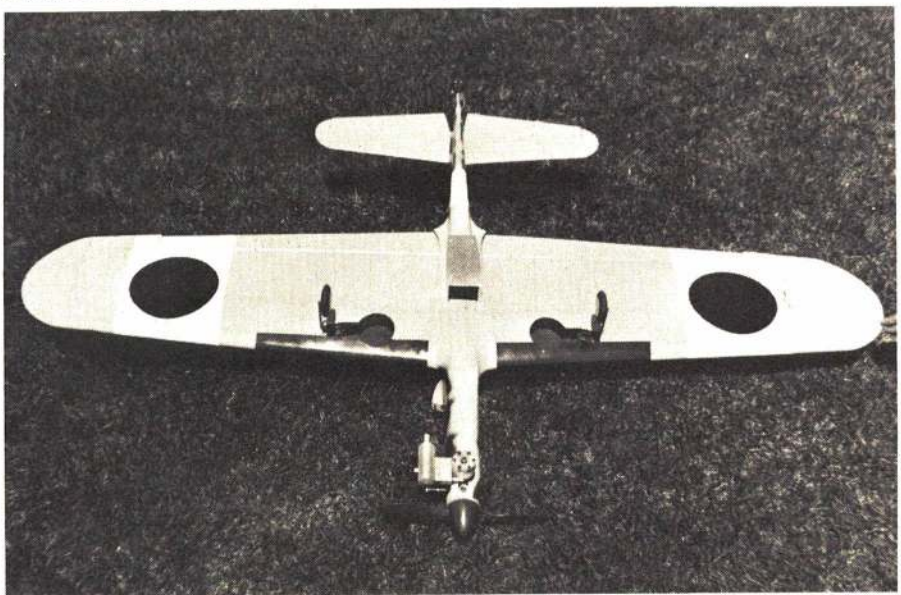
Cut out the two spars from hard 1/16" sheet balsa, then sand, and add the 1/16" ply doubler which goes out to rib No. 5. Next take some 1" preshaped, leading edge stock and cut 1/16 x 1/8" deep slots for the ribs, as shown on the plans. I use an old hacksaw blade for this purpose. Break the blade in half, then tape the two halves together, side-by-side, with masking tape. This saw will cut a slot exactly 1/16" wide. Where the two leading edge pieces join together in the center of the wing, cut a 1/8" horizontal slot for the plywood dihedral brace. It is very important that these slots are cut on the exact centerline, so that the two halves of the LE will match up. Now, do the same with the trailing edge stock. The TE stock may be tapered at this time.

Cut two each of the wing building jigs from hard 1/8" balsa sheet. Place jigs No. 1 between ribs 1 and 2. Jigs No. 2 go between ribs 8 and 9. Pin the TE on the plans. Glue all the wing ribs to

(Continued on page 99)

A homemade muffler keeps contestants, spectators happy. Details like cannon fairings are the coup de grace in the judges' eyes.

Models always seem to look good in a landscape setting. The Tony's camouflage, one must admit, is very effective.



ABOVE: Retracts on a CL model are fast becoming the norm. They add much to the symmetry of the aerobatic maneuvers. LEFT: Although the nose cowl almost completely obscures the OS Max 35's venturi, this doesn't detract from reliable performance.

only from the standpoint of reduced drag, but also because of the subtle psychological advantages felt in competition.

Don't get me wrong, I'm not saying that putting retracts into your present model will make it a winner. Nor am I saying that the Tony is the ultimate stunt plane. What I am saying is that I do believe that, after flying the Tony, no airplane could claim being ultimate unless it contained a set of retracting landing gear. For the few hours' more work and the two oz. of extra weight, I can't see any reason why more fliers will not be using them soon.

CONSTRUCTION

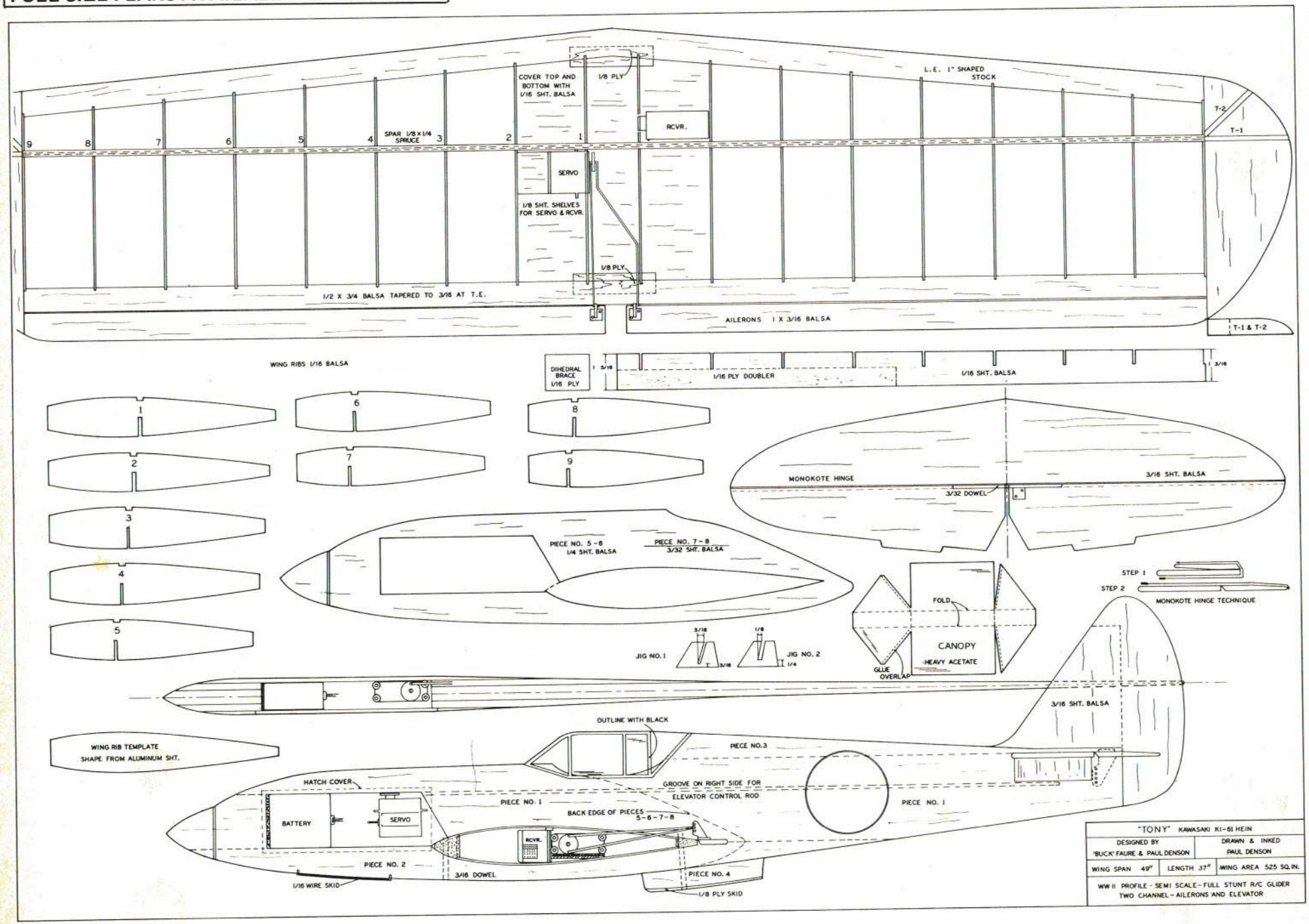
I prefer to build what might be termed a stressed skin wing, of sparless construction and using a conventional leading and trailing edge with a plywood reinforced center section. To start the wing, stack 47 rib blanks (24 inside and 23 outside) around the three plywood templates and proceed to carve them. When the ribs are fully carved, cut lightening holes in all but the landing gear, center section, and tip ribs. These ribs are made of 1/8" sheet for structural reasons and, therefore, should remain intact.

Carve all ribs from 1/16" sheet and then re-cut the landing gear, center section, and tip ribs from 1/8" stock. Once the ribs have been completed, you should proceed onto the leading and trailing edges. As seen on the plans, these have to be notched to receive the 1/16" rib locaters, as well as the landing gear floor and center section crutch (both are made of 1/8" plywood). The notches are cut with a Woodruff Key Cutter to insure uniform height through the leading and trailing edges. When all of this has been completed, the wing is then jigged on a building board. Use small, hard balsa blocks sanded to the correct thickness so that the centerlines of the leading and trailing edges are both parallel to the board. The wing is assembled upside down to facilitate the installation of the landing gear.

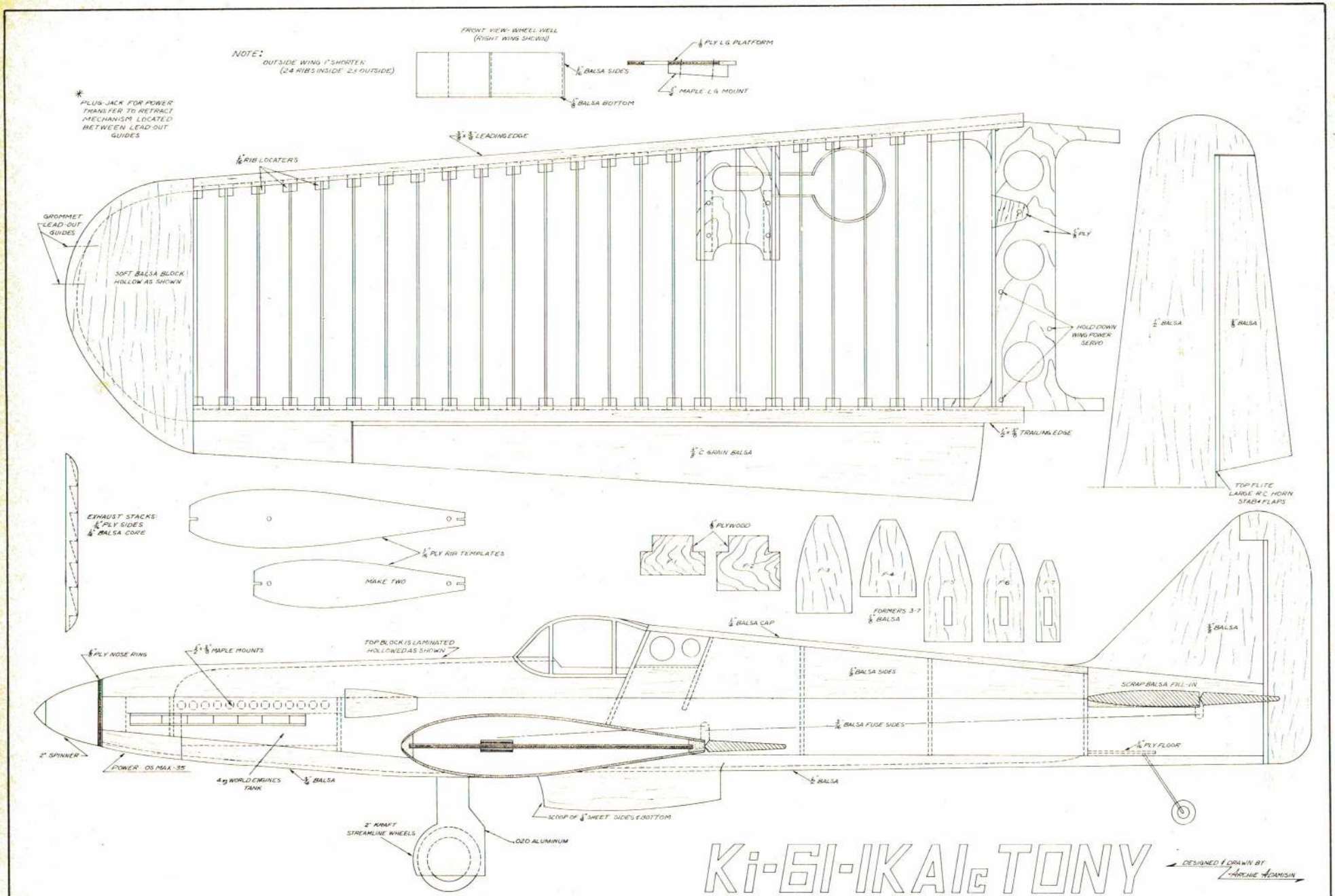
A slight modification is necessary in order for the landing gear to fit on the platforms as shown. I moved the mounting holes inward toward the centerline of the gear, in order that the

(Continued on page 107)

FULL-SIZE PLANS AVAILABLE—SEE PAGE 100



"TONY" KAWASAKI KI-61 HEIN	
DESIGNED BY "BUCK" FAURE & PAUL DENSON	DRAWN & INKED PAUL DENSON
WING SPAN 49"	LENGTH 37"
WING AREA 525 SQ.IN.	
WW II PROFILE - SEMI SCALE - FULL STUNT R/C GLIDER TWO CHANNEL - AILERONS AND ELEVATOR	



FULL-SIZE PLANS AVAILABLE—SEE PAGE 100

Phantasy

by Carl Berryman

Like an ethereal chimera, the Phantasy prowls the skies—a phantom after prey.

It came out of the sky like a dream. No, more like a fantasy. It moved in like a phamtom out of nowhere, setting up cut after cut on the other plane's streamer. This plane on the end of my lines was what I had long dreamed of. It made super turns without loss of speed, yet it was so stable it was unreal. No, it was fantastic. Then I realized I had to have this bird for my own. I had to draw and build this Phantasy.

So, I shook my head to wake myself from this dream and started putting all the little details and all the little inside forces together to see if I could truly make a dream combat machine. To make a long story short, the dream came true.

I have a plane that will turn super-tight, with very little slowing when making a radius. It's stable, yet responsive. Phantasy's three-point construction gives good force distribution to all parts —transferring loads to the heavier and stouter center section in case of collision or hard landings. The high aspect ratio (7.5:1) and minimal frontal area keep induced drag low, enabling speeds of 120-plus mph throughout the flight.

Follow standard construction techniques for building this model. All building steps and procedures are typical, and no tricky or difficult areas are involved—you might say that building a Phantasy is as easy as daydreaming.

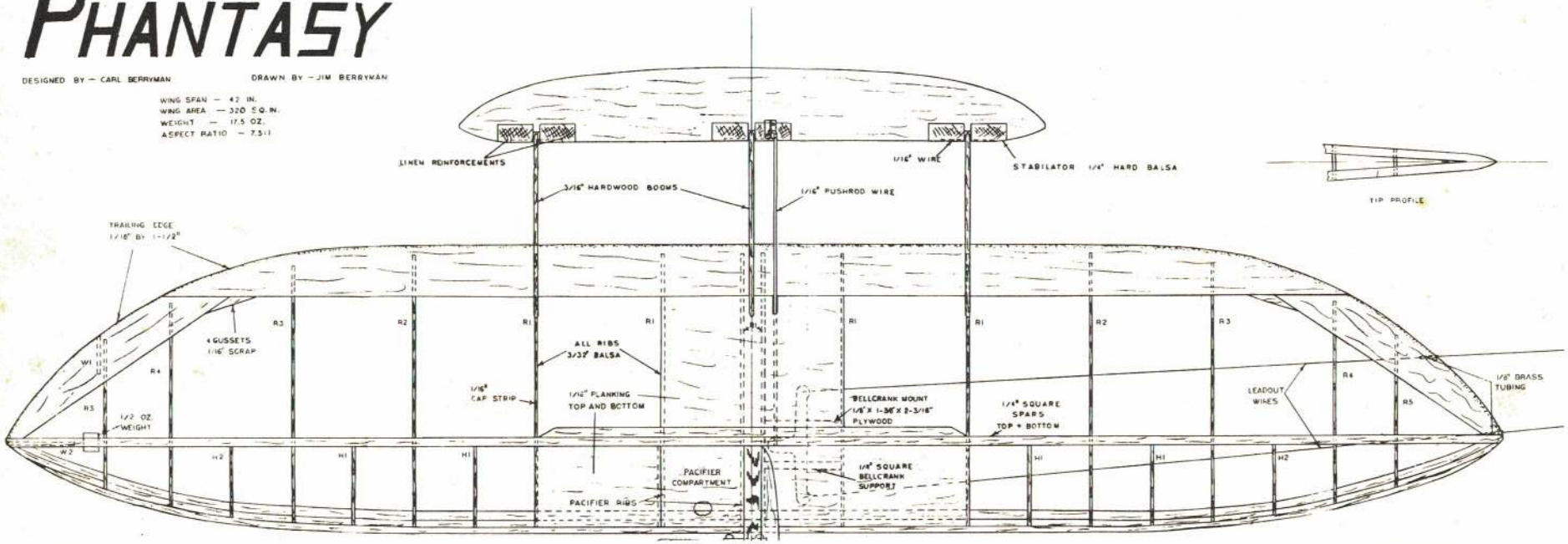
The real awakening comes when you score kill upon kill with the Phantasy. After you beat your opponent, you can tell him he must have been dreaming. It is really a Phantasy.

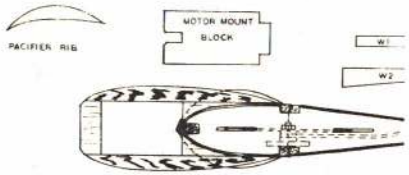
The author prepares to fly his combat dream machine, with the able assistance of Scott Dummer.

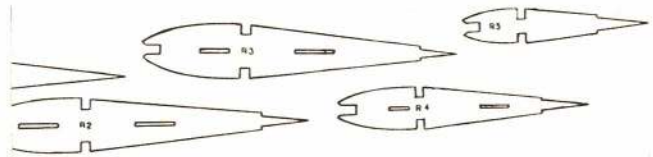
PHANTASY

DESIGNED BY — CARL BERRYMAN DRAWN BY — JIM BERRYMAN

WING SPAN — 42 IN.
WING AREA — 320 SQ. IN.
WEIGHT — 17.5 OZ.
ASPECT RATIO — 7.5:1







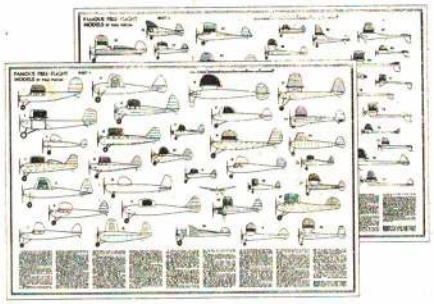
FULL-SIZE PLANS AVAILABLE

Eric W. Meyers

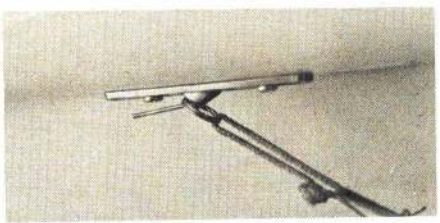
new products checklist

House of Balsa/QM Dara. This exciting, new quarter midget design has undergone extensive testing to enable it to be quick and easy to build, as well as one of the fastest racers available. It's hardly surprising that this sleek design was the fastest qualifier at this year's Nationals. The airplane has a balsa fuselage, built-up wings (which feature fiberglass, arrow-shaft wing spars for ease of construction and true alignment). Fuselage incorporates a unique, molded plastic canopy and rear deck for minimum weight. The 35" span ship uses a 15-size engine and four-channel radio gear. Price to be announced. House of Balsa, 2814 E. 56th Way, Long Beach, Calif., 90805.

Herb's Hobby Haven/The Principal. Sport fliers will appreciate the quick assembly (four-six hours) of this four-channel RC trainer/sport ship. The plane has an amazingly low price, considering the fact that it contains precovered foam wings, with a thick balsa leading and trailing edge. All kit parts have been precut, and a hardware package is included. Model has a 54" span, so a 29-40 engine should make it perform just fine. A great kit for the economy minded modeler. $24.95. Herb's Hobby Haven, 2151 G.A.R. Highway, North Swansea, Mass. 02777.

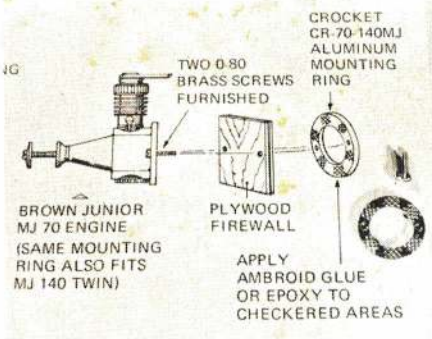


Plecan/Famous Free Flight Charts. Nostalgia galore! All modelers interested in reviewing old-time, free flight designs will have to own a set of these model charts. There are 77 designs shown, and each one has an individual description at the bottom of the chart, giving historical data and background on the model. Charts are mailed in the triangular container for $4.00 per set of two. Paul Plecan, P. O. Box 1556, Garden Grove, Calif. 92642

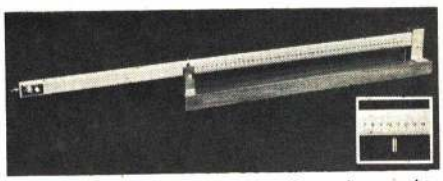


Scott Research/"The Hooker" An item designed mainly for RC soaring enthusiasts, this fully adjustable towhook is extremely strong and lightweight, built of a die-cast aluminum body with a music wire hook. The unit has been designed with structural strength capabilities for use on the largest aircraft, and it will withstand the most brutal winches and hi-starts. The aluminum alloy used is ductile enough for the accessory to be bent to fit the bottom curvature of any available sailplane fuselage. Unit mounts to the bottom by sheet metal screws set into a hardwood mounting block in the fuselage. Scott Research Co., P. O. Box 22, Costa Mesa, Calif. 92627.

Dremel/Speed Control. While Moto-Tools are probably the most versatile devices owned by a modeler, they become even more useful when combined with a solid-state, foot-operated speed control. The unit can vary the rpm to any speed desired, up to the maximum of 32,000. Since the unit is foot operated, it provides greater freedom in handling of the parts being worked. The spring-loaded foot control can also be set up so that with the foot off, the control will maintain rpm. $21.95. Dremel Mfg. Co., Racine, Wisc. 53401.



Jim Crockett/Engine Mounting Ring. For the free flight modeler using a Brown Junior .005 CO-2 engine, this new accessory will provide a trouble-free method of securing your engine to its firewall. With the use of these rings, which are glued to the rear of the firewall, an engine may easily be changed from airplane to airplane. The ring is made of aluminum, and easily installed. Two versions are available, one for the .005 engine, and another for the MJ 70 engine. Each sells for $1.50. Jim Crockett Replicas, 1442 N. Fruit Ave., Fresno, Calif. 93728.

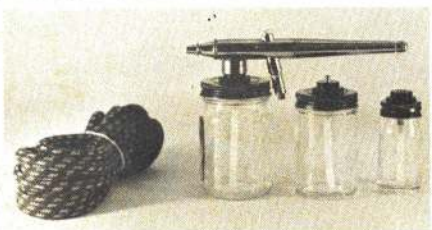


Harian/Indoor Beam Scale. If you're an indoor modeler, you're obviously going to be interested in a precision balance for weighing even the smallest model parts. This scale is one of the most sensitive available, as it will read to .05 oz., with .0002 oz. divisions! There is also a metric model available, which reads to 1.4 gm., with .005 gm. divisions. The pivot system of this tool uses a hardened, ground pivot, working in polished agate vee blocks. A necessary tool for the exacting modeler. Price is $30.00, plus postage. Ray Harian, 15 Happy Hollow Road, Wayland, Mass. 01778.

Polk's Helicopter Engine. The most recent addition to the Aristo-Craft line of helicopters and accessories is this Aristo Schluter-Webra 61 HC engine. The unit has a variety of features not built into the standard 61, such as different porting, sealed bearings, extended needle valve, and an optional helicopter muffler. This engine is one of the most powerful 61s available, making it great for helicopter flying. The motor sells for $150.00 and, while designed primarily for helicopter models, it is

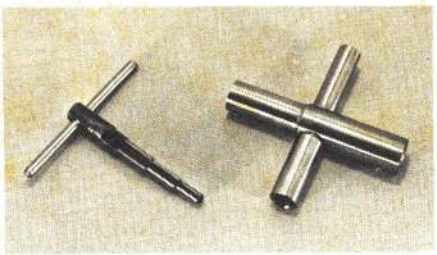
also suitable for use in all other types of RC aircraft. A muffler is available at $21.95 extra. Polk's Hobbies, 346 Bergen Ave., Jersey City, N.J. 07304.

Futaba Three-Channel. Three-channel? Yes, this does look like a six-channel set, but a close examination will reveal that the added trim tabs are blocked off and inoperable. System includes two of the new S6 and S7 servos, nickel-cadmium batteries in the airborne package, and a charger. Transmitter uses two-stick control, and unit has been redesigned for improved comfort and control. Boaters and race car enthusiasts will enjoy the feature which allows easy changing of transmitter and receiver frequency crystals. System comes in 27 or 72 MHz bands, and retails for $189.95. Futaba Industries, 630 Carob Street, Compton, Calif. 90220.

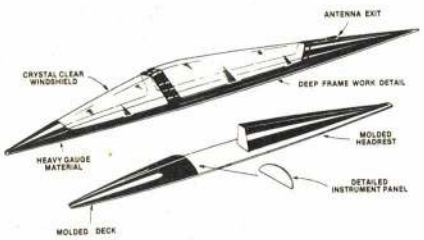


JCM/Precision Air Brush. This unit is particularly useful as it has a spray pattern which is variable from 1/8 to 1¼". This fine control is great for spraying small parts, touching up, and camouflaging as well as overall finishing of planes, boats and cars. The pattern is variable without having to change head assemblies. Several adjustments are incorporated in the airbrush to obtain the finest atomization of paint for the best finish possible. The complete kit, as shown, sells for $41.95. Distributed by JCM Specialties, P. O. Box 194, Edison, Ill. 60101.

EK/Ranger. A departure from their typical brick-style three-channel radios, this new system features use of separate servos, battery pack and receiver for maximum installation flexibility. The single-stick transmitter has an adjustable stick, an output meter, and dry cell batteries. The super mini-servos and battery case plug into the receiver. NiCads for both transmitter and receiver are available at an extra cost. Airborne weight for this system, with the two servos provided, is 8 oz. $169.95; EK Products, 3322 Stoval St., Irving, Tex. 75061



Fox Reamer and Four-Way Wrench. This pair of handy steel tools will help make life a little easier out on the field or in the workshop. The prop reamer will ream propeller holes out to the necessary diameter to fit engine shafts. It comes in 3/16, 1/4, 5/16, and 3/8" dia. steps for various size props. The four-way wrench is great for tightening down glow plugs, spinner nuts, hex head nylon screws, etc. It has 5/16, 3/8, 7/16 and 1/2" hex openings. Each tool sells for $6.00. Fox Mfg. Co., 5305 Towson Ave., Ft. Smith, Ark. 72901.

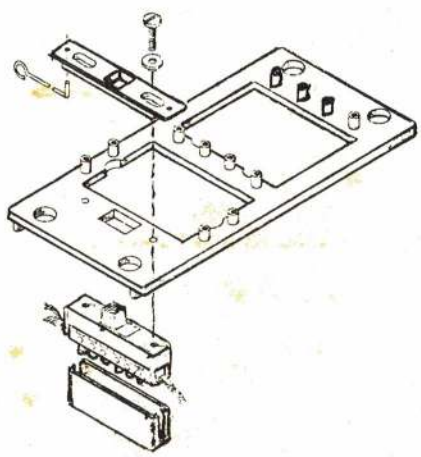


Wing Mfg./Canopy Kits. Jazz up that plain sport ship with one of these new canopy kits, designed for most low-wing aircraft. The kits come with an outer clear windshield, and an inner molded deck, which includes a headrest and detailed instrument panels. At present, two styles are available—a low profile, speed/sport canopy; and a streamlined pattern canopy. Canopies can easily be painted or tinted for that added custom look. Kits retail for $3.95 each, complete with illustrated mounting instructions. Wing Mfg., Box 33, Crystal Lake, Ill. 60014.

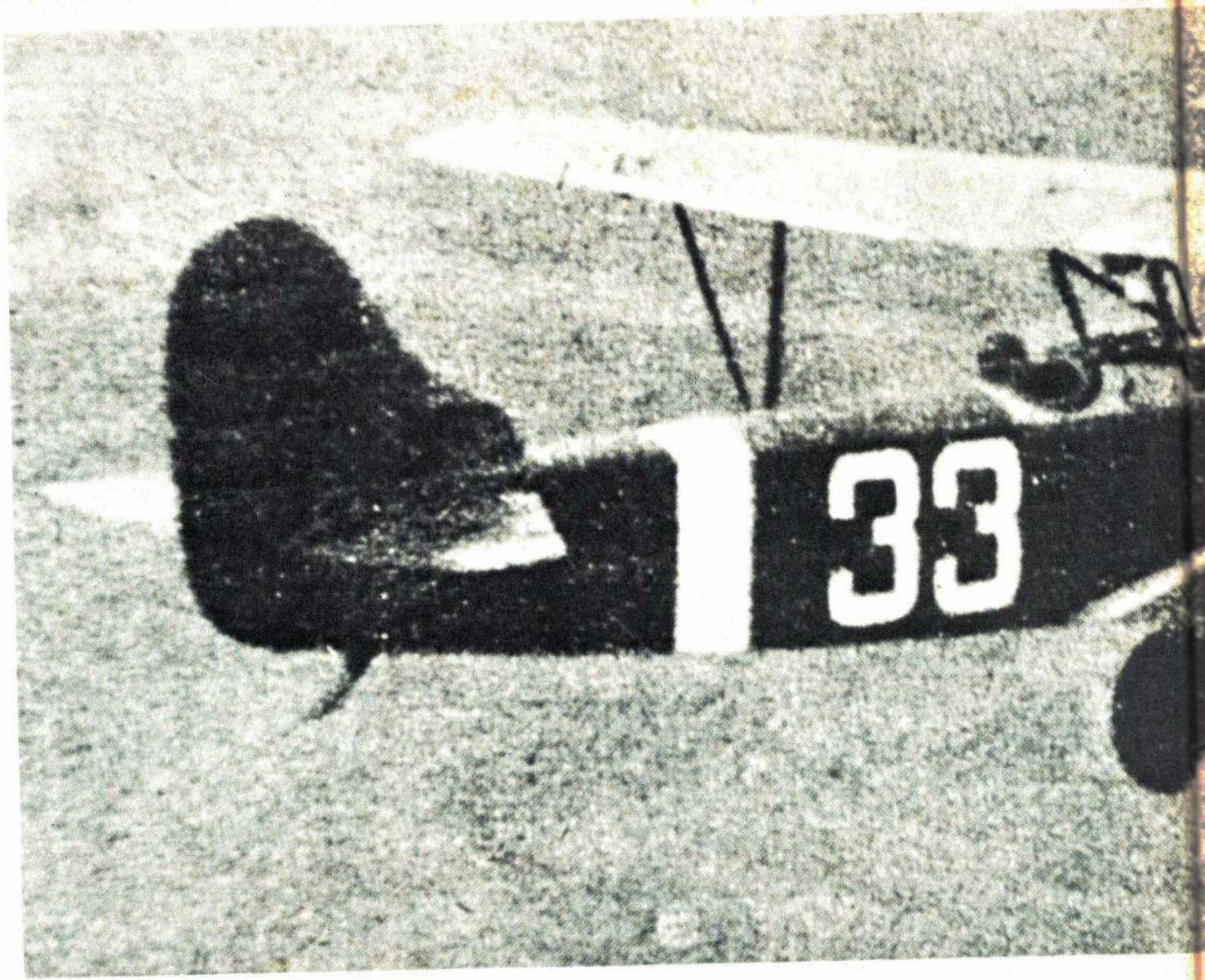
Bud Nosen/¼-Size Cessna. Bud has done it again—he has created a ¼-size Cessna 310 Twin which makes for a 10-span airplane! This gargantuan, semi-scale ship is primarily balsa-constructed and weighs in at 18 lb. Despite the weight, the airplane performs realistically with 60-size engines. Wing has three pieces and the cowls are pre-molded. Hardware is included. $169.95. Bud Nosen Models, 522 15th Ave., Box 105-A, Two Harbors, Minn. 55616.

Aero Publishers/Racing Annual. The 10th volume in this Famous Racing Planes and Air Races series is available in the 1974 annual edition. This year's book contains many stories, including the Reno National Air Races, Great Miami Air Race, Formula 1 races, and other competition-oriented articles. Included are over 130 photos, and six scale drawings of a variety of racing airplanes, their pilots and ground crews. A publication for anyone interested in full-scale racing. The 104-page paperback sells for $3.95. Aero Publishers, Inc., 329 Aviation Rd., Fallbrook, Calif. 92028.

Victor Model/Valkyrie. If you haven't tried model sailboat racing, you might look into this all-molded plastic kit as a simple way to enter an exciting hobby. The Valkyrie is designed for the AMYA 50/800 class, a length of 50" and a sail area of 800 sq. in. The boat comes with finished dacron sails, all rigging, masts, booms, hull, etc., needed to complete the kit, except for ballast and sail system (available at added cost). Price of the kit is $74.95. Victor Model Products, 13402 Premier Ave., Downey, Calif. 90242.



Kraft/Switch Actuator. One problem which always seems to plague RC fliers is how to actuate the battery switch from outside their airplanes. This new accessory from Kraft is designed to be used with servo trays. It will eliminate the need to drill holes or slots in the switch, which often breaks in a crash. With this new accessory, a piano wire linkage will operate the slide without any modification to the switch. Price is $.98 each. Kraft Systems Inc., 450 W. California Ave., Vista, Calif. 92083.



Germany's Quiet Birdmen

Every rearmament program is substantially determined by an interplay of technical factors, politics and strategy. From the moment of defeat, a nation rearms. / by Patricia T. Groves

On Armistice Day, 1918, the German Army could march home in good order. The plans of the Central Powers were wrecked, but Germany-proper was virtually unscarred.

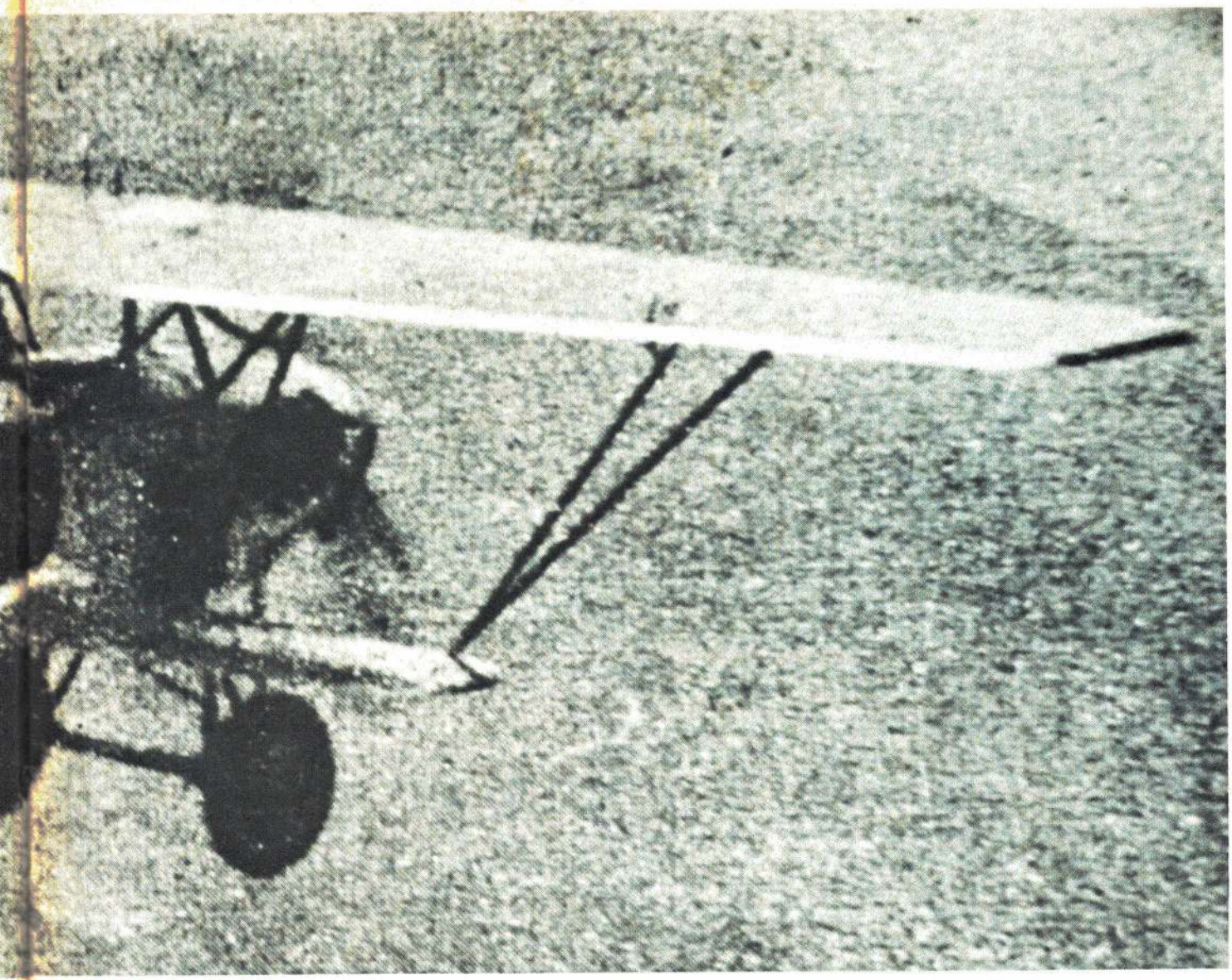
Once, Germany and its allies had formed a solid geographical unit from the North Sea to Arabia. And, on March 3, 1918, just nine months before the Armistice, the then-victorious German Supreme Command was able to impose a humiliating peace treaty on a defeated and internally stricken Russia. Even though Germany was beset with internal problems of its own, its Eastern Front was secure at last, and veteran divisions could now be thrown into the final drive West. By March 21, the Allies (outnumbered for the first time) were feeling the sledgehammer blows of the German offensive that was begun that day. It would come within inches of succeeding.

By then, the balance of power was irreversibly falling the other way. Within Germany, continuing strikes and profiteering had "bought" nothing but economic chaos and political dissension. Progressively eroded by this, the German Army faltered under the weight of its own fatigue, as well as the psychological presence and sheer volume of American troops and money pouring into Europe that spring.

In the last 90 days of War, rejuvenated Allied armies drove the Germans back, and the long reign of the House of Hohenzollern began to crumble. Before retreat became a rout, Germany requested an Armistice.

* * *

On Nov. 11, 1918, the German people entered into a sort of limbo. Until the price of peace could be determined, the game of winners and losers could not end.



A peace conference convened in December—but without the belligerents. And, as the gavel fell on the first day's session, minor wars were still going on; famine and Bolshevism stalked eastern Europe; a blockade of Germany was still in effect, even as it struggled to demobilize and to form the required new government.[1]

In the months that followed, while the Allied and associated powers haggled, the German people waited for the other shoe to drop. And with each day's passing, conditions within the "old" empire deteriorated to the point where the man in the street soon considered Germany's current travail as punishment enough. Then, as time went on, he felt, even more, that the War should be, if not forgotten, at least forgiven.

But a day of reckoning arrived on May 7, 1919, when the terms of the Versailles Treaty were made public. In its 15 parts, the document included some 440 articles and almost a score of annexes that were destined to touch every facet of German life. Through it, the Allied Powers—especially France—vowed to disarm Germany, crush its military system, grind her fortresses to dust, and impose a crippling sentence that, once and for all, would forever destroy the Teutonic tradition.

The Treaty, signed June 28, 1919, was not brought into force until Jan. 10, 1920—14 months after the cease-fire. By then, the tap root of German bitterness had taken firm hold. For the time being, it would feed on the underground nutrients of random action.

On Armistice Day, 1918, the handwriting was on the wall, and Tony Fokker could read as well as anybody.

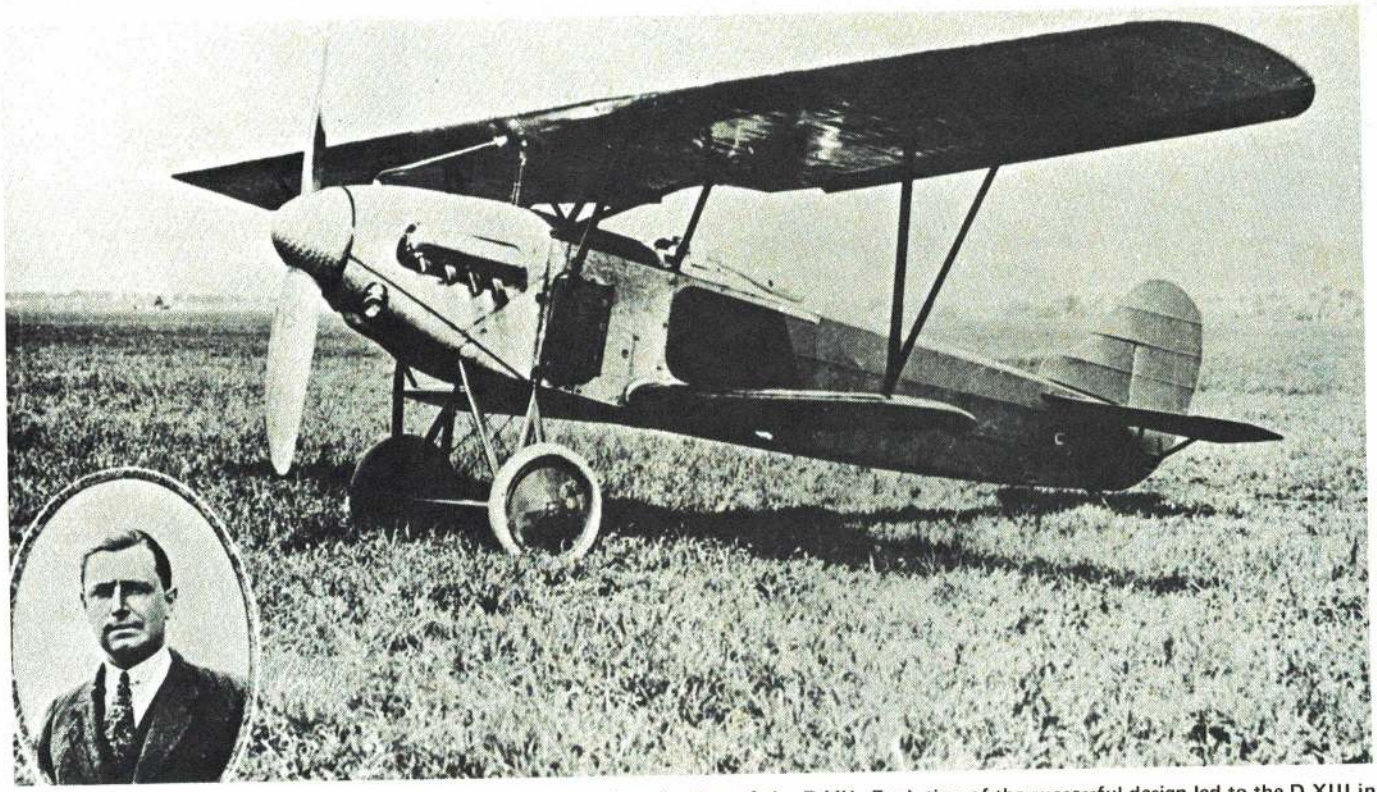
At 28 years old, he had amassed a fortune in his young life, and his airplanes—Fokker airplanes—were the only ones being singled out as potential targets for sure-and-certain destruction.

Like many of Germany's industrialists in those first turbulent postwar days, he hustled. Not only to save his assets, but his skin as well. Fortunately for Fokker, Holland's desire to bring its hand-me-down Air Force into the Air Age was such that it put a light in the window for its prodigal son. And in short order, Tony was rolling out of Germany with just about everything but his debts. By July 21, 1919, the cocoon of Fokker am Schwerin was unfolding in Amsterdam as the N.V. Nederlandse Vliegtuigenfabriek.

* * *

Almost before the ink was dry on the parchment, the German Army began to circumvent the restrictions of the Versailles Treaty.[2]

Although reduced to a 100,000-man corps and restricted to border patrols



After World War I, Fokker relocated in Holland and continued production of the D.VII. Evolution of the successful design led to the D.XIII in 1924. Photo inset shows Bertus Grase, engineering test pilot for the Dutch-based firm. *(Photo courtesy Smithsonian NASM).*

and maintaining internal law and order, the Army (its Prussian traditions firmly intact) easily blossomed into a state within a state. Under the guiding hand of its chief of staff, Gen. Hans von Seeckt, the cream was skimmed off the top—reducing Germany's army to an elite corps of dedicated professionals, all highly intelligent, talented and resolute.

On May 8, 1920, as per the demands of Versailles, the German Flying Corps was oficially entombed.[3]

As Gen. von Seeckt affixed his signature to this—the final order to Germany's beloved airmen—he did so under closing words that read: "We shall not abandon the hope of one day seeing the Flying Corps come to life again. The fame of the Flying Corps, engraved in the history of the German armed forces, will never fade. It is not dead; its spirit lives on!"

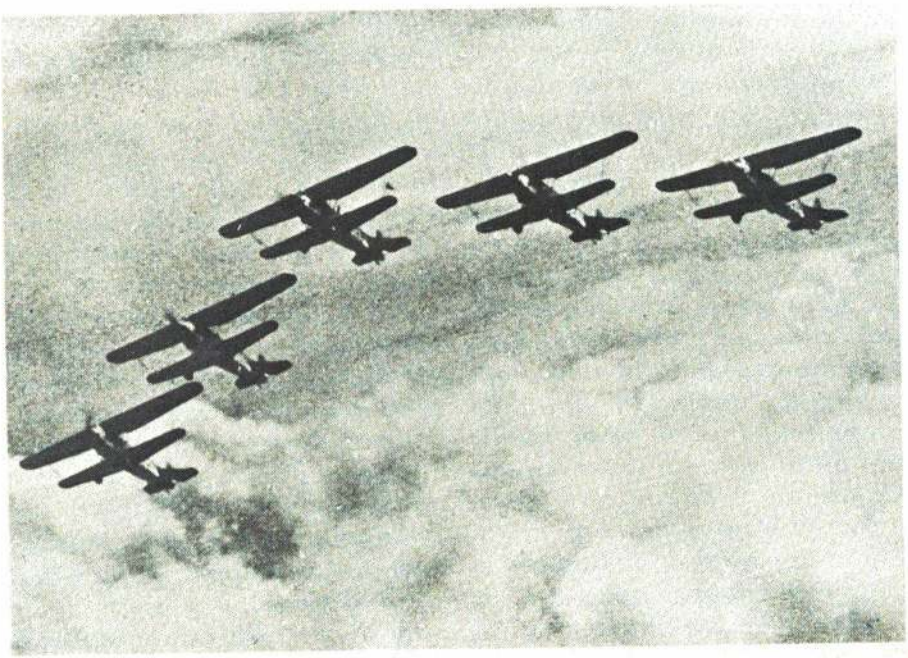
And indeed it did.

For, by now, a "hidden reserve" of some 120 former military pilots and 20 former naval air arm pilots had been assimilated into other branches of the armed forces. The former military pilots, crew and staff did as airmen the world over were doing. . .anything to stay up to date on aviation, either at home or abroad.[4]

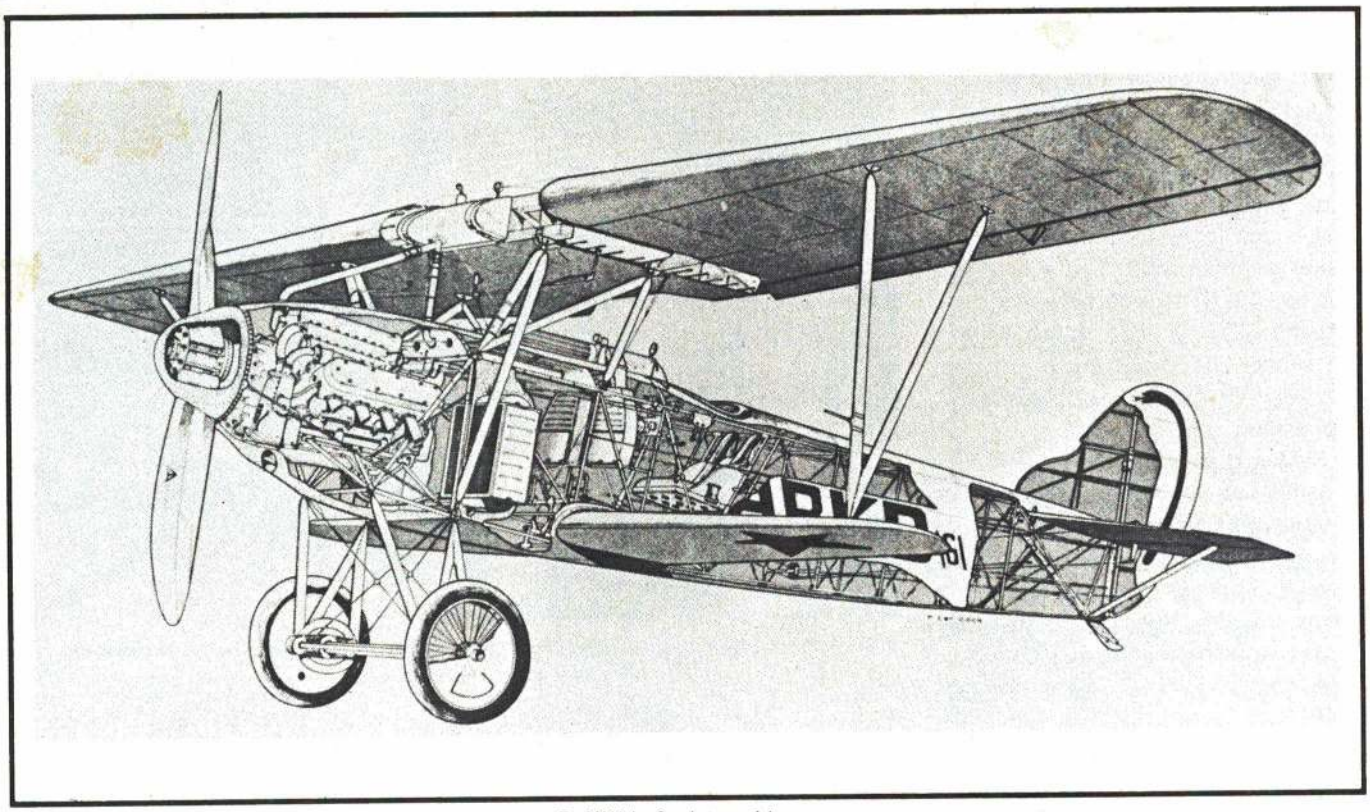
Although Germany wouldn't regain sovereignty over its own airspace until 1923, the ban on aircraft construction was lifted a little in 1922. But, with allowable production limited to sports and light aircraft only, the likes of Dornier, Junkers and Heinkel opened factories in other countries (where they had a little more freedom to do what they'd already been doing anyway).

* * *

At the moment of peace, the Allies demanded huge reparations to be paid in the form of cash, raw materials, most-favored-nation treatment, etc. (And there was an immediate mad dash by Germany's high-rollers to invest in foreign securities rather than have surplus funds "repatriated.") The overwhelming flow of capital outside the country only compounded the effects of an unchecked inflation and, aided by a busy government printing press, the German mark began devaluating at



From 1925-33, Germany maintained a training center inside Russia. Fokker D. XIIIs were used to train pilots in advanced aerobatics, formation flying, gunnery and air-to-air combat.



D. XIII in Soviet markings.

something approaching mach speed. In November, 1922, Germany defaulted on its next installment to the Allies.

During January, 1923, French, Belgian and Italian troops retaliated by occupying the Ruhr district, heartland of German industry. There wasn't much the Germans could do at the time but spit and throw rocks.

By now, though, relations between Germany and Russia were on the upswing. A well-publicized trade agreement was signed in 1922. This, along with a little footsie under the table, helped make life with the old hag of Versailles a little more bearable.

* * *

Enter now, the godfather.

In 1892, a 22-year-old Berliner named Hugo Stinnes began a coal-dealing business, which he eventually parlayed into the gigantic Siemens-Rhein-Elbe-Schuckert Union. Known as one of the biggest trust-builders of all time, by 1918 Stinnes reportedly had an interest in almost 1,400 businesses, and control over almost one-fifth of Germany's total production. He owned lands, forests, summer resorts, hotels, coal, iron and copper mines, aluminum works, paper mills, newspapers, banks and a whole list of enterprises. Elected to the Reichstag in 1920, his interest in the future of Germany was hardly minimal.

Fokker aircraft were easily repaired, and Lipetsk had the facilities for doing the job. Although the Napier Lion engines had to be returned to England for major overhaul, fancy handling of the paperwork suppressed potential questions. Note the "uniforms."

Meanwhile, back in the land of windmills and wooden shoes, everything's coming up roses at the ol' Fokker works. By virtue of its neutral Netherlands locale, Fokker technology is escaping the problems that winners and losers have whenever a war is ended.

Continuing on the evolution of the D-series of fighter aircraft, the company developed a sesquiplane design, the 300 hp Hisso-powered D.XI. And in August, 1923, Tony took a sample to the Gothenburg airshow in Sweden. There was considerable interest shown.

Within weeks, he was contacted by agents of Stinnes, and the shopping list in hand made it pretty obvious that deep and penetrating questions wouldn't result in any highly illuminating answers.

He is informed that Herr Stinnes wants to buy 50 Fokker D.XIs and 50

D.XIIIs—immediately—and with an option to buy 50 more D.XIIIs. Furthermore, following acceptance of each airplane, it is to be dismantled and packed for shipment to a South American port city. . .and no publicity. (The "no publicity" kicker is a crushing blow to the Fokker ego, but for the money, Tony chokes down his sobs.) Lastly, he is told that the D.XIIIs are to be armed with German LMG 08/15s, which Stinnes will supply. (My, my! Hugo just *happens* to have 150 little ol' "Spandaus" lyin' around. . . .)

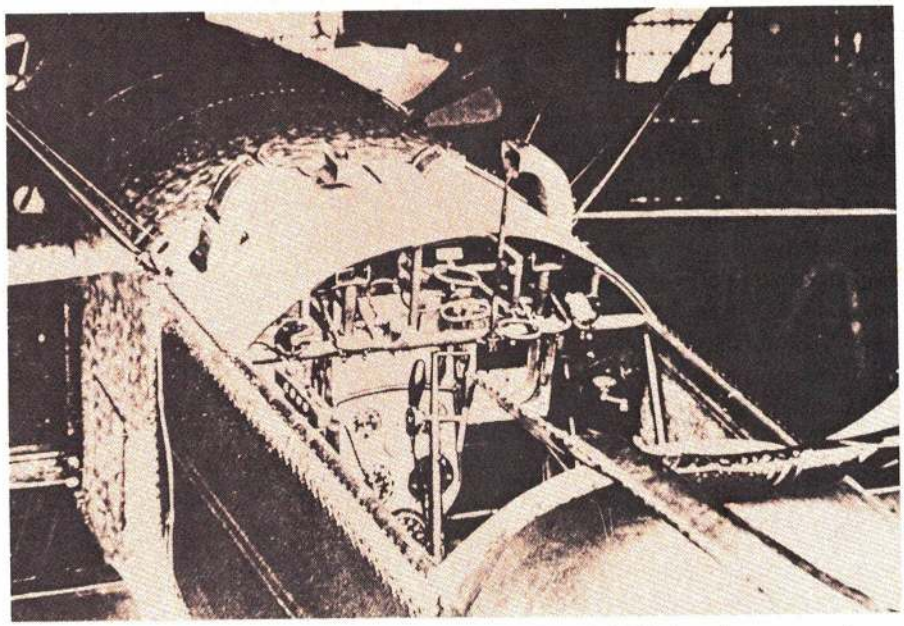
Fokker does a little discreet digging into the source of the order, and not only uncovers acquaintances and associates from the "old" days who are now directing Stinnes' interests, but others (Hello, "hidden reserve"!) with whom he once worked very closely.

Although Stinnes' order for the D.XIs was eventually cancelled, the D.XIII order held. Similar to, but more powerful than the D.XI, the D.XIII was powered by a British 450 hp Napier Lion engine. The compactly designed Lion was a sort of semi-radial having three banks of four cylinders. With a dry weight of just under 850 lb., it developed 450 hp at 2000 rpm. Fitted inside the length (25 ft., 11"), span (36 ft., 1"), and height (9 ft. 6") of the single-seat, biplane fighter, the engine pulled the D.XIII up to 16,500 ft. in 13 min.[5] A max speed of 160 mph and exceptional maneuverability made the D.XIII very desirable for the day.

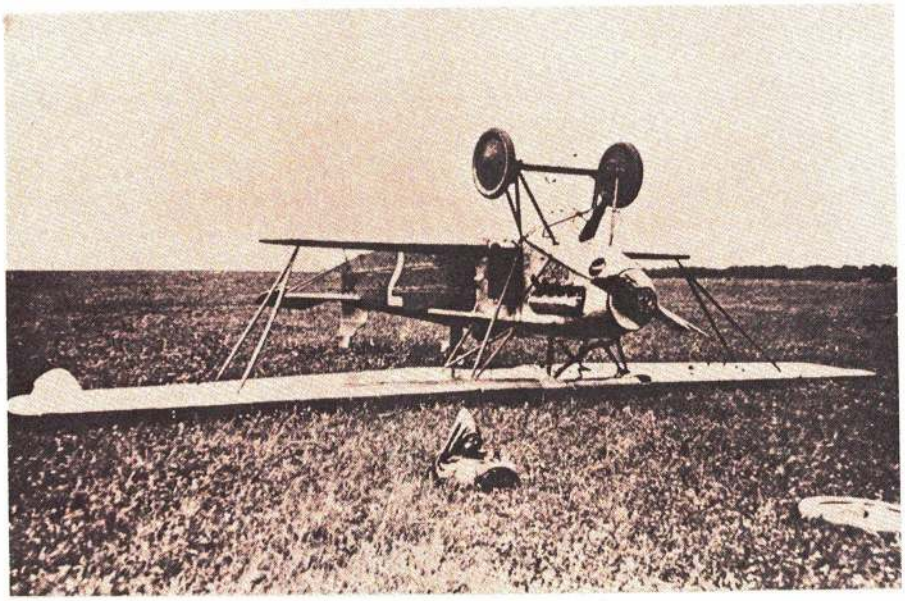
When completed, tested and, as per Stinnes' instructions, the D.XIIIs were packed up—the crates all neatly stenciled—and, adios, out the door to South America. But, alas. First, it seems some chuckle-headed shipping clerk couldn't read; and from there, things went from bad to worse until, somehow or another, the poor, misguided things got plunked down on a runway about 250 miles south of Moscow, where some equally befuddled pilots just happened to be standing around.

* * *

Beginning in May, 1921, preliminary and wide-ranging discussions on matters of equal German-Soviet concern had led to the establishment of a mutually beneficial training and experimental center at Lipetsk, Russia.[6] Overall details of site selection, facility requirements, mutual operational responsibilities, etc., weren't fully thrashed out until April 15, 1925.



In a hangar at Lipetsk, a D. XIII undergoes repair. The twin LMGs have been removed.



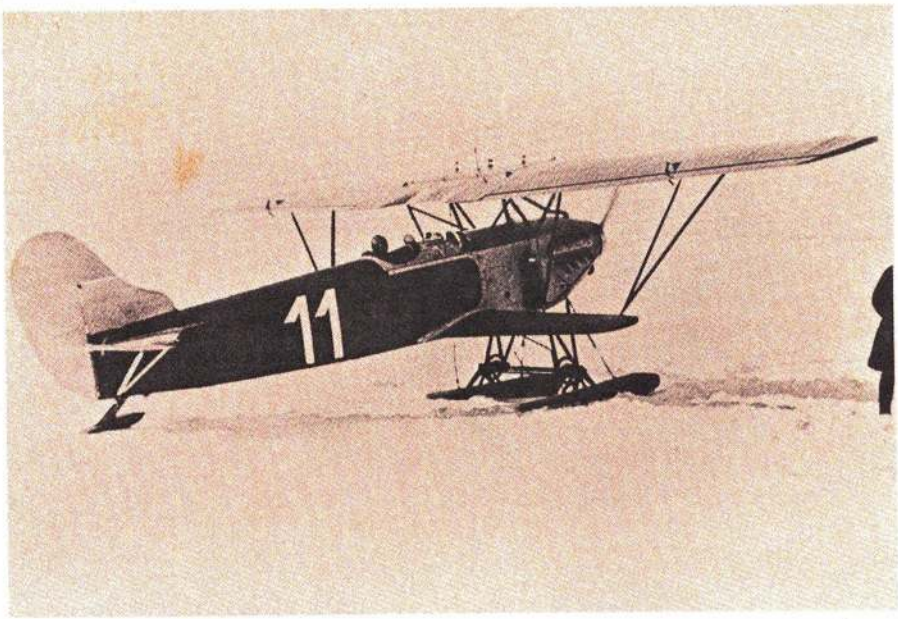
Bottoms up, No. 7 comes to grief. By September, 1933, attrition had reduced serviceable D. XIIIs to 30, which were turned over to the Russians when the training and aircraft test center closed down.

And none too soon.

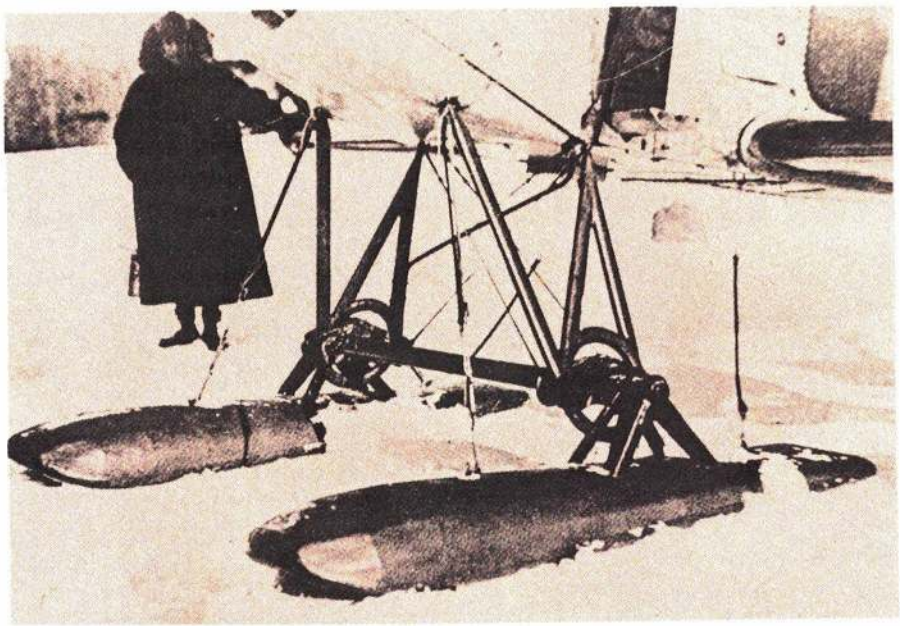
For, by then, a select group of men was being alerted and the necessary supplies assembled for a clandestine journey deep inside the U.S.S.R. By the evening of May 28, 1925, the Edmund Hugo Stinnes 4, with 50 D.XIIIs in the hold, had pulled out of Stettin and was steaming up the Channel towards the Baltic.

On their arrival at Lipetsk in June, the center was declared officially open, and the D.XIIIs put to immediate use as trainers. For once-active pilots whose flying and aerobatic muscles hadn't been adequately exercised in years, the D.XIII's 450 horses put quite a strain on the ol' flab. However, there were a couple of D.VIIs on hand for them to warm up on.

Since the initial pilot-occupants at Lipetsk were scheduled to become the cadre of instructors, most of the first year was concerned with flight refresher courses, creating an updated training syllabus, and a general settling-in. Because the center was a joint endeavor, this included the all-essential shakedown of learning to live and work with those whose approach to life and alien ways were so different, yet whose concern for



With January temperatures at the Lipetsk training and test center averaging about 14°, cold weather operations continued on a lesser scale. Note the absence of national markings.



A detail view of the D. XIII's ski attachment.

aeronautics and homeland was just as visceral.

Along with the training school, the experimental aircraft test section was set up, and test and shop procedures were established for an all-encompassing program covering technical and operational testing of military aircraft that were being developed "for the day when..." Although only by the ones and twos, the aircraft designated to make the trip to Lipetsk also were used as test beds for the latest technical developments in various aircraft components—instruments, ordnance, armament, reconnaissance equipment, gun cameras, clothing—you name it. While series production of new military aircraft was out of the question, it was possible to field test all the equipment from A to Izzard, under all weather conditions so that, at any given time, series production *could* occur.

In 1926, about the time the first class of students were covering their tracks to the east, German international relations entered a period of relaxed tension. The gradual phaseout of foreign troops occupying Germany relieved enough pressure so that *sub rosa* aircraft development, while no less risky, could be stepped up.

There was a growth in flying clubs—some camouflaged and some through legal renegotiation of the Treaty. It then became possible to provide better, more complete training at home, so that Lipetsk could be used for advanced fighter or (with the D.XIIIs fitted with bombs) fighter-bomber training. With each passing year, then, Lipetsk had to expand its facilities to meet the growth in demand.

Even so, at its peak, everything was on an extremely small scale. During the summer months, when the center was busiest, the total population, including Russians, reached no more than about 300. From October on, winter weather reduced the population.

Following successful beginnings at Lipetsk, two other centers were opened in the Caucasus: a gas warfare school in 1927; and, in 1930, a tank corps school (Panzer!). On occasion, there were combined exercises between all three and the Red Army.

Each spring, no more than perhaps two dozen of the cream of that year's crop of German aviators (military and naval) were selected to take the devious route to Lipetsk. Yet, after the long and tiring journey, any young eagles arriving there probably questioned the value of their selectivity. For, greeting them in their native language was a boldly printed sign proclaiming, "Herzlich Willkommen am Arsch der Welt."[7] Under the circumstances, they became a close and clannish band of brothers whose barracks pranks in the evening relieved the tensions of weeks and months of no-nonsense training.

In comparison to World War I instruction methods, Lipetsk was a complete success. Between 1925 and 1933's final class, only three Army and one Navy pilot were killed during training. Still, as few as they were, the deaths brought a heavy gloom to these strangers in a strange land. And so, before the body of their fallen comrade was ignominiously smuggled home in a crate labeled "spare parts," ritual ceremony helped relieve the pain, and united them even more.

Shortly after noon on Monday, Jan. 30, 1933, Adolf Hitler marched down the steps of the German Chancellory, aglow in his first moments as chancellor and fuehrer.

Before that day, however, plans already had been made to shut down

(Continued on page 117)

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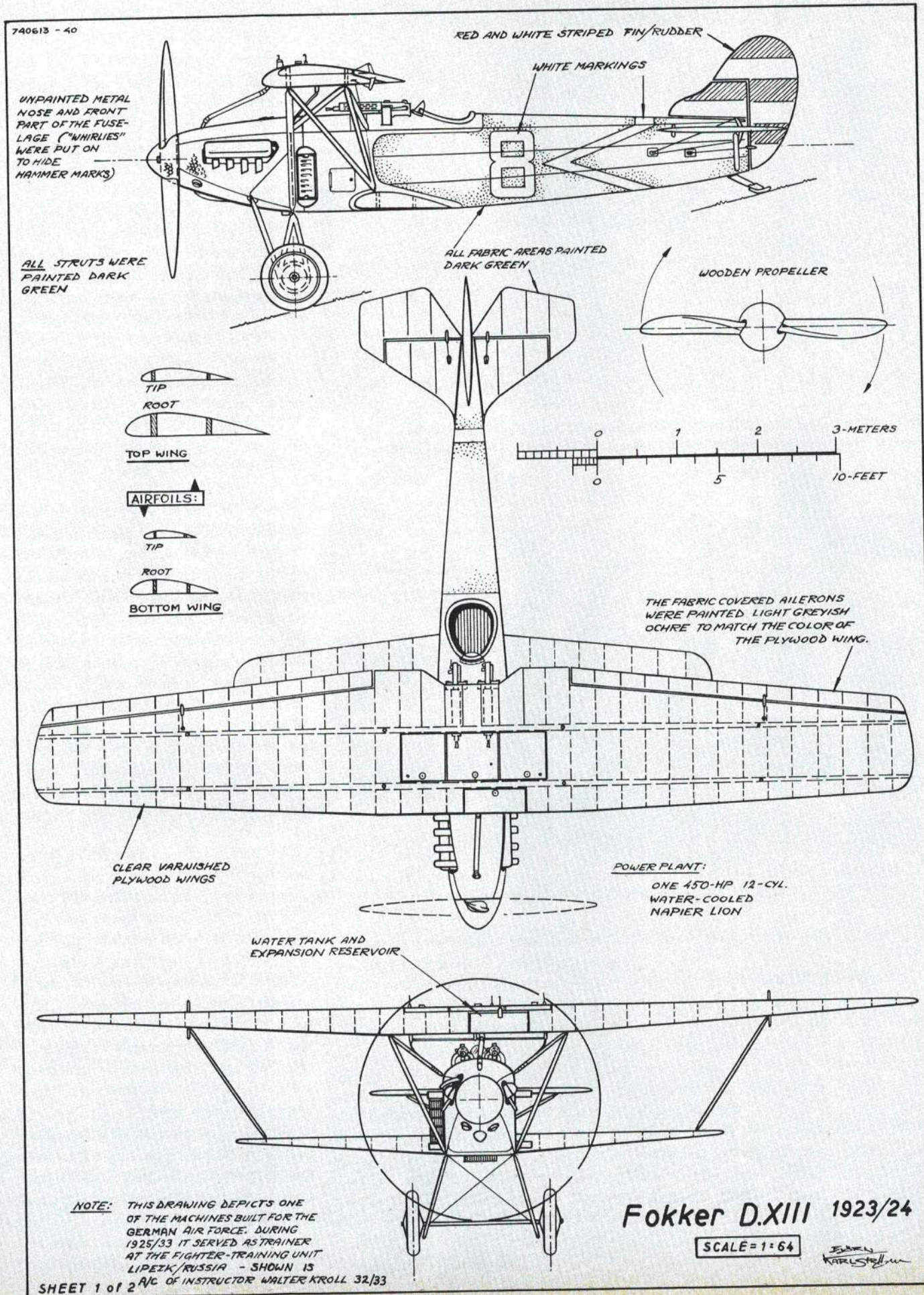
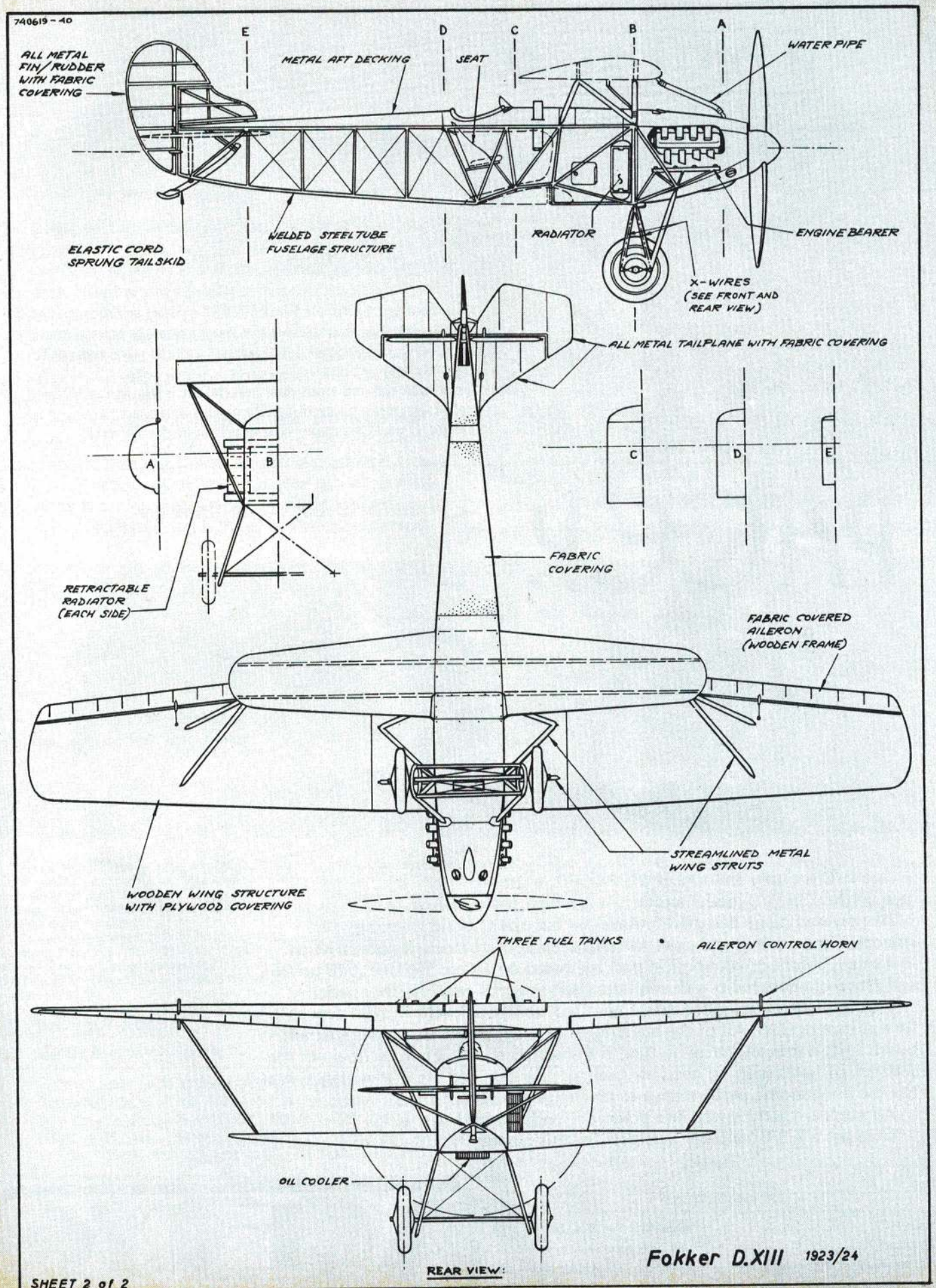


NOTE: THIS DRAWING DEPICTS ONE OF THE MACHINES BUILT FOR THE GERMAN AIR FORCE. DURING 1925/33 IT SERVED AS TRAINER AT THE FIGHTER-TRAINING UNIT LIPEZK/RUSSIA - SHOWN IS R/C OF INSTRUCTOR WALTER KROLL 32/33

Fokker D.XIII 1923/24

SCALE = 1:64

SHEET 1 of 2


740619 - 40
E
D
C
B
A
ALL METAL FIN/RUDDER WITH FABRIC COVERING
METAL AFT DECKING
SEAT
WATER PIPE
ELASTIC CORD SPRUNG TAILSKID
WELDED STEEL TUBE FUSELAGE STRUCTURE
RADIATOR
ENGINE BEARER
X-WIRES (SEE FRONT AND REAR VIEW)
ALL METAL TAILPLANE WITH FABRIC COVERING
A
B
C
D
E
FABRIC COVERING
RETRACTABLE RADIATOR (EACH SIDE)
FABRIC COVERED AILERON (WOODEN FRAME)
STREAMLINED METAL WING STRUTS
WOODEN WING STRUCTURE WITH PLYWOOD COVERING
THREE FUEL TANKS
AILERON CONTROL HORN
OIL COOLER
REAR VIEW:
Fokker D.XIII 1923/24
SHEET 2 of 2

Whizard

DESIGNED BY OWEN KAMPEN

SPECIFICATIONS
Span--40¾ 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

PACER

DESIGNED BY OWEN KAMPEN

AS PRESENTED IN
AMERICAN AIRCRAFT MODELER

Ace R/C proudly announces the PACER, a totally new concept in R/C model aircraft. It is a high performance 1/2A powered plane designed to have the fast speed, solid tracking, smooth maneuvering, and axial roll characteristics of modern pattern ships in a small, compact, economical package based on a Cox Tee Dee .049 or .051 and a two-channel radio with miniature servos and a small battery pack.

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.

DIGITAL COMMANDER

Retract Servo

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.

This servo may be used with any positive pulse system.

14G24—Digital Commander Retract Servo Kit $24.95

SERVO

An IC servo amplifier and the popular D & R servo mechanics combine to make a servo that gives superior resolution and rapid transit time. Will operate with 3 or 4 wire IC decoders with positive pulse output.

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 $23.95
14G20L LINEAR SERVO KIT $24.95
ADD $8.00 FOR ASSEMBLED UNITS.

1-8 RECEIVER

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 $36.95
ADD $5.00 FOR 72 MHZ.

1-8 FLITE PAK

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.

12G18-2 FLITE PAK w/2 BANTAMS $79.95
12G18-4 FLITE PAK w/4 BANTAMS $124.95
12G18-2L FLITE PAK w/2 LINEARS $81.95
12G18-4L FLITE PAK w/4 LINEARS $126.95
ADD $5.00 FOR 72 MHZ.

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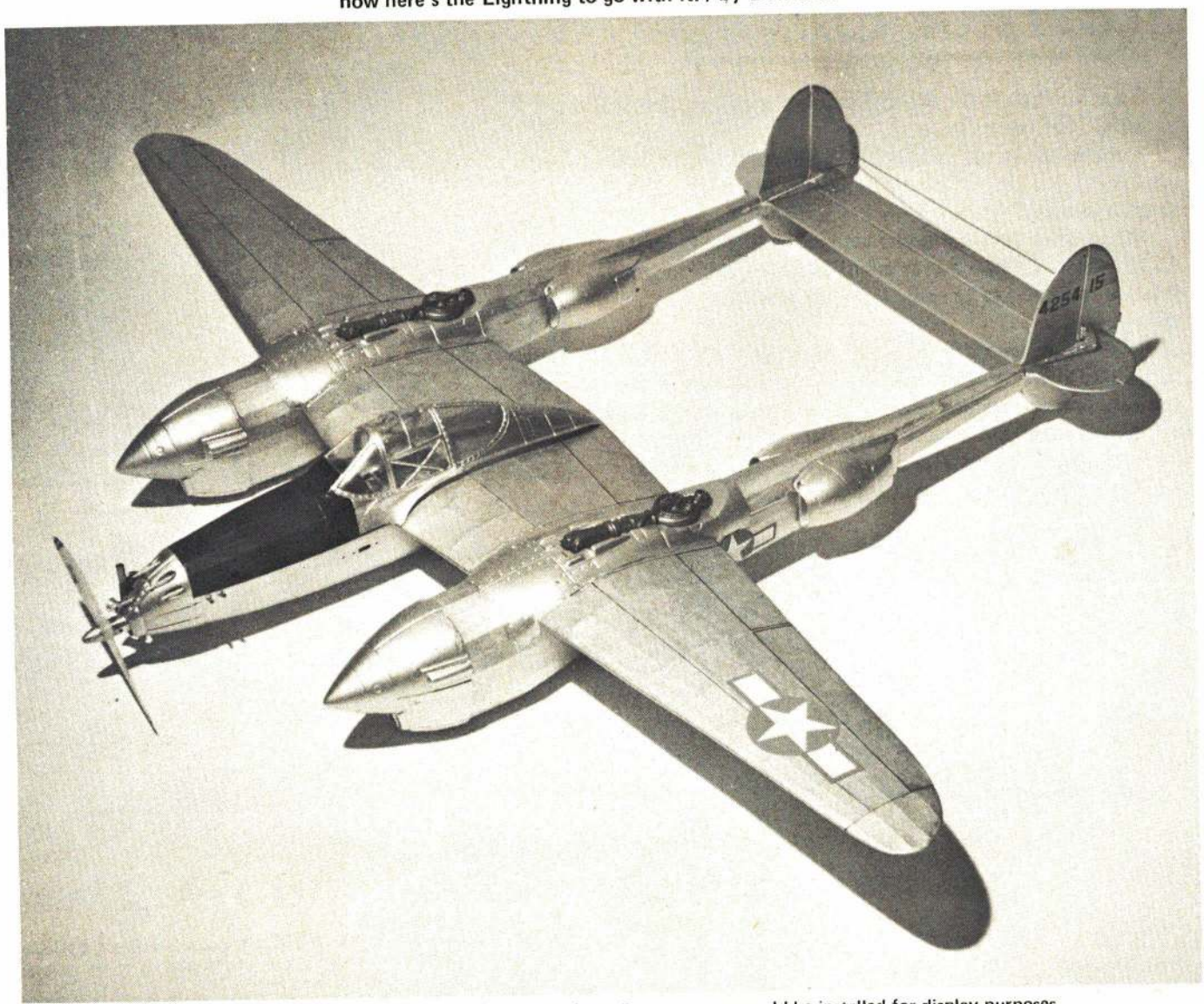
ACE R/C INC.

Little Lightning

The Cannon Tini-Block has created a lot of thunder in the RC world. . . now here's the Lightning to go with it. / by Don Srull



The Guillow kit is attractive, as well as a smooth flyer. Dummy props could be installed for display purposes.

The Lockheed P-38 has to be one of the most famous and recognizable aircraft of all time. As a modeling subject, however, it has not enjoyed much popularity, primarily because of the difficulties inherent in twin-engine models. Thanks to Guillow's new kit of the P-38L, this charming subject is staging a comeback.

Guillow's model is to a scale of approximately 3/4"-1', which yields a 40" wingspan, and an area of 220 sq. in. It is intended primarily as a free flight, U-control, or display model. One of the nice features of the kit is that it includes a large assortment of vacuum formed plastic parts. These are the scale details, which are difficult to model from scratch. It seemed possible to squeeze one of the new, miniature two-channel radios into this interesting model, so we set out to try.

Modifications were made with three objectives in mind:

(1) Simple and functional radio and engine installation;

(2) Minimum weight for good flyability:

(3) Retain the essential scale appearance of the full-size P-38.

Ultimately, we found it surprisingly easy to achieve all three objectives. While the P-38 is clearly not a beginner's first model, it can be built and flown by a person who has three or four models under his belt. The basic modifications to the kit design include a single, nose-mounted 049 engine, and radio gear located in the center pod. Small diameter flexible cables were used to connect the servos to the tail surfaces.

To save weight, and to achieve greater realism in flight, the landing gear was also eliminated. Since we usually fly off a grass field, landing with no gear at all actually works better than trying to stay upright on small-wheeled gear.

Fig. 1 shows the internal arrangement of the radio equipment and 049 engine. The radio shown is the Cannon two-channel Tini-Block, mounted on a

1/16" plywood platform with a 225 mah battery pack. Any other lightweight, two-channel radio will work, but mounting will require slight variations.

The Cox 049 was side-mounted on a Tatone aluminum mount and attached to a 3/32" plywood firewall. A 1/2-oz. Perfect rectangular metal tank (No. 5) is located behind the firewall. For easy access to the radio equipment, the entire top of the fuselage pod was made removable. You will have to add a couple of 3/16" sheet balsa keel pieces at the seperation joint as indicated in Fig. 1. Two small hardwood blocks are glued into the bottom of the fuselage, to which the radio platform is attached.

The pod will have to be strengthened somewhat, since it will be carrying a fair amount of payload. The simplest way to do this is to fill in the forward nose area and the top sections (back to the wing root) with soft 3/32" balsa. This is accomplished by cutting and fitting rectangles of 3/32" wood into the spaces between stringers and bulkheads. When these are all glued and dry, a good sandpaper will yield a smooth, solid, structure.

ABOVE: The Cannon Tini-Block mounts in the center pod with room to spare. BELOW: Cable runs to the elevator (in right boom). Batteries are recessed in the center of wing.

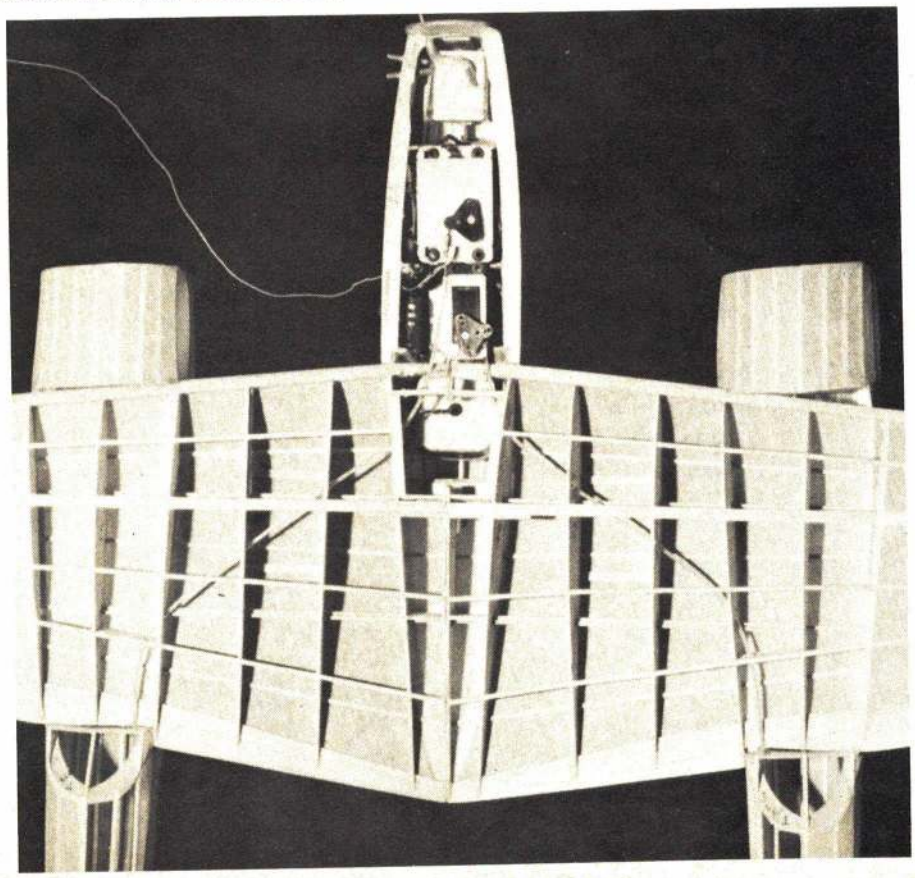
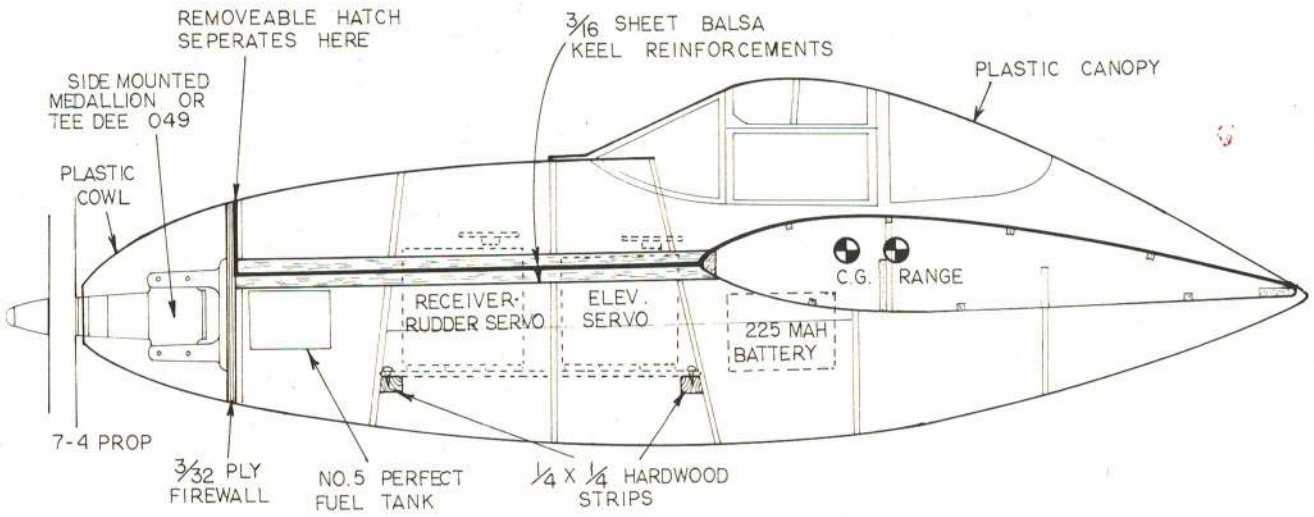


FIG. 1 FUSELAGE POD EQUIPMENT INSTALLATION
(CANNON TINI-BLOCK SHOWN)



The only wing modification required is to remove a portion of the center section, where the batteries are carried. I added a 1/16" plywood dihedral brace to the main spar and cut a portion of the center rib and spars.

The simplest way to connect the control surfaces is by means of small diameter Sullivan flexible cable. Prior to gluing the airframe together, cover it with Silkspan, except for the top of the tailbooms and the top center section of the wing. After final assembly of the airplane, install the radio equipment, and snake a piece of flexible cable (in its nylon tube) through each tailboom and into the fuselage pod. If you are using the Cannon radio, the right boom carries the elevator cable and the left boom carries the rudder cable.

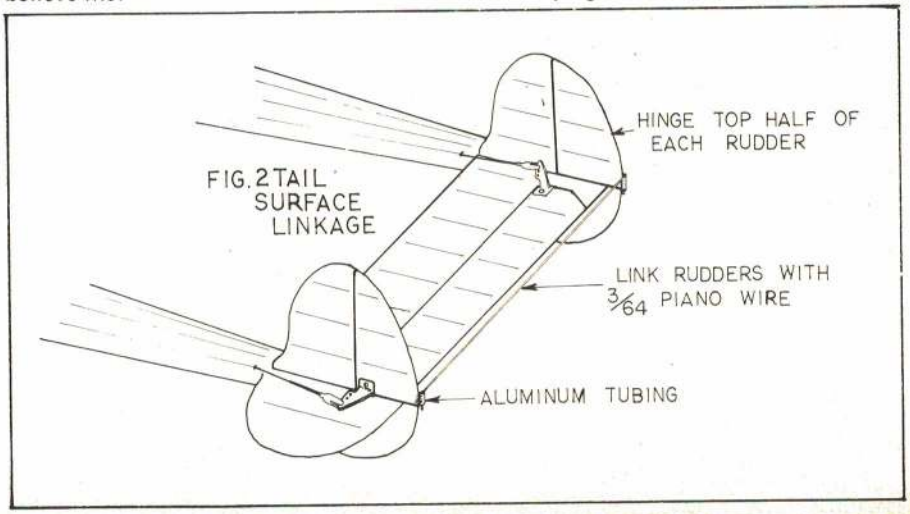
Secure the flex cable tubing with dabs of epoxy where it goes through formers and wing ribs, to prevent it from deforming under load. The twin rudders are interconnected with a piece of piano wire, as shown in Fig. 2. When the control surfaces are hooked up to the servos, cover the remainder of the airplane with Silkspan.

After giving the model three or four coats of thinned, clear dope, attach the plastic cowls, spinners, superchargers, etc, with plastic cement. (We did not use all of the plastic parts supplied in the kit in order to save a little weight.) Finally, spray on a couple of light coats of silver dope. Brushing the colored dope, or applying more coats, can add much weight to a model this size. Inked lines to indicate ailerons, trim tabs, and other details can now be added, followed by a final spray coat of clear dope to seal the finish and add a little gloss. Decals finish up the job.

Our model was nose heavy, and required 1.1 oz. of lead weight epoxied to the rear of the tailbooms. This gave us a total weight, ready to fly, of 18.5 oz. Since the P-38 wing has 220 sq. inches, this yields a wing loading of about 12 oz./sq. ft. If the weight was much higher, the model would be difficult to fly in restricted areas.

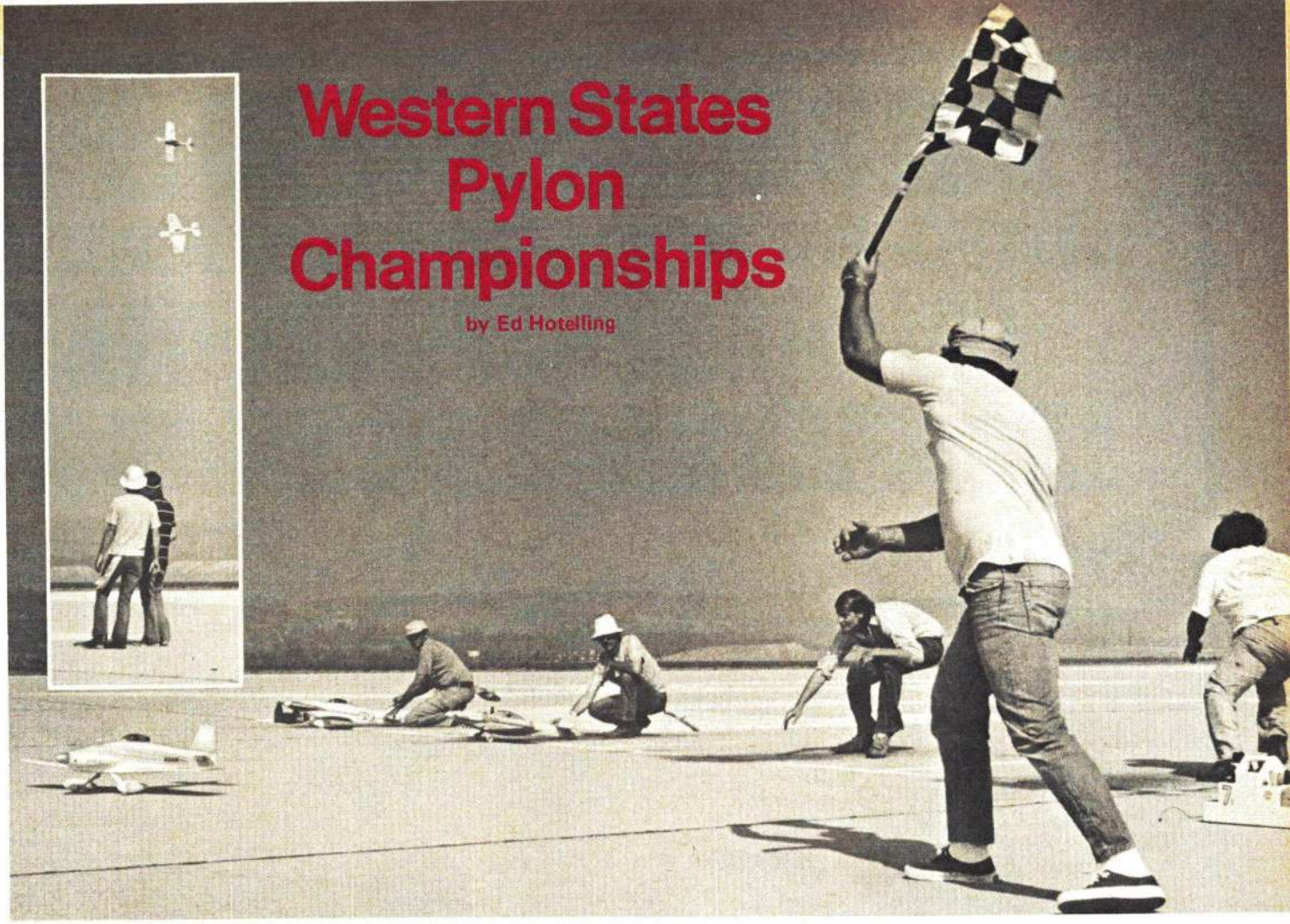
For all flying, use a 7 x 4 nylon prop—never use a 6 x 3 or 6 x 4 on a Tee Dee or Medallion 049 for this model. The power will be way too much, believe me!

If the elevator is trimmed to neutral, and the CG is as shown, your P-38 should track like an arrow, in a shallow and fast climb. It is an extremely good flying and impressive model in flight. It is fast, yet stable and easy to manage. With power off, it wants to glide relatively fast, so don't try to slow it down too much for landing. Keep the wings level at touchdown, and the P-38 will slide in on grass as smoothly as you could ask. If you fly only from hard surfaces, you may want to add a landing gear, but keep it very light and functional. The P-38 will loop, roll, and do most of the other basic maneuvers. It flies well inverted, too, so you may want to use a small clunk tank instead of the metal tank. All in all, the Guillow P-38 and a miniature two-channel radio make a fun-flying combination.



Western States Pylon Championships

by Ed Hotelling



Starter Larry Watson waves off a Standard Class heat. Inset shows Bob Smith doing his thing.

On Oct. 12 and 13, Camarillo Flying Circus hosted, and **American Aircraft Modeler** sponsored, the Western States Pylon Championships at Oxnard Air Force Base. In addition to the gigantic perpetual NMPRA trophy (dating back to 1965) and the three-foot-high Fast Time perpetual trophy, each contestant received a handsomely embossed souvenir metal plate. The top 15 winners in each class received large wooden plaques with engraved NMPRA emblems and pertinent data—a refreshing change from some gaudy trophies.

Contest Director Nate Rambo and his crew got processing and handicap judging for all 70 pilots (43 in Standard and 27 in Expert) completed in time to flag off the first heat at about 9:20 a.m. Saturday. But, several hours were then lost while the pylon course layout was *twice* reversed as unusual desert winds swept the area before giving way to the normal ocean breeze.

The high winds also damaged several aircraft flying at the time. After the weather finally began to cooperate, five rounds were flown before measuring winners and presenting awards Sunday afternoon.

Although the top Expert fliers were evenly divided among those using K&Bs and those using SuperTigres, Terry Prather's fast time with the SuperTigre was bettered by three K&B fliers. They included ever-fast Bob Smith, who won the Fast Time trophy by doing 1:17.4 in a tight race against Tom Tusing. However, after five rounds, only Terry Prather and Kent Nogy had perfect scores. In their fly-off for first place, Terry's cut gave first place to Kent Nogy.

In Standard Class, John Rousse's consistent flying paid off for first place in an increasingly speedy group of fliers.

The success of the Western States Pylon Championships, marred only by some windy weather, was capped by a merchandise raffle for the workers. Encouraging those who worked so hard certainly makes sense, because building a plane to race is pointless without them.

Here are the final results:

EXPERT

1	Kent Nogy	1:18.0	K&B	LR1A
2	Terry Prather	1:18.2	ST	Little Toni
3	Ed Hotelling	1:18.0	K&B	Little Toni
4	Jim Jensen	1:19.2	ST	Little Toni
5	Jim Witt	1:22.3	ST	LR1A
6	Ed Foster	1:23.0	K&B	Bandito
7	Lou Governale	1:24.6	ST	Thunderchicken
8	Bob Smith	1:17.4	K&B	Super Dara
9	George Flynn	1:30.0	K&B	LR1A
10	Ron Sheldon	1:23.0	ST	Bandito
11	Dan McCan	1:25.5	K&B	Super Dara
12	Ed Allen	1:29.5	ST	Minnow
13	Larry Leonard	1:21.5	K&B	LR1A
14	Wes Morris	1:19.5	ST	Little Toni
15	Lee Frey	1:30.2	K&B	Rickey Rat

STANDARD

1	John Rousse	1:36.1
2	Keith Davidson	1:28.3
3	Dennis Osborn	1:33.8
4	Jerry Boyce	1:34.8
5	Ron Hadaway	1:37.8
6	Ron Gilman	1:28.0
7	Rusty Van Baren	1:30.0
8	Lou Stanley	1:28.1
9	Jerry Silverman	1:31.0
10	Bob Wilde	1:33.3
11	Steve Kirschner	1:33.0
12	Joe Howard	1:34.5
13	Scott Johnson	1:35.0
14	Tony Amezcua	1:36.6
15	Bobby Baker	1:40.3

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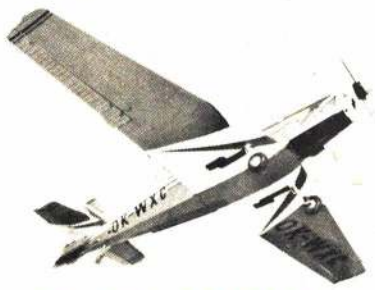
RADIO CONTROL CHAMPION – Da
OUTDOOR FREE FLIGHT CHAMPIO
SCALE CHAMPION – Tom Stark of F
CONTROL LINE CHAMPION – Glen



RC-23 - $44.95
Wing Span: 70"
Engine: .60

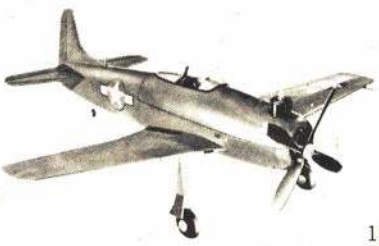
RC-23 ZLIN

2ND RC CLASS I OPEN - Larry Smith, Lehighton, Pa.

RC-16 - $59.95
Wing Span: 72-1/2"
Engine: .60

RC-16 YAK 18

5TH CL SCALE - Bill Rutherford, Irving, Tx.



CL-6 - $10.95
Wing Span: 26-1/2"
Engines: .09-.19

CL-6 BEARCAT

2ND CL SCALE JR. - Tom Fluker, Gainsville, Tx.

RC-3 - $28.95
Wing Span: 71"
Engines: .19-.35

RC-3 PIPER J-3 CUB

1ST SCALE FF GAS JR/SR. - Scott Gesner, Woodbury Hgts., N.J.
3RD SCALE RC II OPEN - C.J. Viosca, Dallas, Texas

CL-12 - $5.95
Wing Span: 24"
Engines: .010-.15

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5/16 x 5/8	44
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1/4 x 1/2	35
1/4 x 3/4	46
5/16 x 5/16	35
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1/20 x 3	52
1/16 x 3	55
3/32 x 3	65
1/8 x 3	75
5/32 x 3	84
3/16 x 3	92
1/4 x 3	1.05
5/16 x 3	1.22
3/8 x 3	1.36
1/32 x 4	80
1/16 x 4	85
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1/8 x 4	1.15
3/16 x 4	1.27
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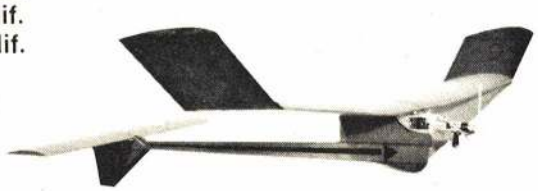
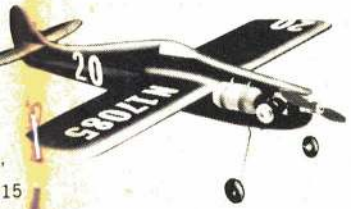
MPION – Randy Secor of Covina, Calif.
k of Florissant, Mo.
Glenn Lee of Batavia, Il.

CL-19
SUPER CHIPMUNK
5TH CL STUNT SR. - Robert Craven, Marion, Texas



CL-19 - $18.95
Wing Span: 53-1/2"
Engines: .29-.40



15

FF-7 WITCH DOCTOR-X
5TH FF A GAS JR. - Jimmy Clem, National Champion, Dallas, Tx.

FF-7 - $7.50
Wing Area: 330 Sq. In.
Engines: .049-.051

L-12 BUSTER

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CALE RACE OPEN - Bud Harris, Bethany. Ok.
CALE RACE JR. - John Novy, Longview, Tx.
CALE RACE JR. - David Weeks, El Cerrito, Ca.

FF-16 ABC SCRAMBLER
2ND FF B GAS SR. - Joseph Mekina, Barberton, Oh.

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Engines: .15-.35

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.85	3 x 4 ..... 7.95
1.00	1/2 x 6 ..... 3.75
1.15	3/4 x 6 ..... 4.40
1.27	1 x 6 ..... 5.25
1.50	1-1/2 x 6 ..... 6.60
1.95	2 x 6 ..... 7.75
1.46	3 x 6 ..... 11.75
1.58	
1.76	

BLOCKS – 3" Lengths	
1 x 1 ..... .10	
1 x 2 ..... .19	
2 x 2 ..... .25	
1 x 3 ..... .25	
2 x 3 ..... .34	
3 x 3 ..... .52	
BLOCKS – 6" Lengths	
1 x 1 ..... .20	
1/2 x 2 ..... .24	
3/4 x 2 ..... .30	
1 x 2 ..... .35	
1-1/2 x 2 ..... .41	
2 x 2 ..... .47	
1/2 x 3 ..... .32	
3/4 x 3 ..... .40	
1 x 3 ..... .48	
1-1/2 x 3 ..... .56	
2 x 3 ..... .65	
3 x 3 ..... 1.00	
1/2 x 4 ..... .47	
3/4 x 4 ..... .54	
1 x 4 ..... .60	
1-1/2 x 4 ..... .76	
2 x 4 ..... .92	
3 x 4 ..... 1.34	
1/2 x 6 ..... .67	
3/4 x 6 ..... .79	
1 x 6 ..... .92	
1-1/2 x 6 ..... 1.15	
2 x 6 ..... 1.29	
3 x 6 ..... 2.00	

BLOCKS – 12" Lengths	
1 x 1 ..... .35	
1/2 x 2 ..... .47	
3/4 x 2 ..... .60	
1 x 2 ..... .70	
1-1/2 x 2 ..... .79	
2 x 2 ..... .92	
1/2 x 3 ..... .58	
3/4 x 3 ..... .74	
1 x 3 ..... .92	
1-1/2 x 3 ..... 1.10	
2 x 3 ..... 1.32	
3 x 3 ..... 2.00	
1/2 x 4 ..... .92	
3/4 x 4 ..... 1.05	
1 x 4 ..... 1.15	
1-1/2 x 4 ..... 1.48	
2 x 4 ..... 1.80	
3 x 4 ..... 2.64	
1/2 x 6 ..... 1.27	
3/4 x 6 ..... 1.48	
1 x 6 ..... 1.76	
1-1/2 x 6 ..... 2.25	
2 x 6 ..... 2.64	
3 x 6 ..... 3.90	
BLOCKS – 18" Lengths	
1 x 1 ..... .50	
1 x 2 ..... 1.05	
2 x 2 ..... 1.35	
1 x 3 ..... 1.35	
2 x 3 ..... 2.00	
3 x 3 ..... 3.00	

1 x 4 ..... 1.70	
2 x 4 ..... 2.70	
3 x 4 ..... 4.00	
1 x 6 ..... 2.65	
2 x 6 ..... 3.90	
3 x 6 ..... 5.85	
BLOCKS – 24" Lengths	
1 x 1 ..... .70	
1 x 2 ..... 1.40	
2 x 2 ..... 1.84	
1 x 3 ..... 1.84	
2 x 3 ..... 2.64	
3 x 3 ..... 4.00	
1 x 4 ..... 2.30	
2 x 4 ..... 3.60	
3 x 4 ..... 5.28	
1 x 6 ..... 3.52	
2 x 6 ..... 5.28	
3 x 6 ..... 7.80	
36" TAPERED TRAILING EDGE	
1/8 x 1/2 ..... .26	
3/16 x 3/4 ..... .33	
1/4 x 1 ..... .43	
5/16 x 1-1/4 ..... .54	
3/8 x 1-1/2 ..... .61	

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Packages ..... .89

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1/32 x 3 ..... .68	
1/16 x 3 ..... .73	
3/32 x 3 ..... .87	
1/8 x 3 ..... 1.00	
3/16 x 3 ..... 1.21	
1/4 x 3 ..... 1.43	
3/8 x 3 ..... 1.82	
1/16 x 4 ..... 1.14	
3/32 x 4 ..... 1.29	
1/8 x 4 ..... 1.48	
3/16 x 4 ..... 1.69	
1/4 x 4 ..... 1.97	
3/8 x 4 ..... 2.57	
1/16 x 6 ..... 2.22	
3/32 x 6 ..... 2.35	
1/8 x 6 ..... 2.58	
3/16 x 6 ..... 2.92	
1/4 x 6 ..... 3.47	
3/8 x 6 ..... 4.00	
LEADING EDGE 36" Lengths	
1/2 x 3/8 ..... .46	
3/4 x 5/8 ..... .70	
1 x 3/4 ..... .95	

C–GRAIN AAA 8-12 LBS.	
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1/16 x 2 ..... .48	
3/32 x 2 ..... .53	
1/8 x 2 ..... .59	
3/16 x 2 ..... .73	
1/4 x 2 ..... .92	
3/8 x 2 ..... 1.00	
1/32 x 3 ..... .54	
1/16 x 3 ..... .60	
3/32 x 3 ..... .70	
1/8 x 3 ..... .80	
3/16 x 3 ..... .97	
1/4 x 3 ..... 1.10	
3/8 x 3 ..... 1.40	
VH–VERY HARD	
1/16 x 3 ..... .60	
3/32 x 3 ..... .70	
1/8 x 3 ..... .80	
3/16 x 3 ..... .97	
1/4 x 3 ..... 1.10	
3/8 x 3 ..... 1.40	

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3/16 x 3 x 36	1.00
1/4 x 3 x 36	1.13
1/4 x 4 x 36	1.56

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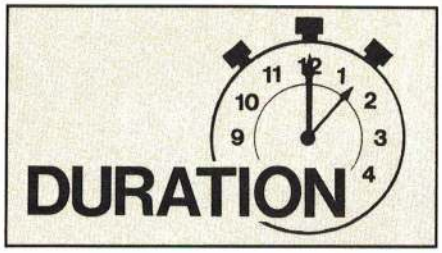
Bags of Balsa ... 1.29

TRIANGULAR CUT BALSA 36"	
1/4 x 1/4 ..... .25	
3/8 x 3/8 ..... .30	
1/2 x 1/2 ..... .37	
3/4 x 3/4 ..... .49	
1 x 1 ..... .65	
TAPERED CUT SHEETS 36"	
Tapered to 1/16" Edge	
1/4 x 3 ..... 1.15	
1/4 x 4 ..... 1.55	
ROUNDED EDGE AILERON & ELEVATOR STOCK	
1/4 x 1 ..... .60	
3/8 x 1 ..... .70	
1/4 x 2 ..... .82	
3/8 x 2 ..... .92	
CONTEST BALSA	
Very Light 4-6Lb. Stock	
1/32 x 3 ..... .58	
1/16 x 3 ..... .65	
3/32 x 3 ..... .74	
1/8 x 3 ..... .85	
3/16 x 3 ..... 1.02	
1/4 x 3 ..... 1.15	
3/8 x 3 ..... 1.43	

where the action is



CARL MARONEY ON SOARING

Sailplane Canopies: No more hunting the local hobby shelves for a suitable canopy for that next original design. Hi Johnson Model Products, Inc. now carries nine basic styles. All canopies are molded from .040 butyrate plastic and come in clear, blue or amber color. If the nine standard designs don't suit your taste, all is not lost. Custom canopies can be built to your specification; however, you must supply the original male mold. Additional information may be obtained by writing Hi Johnson Model Products, Inc., 11015 Glenoaks Blvd., Pacolma, Calif. 91331 (ask for the canopy flyer). It's a great reference guide for the sailplane designer.

First Flight Checklist: Here's a six-point preflight checklist which recently appeared in the *Torrey Pines Gulls Newsletter*, prepared by Kelly Pike.

(1) Check the controls; ensure at least 45° of rudder throw and 20° of elevator. Make sure that both the rudder and elevator surfaces move in the same direction as the transmitter stick.

(2) Verify that CG: It should fall within 1/8" of the first 30% of the wing chord, which is generally where the main spar is located.

(3) Ensure proper decalage: The angle between the center line of the wing and the center line of the stabilizer should be about 3-8°. Full-flying stabs are often set too far out of trim, resulting in a very short flight. This may be checked by viewing the plane broadside and holding the stab at eye level.

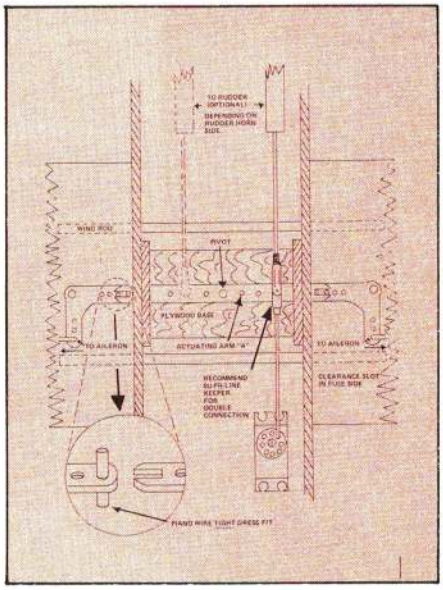
(4) Check wings for angle of attack; they must be the same for both wings to assure that the plane will fly straight. To check this, align the fuselage away from you so that the trailing edge may be seen from the tail. Now raise the tail until the bottom of the wing is in view. Follow the trailing edge out toward the left tip for the first quarter of the wing. Note the amount of wing bottom surface that you see.

Next, do the same for the opposite wing panel. You should see about the same amount of wing bottom displayed on both sides. If the angle of attack is different between the panels, unequal amounts of wing bottom will appear.

(5) Observe if there is some possible washout; this will make the wing panels look slightly twisted and in a counter-clockwise direction when viewed from the wing tip *(Slightly erroneous: The right panel will have the TE warped up, i.e., clockwise, while the upturned TE of the left wing will twist counter-clockwise—php.)* Another way to do this is by placing the wing panel down on a flat surface with the trailing edges facing each other, and observing if the edges are even with each other from root to tip.

(6) Finally, check the radio: Make sure you haven't failed to string out the antenna. Most important, by no means shorten the antenna length; better to let it all hang out. Now a range check, per the manufacturer's instructions, and you will be ready for that all-important first test flight.

Aileron Actuator: Here's an easily fabricated device for sailplanes with ailerons, or coupled aileron/rudder. Suggested by Matthias Inhoff of Quebec, Canada, the gadget permits the wing to disconnect on impact, and it only costs you a buck and 30 minutes of work.



The actuating arm A can be made of nylon or phenolic board. It pivots at the center, where it is bolted to a plywood floor. Two 90° (or whatever angle you want for any desired differential) bellcranks mount just inside the wing. From there, it's an easy shot out to the ailerons.

Important: Keep all linkages slop-free, since ailerons love to flutter out there on those long wings! Use the predrilled holes in the actuating arm to establish the proper amount of throw, and as a takeoff point for the rudder.

The Big Red Thermal God: *(by Paul Denson,* **AAM's** *West Coast Correspondent)*: Annually, the Torrey Pines Gulls have a party to toast the arrival of the Big Red Thermal God who comes once a year out of the frigid northern sky. Part of the celebration, outside of spirits for warmth and to ward off rattlesnake bite, is a bit of competition to show the group assembled what you have learned in the past year. The contest last year, held while gathered around a mid-room fireplace, was to try to thermal paper gliders up the chimney. This year it was a living room endurance contest with Bill Hannan's Escondido Mosquito. Everyone was forewarned, and all came with presents and a mysterious box, which the male member of the family carried with extreme care.

After an appropriate time had elapsed in which the goodies, put out by the hostess, were sampled (and precautions taken to avoid snake bite), registration commenced. Lo and behold!. . .two members of the distaff side, to their husbands' disdain, had entered the contest.

Durations of 15, 20, 25 sec. were logged frequently. Then Rosemary, Torrey Pines Gulls President Irv Stafford's wife, stood up with a little plane that somewhat resembled a fat-winged Escondido Mosquito. A titter from

Monika Nelson with Jerry's KA-6E. Photo taken eons ago (when Monika was still a financee) in Livermore, Calif. The glider is experiencing renewed interest since it cleaned up in Speed at the 1973 LSF Tournament.

the gents went around the room. The other ladies present empathized with her. With head held high, she knelt, held the little plane out in front of her, and let go.

Around the center of the room it went. . . two turns, three turns, four turns. . .30 sec. went by as it was approaching the ceiling. It was still circling at 45 sec., but coming slowly downward. A full minute had elapsed! By this time, all mouths were open. The room was deathly silent as every eye was on the condenser paper-covered plane still slowly circling halfway between the ceiling and floor. Around and around it went, finally coming to a feather-soft landing square in the middle of the room. Time, 1:30. The applause was deafening.

Whitey Prichard with his B-70 style glider. Canards fly well, and look wild in the air.

Before the evening was over, she turned in flights of 1:08 and 1:15. When it came time to award the prizes and Rosemary was called up to accept first place, she asked to be heard. She said she would have to turn down the prize because of the builder-of-the-model rule. No one had mentioned that this was applicable in the contest, but she still would not take the prize.

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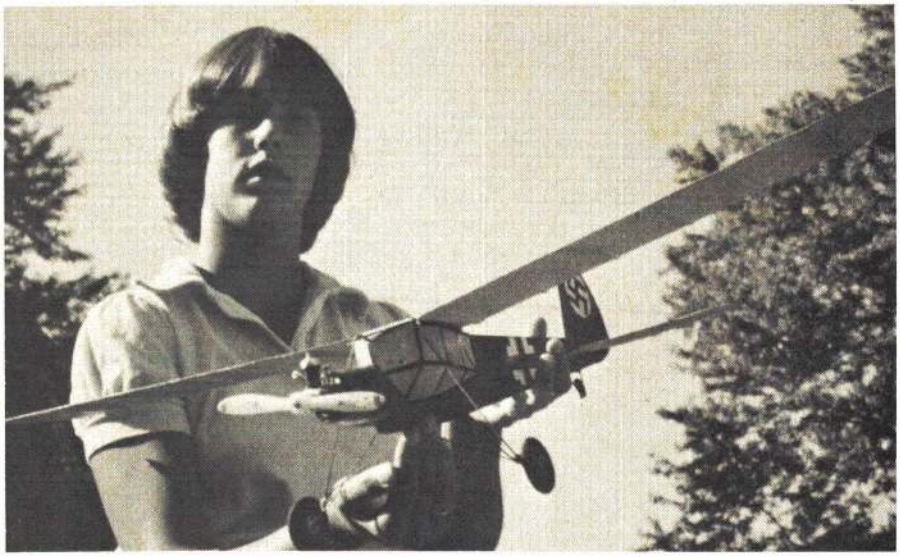
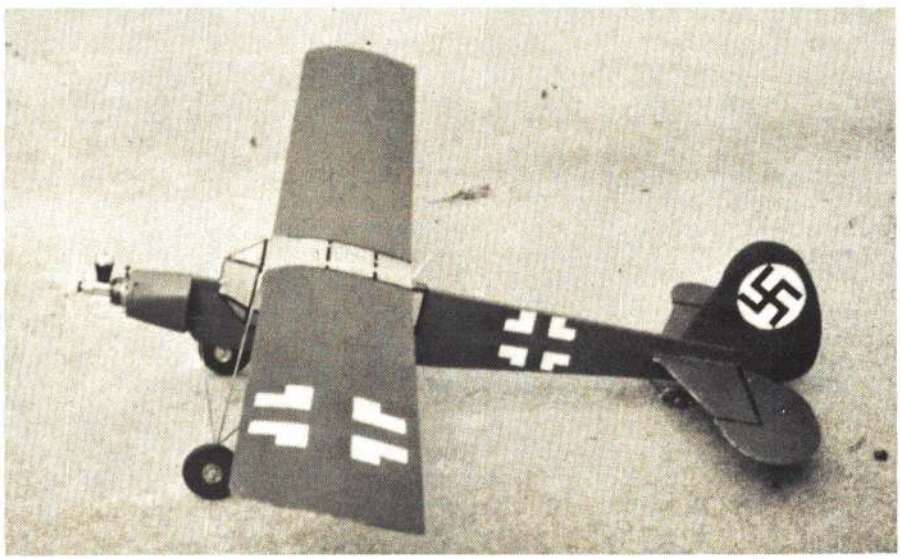
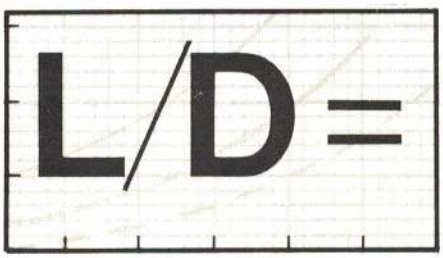


ABOVE: Karen Lister shows off the angular yet attractive lines of the Storch. Note the Jedelsky construction of the wing. BELOW: While not a true STOL model, the Storch is a good-performing gassie with its "skinny lifter" airfoil.





ERIC LISTER ON THE EPPLER GROUP AND SKINNY LIFTING

This month we're going to have a little fun. There will be a few new alternatives to regular airfoils plus a new profile model for free flight sport that uses one of them in its wing construction. The new alternatives to conventional airfoils will be somewhat Jedelsky-like, since they can be made from balsa sheet. These new alternatives for wing construction include some of the famous Eppler soaring sections with the thickness of the airfoil removed—a technique called "skinny lifting" for lack of a better name.

The big aerodynamic performance difference between the "skinny lifters" and the Eppler airfoils is that they have roughly 25% less section drag than the regular Eppler airfoils. The performance improvement, installed on a complete aircraft, would be on the order of 5-13% reduced sink rate. The benefit comes from reducing the airfoil to a sheet, rather than using internal rib and spar construction, which have an upper and lower airfoil surface separated by structural members normally 6-10% in thickness. Less thickness can mean less drag.

Before getting into the technical ins and outs of what the Eppler group turns into when you apply "skinny lifting," let's get right to the punch line—which is that it works. The flying test bed I used for the technique was an 020-powered profile model of the Fieseler Storch.

In full scale, this ship was probably the world's first true STOL aircraft. It saw wide spread usage in the service of Germany in World War II, from Russia to the African deserts of Rommel. Since it was an observation plane, the front end of the ship was mostly windows.

When I made up the scale model, the two most distinctive features—the high, stork-like landing gear and the observation windows—were made in 3D rather than profile. ("Storch" means stork in German.) At the proper angle, it doesn't look like a profile ship. It maintains its German-designed angularity and a basically mean appearance. Our Storch goes together quickly and easily. It may be one of the first in a brand new line of fun flyers to come out late this year under the Leader Models product name. That stands for "Lister Engineering and Development for Excellent Results with Models."

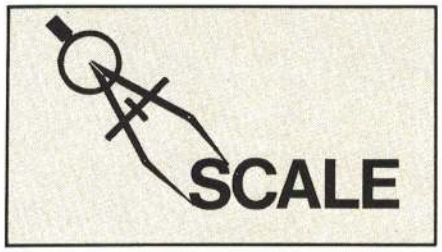
At any rate, the Storch has a span of 33" and an all up weight of just 7 oz. Ours was called "Der lo und Slo," and provided just as many laughs as it did plain old-fashioned fun in flying it. With the 020 richened up it wouldn't do much of anything except fly in big lazy circles about six ft. off the ground. Occasionally the altitude would be only about two ft. which is where the laughs came from. People would reach out and pluck it from the air as it went chugging by. With the engine leaned out for max power, it had a halfway reasonable rate of climb—200 ft. in 40 sec. or so.

After the engine ran out of fuel, it would just glide in big circles and land on its monster wheel base (about 8" of axle spread). Then it was ready to go again in its next flight. Nice, gentle little ship. So much for the Fieseler Storch, let's get on with the Eppler group as they try skinny lifting, since that's where the Storch's airfoil came from on the 020-powered model.

If you read the last LD column, you'll remember that all we did to make a conventional airfoil into a "skinny lifter" was to draw a curved line from the leading edge to the trailing edge, which went right between

the upper and lower surfaces of the airfoil. This line was called the "meanline" of the airfoil section. When you're doing basic airfoil design, this so-called meanline is what you start with. In regular airfoil design the next step would be to wrap a symmetrical airfoil section around that meanline and you'd have your usual airfoil. For skinny lifting, this is also the last step. The nice thing about the meanline is that all the lift and moment coefficient characteristics of the complete airfoil

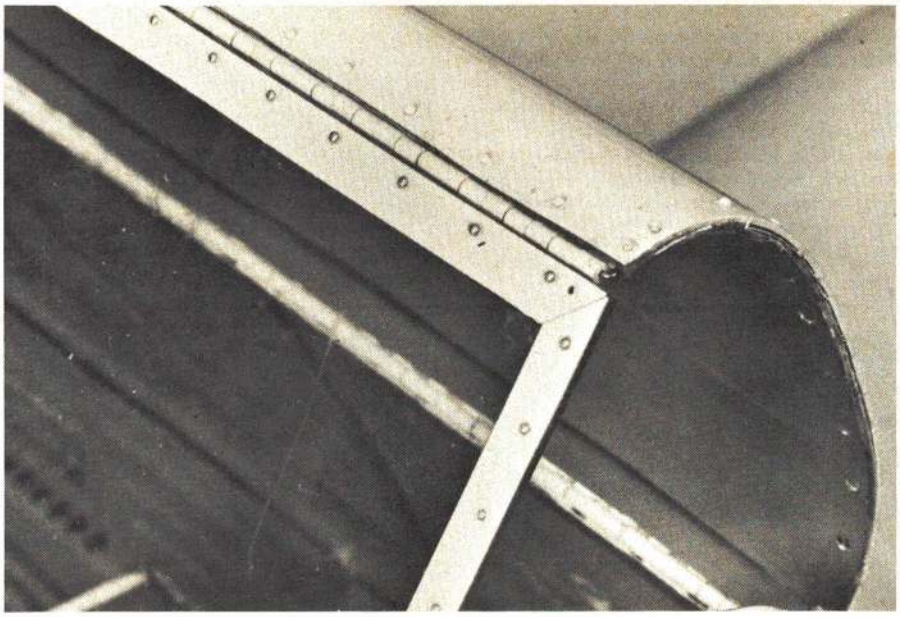
(Continued on page 98)



CLAUDE McCULLOUGH ON RC

Don't Tear Up The Piano: A cranky little detailing problem on many scale models is duplicating the piano-type hinges used often on cowls, canopies, access doors, even on control surfaces. Some builders have tried to fabricate them from brass tubing or shim stock, but that is the bananas route. Small jewel boxes from the dime store can be found with usable hinges, but usually they are too short and heavy.

An easy-to-do piano hinge is pictured on the opened canopy of my Shinn 2150. This was made from standard RC control surface



Detail of the piano hinge on McCullough's Shinn 2150.

hinges strung one after the other on a wire of the required length. The tab on each hinge was cut down to about 1/4" in length so it could be concealed behind the framing of the canopy.

Glue the strip of tabs to the canopy with contact cement. To insure that the assembly stays put, the 1/32" head aluminum rivets used as a scale detail on the outside canopy framing were run through the tabs and bent over. To conceal this unsightly conglomeration, a strip of .010 ABS plastic, the length of the piano hinge assembly, was bent to a 90° angle. One side is trimmed off to leave a lip about 1/16" deep, the other side of the angle just long enough to cover the tabs and butt up against the hinge tubes. Glued over the inside clutter, it looks just like the metal framing on the full-size airplane. For smaller canopies or doors, try Carl Goldberg's miniature Klett hinges.

The next photo shows a scale control surface piano hinge. This is made in the same

(Continued on page 72)

The plane truth-

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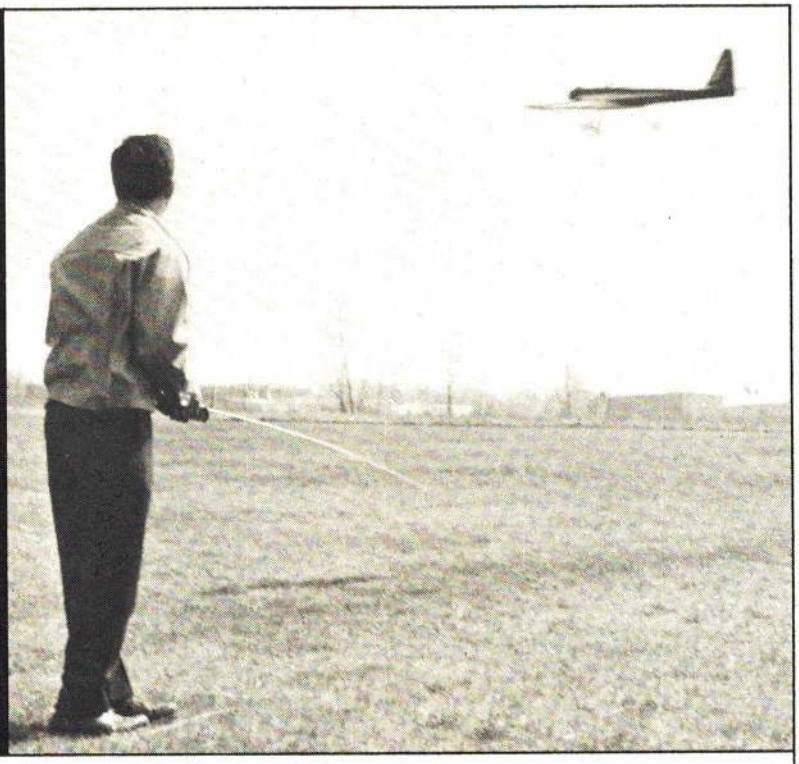

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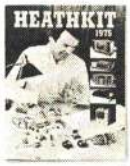

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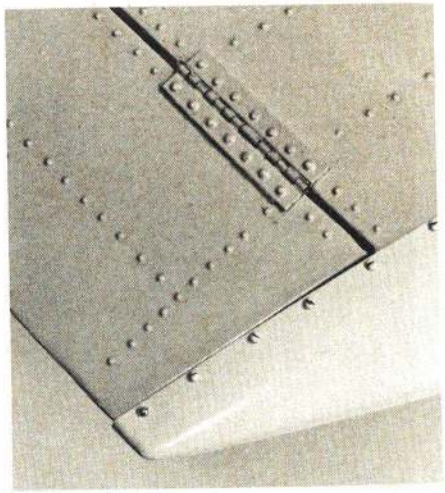
manner as the canopy hinge, except that the cover over the joints between the tabs is just a strip of .010 ABS instead of a 90° angle. The scale "rivets"—in this case Perfect railroad spikes—then hold the assembly to the plane,



Control surfaces of Claude's Shinn detailing the piano hinge technique described.

being epoxied into the internal model structure.

Since many of these hinges are made from nylon, it is a little difficult getting paint to stick to them. Epoxy paints stay on fairly well, and even butyrate dope will adhere. A light sanding of the plastic surface helps. Keep the coats light and don't overpaint.

The control surface hinge shown in the picture is painted with dope, and has never been repainted. The slight flaking that has occurred near joints is a realistic touch, since the same thing happens on the prototype. When necessary, the paint can be completely peeled off and redone.

This type of hinge is frequently used on cowlings, and the method described here will represent them in good fashion. However, be advised that a hinged cowling can sometimes be a nuisance and must be built extra-rigid to keep its shape.

A more practical approach is to make a one-piece cowling shell from fiberglass or vacuum-formed plastic to which can be added a realistic-looking dummy piano hinge and seams. Small pieces of aluminum, brass or plastic tubing can be strung on a wire to create a dummy hinge, but this is a bit tedious.

Take the easy way out. . .get a piece of Plastruct's 1/16" diameter butyrate tubing that is formed on a piece of wire. Mark off the number of hinge "gaps" you will need with a pencil. Use a single-edge razor blade and roll the tubing carefully back and forth on a flat surface, cutting a groove in the plastic at each gap mark. Take care when painting not to fill the gaps. Since butyrate accepts paints so well, very little is required to get good coverage and adhesion.

Glue a reinforcing strip of fiberglass or plastic in the interior of the cowl at the point where the dummy hinge will be attached. Cut a channel the width of the dummy through the outside shell, down to the interior reinforcement strip. Glue the hinge into the channel and, as an added safety factor, leave some wire at each end that can be bent over inside the cowl at each end.

The Douglas BTD "Destroyer." *(Photo courtesy Bureau of Aeronautics).*

Good looking dummy cracks at the edges of the hood portion of the cowl (that would open if you had an operating hinge) can be made in the same way as the channel described above for mounting the dummy hinge —the only difference being that they will be narrower. The secret of success in this venture is using the sharpest of blades and having the cowl firmly fastened down on a good working platform. I nailed a 2 x 4 to the work bench (with the end sticking over) to put the cowl on, and then built a platform around it to clamp the straightedge (to cut against) down solidly, so that it wouldn't slip.

Resurrect a Rare Bird—I: This begins a new department, dedicated to the idea that anyone going to the trouble of researching, designing and building a scratch-built scale model should pick an out-of-the-ordinary subject, not one for which three-views and pictures happen to be readily available, or which has been overdone by many other builders.

Kit-makers need to concentrate on highly popular sellers like the P-51, but let's organize scratch builders to the idea that the forgotten airplanes of the past need attention. A wide variety of types makes a contest much more interesting to both participants and spectators. For those readers who don't aspire to this goal, we hope the series will show them some airplanes they didn't know existed or remind them of forgotten types.

Rare Bird I is the Douglas BTD "Destroyer," one of the predecessors of the Skyraider series, but quite unlike the AD. Built in 1942, and first designated as the XSB2D, this bent-winged, shipboard torpedo bomber had a 45-ft. wingspan and a Wright Cyclone R-33350, 2,250 hp engine. Only 28 production versions were built.

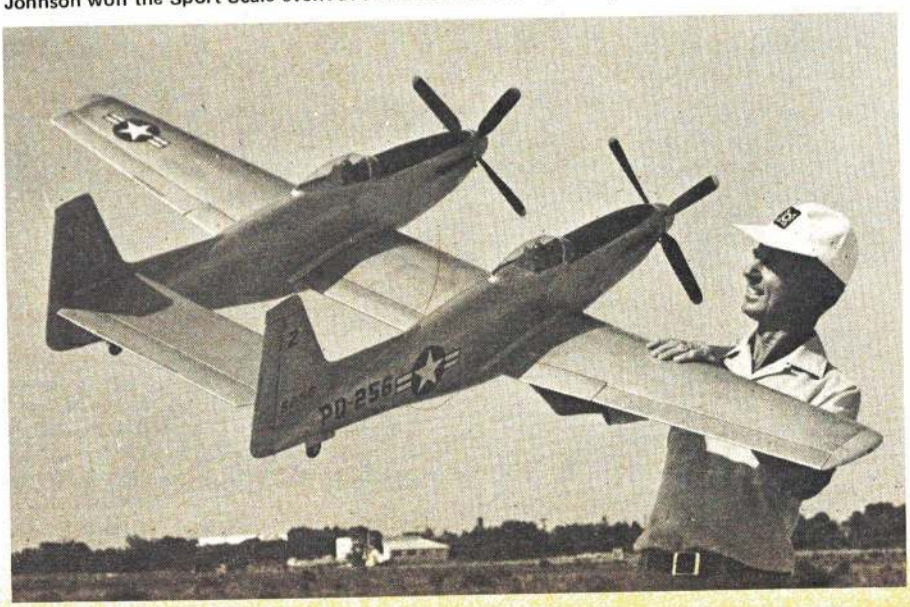
Pictures show some of them painted in matt three-tone, camouflage Navy colors, and others in the later, all-midnight-blue scheme. Dive bombing, with big finger dive brakes extended from the fuselage, it would make a knockout entry in Sport Scale or the regular AMA event.

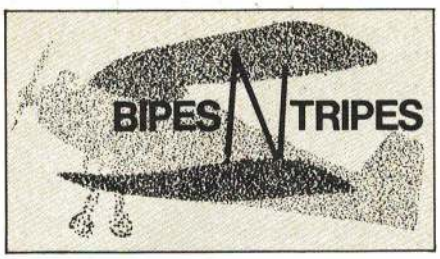
It has good wing area relative to fuselage size and, like most Navy carrier aircraft, generous tail surfaces. The squared cowl with rounded edges is a unique feature, and the trike gear won't do your landing technique a bit of harm.

Excellent three-views appeared in Vol. 7 of the famed *"Aircraft of The Fighting Powers"* series, published in London during the war. Since Vol. 7 is the rarest book of a

(Continued on page 98)

Art Johnson (Delray Beach, Fla.) with his Stand-off Scale P-82E. Two Max 40s, 9 lb., 79" span. Johnson won the Sport Scale event at Florida State Championships.





O.L. (OLIE) OLSON ON MULTI-WINGED RC THINGS

Hi, multiwingers! In case you haven't noticed, it's building time again. For most of us, at least, those cold Nor'Easters and Nor'Westers are blowing and the old workshop is looking a lot more inviting than the flying field. I hope that your building program includes at least one bipe.

Twelve months ago, the supply of good (or even bad) kits was almost nonexistent. By the time you savor this priceless prose, Ol' Lou Andrews should be cranking out Aeromasters again. And we'll have a good supply of Liberty Sports, Acrostars, and J-Bipes—all excellent flying ships. In fact, it's rather interesting to note the high degree of design similarity among these aircraft—a real compliment to Andrews. Ooops, I almost forgot father Jerry Nelson's Skinny Pitts that is being kitted by Midwest.

As I sit here, typewriter at hand, I haven't had the pleasure of flying the Pitts yet, but I'll take all bets that it's going to be a good one. Jerry placed fourth in Sport Scale at the NATS with this job. He did it *sans* retracts, flaps, multiple engines, and other mechanical gadgetry—just a good ship and good flying. Don't forget the scale possibilities either.

I've got a soft spot in my heart for the VK Nieuport and Fokker DR-1. I'd dearly love to have a Proctor Nieuport. Long Island's PT-17 looks like it might be fun. The fact is, I think that I could probably become attached to just about any bipe around. You're going to want one yourself, come spring. You're going to want to make the multiwing scene. Better do something about it now!

Dean Copeland's excellent rendition of the 1933 Gere Sport, forerunner of the EAA Bipe (May, 1971, AAM). Forty power.

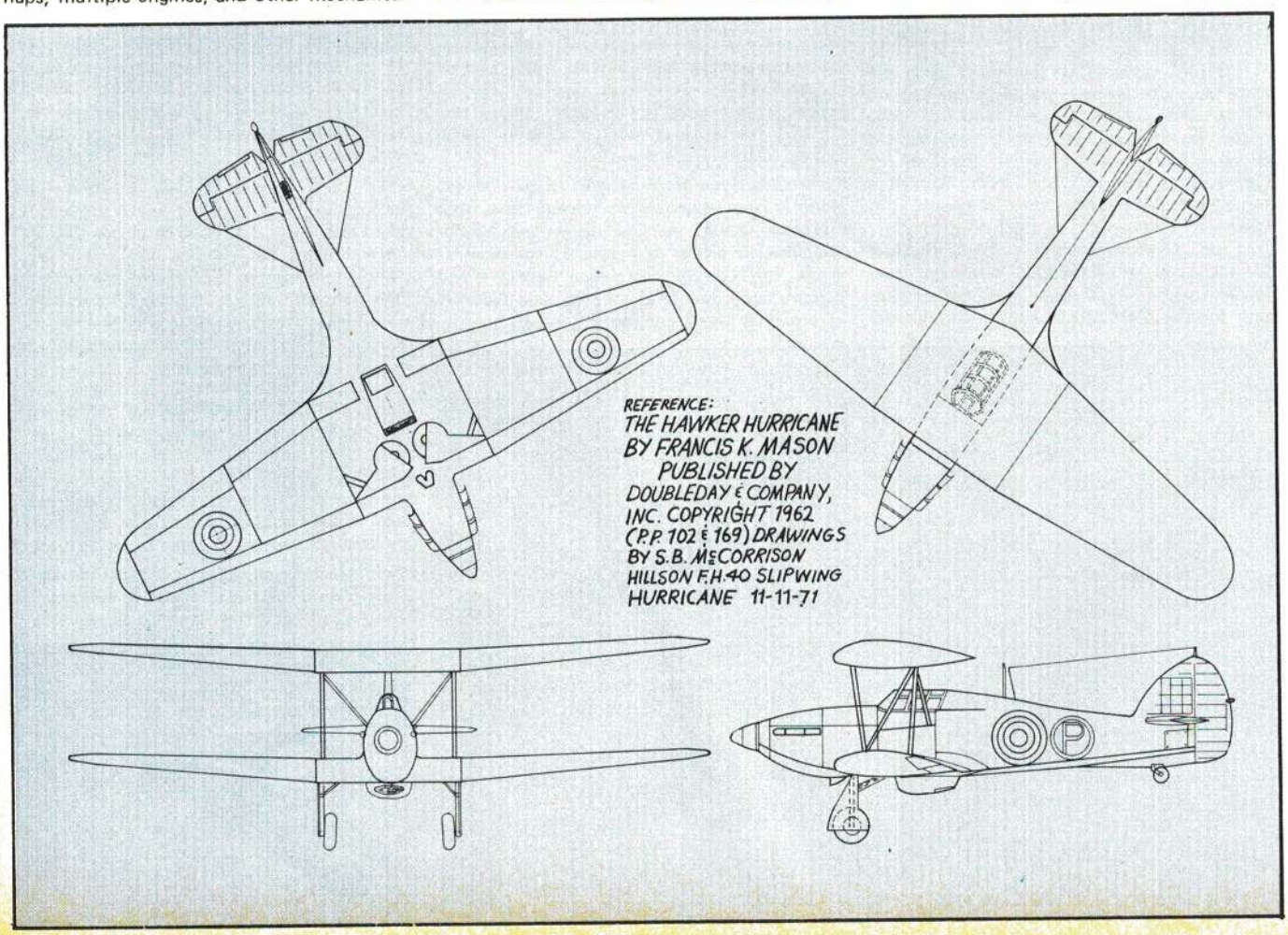
Received an extremely interesting note from Sears McCorrison of Stoughton, Mass. Ever hear of a Hillson FH 40 Slipwing Hurricane? Sears thinks that it would make an interesting scale project. I think that, with our current Sport Scale rules, it is a guaranteed sure winner. If I had a little more courage and a lot more ability, you would never hear about this jewel until after I took the NATS with it.

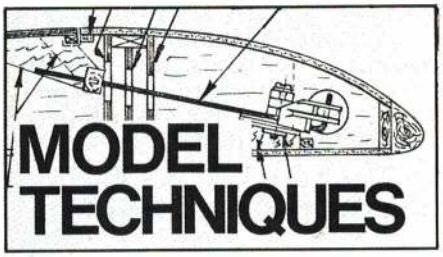
However, since I don't have those things, picture this. . .Your twin-winged Hawker Hurricane, sitting in front of the judges, the engine ticking over smoothly. The canopy slowly closes as the flaps slide down into takeoff position. The engine revs to full throttle and the camouflaged bird trundles out. With a smooth burst of power, your ship accelerates down the runway. Gear up! Flaps up!

A nice, smooth Figure 8, followed by a low, slow fly-by, and then folks, the *coup de grace*. As the engine barks back to full rpm, the Hurricane points her nose skyward, claws for altitude, and jettisons her top wing! The rest of the pattern is of little importance—you've just won Sport Scale. Okay, men, who has the guts? Let me know how you make out.

Heard from old friend Dave Linstrum, FF editor for *MAN*. Dave was a bit disturbed with the strong RC orientation of the N.S.P.A. (National Sport Pattern Association). He feels that Jerry and I are slighting the multiwinged free flighters of the world. Since the N.S.P.A. is aimed at duplicating full scale acrobatics with miniature RC biplanes, we're also slighting all the biplane, control line fliers across the nation. I guess we're guilty as charged. You folks have just *got* to

(Continued on page 103)





FRED MARKS ON RC

Hello again! We've been away for a couple months so you could read about the AerOlympics, etc. Lots of interesting technical things are happening. As you may have noticed, we try to use technical items from the numerous club newsletters we receive because: (1) they are interesting; and (2) we want you to know that there are still lots of guys with a technical bent out there.

Our own DCRC newsletter has recently acquired a new Editor, Glen Scillian, an accomplished modeler with an excellent technical mind. This makes a great combination. Glen included this design in a recent issue:

"Instead of buying or building a battery operated receiver to tune the 11- and 6-meter bands, I decided to use the plane's receiver to monitor its own channel. Of course, that channel can not be monitored while the plane is up, or after it crashes! I brought out from the receiver three wires to a female connector. These are +4.8 v, -4.8 v, and the audio (on the Heathkit this is the blue wire between the two boards). The accompanying sketch shows the IC audio power amplifier, powered and driven by the receiver, and in turn driving a pair of magnetic earphones. All the components except the plug and phones fit in a 1 x 1 1/4 x 2 1/4" Pomona box.

"Before starting the engine, I plug the amplifier into the new receiver plug, turn on the airborne batteries, make sure my transmitter is off, and listen in. Sometimes CB chatter on adjacent channels is heard, or RC signals. If a transmitter on your channel is turned on, the phones almost jump off your head!"

From Denton Holden—a CMOS decoder for the **AAM** eight-Channel: "I thought your readers might be interested in CMOS conversion for the **AAM** Eight-Channe! Commander Decoder (**AAM** June, 1973). It works well on the bench, but I have not had a chance to fly it yet, as I am in the process of moving to Germany. Perhaps Mr. Marks can take a look at the schematic and spot some source of trouble that I have not detected.

"Current drain (static) is about 2 ma. I have tested the conversion with the Royal IC servo; however, the outputs of the 74C 164 should drive any servo requiring no more than 360 microamps of current.

"I used the Ace PC board with minor changes. Component types remain the same, except for values."

Denton, upon inspection there appears to be every reason to believe that the circuit will be all right. For you readers, the same PC board can be used. We intend to construct some decoders using the circuit. This hasn't been done up to now because the C-MOS ICs (which have much lower current drain) have been expensive.

In addition, one must exercise considerable caution in handling and soldering C-MOS circuits. We'll report on this at a later date.

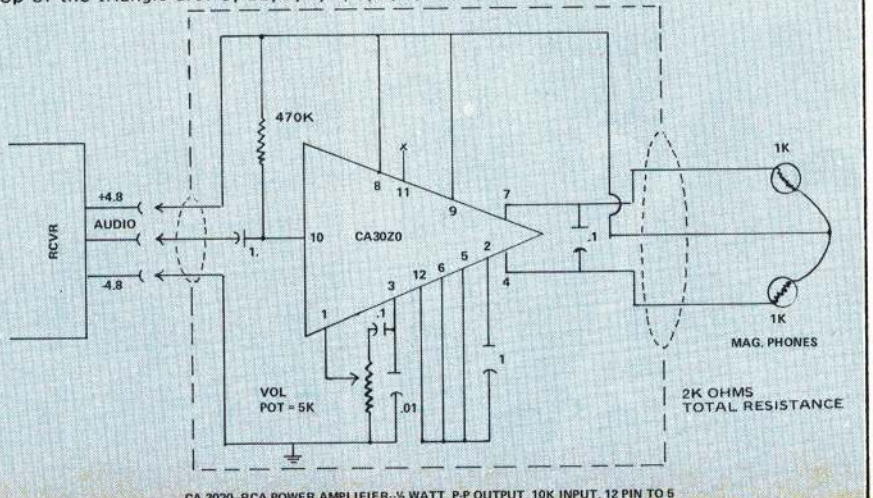
There always has to be one that remembers! From Larry Blazek (paraphrased by your column editor):

"I recently purchased two SN74164 ICs, with the intent of building the **AAM** Eight-Channel system. You mentioned an eight-channel encoder based on the use of the SN74164 eight-bit shift register. Where can I obtain information on that transmitter?"

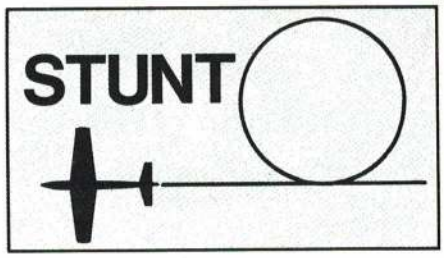
Larry, as we began work on the one-eight transmitter, we found a characteristic that causes such encoders as the Kraft, RS, and others that use the shift register to be more complex than we'd like for people who build from scratch or kits. All the shift registers have collector load resistors internally on the collector outputs that require using two or three blocking diodes per channel; *e.g.*, as much as 24 diodes for an eight-channel set. There is too much chance for a bad diode or one reversed in installation.

A circuit we have designed uses a decade counter and binary to decimal decoder that has open collectors. The result: an encoder that has no diodes and only 21 components total. More on this at a later date. We will present experimenters' circuits using the shift register in a future column.

The component values from left to right are: 1.0 mf, 470K ohms, 5K volume control, 0.1, 0.01, 1.0, and 0.1 mf. The headphones have a resistance of 2K ohms—1K in each earpiece. Note that the center of the phone lead is connected to B+. An extra lead is run out to the phones for this. The numbers of the amplifier terminals, clockwise from the top of the triangle are: 8, 11, 9, 7, 4, 2, 5, 6, 12, 3, 1, 10. No. 11 is not used.



CA 3020–RCA POWER AMPLIFIER–½ WATT, P-P OUTPUT, 10K INPUT, 12 PIN TO 5



LEW McFARLAND ON CL

Another Year, and not just another year for stunt—our FAI team of Bob Gieseke, Bill Werwage and Gene Schaffer turned in a real team effort to get us the World Championship, placing first, second, and sixth, respectively. A big *Thanks* and *Congratulations* to them for a job well done. It is difficult for even a competition stunt flier and past team member to appreciate the amount of work and dedication that goes into producing a stunt team of this caliber. Probably the least-remembered people are the families of each team member who, without doubt, gave tremendous support, with considerable self-sacrifice. Bob Gieseke also went on to win the "Triple Crown" with more superb flying for Open Stunt and Walker Cup at the Nationals. (See Bob Gieseke's story on pg. 22 of this issue).

Also, this year there were many good stunt contests throughout the country, with entries down largely due to the gas shortage and increased cost of travel. The year also saw PAMPA grow to 200 members and gain momentum—for 1975!

Stunt Capital: Without doubt, we will have to concede "The Stunt Capital of the World" has drifted back to somewhere in the vicinity of Dallas, Tex., with Bob Gieseke's feats backed up by Joe Musumeci's win in Junior Stunt, and Doug Stout's second in Senior. And we can't forget the other "Texas Kids," Al Rabe, third, Jerry Pilgrim, seventh, and Bill Rutherford, eighth.

Next Year: We can expect to see the old hands continue to win, but watch some of the new faces that made good showings this year. Those whom we predict will continue to climb the ladder are Bob Hunt, Jerry Pilgrim, Ted Fancher, Jim Lynch and Tom Dixon. Rich LeRoy made a very strong showing, considering that he learned the pattern only six months before the Nationals.

We can't expect dramatic changes in the planes and designs, but retracts for stunt are not too far away (or am I wrong Mr. Hunt?). Let's hope semi-scale can remain at the present high level, even without the realism points which some of us would like to see back in the book. Al Rabe deserves appropriate credit for giving impetus to scale stunters,

Sharp Mustang by Mike Gretz has foam cored wing, plastic cowl, ABS top deck and radiator scoop. Let's hope Sig kits this beauty.

The big three shown here are, left to right, Joe Musumeci (first place Junior), Bob Gieseke (first place Open), and Alan Adamisin (first place Senior).

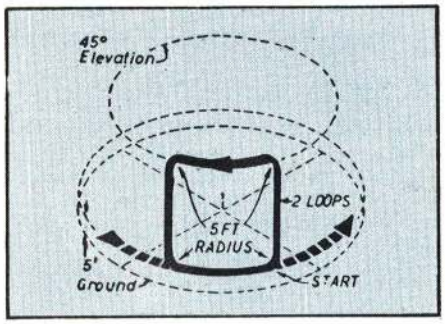
but many others have been involved, dating back to Don Still and his Stuka. Mike Gretz has designed a very pleasing Mustang Stunter for a 35 engine. Mike is well known in scale circles and works for Sig Mfg. The company is seriously considering the design for future kitting. Seems there can never be too many P-51 Mustangs—unless you happen to be Al Rabe and Bill Rutherford, who showed up at the NATS with almost identical birds. They reminded us of two girls who came to a party with the same color and design dress.

Many stunt "designers" are not honest, but Mike Ditrick lays it on the line and says that his next dream ship will be 40% Formula "S," 40% Talon (Jim Kostecky designs, where are you Jim?), and the remaining 20% original.

My major accomplishment in construction in 1974 was a new small tool box (I will let Wynn Paul name it). However, the dream for next year is 40% Shark, 40% Akromaster and 40% Gieseke Nobler with a Gieseke Auto Pilot. Yes, three times 40% equals 120%, but I will need it to make up for the lack of practice.

Maneuver of the Month. (From the AMA Rule Book):

13.7 Consecutive Inside Square Loops (Two Req'd). Consecutive square loops are judged correct when the model starts from normal level flight and flies a square course consisting of two loops, each with four turns of approx. 5-foot radius and straight, equal length segments, with bottom segments at normal level flight altitude and top segments



at 45° elevation. Maneuver begins and ends with model in level flight at point of start of first turn.

Maximum 40 points. Minimum 10 points.

Errors: Model wobbles or mushes on turns. Lower altitude is not 4-6 feet. Upper altitude is not within 2 feet of the 45° elevation point. Turns are not precise and exceed 7-foot radius. Sides of loops are not equal. Second loop is not in the same flight path of first loop.

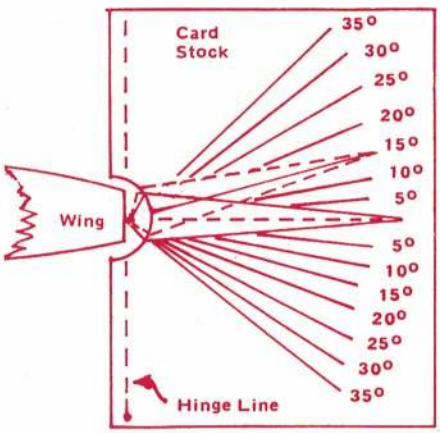
This maneuver gets us into a new area of the pattern which demands more and new abilities from both the pilot and the plane. We must make some basic assumptions as we go through each maneuver: (1) The plane is capable—if not, find out if it is a trim problem or design problem. In some cases you may

have to come up with a new and better plane. (2) The pilot has progressed through and perfected previous maneuvers—otherwise practice more.

The rule book dictates a corner radius of between five and seven ft. However, this is very difficult to measure, so about the best a new flier can do is watch an old hand and try to duplicate. Many times the plane will limit the radius of turn and, no matter how hard you practice, the results are poor—so just loosen it up until the plane flies smoothly around the corner. The old Ringmaster would be an extreme example. Although it is a fine trainer for the very early stages of aerobatics, let's not kid ourselves and try to perfect square maneuvers with it, since it will do only *very loose* squares.

Apply and use the wind as with regular Inside Round Loops. Once the square corner starts looking better, start working on timing, so that each side or leg of the square is equal. Don't worry about being big and high at first —work into perfection. More wrist action is used in turning square corners, with a quick return to neutral. . .but not past neutral, for this is where the famous McFarland "Bobble" occurs.

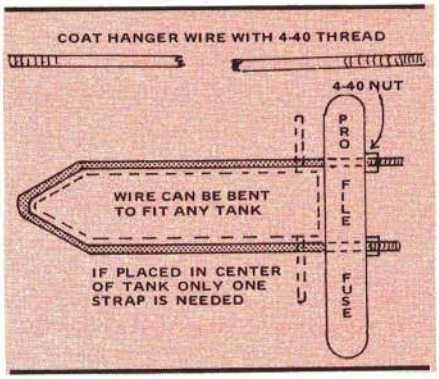
Doodad: "Doodad" of the month comes from James Lee of Topeka, Kansas, in the form of a modified protractor as a means of measuring the exact degrees of control surface movement. James started with a piece of light cardboard (approx. 4 x 5), drew a horizontal line through the center to represent the centerline of the control surface (exact neutral), then drew a vertical line 1/4" from the edge of the



card, representing the hinge centerline. Radians at 5° intervals are marked off in each of the two 90° quadrants formed by the two lines. A small cut-out is made to allow insertion, so that the hinge line can be physically lined up with its counterpart on the card. Use clothes pins to fasten to the side of the fuselage. Presto! You may read directly the exact amount of control movement. Inexpensive but functional.

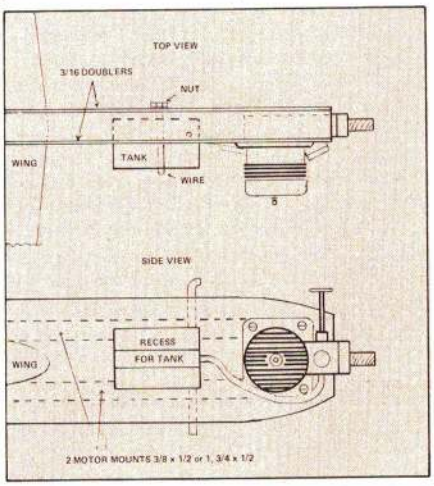
Profile: The profile stunter continues to carry a heavy work load and keeps many aspiring stunt pilots flying and climbing the ladder of proficiency. George Higgins III came up with a good idea to hold the profile tank in position (see pictures and drawing). Simply take a coat hanger wire of sufficient length; bend to shape after threading for a 4-40 aircraft nut.

Charles Hubble turns out a neat profile by embedding his tank into the fuselage. Combine both of their ideas and you will be as smart as both. Charles also claims a vibration-proof profile: "Epoxy two sets of two motor mounts together, 1/2" side to 1/2" side, and



long enough to reach to the wing. If you can obtain 1/2 x 3/4", this will be better.

"Cut out the fuselage to take these in the normal way, but all the way back to the wing. Use 3/16" doublers, instead of the usual 1/8". This will allow more room for the bottom of the crankcase, as the opposite side does not get cut out. If necessary, raise the motor to



clear the crankcase. This will also help in aligning the fuel tank."

I think Charlie has something going, but if you happen to get a nose of just the right length, that old resonance factor may sneak in and pick up the beat of the engine.

Next month we'll have more stunt shenanigans for you.

JOHNNIE SMITH ON CL

Speed Proposals—As a member of the Speed Advisory Committee, I received a copy of all proposals relative to CL racing events from the chairman of the CLCB. A proposal to allow entrants to either needle or fly the bird has been submitted by two different people. Let's hope this one goes through.

SAC has submitted a few proposals—one asks for a standardized pylon design, while another is asking the CLCB to ban the groupers or "Funny Lines" now used by some fliers (more on this later). Several proposals are for banning pipes in 40 Speed, with mini-pipes only for Juniors. Also, suggested are a new Class D Speed category for the 65s, (40 would be the limit for C), along with the use of metric lines in Class B and B Proto (65 3 1/2") and then time for a kilometer course.

One proposal, which I thought was sent in for laughs, asks for an "Unlimited" Speed event with three models being flown Rat Race style and 50(!) engines. . .with a throttle control, and the rules would require a landing (engine running!) every 14 laps! Taxi up to your pitman and refuel (or whatever), then take off for another go at it. Before any of you ask, I have already obtained the ticket sales franchise on this one.

There is going to be a complete listing of these (and others) in *Competition Newsletter*. Get it and go over them. Then write to your district CLCB representative and give him your vote on them. This is the only way he has to know which way to vote. If you don't write, don't complain if the rules don't suit you.

Charlie Schubert is one of three members of the exclusive AAM 200 mph Club.

Speed Slowing Down?—I received a letter from Harry (RO-GO Fuel) Roe giving his ideas as to why participation has dropped off in Speed. He feels that those big, ole pipes did it all. I feel differently about it. I feel the blame is on contest organizers, sponsors, and the AMA. Read on before you get all bent out of shape.

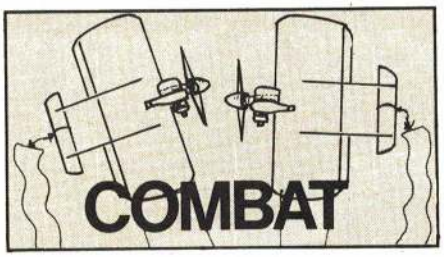
Having two young sons who fly, and another coming up, I feel I'm pretty much informed on what is happening among the Juniors. Let's look at the contest organizers and sponsors first (I'm using, as examples, situations we ran across this summer). We had planned, along with three other flying partners (two of whom have Juniors flying), to attend five contests, all AAA meets, except the NATS (AAAA).

We ended up going to two, because of a complete disregard for Junior fliers. Two of them were set up to fly for percentage of records, everybody running together, while the third was Junior/Senior/Open combined. Each had *token* Junior events to meet the AMA requirements for AAA status.

Seeing the results of these meets, as far as Junior participation went, only adds more facts to my case. One meet had three entrants in Speed. The other two didn't have enough Junior entrants in Speed to start a good fight. Between the three families who did not at-

tend these meets due to the ridiculous combining of events, these organizers each lost over 35 event entries.

Fathers do not like to fly against their kids, and Juniors have no reason to fly against Open Record holders. It's about time that clubs which hold contests quit using the excuse that trophies cost too much money. Junior fliers flying against Juniors will pay its own way. I know it will; it's worked for us for



Jay March, AAM 200 mph Club member.

years in Cleveland, as it has for others in other parts of the country. We have whole families coming to fly, with Juniors in their own class in almost every event.

Sure, we have a couple of trophies left over, but we also come out in the black. Each year, the Juniors come back in force, along

(Continued on page 105)

DAN RUTHERFORD ON COMBAT

Combat Column is Back: But who is this turkey writing it: Who has ever heard of Dirty Dan Rutherford: Don't worry, partner. Chances are that I have never heard of you either!

Just Who is Dirty Dan?: Besides being 28 years old, married to one wife and the father of two kids, I work as a sales representative for A& L Distributors, belong to the Red-Max M.A.C. and enjoy model airplanes as a hobby.

All aspects of model airplanes are enjoyable, but none is more challenging to me than Combat. So I fly as much Combat as possible: Fast, Slow, FAI and 049 Combat. For me, Combat has all other forms of model airplane competition beat. But it doesn't offer everything, so I am also active in Rat, Slow Rat, Goodyear and 1/2A Mouse Race. I left out Stunt, but I am not very serious about that event (I'm not very good at it either!).

FF is fascinating, and I fly as much of it as possible. Building Combat planes keeps me busy, but I manage to compete in A-2 Nordic, Indoor and Outdoor Hand-Launch Glider, 1/2A Gas, B Gas and Peanut Scale. Peanut

Gordon DeLaney (Salt Lake City, Utah) and his Challenger IV. A good puller on the lines, it features unique "over-and-under" leadouts.

Scale!!?? Sure, why not? In fact, I have placed in every Peanut contest I have entered. And when I accept my prize, I always make a point of challenging all of the FF freaks to a match or two of Combat!

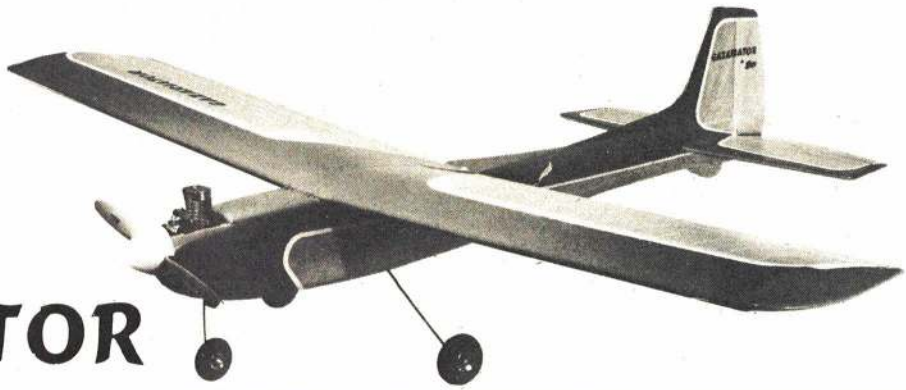
My activities in RC are limited to whatever you are supposed to be able to do with a Kraft two-channel. For the past two years the set has been doing an absolutely flawless job of sitting on the shelf. When my reflexes go away, and I think that building basically boring airplanes is neat, maybe I will finally give RC a try. Until that day comes, Combat

(Continued on page 117)

HAVE YOU LOOKED THESE OVER YET?

KIT FS-32
SPAN 68 in.
LENGTH 52½ in.
AREA 800 sq. in.
FOR ENGINES .50 to .61

$51.95



GAZARIATOR

(Super Fledgling)

For The Sport Flier...
...And Especially the Newcomer to .60 Radio Control Flying

If you are a Sport Flier or a newcomer to R/C then this is your ship. It's a good looking plane that builds easy — goes together fast — plenty roomy for any equipment — rugged for hard use — flies comfortably . . . and is just the right size. for a .60.

. . . AND ABOUT THE KIT ITSELF . . . Fuselage sides are one piece with ply doublers back past the wing. Only a few bulkheads and a shaped top make for almost "instant fuselage." Torsion main gear & sprung nose gear (or fly it as a tail dragger). Aluminum engine mounts, etc.

The complete wing is built on the work bench without having to remove it which eliminates warps — All parts are die cut, carved, etc. Balsa sheet cover keeps warps out and makes for a tough wing . . . Tapered Strip Ailerons are simple to install. Wing is installed just like the low wing jobs.

using dowel pins and nylon-screw in maple nut-block, like it ought to be. No rubber bands to deteriorate or slip or tear up.

Elevator and Rudder are sheet. Stab & Fin is built up and sheet covered to keep it flat . . . so that's it. a fine kit of a fine ship.

Included is all the linkage hardware: pushrods, aileron and elevator horns, bellcranks, clevis, connectors, etc.

SAILFISH

One of the prettiest Sailboats you ever saw either Free Sailing, or R/C. Construction is simplicity itself. Die Cut Frame, features Plywood for strength and long life. Printed-planked Deck is Die Cut and ready to slip into rub rail, molded into Sleek Plastic Hull. Kit is unusually complete with Die Cut Mahogany Cabin, Brass Chain, Many Cast Metal Fittings, CLOTH SAILS, Rigging cordage, Mast & Boom Material stamped Rudder and Keel with INTEGRAL LEAD BALLAST. Step by Step Plans show simple assembly. Base shown not included.

HEIGHT 32½"
LENGTH 24"
BEAM 5"

Kit B23
$14.95

G1 Spanish Galleon
G2 USS Constitution
G3 Schooner Blue Nose
G4 HMS Bounty
G5 Golden Hind
G6 Pirate Brig

All Just $6.95 ea.

Authentic Replica Series

Every kit contains a machine carved hull, genuine metal castings of Cannon, Life Boats, Anchors, Steering Wheel, Stern Castles, Figurehead, and many other castings as needed. Also Chain, Black and Tan Rigging Line, Printed Cloth Sails, Decals, Display Pedestals, and all the rest that go to make an easy-to-build full rigged sailing ship that will gain in intrinsic value as years go by. Models truly worthy of a place in your home or any museum.

BeGINNeRs FUN SeRies

13 of 'em—2 at $4.95 the rest $4.50

If you really want to have some fun, then go out and get one or more of these nifty control line models. They're the easiest ones in the world to assemble—all wood, no tissue covering—only 6 to 9 parts, depending on the model (except the Fokker which has a few more, because of the struts). Genuine Nylon motor mount ready to bolt in place—Complete control system (less handle and lines) decals, landing gear, wheels etc.; which makes building a cinch and assembly literally in minutes.

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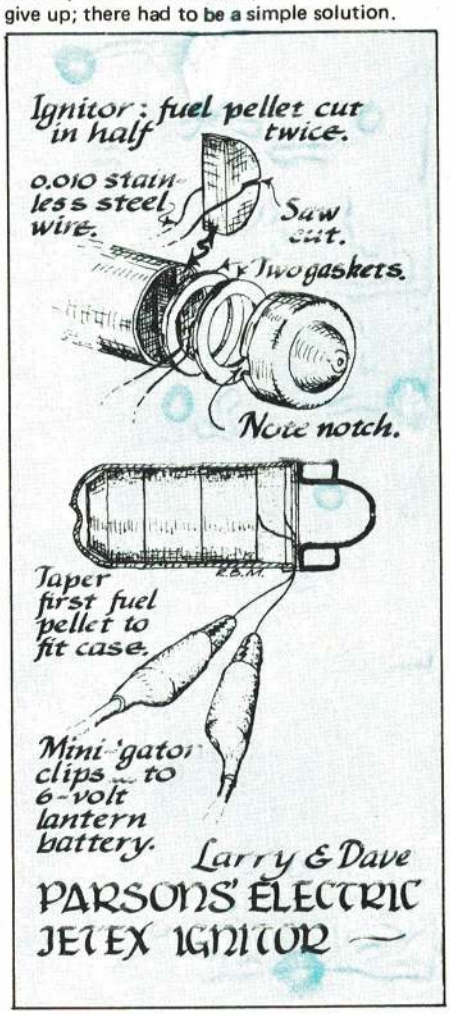
BOB MEUSER ON FF SPORT

Jetex Breakthrough: Far too often, I've seen an expert fail three successive times to get his Jetex 150 engine to ignite. We have often pondered the problem at club meetings. Larry Parsons suggested some sort of electric igniter. But getting the lead wires through the case was a problem. Some sort of miniature ceramic feed-through brazed into the sides of the case, a heating element connected between them, could perhaps provide a solution. But nobody ever did it. Years passed. Larry didn't give up; there had to be a simple solution.

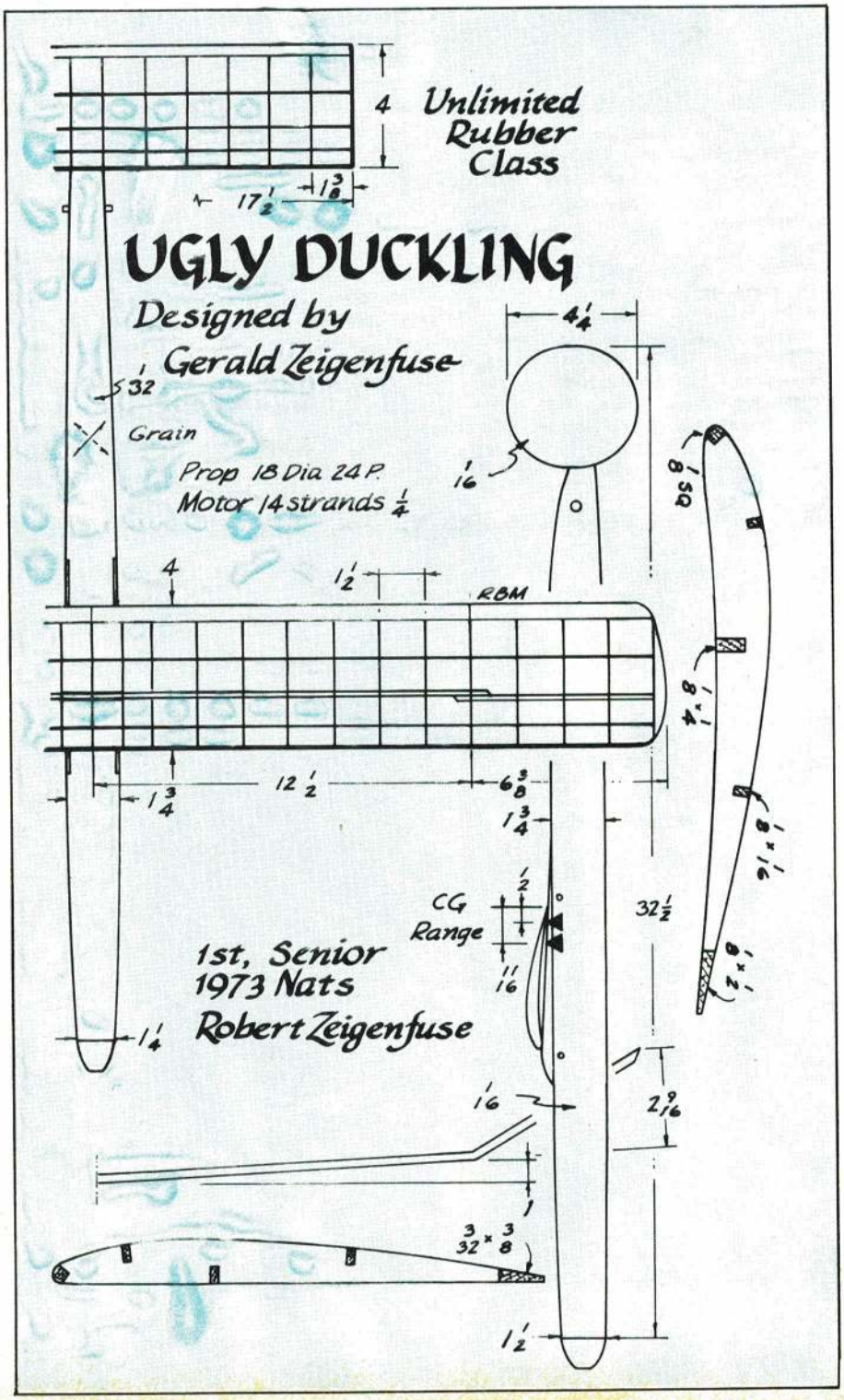


Whenever I see a beautifully elaborate solution to a design problem, I know I'm looking at the signs of defeat. Great designs usually look as though an idiot could have dreamed them up in two minutes. The solution Larry finally came up with, and his son Dave put into practice, has the right look. A stainless steel heater wire—nichrome might be better—loops around a notch in a piece of fuel pellet. No feed-throughs are used; the heater wires are simply brought out between two thin gaskets which are substituted for the standard gasket. At a recent contest, Dave's engine ignited every time. He used the same piece of heater wire all day.

NATS-winning Mini-Unlimited: The Unlimited Rubber-Powered Model rules permit 300 sq. inches of wing area, and such models frequently carry nearly half a pound of precious Pirelli rubber. However, much smaller models often perform disgustingly well. The Ugly Duckling (shown in the three-view) is one such model, having won the Senior Unlimited Rubber event at the 1973 NATS for Robert Zeigenfuse, with a score that would have taken second place in the Open Age Group event.

Designed by Robert's father, Gerald Zeigenfuse, the Ugly Duckling was originally designed to be flown with old 80-gm. Wakefield motors. The rules were changed. With twice the rubber of a present-day Wakefield, and less gross weight, the performance potential of such a plane is obvious; no small-field model is this! The greatest problem with small unlimiteds is keeping them in sight for the period of a max. The original model, built by Gerald in 1964, placed first in every contest in which it was entered.

When Robert got to the age for serious competition and wanted to build an Unlimited, the Ugly Duckling was the obvious choice. Robert made his NATS-winning flights, incidentally, using a 1973-vintage Filatti rubber, the kind that barely turned the prop and was scarcely of sufficient quality for strapping on wings. (The Fillatti rubber currently sold is as good as good old Pirelli, according to some tests.) However, it takes



more than a well-built model of good designs to win; proper adjustment is an essential ingredient. Robert spent most of the afternoon preceding the Unlimited event at the NATS test-flying his model. That took lots of legwork because of the fierce wind, but the effort paid off.

Rubber-Powered Speed Contest: Charlie Sotich, fastest gum-bander in the Midwest, won the IMAC-sponsored speed meet with a speed of 50.5 mph. That's a hair short of Jim

Charlie Sotich's rubber-powered racer covered the 200 ft. course in 2.7 sec. (50.5 mph) to win the IMAC-sponsored Speed contest.

McCracken's speed made at the 1973 NATS, but Charlie hasn't finished developing his model yet.

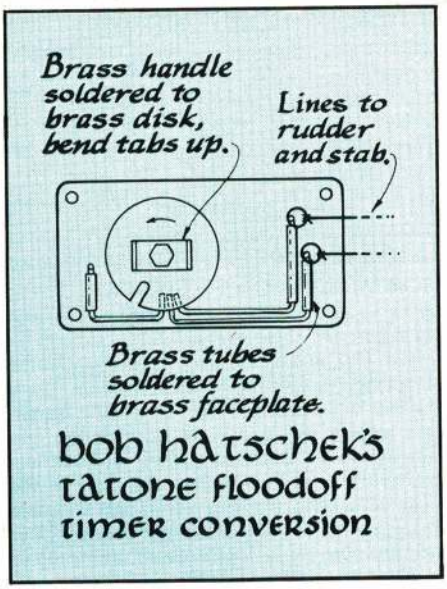
Here are the specs: 24" span, 34.5" fuselage length, 7" plastic prop, 2.78 oz. gross weight, of which about half is rubber. The lightweight dolly, which uses the bottoms from foam coffee cups for wheels, falls off after takeoff. CG must be well forward—6% of the chord back from the leading edge—to keep the model from zooming up. Solid balsa wing and tail, and built-up fuselage are employed. The model has been flown on eight strands of 1/4" Pirelli wound only to two-thirds capacity. Charlie hasn't broken a prop yet.

"There is still much testing to do," he says. A rubber speed model must be light—not more than about 4 oz. per 100 sq. inches of wing area—and should have a prop diameter no larger than one-third of the wingspan. It should be driven by plenty of rubber.

The Illinois Model Airplane Club meet was held according to the NFFS rules: 200-ft. course, 100 ft. wide; model must take off from a table; model may not rotate more than one turn in flight; no dimension may exceed 36".

Charlie has been experimenting with a variety of plastic props, some of uncertain heritage: one from England, another from France, a 7" Testors prop from an ROG kit, among others. He suggests that the 9" Peck Polymers prop might be good if cut down to about 7". He felt that the original solid 3/32" sheet balsa wing was a little too flexible, and has constructed a light stick-and-tissue wing only 3% thick. We hope he completes his experiments before the NATS, and shows up with a real sizzler for the NFFS-sponsored unofficial Rubber-Power Speed event.

Tatone Timer Modification: From the prolific pen of the old gadgetmaster himself, Bob Hatschek, comes America's answer to the high price of European multi-function timers. It won't pop up the tail for dethermalizing (a fuse DT can be used for that) but it will give time-sequenced actuation of autorudder, autostab, and engine cut. If 1/32" wire is used for the arms, and the bent ends of the arms are nearly touching, the time delay between functions is about one-half second. For a longer delay, a knee can be bent into one arm to better separate the ends. The rudder and stab lines can be hooked up to the same arm for simultaneous actuation.



The lever on the left side goes to the flood-off device. Those on the right may be connected in either order, depending on whether the rudder or autostabilizer is to be actuated first. The disk position is shown just before actuation of the flood-off device.

The modification can be made to either a Tick-Off or Flood-Off timer, either the new models or the old, as the stock faceplate is to be discarded anyway.

(Continued on page 82)


enduring
PRO LINE
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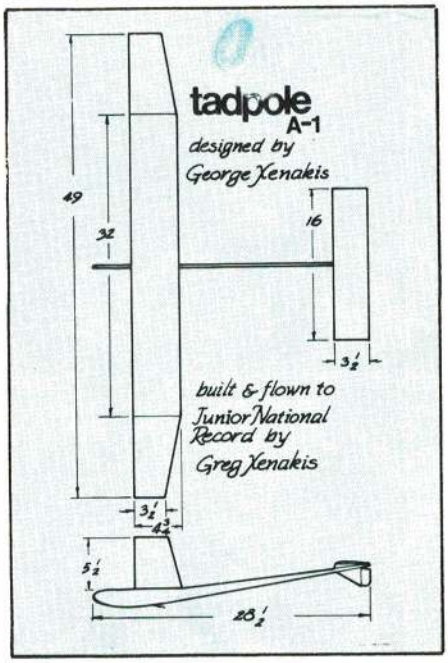
COMPETITION-PROVEN RADIO CONTROL SYSTEMS FOR MODEL AIRCRAFT

Tadpole: Designed by *el maestro* George Xenakis to A/1 Towline Glider specifications, the Tadpole is one of those simple, ugly beasts that has a special knack for finding thermals. One was flown to first place at the 1974 U.S. Free Flight Championships by Greg Xenakis, and established a National Record as



well. The wings on the original series of models employed Jedelsky all-sheet construction. These proved to be too weak, and had to be reinforced with spruce and plywood. The newer series employs sheet balsa for the rear half of the wing, and built-up construction for the front half. This promises to be both stronger and stiffer in torsion.

net wire per two poles, was installed. The motor turns a 5¼ x 3 Top Flite prop at 10,500 rpm, about the power of a Pee Wee 020. Flying weight is 8.5 oz., and flying is done on 20' dacron lines. A six-volt motorcycle battery charges the unit in 10 min., for about three min. of flight.

It will do up to 70° wing overs, but does not have enough power to pull through a loop or a vertical wing over. It is good as a beginner's airplane, since full up elevator causes it to mush around the circle, instead of whipping overhead in the usual beginner's crash. The motor is turned on by clipping the positive lead to the terminal made for it on the motor. The clip is part of the installation in the washer unit, and can be obtained with the motor.

Charging is done by clipping the negative charging battery lead to the negative terminal on the motor, and the positive lead to the positive lead for the motor (be sure it is disconnected before doing so). Alligator clips and three feet of extension cord wire were used for the charging cord.

Astro Flight Questions and Answers: Continuing from recent columns, here are commonly asked questions from the Astro Flight files, and Roland Boucher's answers.

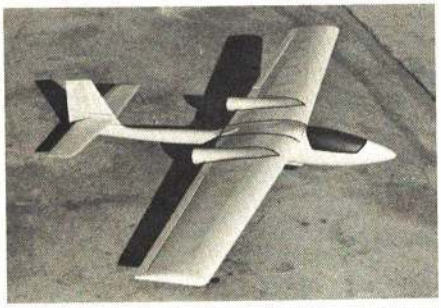
Question: Is electric power suited to beginners in RC flying?

Answer: Yes, but don't expect it to be easier than gas just because it is easier to start the motor. Electric power is heavier, so building an electric plane requires a reasonable amount of care to keep the weight down. If a kit is modified to electric power, shorten the nose moment to preserve balance. A properly built electric plane could make a good club plane, since the instructor could turn the motor off before giving the stick to the novice. The model can be set for a gentle glide, with the motor off, so that the beginner can learn the basic maneuvers.

(Columnist's comment: The new Astro Pup should be ideal for beginners using two channels and the popular 049 trainers.)

Question: Are any competition classes particularly suited to electric flying?

Answer: Yes, scale airplanes are a natural for electric power, and their usually short nose moments pose no problems. The new powered sailplane classes could use electric power and fly on the same noise-restricted field as the normal sailplanes. Another competition class which could benefit from electric power is the Old Timer free flight RC. We (Astro Flight) have entered Scale and Pattern



Electra 225, a twin Astro-25 powered pattern design by the Boucher brothers.

events, and ½A pylon races with our electrics, but mostly we just fun fly.

Question: Does Astro Flight make units that charge off the car battery?

Answer: Yes, both the 10 marine unit and the 05 (Astro Pup) charge from the car battery. The Astro 10 and 25 charge from a field charger box which contains two 12-volt 9 ah motorcycle batteries.

Question: What are the ways to throttle electrics?

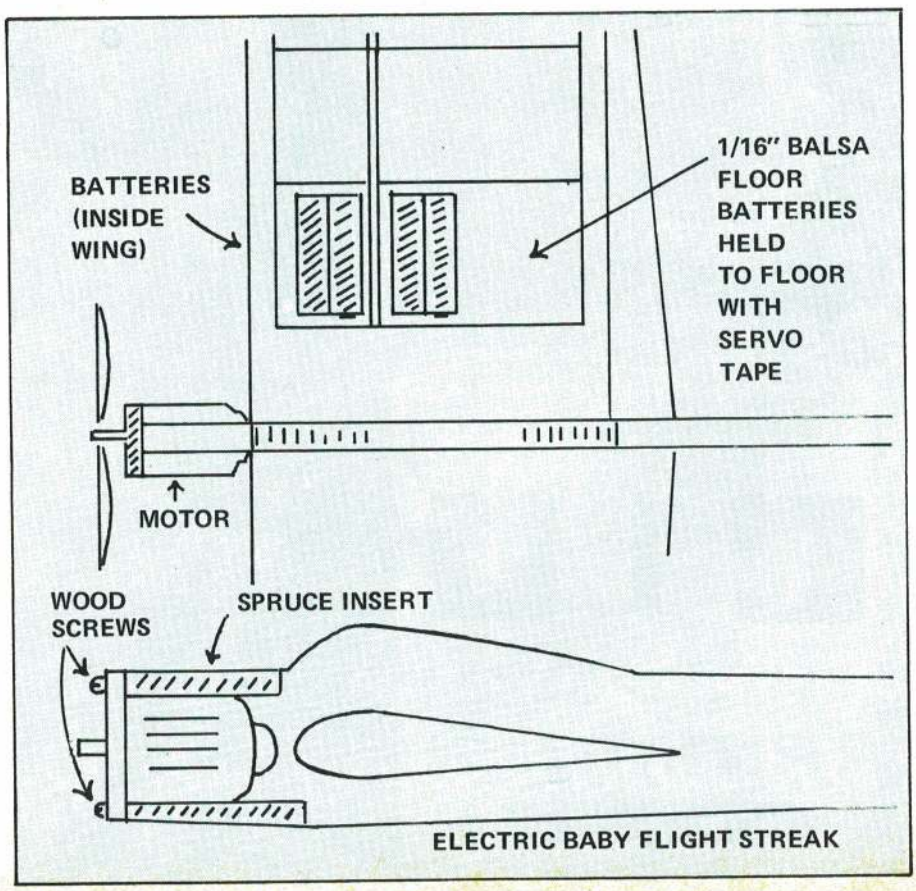
Answer: The simplest way is to operate a toggle switch with the throttle servo. Taxiing

ELECTRIC FLIGHT

MITCH POLING ON ELECTRIC FLIGHT

Electric Control Line: Until recently, electric control line meant a battery at the center of the circle, with current running through the flying wires to the plane. However, the resistance in the wires is more than that in the motor, and the lines absorb the lion's share of the power. An alternative is to put the batteries in the plane; with lightweight, half-ampere hour, nickel-cadmium cells, this is quite practical. For the past month, I have been flying an electric Baby Flite Streak (Top Flite Models) with the batteries in the wing. It is fun, and works well.

Ed Sweeney flew the plane indoors at the Anaheim hobby show and drew a large crowd. It is ideal for indoor flying. The sketch shows the installation of the batteries and motor. Bob Hanson (Hobby Manor, Davis, Calif.) built the plane stock except for the motor cutout in the nose. Four GE Permacells were installed in the wing, and a Plymouth washer motor, wound with 20 turns of No. 24 mag-



is done by pulsing the throttle, and simple on-and-off control is suitable for in-the-air operation. Rheostats have been used successfully in cars and boats. Use a 12-watt for the Pup, 25-watt for the 10, and 50-watt for the 25. Two speed throttles have been used in cars and boats by using a double-throw, center-off toggle switch to place a one-ohm, 20-watt resistor in series with the motor for low speed. Astro Flight has an electric throttle under development which works from the throttle servo lead.

Question: Are there any kits available which are easily converted to electric power?

Answer: The Electra Fli and the Fournier RF-4 are designed for the Astro 10. These kits are manufactured by Astro Flight. Kits that have been successfully used for electric power include the Jr. Falcon, Jr. Skylark (Carl Goldberg Models), and the Ranger 42, all using the Astro Pup. The Midwest Cardinal flies well with the Astro 10. The Astro 25 has flown the Goldberg Falcon 56 and Skylark 56, and the deBolt Champion Cub. For powered sailplanes, the 10 flies the ASW 17, and the 25 flies the Graupner ASK 14 and the 12-foot Windflex made in England.

(Columnist's comment: I think that eventually any kit flown with glow motors will be suited for electric power. The Astro units do substitute directly for the motors in the 049, 10, 25, and 40 classes, and the washer motor and Galler motor—direct drive—substitute directly for the 020 units.)

Question: Will electric power give equal performance compared to that of a glow engine?

Answer: Not quite, since the electrics are

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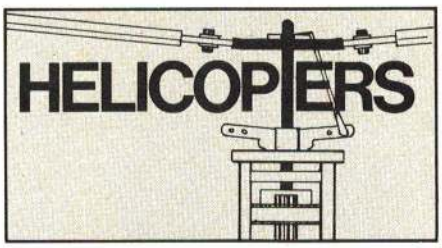


JOHN BURKAM ON HELICOPTERS

Drag Racing: It finally happened at a helicopter contest in Toledo, Ohio. Dave Keats said that the "expert fliers liked two things, pylon racing (two at a time) and an impromptu drag race (two or more at a time). Everyone especially liked the drag racing, which was not part of the contest. The racers started from the ground at the drop of a flag and went the length of the runway (timed). If you were good, you touched a skid two or three times down the course. The Polecat (mine) won the pylon race and was second-fastest in drag racing (flat out before end of course). Bill Curtiss' Polecat II was superfast.

Dave will probably give more details of the contest in his excellent column in another magazine. I predict that drag racing and/or pylon racing with choppers will grow in popularity fast!

Eastern States Helicopter Contest highlights: Dave Gray won the Expert Precision event in this NRCHA and Du-Bro sponsored contest. Since each man flew all four tasks in sequence, nerves were a little frayed by the end.

This became even more noticeable in the second round, as some machines bounded to 20 ft. in height when they were supposed to stay below 5 ft. in the slalom course. Dave was master of the situation, however. Others in the first five places were Don Lowe, Ron Wiensch, Dave Keats and Grady Howard. The novice event, flown inside the hangar, was won by Tom Herr, an up-and-coming youngster. (The noise in there was deafening, even with mufflers.)

John Werne and Gene Rock battled it out for first and second, respectively, in Stand-off Scale. Gene's four-bladed, hingeless, rotored BO-105 probably was truest to scale, even to the correct number of blades on both rotors. But John's beautiful Hughes 300 had more details (such as insignias, louvres, boots on the landing gear oleo struts, etc.) which were visible from 10 ft.

The loop competition would have been won by John Burkam if his tail rotor blades hadn't parted company with the rest of the machine after the first 45° of the loop. Three cartwheels and a nose dive from 100 ft. up! He should have received an award for the most spectacular crash. Dave Keats nearly looped his Polecat, but it rolled out at the top. Neither Faye Peoples nor Grady Howard, with much heavier machines, could get the noses of their helicopters quite straight up.

On looping: Not only must a helicopter have power and streamlining to achieve high forward speed, it also must have enough excess thrust so that when it pulls its nose up, it will not stall the blades and dissipate that horizontal kinetic energy before it's converted into vertical kinetic energy.

Then, over on its back, it must have enough speed to respond to aft stick and put

(Continued on page 130)

Krainock does it again!

by Ed Slobod

TOP: Jerry launches his Pierce Duckie at the beginning of the 27-mile flight which gained him a new World Record. BOTTOM: Reclining on the tailgate of a station wagon, with Paul Slobod as spotter, Krainock makes it all look deceptively easy.

This account of my record flight is given by Ed Slobod, because as Contest Director and driver, he was in the best position to see everything going on. Rubber-necking with a glider at 2000 ft. is usually bad form.

Record flying is a combination of people, equipment and weather. With the weather, you take your chances like everyone else. My airplane and radio performed flawlessly this summer, with a total of 12½ hours in the air and 150 cross-country miles flown. The 120° heat, long distances, strong turbulence and fine dirt caused no problems. No special battery packs were required, and on two occasions we totalled four full hours in the air.

My crew this year was Eddie Slobod, his son, Paul, and usually, Ted Buxton, Bill Nibley, Terry Smith, Gene Schatt and Paul Scibetta. We have spent six Saturdays in the desert this year, and this record couldn't have been set without them.—**Jerry Krainock**

Last Labor Day, while everyone else was enjoying the holiday, indefatigable Jerry Krainock and his merry masochists went out once again (for the fourth time in the past five weeks) to do battle with Mother Nature in yet another quest for the elusive FAI Glider Distance Record. Jerry already held the record of 18.4 miles, and you are probably wondering about his motivation. . .or sanity.

Well, Jerry had his reasons, as you shall soon learn, but you might ponder the plight of the crew who could look forward to another day of strained necks, sunburned eyeballs, parched throats and the inner glow that comes with defeat.

It had been two weeks since our last landing at Lovejoy Butte and, since we had been unable to get past the Butte on three previous runs of 13, 15, and 16 miles, a decision was made to try a different course. In addition, the Pierce Duckie had been retrimmed and showed vast improvement in thermal climb. The course chosen was a run down Highway 138 to the end of the road, a distance estimated to be 23 miles.

First launch was at 10:50 a.m. and there was no lift, but Jerry hit some zero sink at about 60 ft. After several circles, the sailplane began to go up. It took about eight min. to get to "go" altitude, approximately 1000 ft., and we were off. Normally, the lift is better around 1:30 p.m., so we didn't expect much more than a trial run. However, the lift was good and we had gone about 11 miles (and gotten up to about 3500 ft.) before Pierce Duckie began to come down. Frantic searches for dust devils and hawks proved fruitless, and we

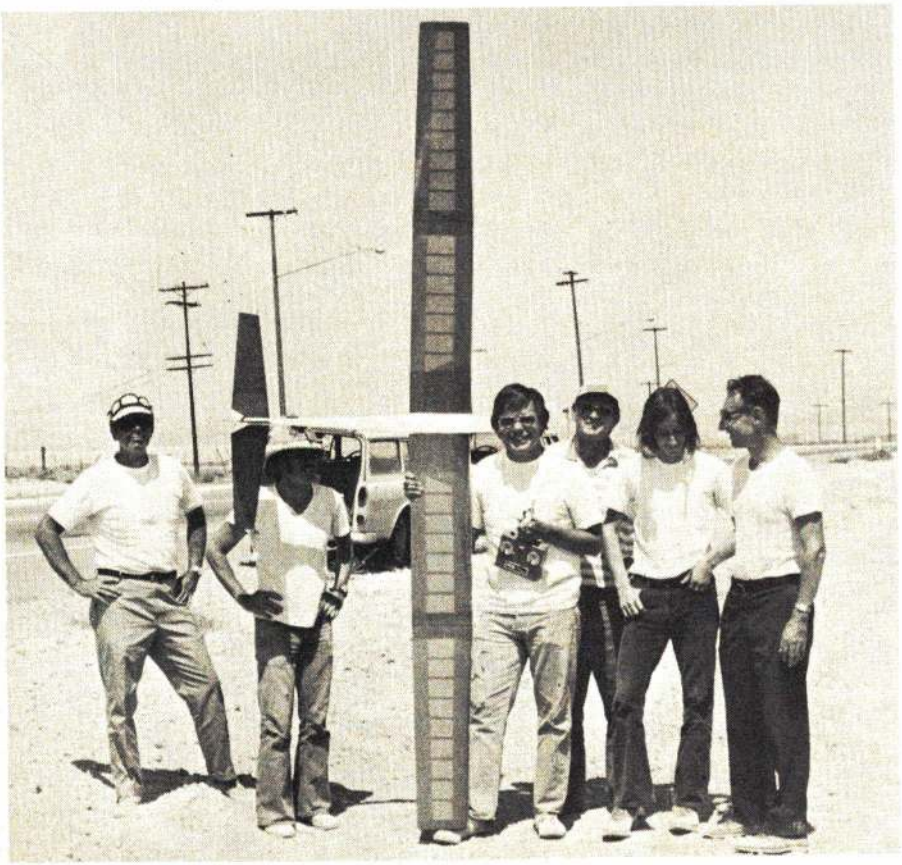
(Continued on page 122)

Records come in odd places. Jerry sets his Duckie down among multiple obstacles.

The smile of victory is 27 miles wide.

Soaring for Records

by Jerry Krainock



The merry masochists gather to celebrate a World Record. Left to right, Paul Scibetta, Bill Nibley, Jerry Krainock, Ed Slobod, Paul Slobod and Tom Osborne.

Have you ever considered flying for World Records, but thought you weren't good enough, or didn't have enough know-how, or, perhaps, that it just wasn't worth the effort?

Actually, while there is a lot of work and time involved, the rewards are very satisfying. I mean, when was the last time someone in your club came to the meeting wearing a grin from ear to ear, and brandishing a certificate from the FAI in Paris, signifying that *he* has flown higher, faster or farther, *officially*, than *anyone* else ever had?

My preference is glider flying and my specialty is Cross-Country Distance. On June 10, 1972, I set a World's Record for RC sailplanes, Cross-Country Distance. I spent four weekends in the desert, and maybe $750 in a one-year period before I was successful, so the cost in time and money was not prohibitive.

The purpose of this article is to pass on some of the lessons I learned, as well as to encourage some of the rest of you to try this aspect of the hobby. My observations deal specifically with gliders, but may help other RC fliers in their quests for records.

For Cross-Country Distance and Altitude, the most important characteristic a glider should have is size, followed by stability. The bigger the glider, the higher you can see it, and the farther you can go before you need lift. It's as simple as that! A sailplane built to FAI maximums will be visible at 7000 ft. on a clear day, and that's 2000 ft. over the current record.

A cross-country model may not need to be built to the full FAI limits for size, but it should be up to the maximum weight. You may choose to make the trade-off because of special lift conditions in your area. The high weight will help you cover ground, and that's important. I would like to see someone build a model with 11 sq. ft. of wing area at an all-up weight of 11 lb., with a semi-symmetrical wing section. In the desert, a combination like this will really cover ground.

Some may question the idea of using high wing loadings and a symmetrical wing profile, thinking that a floater would have lower sink between thermals

(Continued on page 126)

MODELER MAIL

(Continued from page 4)

You have summed up my personal feelings of the '74 NATS with eloquence and good taste, in my opinion.

I commend you and your magazine for speaking out like this.

George Hill
RC Contest Board, District IV
Annandale, Va.

Quest for Oldies

I am currently doing research into the history of RC and need help. Just about anything will come in handy . . .anecdotes, details of early flights and equipment, photos, and information on how I can contact the pioneers.

If anyone having such data, or knowing of sources of it, would get in touch with me, I'll sure appreciate it.

James Nordhoff
97 Mariner Green Drive
Corte Madera, Calif. 94975

EDITORIAL

(Continued from page 20)

and I have lately begun to wonder just why I continue to do so.

As purveyors of news, the model magazines are second only to smoke signals as paragrons of inefficiency. By the time a newsworthy event is published in the modeling press, it has usually passed into the realm of ancient history. (When the MacFadden Publishing Co. changed the name of *Boys Flying Adventures* to *Junior Mechanics and Model Airplane News* in January, 1920, it had no idea how inappropriate it would become.) Perhaps it is not the intended purpose of the modeling press to serve as news carriers. If this is so, I will rescind my criticism, but I will continue to peruse so called "news items" with sharply raised eyebrows.

Many of my comments refer to all the model magazines, but I'll use **AAM** for examples, since I'm appearing in their pages. The callous question is: "Just what is the function of a model magazine?" Is it to inform? To provide insight to those mind-boggling intricacies of our sport? I hope not. I shudder to think what would happn if some wide-eyed neophyte were to purchase the current issue of **AAM** and discover that "Getting Started in RC" is now in its 77th installment. It takes no mathematical marvel to realize that this series has been running some six years and shows no sign of giving up the ghost. This gives "Getting Started" the dubious distinction of outlasting Hugh Heffner's pompous "Playboy Philosophy."

The number of articles which are apparently intended to inform but, in fact, do little more than confuse are legion. As a speed flier, I was particularly amused by an **AAM** article that appeared about a year ago. Ostensibly a primer for tyro speed enthusiasts, it was regarded as little more than light humor by knowledgeable speed fliers. The fuel formulas suggested by the author were literally less effective than commercially available fuels, and the reworking techniques described would be hard-pressed to improve the performance of a Brown Jr. I realize that you gentlemen mean well, but good intentions are of little use in the pursuit of trophies.

I would now like to dwell on a subject that prompts me to clench my fists

and shout, "Stop!" There is an ambience of immaturity that pervades the whole of our Sport, and most certainly plays an important role in causing outside observers to regard our creations as *toys*. It is difficult to be specific with regard to this, because it exists as an attitude rather than as a tangible entity, but I will try to present some examples.

Consider the term "1/2A." It was probably a copywriter's dream when it was first coined, and I do not doubt that it was instrumental in selling large numbers of engines to children. But, in the eyes of those of us who would like to see modeling accepted by the general public as a "serious" sport, it is but a puerile phrase, which only serves to make us look foolish. If this was an isolated instance, I could quite justifiably be considered a nit-picking crank. Unfortunately, however, the sport is replete with childish terms that imply a fascination with "cuteness." We have "Peanut Scale" (why not "miniature rubber-powered scale!"), "Rat Racing" (no comment), "Mouse Racing" (no comment), clubs with names like Prop Busters (can you imagine a commercial airline calling itself the Wing Breakers?) and Der Luftmeisters (what's wrong with The Airmasters? After all, that's what it means and this *is* an English-speaking country.)

My favorite "cuteness" is the airplane called Das Ugly Stik.

> (July 19)—Special to The Wall Street Journal: The chairman of the board of Cessna Aircraft announced today that it will soon begin production of a twin-engine, executive transport plane capable of seating 10 passengers. It will have a cruising speed of 550 mph and will be called "Das Ugly Stik."

This "kiddie syndrome," as I am fond of calling it, surfaces all too often in the modeling press, and I am forced to assume that it does so with the Editor's approval. Just about every attempt at humor that has been published in the modeling magazines has been so jejune as to elicit pity. Humor, sir, is the most difficult facet of creative writing. The Writers Yearbook is crammed with the names of editors who are willing to pay large sums of money for humorous articles—and the money remains unclaimed.

Not so in the modeling press. Model builders, like children, delight in just about anything. I am thinking specifically of a ludicrous attempt at humor in the April issue of **AAM**. It advises would-be speed fliers to "Worship Bill Wisniewski. . ." That's funny? Where's this guy live? Franz Joseph Land? (Come to think of it, that same issue featured an article on how to build a flying outhouse. "Yes, Virginia, they *are* toy airplanes!)

Lest I be categorized as a listless in-

dividual who possesses no sense of humor, let me point out tht I am quick to laugh at a good joke, but reluctant to seek humor where none exists. I strenuously object to anything, humorous or otherwise, which tends to stigmatize modeling as being the foolish endeavor of immature men/children. We have carried that stigma long enough.

As long as I'm complaining, I may as well complete the job. Will I ever be able to purchase a model magazine that doesn't contain paragraph after paragraph of sickening self praise? I'm referring to the usual "Gee-whiz-fellas-aren't-modelers-the-golly-oskers-best-guys-in-the-world-and-isn't-model-building-the-absolute-most-fantastic-thing-that-ever-happened-to-you?" kind of tripe that manages to creep into every issue.

I have made many good friends through participation in this sport and, if I didn't love it, I wouldn't be writing this letter. But I can't help but feel that, if an alien from outer space was to read one of our magazines, he would rightly conclude that we never go to the bathroom, and live on Franklin's Titebond.

Let us now abandon the peccadilloes of the modeling press and dwell for a moment on the Great Trophy Problem. Breathes there a Contest Director with soul so dead, who never to himself hath said: "Where the hell are we going to get the money for all those trophies?" This problem exists largely because the Contest Director rarely looks past his nose when it comes to locating contributors of trophies. The situation usually sums up thusly:

(a) We need trophies.

(b) The logical contributors are those most likely to benefit from modeling.

(c) The most likely contributors are, therefore: 1. hobby shops; 2. kit manufacturers; 3. engine manufacturers.

(d) We have solicited contributions from hobby shops, kit manufacturers and engine manufacturers, but we still lack the necessary amount of trophies to run a meet.

(e) The contest has been postponed indefinitely.

If Plato had been gifted with this kind of logic, he would have been immortalized as a famous moron. The fallacy inherent in this kind of thinking lies in the assumption that *because we are modelers we must restrict our list of potential contributors to those industries primarily concerned with modeling.*

We fail to see ourselves as *consumers*. Once we adopt the viewpoint of the model builder as a *consumer*, the list of potential contributors becomes almost limitless. Model builders use contact cements, epoxies, foam, straight pins, razor blades, alcohol, Union Carbide synthetic oils, dry cells, NiCads, 1/4" drills, jigsaws, band saws, sanders, paper, silk, nylon, rubber bands, tape, string, thread, paint, paint sprayers, dry transfer lettering decals, paintbrushes, and woods of all descriptions. We transport our models in Ford station wagons and Volkswagen buses.

We eat at Burger King, McDonalds, and Kentucky Fried Chicken. We drink Coke, Pepsi, Budweiser, Coors, Schae-

fer, Maxwell House and Gatorade. We fly on virtually every airline, and are perhaps less afraid to fly than the general public. We wear Florsheim shoes and Sears suits, and we time our models with Bulova stopwatches.

Yet, despite all this, I have yet to see trophies contributed by any of the above-named manufacturers. Why? I have a sneaking suspicion that no one has ever asked them. I also suspect that no one ever *will* ask them, because most modelers are as articulate as moray eels. (Not too long ago a fairly well-known speed flier advised me that his new racing machine contained a *hybird* (sic) engine.)

Which leads one to wonder, why trophies? I personally would prefer to receive a gallon of Titebond, and I'll bet I'm not alone. I'll also bet that the Franklin Glue Co. would be glad to contribute a few gallons if one of our brother modelers was willing to don a suit and tie and make a businesslike presentation to the officers of that company. The key word here is *businesslike*. The last thing a busy executive wants is to be confronted with a grubby young man in jeans and T-shirt smelling of nitromethane.

Some years ago I contacted the Pepsi-Cola Co.'s Public Relations Dept. in an effort to obtain their sponsorship for myself and some other speed fliers. I proposed that in return for travel and lodging expenses, we would be known as the Pepsi Speed Team and would be part of a PR effort, slanted to indicate that young, technically minded adults regard Pepsi-Cola as the perfect refreshment.

The Pepsi officials recommended that I come to their offices to make a presentation, but a serious intestinal disorder placed me in the hospital for several months, and I was forced to abandon the project. I mention this to indicate that the opportunity is there for those who are willing to pursue it.

Speaking of public relations, just what does the AMA *do* with all that money it spends on PR? I ask this, because last month a friend of mine and I visited Fort Tryon Park, a spot popular with tourists visiting New York and, selecting people at random, we inquired if they had ever heard of the National Model Airplane Championships. If so, did they know where they were being held? Of some 200 people interviewed, *none* had *ever heard* of the NATS.

Now gentlemen, the Nationals is to modeling as the Democratic National Convention is to the Democratic Party. A public relations program that fails to inform the general public of our most important contest, a contest that exem-

plifies what modeling is all about, is a lousy PR program. If the AMA really intends to spend $26,000 on PR for 1974, let them give me half of it and I will guarantee that, by this time next year, the *whole country* will have heard of the NATS. In fact, I'll even see to it that a few celebrities show up to give it some class.

I am compelled to return to the modeling press. About six years ago, a man was killed by a speed ship in New York's Flushing Meadow Park. He was not a model builder. He had taken his son to the park to fly a ready made plastic model, and literally walked into the path of a speed ship, being killed instantly. The *New York Daily News,* which boasts the nation's largest circulation, made the incident *front page news.* The report stated that the incident was a one-in-a-million freak accident, and that the plane was traveling at 80 mph.

In fact, the model was going a lot faster than that. **In fact,** there were no signs warning people to say out of a plane's flight path. **In fact,** anyone who wished to do so could enter the flying area, and no model flier was empowered to stop him. (Can you imagine a spectator blithely walking across the track at the Indy 500?) **In fact,** the only apparent reaction to the tragedy at the time was the fear of losing the flying site. (Are you listening, Albert Camus?)

So what did modeling's Pollyanna press do? Did it advise the *Daily News* that the "accident" might very likely repeat itself if the public wasn't informed that these *toy* airplanes were, in fact, precision-made racing machines capable of going just as fast as any car Mario Andretti ever drove? Did it demand that New York's Parks Dept. require an AMA license for admission to the flying site? Did it call for warning signs to be posted at the site? Here was an opportunity for the modeling press to kill the *toy airplane* image once and for all and what did they do? They printed a brief article about three months later, complete with the usual "Gee-whiz-this-is-an-honest-to-goodness-hobby-fellas-so-let's-be-careful-and-stay-away-from-high-tension-wires-cause-aren't-we-the-best-bunch-of-guys-we-ever-met" crap.

As the late Martin Luther King was fond of saying, "I have a dream." I dream that I am the Publisher of a model magazine. My magazine is dedicated to the proposition that modeling is a serious, adult-participation sport, equal to (and possibly preferable to) golf, tennis, baseball, etc.

Every month I feature a *Playboy*-style interview with a well-known model builder. The interview is concerned *primarily*—but not exclusively—with modeling. The questions asked reveal the whole man, rather than the freak whose airplanes never lose. He earns the readers' empathy by confessing to hold two jobs to support his hobby, and admits that he is losing the battle to give up smoking. He is, surprisingly, human.

My magazine also occasionally runs a profile on a prominent citizen who is either active in, or sympathetic to, modeling (Gene Autry fits nicely here). In these articles, he recounts his personal experiences in modeling and discusses his feelings about the sport in general (future profiles will include Land Speed Record Challenger Craig Breedlove, Sen. Barry Goldwater, Radio Personality "Big" Wilson, Author/Pilot Ernest K. Gann, and several of the astronauts).

Another feature that has caught on fairly well is "On The Distaff Side." Here, modeler's wives are afforded the opportunity to air their views, pro or con, regarding their husbands' pastime. It also serves as a bulletin board for notices of births, deaths, weddings and Bar Mitzvahs. Hardly the kind of fare to receive plaudits from Gloria Steinem, but it serves its purpose.

Of course, we also publish the usual construction articles. And a regular "Question Box" answers letters from readers seeking solutions to technical problems.

I think my magazine is a pretty good one, and I am surprised we have not been imitated.

I realize my attitude has been almost wholly critical. Let me temper this by saying that, had I decided to list all I like and enjoy about modeling, it would have run into volumes.

(Mr. Fraher's *Guest Editorial* has certainly touched some nerves here at AAM. Next month, I'll come to terms with the above issues in my Editorial *—php.)*

ABORTIVE MASTERS

(Continued from page 8)

unfortunate, and I'm sure that all of the fliers want to thank Bill Seeds, the owner of the Sunflower Airdrome, for his great generosity in making his facility available.

This lost weekend adds much weight to the proposition that pattern fliers need to organize and run their own events—within the framework of the AMA. Only those people intimately involved in the sport can fully understand its needs and limitations.

Therefore, we had a session with the AMA Executive Council, in which we strongly recommended that the fledgling National Society for Radio Control Aerobatics (NSRCA) be empowered to organize and conduct the Masters event, under the auspices of the AMA. It would also seem appropriate that the NSRCA, in general, conduct the Pattern competition affairs for the AMA. We already have several offers for a Masters site in 1975. They are: Rough River Dam, Kentucky State Park; Huntsville, Ala.; Elgin Aeromodelers Club site (abandoned airfield), Fla.; and Wright-Patterson AFB in Dayton, Ohio.

NATS Reflections: By now the 1974 NATS held at Lake Charles, La., is a dim, throbbing memory to those who were there, including yours truly. I'm sure many of you have read the glowing reports issued by AMA Headquarters, and may wonder at folks like myslf who take a different view.

As I noted in my special NATS report, conditions were something less than perfect and, in fact, downright miserable at times. There is no question that the acres of concrete and buildings available free are a great attraction, but there are other very necessary ingredients that seem to have been overlooked —flying conditions and weather. I found the people at Lake Charles very hospitable, and it must be a very nice place to visit when it is cooler and less muggy . . .but not in August! There were, also, the afternoon thundershowers! To top it off, I understnd that the AMA Executive Council recently voted to return to Lake Charles in 1975. . .HELP!

Is this what you guys want? You know, the AMA cannot act according to your wishes unless they are known! I have personally talked with many RCers who flatly refuse to go back to Lake Charles. So what do you say? Let the

AMA know what *you* want. The NATS is supposed to be for *you*! It is supposed to provide pleasant competitive experience in association with modelers from all over the country. Now, if you choose to gripe, can you offer a reasonable alternative? Sites are not easy to come by, but it would seem possible to reach a better compromise in location and facility merit.

A Personal Note: I want to thank the numerous modelers I have talked with on the contest trail for the nice things they have said about this column; I really appreciate your response and I would like to make this column more responsive to *your* thoughts and interests. So, please write me and let me know what you think—all of you! If you have something to say that you think other modelers should hear, let's say it. This particular column sort of sounds like Don Lowe's gripe session. From time to time, things have to be brought out in the open and discussed—the hobby is supposed to be fun! Right? Each of us who have enjoyed its benefits have an obligation to make it better if we can. . .let's try!

Don't forget that I have a new address:

2710 N. Kings Arms Circle
Centerville, Ohio 45440

The U.S. Postal Service will thank you!

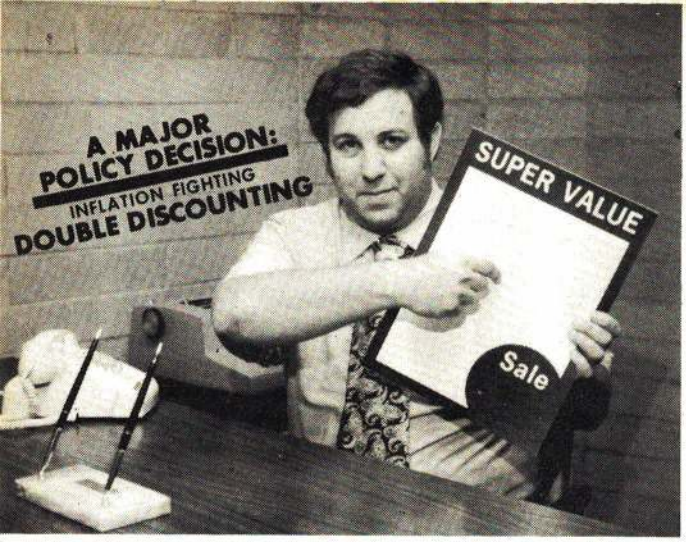
TAFT

(Continued from page 37)

run, and transitions smoothly into his glide pattern. Bill Davis' model stalls when the engine cuts off, and it's all over.

Earlier, an FAI Power model's tail loops into the dethermalize position before the engine cuts. It sheds its wing, but continues to fly upright in a shallow dive at tremendous speed. Managing to find the open doorway to a hunter's tent, it smashes into the side of a large open box. An inch higher and all of the stabilizers of the entire Satellite Team would have been scrambled.

A few weeks before the meet, I serve notice on Ron Wittman, who has made 1:30 with an indoor Hand-Launched Glider, that he is going to get his tail whipped by a 52-year-old armless wonder in that event at Taft. That's about like my telling Muhammed Ali he'd better duck my right. I'd built a huge



Hobby Shack®

My name is Paul Bender and I am the President of Hobby Shack. A significant rise in inflation is apparent this year and is the cause of our nation's major ecconomic problems. All year in our hobby I have witnessed the rising prices on goods and I have read, like yourselves, that our government continues its battle to fight inflation by urging businessmen to take an active part in this war and help Americans who have been hurt by runaway prices. I note the trend of declining purchasing power that has affected us all, and pledge to you that Hobby Shack will project leadership during this time of inflation and to take a positive step towards crushing that inflation on goods that you might purchase this holiday season and in the coming year. Thus throughout the next two pages of advertising, you'll find many prices discounted lower than normal at a time of the year which signifies increased business no matter what the price. As it has always been our practice to discount, we now offer a further discount to our already discounted price or DOUBLE DISCOUNTING. Such X-tra special inflation fighting prices will be found in our new SUPER VALUE BOXES.

Introducing the best thing to happen to radio control since the a.r.f.'s . . . INJECTED-MOLDED ALL FOAM

CESSNA 150

a complete radio-controlled beginners/sport flyers dream come true.

Specifications
SPAN: 45½"
AREA: 315sq."
RADIO: 1 to 4 channel
WEIGHT: 35 ounces
(with 2 channel)

Hobby Shack's
CESSNA 150 TOTAL PAK

5-MINUTES AFTER YOU OPEN THE BOX YOU'RE READY TO FLY

Cirrus 3 channel (w/2 servos) digital radio system FACTORY INSTALLED in the Cessna 150 plane. • Cox Medallion .09 engine FACTORY INSTALLED • Gas tank with fuel line FACTORY INSTALLED • Pushrods and linkage are all FACTORY INSTALLED. • Cessna 150 R/C 2 channel airplane FACTORY ASSEMBLED AND READY TO GO!
*5-Minute assembly out of the box.

* **Cirrus 3 channel radio system**
(with 2 servos)

* **Cox Medallion .09 engine**
performance and reliability

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SUPER VALUE
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Complete system
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Hobby Shack's CESSNA 150 **KIT**

Designed for flying fun, not building time.

SPAN: 45½"
AREA: 315sq."
RADIO: 1 to 4 channel

The CESSNA 150 is designed for sport flying fun with true stability and is rugged enough to take the hard knocks any novice might inflict upon it at the local flying site. Features factory installed pushrods, first quality foam molded one piece Cessna 150 wing, molded fuselage, fin, and stab, aluminum motor mts., aluminum main landing gear, prebent coiled nosegear, horns and hinges, firewall factory installed, and full size plans.

$19.99
plus $1.60 postage & handling

11-gram glider, designed for the 40-ft. ceiling the Taft High School gym is reported to have. I am relieved when the usable height turns out to be only 21 ft., as that is a suitable excuse for a mediocre performance. I'm surprised when I make 30.5 sec. on a test flight, and no one is doing better. But test flights don't win contests, and I end up trailing Lee Hines, who has come out of retirement for the occasion, by 1.1 sec. per flight. And Ron Wittman? Let's just say that even the best of modelers can have a bad day, and that the family honor is salvaged by Ron's son, Steve, who wins the Junior event.

Peanut Scale is at its crowd-pleasing best. "Oohs" and "ahs" arise from the spectators whenever one of the little 13-inchers grazes a rafter or basketball standard, and applause greets each model as it lands. Bill Hannan wins with his Farman Mostique. Pennyplane also draws applause, as none of the locals can imagine that a model plane can fly so slowly. Fudo Takagi posts a 6:44 which is not bad, considering the low ceiling and the sauna-bath atmosphere. Dave Parsons opens the lid to the box containing his Pennyplane, and discovers that the heat has transformed the tail into a propeller.

The next day, Sunday, the temperature is well over the predicted 105°. I have a short, but rather one-sided conversation with an itinerant horned toad concerning the weather. He doesn't actually say it, but his eyes tell me that he'd have stayed home if he didn't have to get out in the sun to earn a living.

Bill Blanchard spends most of the day standing in the sun waiting for sure-fire thermals that would allow him to break the record he has set two weeks earlier. But he doesn't quite make it, missing a thermal on his attempt at a *tenth* max. Bill has broken the record seven times since 1970!

Bob White is the only contestant to max out in Wakefield, but he is the first to point out that Irv Aker and Bob Tymchek might have maxed if their models had not been lost from sight in the low-lying haze. There are so many White-designed models flying that it is difficult to keep track.

Half a dozen large dust-devils tour the site daily. One picks up Bob Vinson's model box, removes the lid, and empties the contents in mid-air. Wings

and stabs fly all over the place, one stab nearly maxing, but the self-appointed retrieval crew on motorcycles gets them all back with little damage.

Just as the last rays of the sun disappear behind the Coast Range, the wavering notes of "retreat," sent from a bugle player way out in mid-field, drift by. It is touching; the guy next to me clicks his heels and comes to a full military salute. It doesn't seem to bother anyone that the bugler is really sounding "taps" rather than "retreat."

Then it is on to the zaniest of all free flight events, Night Flying. Coleman lanterns, fancy Burgress fluorescents, handheld flashlights, and motorcycle headlights dot the field. Chemical glowworms or arrays of batteries, wire, and lamp bulbs are taped to fuselages. Many maxes are posted in what is about the closest one can get to true still-air conditions. Red Johnson wins, using his own Tartar design, with an incredible score of 28:37.

The works team from Satellite City is all business when the heat of competition bears down, but they're not above a bit of horseplay during off hours. . . like washing down the whole team, clothes and all, at the local coin-operated car wash, then forgetting to wash the car.

It seems that one of their number, Tom Scully, isn't exactly on a handshaking basis with bugs (but then, anyone who likes bugs must be a little bit weird). And, most certainly, he is adamantly opposed to sharing his sleeping bag with things that creep, crawl, or slither in the night. The scene that follows was set when a very large spider was caught stomping around boldly in their tent. Well, Tom's brother Bob ties a bit of foam to a piece of thread, slips it into Tom's sleeping bag, and runs the other end of the thread to his own bag. After everyone deposits himself in his sack, Bob gives a little tug on the thread.

"Bob!"

"What?"

"Are you doing that?"

"Doing what?"

"Nothing." Then, a few minutes later, another little tug. Tom shoots out of his bag and is nearly up to takeoff speed when the laughter from the rest of the team tells him that it's all in fun—their's, not his. * * *

The last day, Monday, sees Dick Myers and Ed Bellinger, with identical Bellinger-designed Gysobs, flying max after max together in the D-Gas event. Bellinger fails to max on his ninth flight; Myers quits after making his tenth to win both the event and the trophy for the highest time of the meet.

Three max out in Unlimited Rubber. Bob Isaacson posts five maxes to win, followed by George Xenakis with four. On his attempt for a fourth max, Bob Scully, a Senior, folds his wing as he launches. While no Juniors enter Coupe d'Hiver, quite a number enter Junior Unlimited Rubber, most of them flying small, simple models. Vincent Johnson, flying a model identical to that with which his brother Matt took second place in Old-Timer Rubber, wins the event, followed closely by Bruce Armstrong who flies an 18-inch all-balsa model.

* * *

On Sunday evening, Dave Parsons tests the electric ignition device he and his father Larry have worked out for Jetex rocket engines. Dave hooks up the wires and pushes the "go" button. The motor ignites properly, and he launches the model. It climbs smartly for about three seconds, then there is a loud pop, and the model continues in a flat powerglide. Some wag quips, "Gee, I didn't know you could make a Jetex engine idle." It turns out that the nozzle retaining bale has broken. During the Jetex event on Monday, the Parsons Patented Jetex Ignitor never fails, while everyone else bats the usual 50%. Dave finishes in third place out of 15 entries. John Jennings wins and establishes a national record.

Fourteen of the 38 entrants in A/2 Towline Glider make the required five three-min. maxes, and all 14 launch simultaneously on the first fly-off flight into strong lift. Jose Luis Ramirez of Mexico City is on top of the stack and, by the time his model dethermalizes, it is nearly up to the base of the clouds that have just formed. His model spins wildly for about 10 min. without losing altitude, then drops as quickly as it has gone up when the thermal gets tired. Two or three drop out each round. By the tenth round, five are left. None max, and Ramirez emerges the winner.

(Continued on page 99)

Lister/*(Continued from page 70)*

come from this line, and not the symmetrical section which is usually added so that you can put in a spar for strength.

Aerodynamically, the symmetrical section you added only created drag, which is bad news. In a nutshell, then, if you can get away with a simple sheet that is made to take the meanline shape by using a few exposed ribs, you'll have an alternative to the conventional airfoil. And it will actually perform better, owing to less drag due to less flow separation. That was what was done with three Eppler sections: E-387, E-385 and E-58, plus the Thomman F-4. The meanline that was made from balsa sheet on "Der lo und Slo" was the E-385. The coordinates of each of these airfoils, reduced to an equivalent "skinny lifter" sheet airfoil, are given below:

X/C	E-387/SL Y/C	E-385/SL Y/C	E-58/SL Y/C	F-4/SL Y/C
0	0	0	0	0
1.25	.4	.3	.5	.9
2.5	.7	.9	1.0	1.6
5.0	1.1	1.6	1.6	2.6
7.5	1.5	2.2	2.1	3.8
10	1.9	2.7	2.8	4.0
15	2.9	3.5	3.6	5.1
20	3.0	4.3	4.4	5.9
30	3.6	5.3	5.5	6.9
40	3.8	5.7	6.2	7.2
50	3.6	5.7	6.5	7.1
60	3.1	5.0	6.4	6.5
70	2.5	4.4	5.9	5.7
80	1.8	3.4	4.9	4.3
90	1.0	2.1	3.1	2.4
100	0	0	0	0

Each and every one of the above "skinny lifters" can be used as a direct substitute for the airfoil from which its meanline comes. The lift and angle of attack characteristics are just like those of the parent section. To prove the point, when I designed the little Storch, the CG location, angle of attack and wing/stab angle were all figured out for the conventional E-385. The actual wing, however, used the E-385/SL. It flew right off the board and acted in all respects like it had a normal E-385 wing, except that the glide slope was pretty flat for a ship with all that drag from the cabin and exposed landing gear wires.

There's one more technical point worth noting: When an airfoil is as thin as a sheet, you may be able to safely go to much higher cambers than you would normally. I built a ship three years ago that had roughly 9-11% camber with a sheet airfoil and it flew very satisfactorily. That was the slowest airplane I ever saw for an outdoor power ship. In a 10-15 ft./sec. breeze it would go backwards. This suggests much higher lift than you would get from ribbed and internally sparred 8-10% thick airfoils. More on that another time. Auf Wiedersehen.

McCullough/*(Continued from page 72)*

rare series, it is nearly unobtainable. I'll be glad to furnish an enlarged plan from my copy at cost of reproduction to anyone interested. Send me a self-addressed, stamped envelope at Box 40, Montezuma, Iowa 50171.

The National Archives has over 100 photos available, including close-ups of the landing gear, cockpit and instrument panel.

A Slip That Passed in the Type: This column in the September, 1974, issue of **AAM** told how to get photos from the National Archives. In this item, discussing the amount of coverage on such Douglas types as the TB2D and the TBD, the sentence just above the instrument panel picture ended ". . .they had many shots of the Douglas TBD, including closeups and cockpit views."

For those who scratched their heads at the convoluted meaning this conveyed, it will make sense if you will change that to read *BTD* instead of TBD. Evidently, a conscientious proofreader thought that a typing transposition had occurred or just didn't know there ever was such a thing as BTD! (The copy editor is now writing BTD 1,000 times on the chalk board—*php*.) Incidentally, that crystal-clear panel shot is NA photo 72-AC-7A-18 of the BTD cockpit.

Spruce Up: David C. Fleming of 18175 N.W. Park View Blvd., Portland, Ore. 97229, has sent some samples of vertical grain Sitka spruce plywood he is making for modelers and homebuilders. Available in 5/32", 1/4" and 3/8" thickness, in 12" and 24" lengths, and even widths from 6" to 12", the product seems to be of excellent quality. Spruce has been the standard wood for full scale aircraft construction since the Wright Brothers, and it is noticeably lighter than fir or birch ply, both of which weigh about one-third more in equivalent sizes.

Instead of the common (and cheaper) method used on most plywood of rotary peeling veneer from a log, Fleming's plywood is made from vertical slices of the log, resulting in greater and more consistent strength. It is probably less likely to warp or twist, as well. Our suggestion would be that thinner sizes

(Continued on page 103)

TAFT/ *(Cont. from 97)*

The statistics are impressive: 338 contestants and 784 entries, a 20% gain over last year; 27 events flown; two new records established.

Young Randy Secor wins the Senior Sweepstakes award and is also awarded the Chuck Broadhurst Memorial Trophy for the Grand Sweepstakes. Jim Scarborough goes home with the Open Sweepstakes award, and the youngest of the Geraghty tribe, Jimmy, who has only been flying a year, wins the Junior Sweepstakes award.

AMA President Johnnie Clemens, looking great, manages to hand out a few trophies between jokes. Fortunately, though, a girl from Taft is on hand to do the kissing. If kissing a bunch of dirty, sweaty, unshaven free flighters isn't quite what she has bargained for, she doesn't show it. Johnnie winds up the show by saying that the reports of the death of free flight are grossly exaggerated, and that, in fact, free flight is alive and well.

GETTING STARTED IN RC
(Continued from page 38)

(2) *Mechanics:*

Is the gear train rugged—particularly the drive and output gears?

Are output arms easily attached and removed?

Is the feedback pot ceramic? (Other types tend to wear faster and become noisy.)

Is centering adjustment easy?

Charger

Is the charger transformer isolated?

Can transmitter and receiver batteries be charged independently?

Is the charge rate high and/or low?

Are the plugs easily identified and polarized?

Are there separate charging indicators (lights) for the transmitter and receiver batteries?

Next month we'll continue with our discussion of radio evaluation and get into some performance considerations.

TONY'S/Denson
(Continued from page 44)

the balsa spar and the trailing edge. Allow this to dry for a short time, then install the leading edge. Allow the wing to dry overnight. Next, remove the pins from one half of the wing. Insert the plywood dihedral braces in their slots. There should be enough slop in the fit of these braces to raise the outer end of the trailing edge material one inch. Enlarge the slot until the dihedral can be installed without structural tension. Apply five-minute epoxy to these two joints. Dihedral is not absolutely necessary in this plane, but it adds aesthetic value. When the epoxy is dry, install the 1/8 x 1/4" spruce spars on top of the main spar, and add the center dihedral brace. Add the wing tips and T-1 and T-2. Set the wing aside to dry.

From 1/2 x 3" medium balsa, cut fuselage piece No. 1. From 1/2 x 1" medium balsa, cut fuselage pieces Nos. 2, 3, and 4. Cut the elevator slot in No. 2, and rudder slot in No. 3. In No. 1, cut space for one servo and battery pack to fit. From 1/4" soft balsa cut parts 5 and 6. These two pieces are to be mounted on either side of the forward part of the fuselage, as indicated by the dashed lines on the plan view. Contact cement works best when gluing large sheets of balsa, because the water-

(Continued on page 102)

Plans Service

RC SPORT

1143/WHIPLASH—RC Sport. An intermediate sportabout for aerobatics, yet with an emphasis on fast building and durability. Fifty-inch span, foam wing with a box construction balsa fuse. Four-function radio. Nineteen engine. **$3.00**

1142/LEW'S AKROMASTER—CL and RC Stunt and Sport. Designed by top CL competition flier Lew McFarland, this design can be flown either CL or RC. Built with either a foam or balsa wing, it can be made as a one-piece or with removable wing. Lots of personal creativity. Forty engine, and four-function radio for RC version. **$4.00**

0601/FLOWER POWER—Sport/stunt full-house RC with a 40 engine. All-balsa, simplified structure. Plugs generation gap. **$2.50**

0691/JR. SKY SQUIRE—RC sport-trainer by Jess Krieser uses .09 to .19 engines and systems from Galloping Ghost to multi-digital proportional. Area 416 sq. in.; span —48"; 3 lbs. **$2.00**

0433/THOR—Terry Aldrich's easy flying two-channel job for rudder and throttle controls. Shoulder wing, trigeared, well-detailed plan. **$5.00**

0324/2T—ACE-foam-winged RC trainer for 049 power carries 2-channel bricks with ease. Ample wing area for long glides too. **$2.00**

OUR BEST TRAINER

0942/AEROSPORT—*RC Trainer and Fun Flyer. Ruggedly constructed, large (62" span) and easy to fly, this model makes an excellent first or second ship. Semi-symmetrical wing keeps zooming and stalling tendencies to a minimum, while allowing basic aerobatics; 45-60 engine and four-function radio.* **$5.25**

0543/RUDDER-BUG—RC sport model is a revised version of Walt Good's 1954 Berkeley kit design. High-wing trainer or Sunday flyer. Can be flown with anything from single-channel to full-house radios; 61" span; 19-35 engines. **$5.75**

0842/PACER—049-powered Pattern ship. Capable of good pattern performance, this design, by Owen Kampen, uses Ace foam wings. The Pacer has enough maneuverability to qualify as a small field ship for even the most discriminating flier. This sleek low-winger has all the good looks of a pattern design, too. Two-function radios. Tee Dee 049-051 engines. **$2.50**

STAND-OFF SCALE

0843/SAAB—*Stand-Off Scale. This WWII Swedish fighter is a pusher, with twin tail booms. Of all balsa construction, the plane can be built in two sizes, for either a 35 or 45 engine. A good choice for getting started in Stand-Off Scale. Four function equipment. Two plan sheets.* **$4.95**

1103/AKROMASTER—RC scale/stunt model or real aerobatic plane for 45-60 engine. Fast and responsive, easy to make, simple shapes. **$2.75**

1102/AEROBILE—Large scale CL or RC of a famous Waterman roadable plane. Uses 45-60 motor. Wing detachable, car drivable! Large single-sheet plan. **$4.00**

1091/HALBERSTADT—Nearly scale RC WWI fighter with semi-symmetrical 6' wings. Sixty-powered. Two sheets. **$4.00**

0592/MESSERSCHMITT 109E—RC, semi-scale design by Munninghoff with lean and mean look of efficient fighter. Plans—two sheets. **$3.00**

BEAUTEOUS BIPES

1141/EAA ACRO-SPORT—*Scale and Sport Pattern Bipe. Model of the most exciting home-built of the decade is a natural for the N.S.P.A. event. Simple construction can use either built-up or foam wings. Four ailerons for championship aerobatics. Four-function radio. Sixty engine.* **$3.75**

Special Offer: *1141A—Bill Blake's cutaway drawings of both the full-scale and model wall display, only* **$2.00.** *When ordered with the model plans specify Plan Service number 1141B for all three and remit* **$5.75**

A691/EAA BIPLANE—Nick Ziroli's scale RC uses .40 engine, full house gear. 38" wings, semi-symmetrical foil, box-and-stinger fuselage. Two sheets. **$2.50**

1042/MALLARD—RC Sport Bipe. Designed to do the pattern, this unorthodox-looking bipe can serve as a good introduction to the NSPA event. Trike gear and lack of cabane struts make building a snap. Retracts not shown, but very possible. All-balsa construction, 60 engine. Four-function radio. **$4.00**

DUCTED FANS

0746/SUNDOWNER (F-4B PHANTOM)—*Ducted fan stand-off scale and pattern ship. This practical ducted fan design uses the commercially available J.J. Scozzi "Turb-Ax 1" unit. Standard balsa fuse and foam wing construction techniques. Anhedral stab and polyhedral wing capture the rakish lines of this popular design. Plane is totally capable of contest calibre maneuvers. Hot rear rotor 40 engine.* **$5.50**

0143/METEOR MK8—CL Scale model uses unique ducted fans (2) and 40 size engines. Text and plans explain fan construction. Large ship has 58" wingspan, 66" length and weighs 12-13 lb. **$6.00**

1001/PHANTOM—Well-engineered RC Dyna-Jet-powered scale fighter by Ralph Saldivar is practical but noisy model. Highly detailed plane. Jet installation shown. **$4.00**

SAILPLANES

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**

0943/MAX-FLY—RC Sailplane. Fourteen feet of wing on either a balsa or fiberglass fuselage. Designed for maximum contest efficiency. Full-flying stab and torque rod spoiler linkage make for a simple radio installation. Second place sailplane at the '74 WRAMS Show. Three-function radio. **$6.00**

0241/NEBULA—Dick Sarpolus' unique RC sailplane can be built with polyhedral or dihedral and optional flap system. All-balsa fuse, sheeted foam core wings. All-moving tail. Plug-in panels. **$5.00**

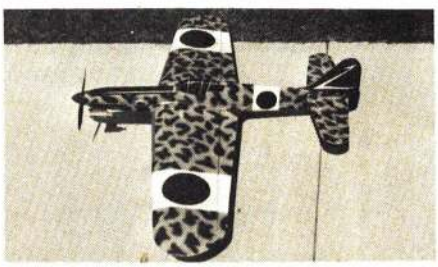
0992/FOUGA CYCLONE—Scale model of jet-assisted French sailplane, by Nick Ziroli. Gains altitude easily on 09 engine. A two-piece 7-ft. wing. **$3.00**

0841/ASTRO JEFF—RC Glider. Winner of the 1973 SOAR Nats, this 14' soarer has built-up wings, with spoilers. Three extra large plan sheets (almost 45 sq. ft.) illustrate profuse construction details. Either a fiberglass or balsa fuse can be built. Three function radio. Our best sailplane design. For balsa fuse version, order 0841A—**$16.95.** For fiberglass fuse version, order 0841B—**$11.00.**

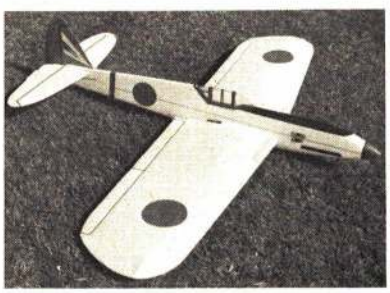
PYLON

1241/MISS PARANOIA—*Styled after the P-51, this fiberglass and foam, QM racer emphasizes clean aerodynamics. One of the fastest QMs around, this model uses coupled ailerons and rudder. Three-function radios required. Hot 15 engines, with throttle.* **$3.50**

THIS MONTH'S PLANS

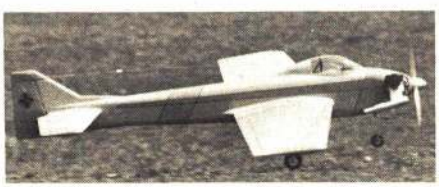


0151/TONY—CL stunt machine has eye-appealing, semi-scale looks. Special innovation of retractable landing gear adds originality points and makes for smoother flying. Built-up, fully sheeted wing, with flaps. Thirty-five power. **$5.00**



0152/TONY—RC slope aerobatic model is a spin-off from CL profile designs. Pattern-type performance with three-channel equipment. Can also be flown from hi-start or winch. One-piece construction, 49" span. **$5.75**

0153/PHANTASY—A combat dream machine, the 7.5:1 aspect ratio wing and minimal induced drag of this design make for fast, responsive maneuvering. Features rugged "three-point" construction. **$5.00**



0154/SEQUEL—RC Pattern. Now the newcomer to pattern can build a competitive model. The two-part article (January and February, 1975, **AAM**) is replete with photos of the construction sequences. This is a step-by-step presentation, with lots of handy hints to ensure success. It is suggested that you have the magazine articles on hand (back issues available at $1.25 ea.) Four function radio, 60 engine. **$8.75**

0154A/SEQUEL—(Special Offer). Since the author recommends duplicate plan sets for proper building of this model, **AAM** is offering *two* Sequel plans at a special price. Specify Plan Service No. 0154A and remit **$15.75**

0442/MISSY DARA—QM with high scale fidelity. Integral wing/fuse construction uses foam cores. Either front or rear motor 15 engine. **$3.00**

0831/OLE TIGER—*Sleek Quarter Midget racer uses fiberglass arrow shafts as spars for simple wing construction. Built-up fuselage. Complete with all QM racing rules, by Don Panek.* **$3.75**

0203/OLE TIGER—*Bob Morse's swift Formula 1 RC of Bob Downey's famous racer. K&B 40.* **$3.50**

BOTH 0831 and 0203 $6.75

ELECTRICS

1044/BUSHMASTER—*Electric RC Sport Stunter. Designed by Roland Boucher, the model is of all-balsa construction and builds with a minimum number of pieces. Makes a sound basic trainer, yet can really maneuver with more control deflection. General appearance is that of an "old-timer." Astro 25 electric power unit and three-function radio.* **$2.50**

1131/ELECTRA-FLI—Easy-to-build Sport ship is electric-powered for fun, quiet flying. Ship is designed for use with the Astro-10 motor. **$4.00**

0894/VOLTSWAGON—Trainer and stunter by Marsh for electric tether flying with slot-car motors. Plans for the pylon included. Great club activity. **$1.50**

CONTROL LINE PACKAGE

0231/MUSTUNT I—Primary profile fuselage, upright 35 engine, thick airfoil stunt trainer. By Al Rabe. **$2.25**

0232/MUSTUNT II—Advanced stunt trainer, same aerodynamics as Mustunt I but fully shaped fuselage and upright 35 engine capable of winning any meet. **$2.75**

0233/MUSTUNT III—NATS-level 35-powered non-scale competition CL stunter is exactly like Mustunt II but has many detail refinements and tapered wing. **$1.00.** You'll need 0232 for complete construction details, order separately.

CL FUN

0542/MONSTERS & MONOPLANES—*Successors to Bipes 'N Tripes (Plan No. 0342). The monsters are twin engine biplanes. Plan shows German and British monsters and monoplanes—four different planes altogether; 049-powered CL.* **$1.00**

0342/BIPES 'N TRIPES—*Snappy stunting 049-powered biplanes and triplanes can be built in three styles. Ships are quickly-built and are great for WWI Combat.* **$1.00**

SEAPLANES

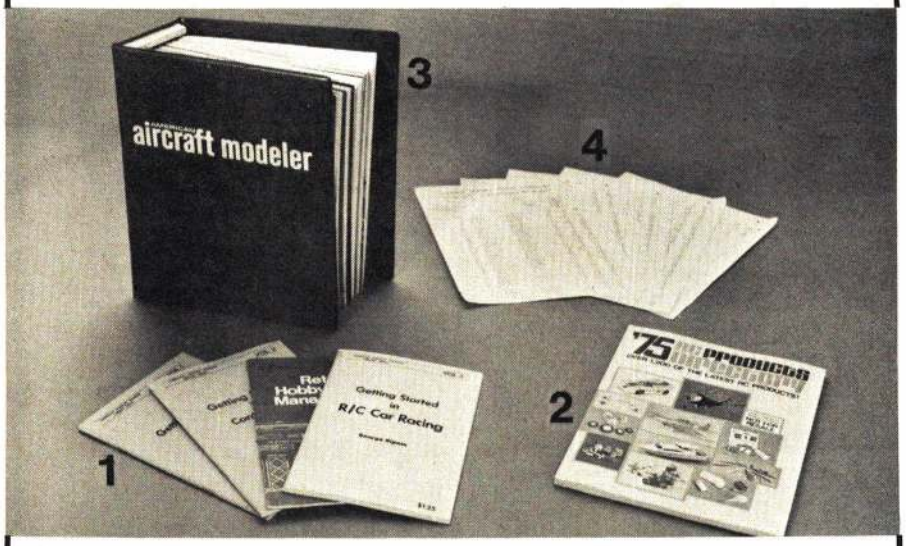
1144/SEASQUARE GT/RC FLYING BOAT—*Essentially a conversion of the popular* **AAM** *Quickfloat, this design offers excellent water handling and flying characteristics. Pod-mounted engine (29-45 power) and elevated tail surfaces give it a distinctive look. All-balsa construction. May be flown with either three or four functions; 54" span.* **$4.25**

0922/AQUA-VENT FLOATS—Simple curves make these easy to build. Sized for 15 to 30 powered planes. Designed for quick lift-off with low power. **$2.50**

0833/SPECTRA—Semi-scale RC version of an amphibian with engine mounted on a pod in tail. Plane has T-tail stabilizer, wing tip floats, 48" span for 23 to 40 engines and four-channel radio. **$4.00**

0503/ROYAL MARINE—By Yuji Oki of Japan, magnificent seaplane with 6' wing. Two 40's or one 60. Graceful lines, smooth flyer, handles easily on water. Two huge plan sheets, every part shown in detail. **$8.00**

papi products



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TONY'S/Denson

(Continued from page 99)

solvent cements cause warps. Do not mount parts 5 and 6 until you cut a slot in piece No. 1 for the elevator control rod. From 3/32" sheet balsa, cut pieces 7 and 8. Contact cement these to either side of pieces 5 and 6.

If you have the proper tools, shaping the fuselage is quite easy. It must be tapered from 1-3/8" at about 30% of the chord to 5/32" at the tail. The excess wood may be removed with a hand plane, very coarse sandpaper or, if you have a belt sander, it can be mounted upside down in your vise and used. Be sure to round all corners, taper the nose and sand out the tail parts as much as possible. If you take the time to do all this sanding, the plane will not look much like a profile job. The Mustang, when moved five feet away, looked just like a full-scale plane.

Fair in the 3/32" doubler just under the stab mounting. This is a weak point and this vertical grained doubler adds necessary strength. The plane is capable of speeds up to 70 mph and a loose stab will cause it to fly quite erratically.

To fabricate the hatch cover, first make a vertical cut with razor saw or X-acto knife about 1/2" forward of the battery location. This cut will be only through the first (3/32") layer of balsa wood (part 7). It should be far enough forward not to penetrate into the radio compartment. Make a similar cut about 1/2" behind the leading edge of the wing. Connect the ends of these two slits with two horizontal cuts. Remove this rectangle of wood. Replace the hatch piece and MonoKote the fuselage. When you have finished the covering job, cut around the hatch cover, except for the forward vertical side. The cover-

(Continued on page 104)

McCullough/*(Continued from page 98)*

also would interest model builders for such structural items as formers and bulkheads with large, cut-out areas. Write him for prices and further details.

It All Started Here! Bob Wischer hit the jackpot during 1974, winning both the Scale World Championships in Lakehurst during July, and the Nationals at Lake Charles in August. He credits the wins to the fact that he switched engines in his Emeraude just before the World Champs. That bit of extra horsepower evidently got the Emeraude "up on the step," and the flight performance was considerably improved. The resultant harvest of points at both contests clobbered the opposition.

The engine change was made after some rethinking of his ideas expounded in the "New Math" item of this column (May, 1974 **AAM**), a process triggered by a column reader, Sears McCorrison of Stoughton, Mass. He wrote in with some penetrating questions. This caused mixed emotions in your columnist, who ended up in second place to Bob at Lake Charles.

Date Change: The WRAM's show has moved its dates to March 1-2, 1975. There will be more room this year at their Westchester County Center location. This show is the largest trade show on the East Coast, and it is one that no modeler should miss. **AAM** will be there as usual, and we invite you to stop at our booth and chat. Write: Frank DeVore, 27 Beattie Lane, New Rochelle, N.Y. 10805 for details.

Olson/*(Continued from page 73)*

jam a radio in it if you're going to get into the N.S.P.A.

However, I'm a free flighter from way back and a Jim Walker control liner. Though I'm not too crazy about taking off cross-country after free flight models, or turning around and getting dizzy in control line circles any more, so long as I'm here, you're certainly welcome in the Bipes 'n' Tripes column. Let's hear from you.

Dick Curzon's B2E takes off for dawn patrol.

Glen Carter, Editor of the *East Bay Radio Controllers Carrier*, advises that Berkeley and the natives of the great Far West are restless. There appears to be a growing interest on the Coast in promoting Sport Scale events with modified flight plans that emphasize full-scale, "airshow" type maneuvers. Glen feels that this concept meets the goals set down for the N.S.P.A. by founder Jerry Nelson. The logical path to follow, he feels, would be a combination of the bipe category with the multitude of Stand-off Scale ships which are also fully aerobatic.

Sorry Glen, I disagree! I'm sure that Jerry does also. Jerry and the N.S.P.A. are attempting to create an all *new* event, predicated on scale-like biplanes flying a scale-like aerobatic program. We have a Sport Scale event. If it needs modification, let's do it. It's my humble opinion that it *does* need some revision. It can use a little more "Sport" and a little less "Scale." I'm all for fun, and firmly believe that the West Coast and the East Bay bunch are on the right track with their S.O.S. meets, their optional maneuver list, and their Sport Scale Pylon event. Let me know when the next "Big Shew" is coming up. I may bring my Slipwing Hurricane.

Detail of the author's parachute pouch, which he employs to dramatically drop his own RC aircraft to destruction.

TONY'S/Denson

(Continued from page 102)

ing will act as the hatch hinge. If you paint, a piece of vinyl tape may be used as a hinge.

Mount the aileron servo in a 1/8" sheet balsa compartment fashioned between ribs 1 and 2. The choice of which side of the fuselage is up to you. Note: The servo is shown inverted on the plan view for clarity. The top of the servo must be in the center section of the wing between the No. 1 ribs. Therefore, it is necessary to cut a square hole in rib No. 1 to accommodate the top of the servo. The servo is mounted on its shelf with servo mounting tape. For easy removal of the mounting tape, put a piece of vinyl tape on the servo, then stick the mounting tape to the vinyl tape. Before the servo is mounted permanently, get two 9" threaded pushrods, bend to the shape shown, and fit for length between ribs 1 and 2, on the opposite side and forward of the servo. Allow the receiver to protude into the center section of the wing.

Temporarily slide the wing into the fuselage. Use wedges to assure that everything is square, then drill 3/16" holes from the bottom of the fuselage, through the fuselage, the leading and trailing edges, the plywood dihedral braces and up into the fuselage again. The back hole goes all the way through the air scoop. These holes are for the 3/16" wing mounting dowels. When you get everything aligned, put some epoxy in the holes and insert the dowels. Add epoxy where needed to mount the wing firmly in place.

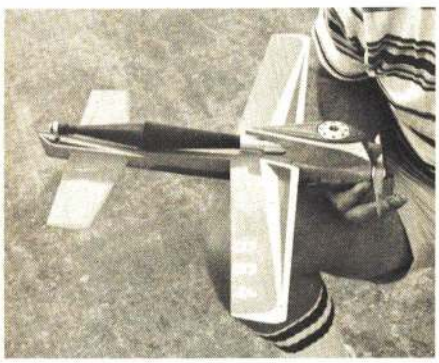
Add the wing planking where shown in the plans, leaving slots for the aileron control rods to exit. Do not plank directly under the receiver.

Cut the stab and rudder from 3/16" balsa and sand to shape. Connect the two halves of the stab with a piece of 3/16" balsa and sand to shape. Connect the two halves of the stab with a piece of 3/16" dowel. Cover with MonoKote or paint. Be sure to leave uncovered places for gluing the stab and rudder to the fuselage. To avoid losing the rudder and elevator while in violent maneuvers, it is suggested that small bamboo skewers or 1/8" dowel be countersunk through the rudder and stab, and into the fuselage. This can be done by gluing them into the rudder from the bottom.

(Continued on page 106)

Smith/ *(Continued from page 77)*

with their pappies. And they know that they have a chance to be a winner because they are competing with each other. This year we had more Junior contestants in some events than they did at the NATS. In Junior 1/2A Profile Proto, 14 showed up at the NATS (we only had 10). In 1/2A Proto B Speed and B Proto,



Phil Bussell's NATS winning B Speed job registered a sizzling 187.23 mph.

we had more. We give Junior Hi Point and trophies to fifth in some events. Every time, the entries more than pay trophy costs!

Now we come to AMA. I'm not trying to throw stones at anyone: But when an AMA National Officer (name withheld on request) tells me that the AMA Executive Council does not want AMA to have a youth image, but is pushing for an adult image, we are all in trouble. I hope he's wrong, but with all the push for, "If you're not flying RC, you're not with it," the picture looks that way.

With over 300 entries (Junior) in CL at the Oshkosh NATS, and over 400 Junior entries in FF, while there were only three Juniors in RC, it seems as if we (CL and FF) must be doing a few things right. We need a Junior program in AMA. The Delta Dart was a small step in the right direction, but after that, what? We in CL Speed and Racing can do our part to make contests attractive for Juniors by having more Junior events. AMA can do its part by insisting on more separate Junior events for an AAA listing, plus allowing the Juniors to vote, help submit new rules proposals (They fly with the rules we make for them, so why not give them a voice in rules-making?), and by starting a total Junior program. Let's make the AMA a family organization. Model aviation is a sport everyone should be able to enjoy and participate in. Comments, gang??

More on "Funny Lines": From the letters I have received and from some comments from columnists in other magazines, people are not taking a close look at the problems that "Funny Lines" may cause.

First, an explanation of what they really are. To make up a set of these groupers, one has to devise some method of tying the lines together so they will "draft" behind each other while the model is flying. The big problem is stabilizing them, i.e., still allowing them to do the job of controlling the bird. The lines have to be spaced close together (.005-.010" apart), so that undue turbulence will not be created.

This is the idea behind the whole setup. Just as a car can draft a car in front of it, so the rear line will draft the front line, actually reducing the drag to less than one wire.

Now the problems: First of all, you really have to know what you're doing when a set of these wires is made up. Any twisting force built into the assembled wires will defeat the whole deal, and you will end up with many hours worth of scrap. If and when you do get them built, a special reel is required to roll and unroll them.

Since these lines reduce drag so much, a two-wire airplane may actually fly as fast or faster than a monoline-equipped model. "So what?" you say. Well, Charlie, you may now

Fastest heat (4:04.5) at the Czech Internats was by Heaton/Ross. Line groupers helped.

be overloading the thinner wire normally used in a two-wire control system. Figures show that, if a fast-flying model is flown on one wire (on two-line systems this happens now and then, when full up or down is needed), then the pull on that line will exceed its tensile strength. What happens next? The wire starts to elongate, and then breaks.

Wire sizes now called for in the rule book were determined by loading, speed, and a safety factor. The speeds achieved with

(Continued on page 117)

TONY'S/Denson

(Continued from page 104)

When dry, use the dowel to mark where the holes are to be drilled into the stab and fuselage. They will help keep things in alignment.

A piece of 1/16" plywood should be laminated to the bottom of the air scoop, as a landing skid. Epoxy a wire skid on the front of the fuselage, under the battery compartment, as shown on the plans.

A piece or two of servo tape may be affixed to the exposed side of the elevator servo. When the hatch is closed, the tape serves as a latch (Velcro tape will also work). There is really no reason to go into the hatch once you have the plane trimmed out, because both switch and charging jack can be placed externally on the right side. The canopy may be mounted to the fuselage using short pins or by using doublesided Scotch tape. Take the antenna through a 3/32" hole into the canopy compartment, then out just behind the canopy and up to the top of the vertical fin. I have seen a plane with an antenna that ran across the top of the fin, jumped the gap between fin and rudder and was taped along the TE of the rudder. The antenna bent with the movement of the rudder. There was no apparent difficulty with radio reception. *(Eventually, mechanical fatigue of the wire might result—php.)*

When covering the stab, we recommend a MonoKote hinge. On all the planes, we use this type of hinge for ailerons and elevators, and we have never had a failure. Wing tip wire skids should be added if you make many landings on hard surfaces. Another type of wing tip protector is a piece of servo tape placed where the last rib and the spar intercept. Cover the servo tape with vinyl tape, unless you want some abrupt spot landings.

When locating the Center of Gravity, it is necessary to invert the plane. Balance it on your finger tips, then add weight as necessary to bring the center of balance to just aft of the main spar. If you build the plane as specified, and taper down the tail sufficiently, the plane will balance as indicated without weights. The plane should weigh out at 25 to 26 oz. Since the wing area is in the neighborhood of 500 sq. inches, this gives 7.6 oz./sq. foot. The plane glides exceptionally well. The first time you launch it you will be surprised at the way it seems to fly right out of your hand.

Looks as if we have a completely new type of glider flying, all the way from stunt contests to combat.

With its light wing loading (lighter than a melmac Cirrus), the Tony glides exceptionally well. While not a thermal hunter (wrong airfoil), it can provide plenty of thrills when flown in the flatlands. Its true element is the slope,

where it makes aerobatics a real breeze (or makes really breezy aerobatics!). If it doesn't really turn you on, get a control line bellcrank. . .or better yet, build Archie Adamisin's CL Tony stunter.

TONY'S/Adamisin

(Continued from page 45)

rib spacing would stay uniform. After moving the holes, it is necessary to do a little surgery to the units themselves, in order to obtain the necessary mounting clearance. After the gears have been cleared and mounted onto the platforms, install the wheel housings.

Mount the retract servo on the center section brace, and install the 1/16" music wire pushrods. This is not a difficult job, but it is time-consuming and requires some tinkering. During this adjustment period, it is prudent to install the necessary batteries to power the servo. I used RC hook-up wire to lead from the servo to a charging plug jack located in the inboard wing tip. All of the connections must be carefully soldered to insure that no vibration malfunctions occur. After these steps have been completed and the unit works to your satisfaction, the wing is then ready to be sheeted.

To insure that the planking does not buckle after finishing, always butt-join the sheets prior to installation on the wing. The joint seam should wind up on the flat portion of the airfoil. The application of the sheeting is the most important part of the wing. The sheeting is applied with Hobbypoxy Formula 2. The epoxy is heated slightly, and then thoroughly mixed. A very thin coat of glue is then applied to the sheeting, as well as to all the ribs, LE and TE. The sheet is then placed on the wing starting at the TE. Working toward the LE, place weights as you go, and finally pin to the leading edge. Allow this to dry overnight. When the bottom sheeting has dried, the wing is then turned over and re-jigged. The leading and trailing edges are sanded, the bellcrank installed, and then the wing is sheeted in the above manner. The flaps are now carved out of 3/8" sheet and installed. Add the tips and the wing is completed. Be sure that the plug jack for the retracts is as close as possible to

the leadouts.

Fuselage: The fuselage is constructed about the same as any other. Cut the body sides out of very soft 3/16" sheet. After the wing and stabilizer cutouts have been made, the formers are cut out and installed. The motor mounts are epoxied directly to the fuselage sides. Install them in this manner so that the wing/fuselage joint will not develop stress cracks.

Stab & Elevator: The stabilizer and elevator can be cut out of 1/2" sheet, or use 3/8" stock for the elevator and be very careful when carving the airfoil. Be sure to leave the bottom center section of the stab flat in the middle to insure correct alignment during final assembly.

The rudder and fin assembly is carved out of 3/8" sheet and beveled in the same fashion as the flaps and elevator in order that it might give the appearance of being a functional control surface. It is then epoxied with 3/8" offset.

Final Assembly: Now that all of the main units are finished, the Tony is ready to be assembled. Start by epoxying the wing and elevator assembly into the fuselage. After these have dried, the tank should be installed, the turtle deck sheeted and the necessary blocks tack-glued on. I use a stock World Engines I.M. Products four-oz. stunt tank, except that I bring the tank vents out through the supercharger intake on the side of the fuselage. After these blocks have been carved, they should be removed and hollowed to at least the thicknesses on the plans, and then permanently reinstalled. The cockpit detail and canopy can be finished at this time, and the bottom air-scoop epoxied into place. The bottom of my scoop is removable to allow access to the retract mechanism. I use a 1-56 bolt and blind nut in each corner of the bottom of the scoop to keep it secure during flight. The rudder and fin assembly is now epoxied into place and fillets are applied.

Finish: I think that the finish should be left up to the individual, as everyone has his favorite procedure. My model is finished in the camouflage colors of the 244th Home Defense fighter squadron *(Profile Publications, No. 118).* My model weighed in at 52 oz., ready to go, and I found this weight just about right. The Tony is powered by an O.S. Max 35, swinging a Rev-up 10 x 6 EW propeller. Fuel is Supersonic 100. This engine, prop and fuel combination has been used by our family for about 7½ years, and we can't see any reason to change now.

I would really be interested in hearing any comments anyone might have about my project or about modeling in general. Any comments you might have on this project can be forwarded to me, in care of **AAM.**

MODEL AVIATION
Official Magazine
Editor: Carl Wheeley

AMA NEWS

ACADEMY OF MODEL AERONAUTICS
806 Fifteenth Street, N.W.
Washington, D.C. 20005

World's Largest Sport Aviation Organization

Up From the Ashes...

"Spectators had to battle the wind, too," read part of the caption for this picture by Frank Niemeir. It was printed along with others in the *Hutchinson News* as part of the paper's wrap-up coverage of the RC Masters.

RC Masters Team Finals Blown Out
Rescheduled for May or June 1975
Site to be Approved by Finalists

The RC Pattern movement in the U.S. has suffered for many years from a lack of unity. There has long been a history of controversy, complaints and confusion—often tinged with anti-AMA emotions. The problem was aggravated by the fact that there have been many loud voices in the movement—frequently in disagreement with each other—but without solid evidence of any consensus among the flyers themselves as to the numbers favoring one viewpoint or another.

It was natural, therefore, that AMA leaders were often frustrated in their sincere desire to be responsive to the needs and wishes of people in the activity—no matter which way they turned to accommodate a complaint there was typically an opposite group of people thinking otherwise. It was a *no way to win* situation.

Some of the cooler heads among the flyers recognized the need in recent years and their efforts resulted in the formation of the National Society of RC Aerobatics. One of the first productive results of the NSRCA happened at the Toledo meeting in early 1974. There, some unified thinking among Pattern flyers resulted in recommendations to AMA officials concerning Nationals and team selection planning. And many of their inputs were adopted.

However, the society was only partially organized during 1974, and most members appeared to be too busy flying to get more deeply involved in the organization effort. So the season went into full swing without much further society progress.

Then came the Nats in August. Pattern flyers had their problems, and many regarded the experience as a disaster. Many complained bitterly, but none came forth with constructive suggestions about how to solve problems. However, long before the Nats event was over, Nats officials were exploring what could be done the following year to improve matters. Meanwhile they had to listen to threats of boycotting the next Nats, resigning from AMA, etc. But they didn't hear any offers to join with Nats officials to help solve the problems.

Next came the RC Masters Team Selection Finals at Hutchinson, Kansas. Several good days of practice weather deteriorated into a steady high wind situation two days

'75 Nats—Lake Charles

Contingent upon a better competition schedule, reduced Free Flight retrieving problems, and improved layout for RC events, AMA's Executive Council has approved a return to Lake Charles, La., for the 1975 National Contest. Tentative dates: August 4–10.

Council approval came during meetings at Hutchinson, Kans., October 5–6, following comparisons between the Lake Charles site and the former Naval Air Station at Hutchinson. The latter presently has less low cost lodging (dormitories), no hangar, and greater distances to lodging and equivalent airline accessibility.

before the meet. At a briefing the night before official flying was to start, there were demands from some pilots to cancel the event. They complained that winds were higher than the FAI limit of 27 mph. It was ruled, however, that the competition would go on if the winds were less than the FAI limit.

And the next morning the winds were less, so flying started. But it wasn't long before complaints were heard again, as the wind picked up from about 18 mph to about 24 mph. Again there were threats of boycotting and resignations from AMA. Officials considered the weather conditions and suspended flying; at this point all but six of the 35 finalists on hand had flown round one (40 were qualified, but five did not show). Then, later in the afternoon, when it was obvious that chances for weather improvement were slim, flying was cancelled for the day. The contestants then were asked to vote on cancelling the entire meet or waiting until the next day. Over two-thirds voted to cancel and to reschedule the meet for sometime in 1975.

But the voting did little to quiet the controversy. If anything it polarized viewpoints. Some of those who were on the losing side of the vote were naturally unhappy; they were willing to fly regardless of the weather situation. But even many of those who "won" were unhappy. There were complaints heard about all kinds of things, and some of these were in direct conflict with each other. It was a depressing situation with many negative aspects.

Out of this, however, came a ray of hope. The AMA Executive Council, which was meeting at Hutchinson, was approached by several members of the NSRCA. They asked what could be done to bring order out of chaos and whether the society could be helpful. They were welcomed warmly and advised that the flyers' organization could expect immediate and continued cooperation. They also were promised considerable delegation of responsibility for AMA decisions affecting the flyers if the society could give evidence of majority representation of the flyers and a willingness to shoulder the responsibility and some of the work-load involved.

Further discussions with some of the flyers indicated their willingness to give up some flying, if necessary, to help the society effort. In return it was made plain that AMA was ready to help NSRCA help itself. Now everyone is back home from the Hutchinson affair and the promise of a new era for RC Pattern flyers is still intact. If, therefore, it should be followed by the constructive work to change the *let George do it* situation that has long prevailed, the future is bright. So up from the ashes of the crisis which came to a head at Hutchinson there is considerable hope. As with many things, it often takes a crisis to get people fired up enough to get them to do what has been needed for a long time. We have had the crisis, and the NSRCA now has the opportunity.

Executive Council Summer Meeting

AMA's "board of directors" known as the Executive Council met on two days during the 1974 National Contest, August 7–8, at McNeese State University, Lake Charles, La. Highlighting the meeting were decisions to provide all members with accident-medical insurance and to expand the circulation of the AMA *Monthly Mailing* to include all adult members; both of these services start in 1975—with no increase in dues. Details on these and other action items are in the minutes of the meeting which follow.

The council assembled at 9:30 pm on August 7, with the following in attendance: President John Clemens, Dallas, Tex.; Secretary-Treasurer Earl Witt, Chambersburg, Pa.; Executive Director John Worth, Fairfax, Va.; Vice-President, District I, Cliff Piper, Atkinson, N.H.; VP-II, Josh Titus, Paramus, N.J.; VP-III, Ron Morgan, Scotland, Pa.; VP-IV, John Spalding, Lanham, Md.; VP-V, Jim McNeill, Birmingham, Ala.; VP-VI, Glenn Lee, Batavia, Ill.; VP-VII, Jack Josaitis, Dearborn, Mich.; VP-VIII, Murry Frank, Wichita Falls, Tex.; VP-IX, Stan Chilton, Wichita, Kans.; VP-X, Alex Chisolm, Fresno, Calif.; VP-XI, Homer Smith, Seattle, Wash.; Associate VP-V, George Perryman, Smyrna, Ga.; AVP-VI, Bob Vojslavek, Woodridge, Ill.; AVP-VII, Hardy Brodersen, Birmingham, Mich.; AVP-X, Jim Scarborough, Lawndale, Calif.; AVP-XI, Dick Carson, Spokane, Wash.

The meeting began at 10 pm with an announcement by President John Clemens that he had received on behalf of AMA a $1,000 check for Life membership from Billy B. Dunlop of Dallas, Tex. He then presented the check to John Worth, executive director. The president next commented on several topics: his receipt of *RC Modeler* Magazine's first annual Outstanding Achievement Award, the need for strengthening AMA's associate vice-president arrangement, the successful AerOlympics event held in New Jersey a month previous. The meeting then proceeded to the following agenda items:

Executive Director Assistant

Clemens led the discussion with an endorsement of one prospect, noting his excellent performance as a volunteer official at the AerOlympics. Secretary-Treasurer Earl Witt responded similarly although he noted the need for further evaluation. Worth agreed and said that he would explore the subject further during the next few months to determine if the prospect is available on a trial basis. Cliff Piper, District I vice-president, advised that he was also interested in the position.

Further discussion indicated a council consensus that the executive director had the authority to hire an assistant without further council action, and that council approval of any prospect was not necessary. Worth then noted that he hoped to fill the position by the end of the year.

(continued on page AMA 6)

Finalists to Decide 1975 RC Masters Site

Word of mouth spreads quickly; within the first week following cancellation of the 1974 event several clubs already were saying to AMA officials that they are interested in being host to the rescheduled RC Masters in 1975 sometime from mid-May to the end of June. And the October *Competition Newsletter* called for all those interested in being host to document their offers in writing by December 1. The information will then be distributed to finalists who will decide which location is the most satisfactory.

RC Masters Finalists

From the 1972 RC Masters and the 1973 Nationals the top 10 in each are automatically qualified for the current RC Masters. Ten more are qualified from performances at the 1974 Nats. Rounding out to 40, 10 are qualified from points accumulated nationwide in AMA sanctioned events.

1972 Masters Qualifiers: Norm Page, Jim Martin, Jim Whitley, Ron Chidgey, Steve Ellison, Phil Kraft, Dave Brown, Ralph Brooke, Joe Bridi and Dean Koger.

1973 Nats Qualifiers: Rhett Miller III, Don Coleman, Don Lowe, Bill Salkowski, Mike Mueller, Jim Oddino, Steve Buck, Bob Smith, Alan Dupler and Ed Keck.

1974 Nats Qualifiers: Steve Helms, Jim Osborne, Tony Bonetti, Wayne Abernethy, Mark Radcliff, Merle Hoem, Greg Hoke, Ben Matthews, Gerry Jackson and Jimmy Grier.

Points Program Qualifiers: George Hill, Daniel Kowallek, Joseph Cross, Frederick Kugel, Denis Donohue, Carl Weber, Ed Izzo, C.W. Reed, James Spurlock and William Thomas.

"Sunday-Flyers," Seven Days A Week

PRESIDENT'S MEMO

An AMA member once wrote me and insisted he was not a "Sunday Flyer." He said he was a Saturday Flyer! Of course he really was pointing out to me that the sport of aeromodeling is a good thing seven days a week and 24 hours a day, or any portion of that time which is available.

If you have trouble putting into words the reason you are a "Sport" or "Fun" flyer, you might like to share some of my thoughts on the subject.

Numerically the vast majority of aeromodelers wear the tag of "Sport Flyer" or "Fun Flyer" as contrasted with the competition flyer. Figures drawn from the Contest Directors' reports of contests sanctioned by the Academy of Model Aeronautics indicate that fewer than 10% of the membership ever enter formal competitions. This is a little hard to accept when most of the publicity you see is based on the reporting of competition events and the personalities and flying machines involved. The reason is simple: contest flying between the more skilled, or even professional, flyers is more exciting than the relaxed just-for-fun flying that is used for recreation and as an "escape" device. Therefore, more headlines.

Mind you, competition flying certainly deserves the attention it gets because it entertains the rest of us, and the "pressure-tank" of competition is where all of our technical advancements are born. It is interesting to reflect on how primitive present day aeromodeling would be if competitive flying had not given us our modern materials and procedures. Competition flyers deserve the thanks of all of us.

Defining a "Sport Flyer," he is, first, an active person who feels a need to relax with a diversion from his usual daily problems and pressures. As a modeler he can be rated anywhere from the "greenest" beginner through all the degrees of expertise up to the oldest and most skilled of modelers. He can be any age. He can be a Mr., Mrs., Ms., Miss, or Master. For the Fun/Sport Flyer the challenge is quite enough to simply create and operate an aeronautical device with which he can triumph over the laws of gravity and inertia.

Behind that magic device he is able to hide momentarily from the horrors, tensions and boredom of his everyday life. When he is building, flying, or just daydreaming about aviation, he is safe from the tax man, a dead car battery, grocery prices, the front page of the newspaper, small aches and pains, and even dull TV programs. His modeling will not cure any of those ills, but it puts him in better condition to face them when they finally must be confronted.

The modeler's hobby becomes his tension-destroyer, his sleeping pill, his school room, sugar-coated training in patience and discipline, and it protects him even from his own laziness. It is his amusement ticket, and a key to interesting and progressive new friendships. It keeps his mind and reflexes alert, and allows him to constantly practice manual dexterity and mental creativity. Common sense and better judgment are by-products of his fun. He will be wiser in spite of himself.

The Fun Modeler learns how to fully appreciate and enjoy his moments of success. He also learns, from the other side of that coin, how to accept disaster and disappointment and how to salvage what is left for use in tomorrow's project. From minor failures and major disasters he learns the best and most indelible lessons of all. He learns what *not* to do next time. He also learns that he must be neat and careful, because others are eventually going to see his handiwork. He quickly realizes, also, that the better it is built, the better it works.

When you consider all of these lessons and benefits, it becomes obvious that the modeler can't miss being a better person in his home and his community. Best of all is the fact that he will be more at peace within himself. All of this profit comes at such a reasonable price on the entertainment market that it is truly a jewel of a value. Try to equal it at anywhere near the price!

There is another group of aviation enthusiasts closely related to the "Sunday Flyers." These are the "Sunday Non-Flyers" who also get involved in aeromodeling for relaxation, recreation and companionship. This group is much larger than you would suppose and is made up of some more fine people who simply don't care to fly model planes. They believe in the activity and enjoy rubbing shoulders with the "super-citizens" that most modelers prove to be. They enjoy speaking the language and being part of the group, and they are willing to contribute dues and work in exchange for the companionship. This group includes wives, families, parents, friends, and a bunch of modelers who love to build but care little or nothing about actually flying their handiworks. They, too, are a part of this handsome picture of relaxation and recreation that is the result of "Sunday Aeromodeling."

To sum up, may I suggest that you—RELAX! BECOME A "SUNDAY FLYER!"

John E. Clemens
AMA President

Newest member of the AMA HQ team is Larry Bolich, right, shown in this photo from the 1974 Nats with Executive Director John Worth, left, and President John Clemens, center. Then Bolich was public relations director for the City of Lake Charles, but he was persuaded to move to the Washington area in October to become AMA's first-ever full-time staff PR director. Previously Larry ran his own PR firm, and so he brings much expertise with him for this needed job.

NEWS bits

What's In a Name?

The cholla, a cactus native to the Southwest, grows in the middle of Control Line flying circles, so it must be *chopped* out in order that one may fly. Back in 1947 originators of one AMA chartered club in Tucson were clearing a field of cholla when the question of a club name came up. One member, speaking while swinging at a cholla said, "We should be called the *Cholla Choppers*." And so it has been called that ever since, Ed Hagerlin (AMA 17144) wrote in the club's newsletter.

C. G. on the Button

Drill a 1/16th hole in the top of the fuselage at the exact desired center of gravity during construction, set a 2-56 nut inside the fuselage and screw into this nut a threaded rod with a hooked opposite end. With a piece of string one can easily check both lateral and longitudinal balance at any stage of construction. This facilitates placing of the radio gear and accessories where they will do the most good for balance, and usually saves having to cut into a newly finished model to add weight. Bob Godfrey (AMA 74058) effectively uses this handy technique, noted Editor Charles Leverenz (AMA 81906) in the Indianapolis RC South newsletter.

Dutch Auction

The AMA chartered Kansas City Radio Control Assn. (KCRC) of Missouri uses two ways of auctioning items, a popular activity with many clubs. The "regular" way, as used by most—the seller gives the starting price which goes up if anyone bids; the highest bidder gets the item. The other method the KCRC uses is called *Dutch*, reports C. W. Reed (AMA 21971), editor of their newsletter, *Contacts*. In a Dutch auction, the seller gives the starting price, and if no one buys at that price, the price goes *down*; the first person to bid gets the item, but the seller may set a minimum.

Try This

A simple way to prevent blind nuts from filling with paint or epoxy (which makes bolts difficult, if not impossible, to thread) is to fill the holes with modeling clay, wrote Charles Spencer (AMA 9605) in *The Bee Line*, newsletter of the AMA chartered Capital Area Radio Drone Squadron, Lansing, Mich. Since the clay contains an oil which prevents the epoxy from sticking, care should be taken to keep it where you want it, but if it does get on another surface it may be cleaned with alcohol (which then allows the epoxy to adhere).

Checkpoint

To simplify RC range checking (and thereby hopefully encourage it), Wes Loback (AMA 10759) of the AMA chartered Seattle Radio Aero Club painted marks on the club's taxi strip ten feet apart. Using the reference points is much easier than pacing off, reports Jerry Odell (AMA 87611) editor of the club's newsletter, *Plane Talk*.

Send Pictures, Please

Readers tell us that they enjoy seeing what other AMA members are doing and flying through the pictures printed in this section. This is a service we enjoy providing but is dependent upon photo submissions by the readers. Won't you help?

All types of photos are needed: RC, CL, FF, Indoor, Scale, action, posed, construction, gimmicks, etc. All types and sizes of prints (but not negatives or slides) are acceptable if they are contrasty and show the subject well—black-and-white or color, including Polaroid. On the back of each print write the name of the photographer, the names of the people and models shown, and a brief description of each model's features. No payment possible for photos used, but photographers will be credited. Send to Publications Director, AMA HQ, 806 Fifteenth St., N.W. Washington, D.C. 20005.

$20 a Fill

John Melburg of Illinois is well on the way to completion of a 22-foot Scale dirigible that he hopes to fly by next summer, and eventually to enter in flying Scale competition. For three years he has invested a staggering amount of research and construction technique towards achieving his goal of building and flying a truly Scale dirigible. At a presentation of his project to the AMA chartered Chicago Scalemasters Club, Melburg thoroughly surprised and impressed the members; construction of helium gas cells was cited as an example of his space-age technology by Keith Ward, AMA 73798, editor of the club's newsletter. The mylar material and sealing method, provided by NASA, is the same as used in the Echo satellite. At a cost of $20.00 per fill, we bet that he wishes the helium retention was longer than the rated seven days.

Submitted by Desmond L. Cook

Chilly winds and rain didn't deter members of the Central Ohio Radio Kontrol Society (CORKS) from proceeding with their Flying Circus last September, but a second show on the pre-scheduled October 6 rain date saw improved weather and a large crowd. Those donating to a local charity for retarded children had a go at RC flying via a buddy box.

Engine Break-In

Don't run your engine for very long with the airplane sitting on the ground, dirt, concrete, or even grass. *DJ's Electric Airplane Club Newsletter* (Ore.) edited by Jim Trump, AMA 83025, reports than an engine is apt to pick up a tremendous amount of grit which will wear out or badly score the working parts. It recommended having the engine four feet off the ground or placing the plane on a large piece of cardboard while running-in—for a long-lasting engine use an air filter over the intake.

A Little PR Never Hurts

Edwin Ley (AMA 54840) is in charge of creating a movie of the activities in which the AMA chartered Flying Circuits of Ft. Wayne, Ind., are involved during 1974. This ambitious undertaking will provide films that will be shown at static displays and other civic projects. James Stradling (AMA 78050), editor of the club's newsletter, reported that Ley is hoping to include some Pattern flying in slow motion and stop action in his work. "A little PR never hurts," the newsletter commented, to which we say amen.

Dual Purpose Paving

Feedback, newsletter of the AMA chartered Shawnee Mission RC Club (Kans.) edited by Craig Williams (AMA 81535) reported progress towards paving the club field. It was intended that either the park department would blacktop a portion of the field, or, also under consideration, the highway department might lay "test strips" of highway asphalt. Such strips with varying compositions of asphalt are used to study the effects of weather, and if used to surface the club's runway would serve the flyers equally well.

AMA Renewal Time

December 15
Is the Critical Deadline
To Renew AMA Membership
Without Losing Service, Benefits

Owing to the publication lead time, the very least to be expected for members whose renewal applications are received by AMA HQ after this time is that their March *American Aircraft Modeler* Magazines will reach them late. This is because the March issue is mailed in January, with address tapes of AMA members prepared for the publisher during December.

The same goes for those who choose to receive only a reprint of the "AMA News" section of the magazine. Similarly, adult members who fail to sign up for 1975 by December 15 may miss the January *Monthly Mailing*; this is the hot-line AMA newsletter with expanded 1975 circulation to include all adult members.

Those who wait until after the critical deadline will have 1975 subscriptions initiated from scratch—just like new members—with a six-week lag in publication renewal service. The February *AAM*, for instance, is the last magazine to be mailed to 1974 AMA members—all 1974 memberships expire December 31, 1974.

To obtain most value, renew AMA membership by December 15 (preferably by using the bill for dues mailed to 1974 members); this will assure continuing benefits without interruption plus, starting in 1975, comprehensive accident/medical-type insurance and the *Monthly Mailing* (the latter for adult members—those who pay $12 or $17). Those who haven't been AMA members before can also obtain maximum value by joining before December 15.

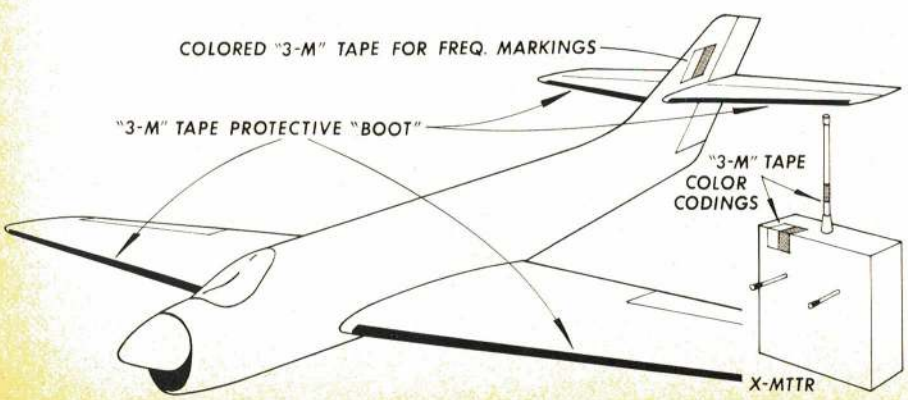
Show Team Fliteline

No. 2 In A Series:
Quick Frequency Identification

By Bob Lopshire

Last month we discussed the team's use of 3M brand plastic tape to protect leading edges from the abuse of collisions with unexpected objects. This month we'll reveal their use of this same tape to make their lives a little easier where their scheduling leaves no time to ponder what frequency the other fellow might be using. You might try this one within your club.

The team works under the direction of a linemaster—Harry Pye. Harry's job is to get signals and commands to all flyers for, "Start your engine—Stand Ready—Take-off—Prepare to land—Land," plus a number of other commands such as telling a pilot to stretch his flight because of timing problems, etc. Mixed in with this is the distinct possibility of a flyer on the ground having radio or engine problems and not being able to get airborne at all. In this case Harry has to quickly move another flyer into the dead spot and get him airborne...and be VERY sure that the suddenly changed scheduling does not put the wrong frequency in action. With all this taking place within a maximum of 15 minutes total show time for *twenty-six flights*, Harry needs all the help he can get from visual devices.



A part of this help is the color coding of each transmitter and airplane. Yes. Airplane. The vertical fin of each ship used by the team carries the color coding of the plane's radio frequency. Simplest method of coding each ship was to use 1½" 3M tape, 2" long, mounted in a vertical pattern. Each transmitter has the same strip coding on the front, and also wrapped around the antenna.

Harry has a set of cards, one for each flyer, also marked with the same tape coding. He puts them in order of appearance and, with the color coding, wastes no time in making decisions if a flight is suddenly grounded and another has to be moved into that slot.

The team does not work with the proven clothespin system. It would be impossible, mainly due to their always having at least three planes airborne.

While no club in the country will ever expect to fly a hairy schedule such as used by the team, the tape coding could well help avoid frequency confusion at a club flying site when used in conjunction with the pin system.

CL Profile Carrier Rule Interpretations

Acting upon a recommendation from the Navy Carrier Rules Advisory Committee, the AMA Control Line Contest Board has authorized immediately effective interpretations of rules 28.3.3 and 28.3.3.1 as concerns acceptable engines and throttles for the Profile Class of the Navy Carrier event. The interpretations:

1. There may be no solid material added to the interior of the engine. No material may be removed from the engine except that which is removed by normal engine wear. This may be artificially accomplished by hand lapping. Mold flash and burrs (not intended by design) may be removed.

2. The engine must have the same basic dimensions and configuration as it had or would have had when it was mass-produced by the original manufacturer. Subsequent alterations, additions, deletions, etc., by some person or business enterprise other than the original manufacturer are prohibited except for those alterations specifically permitted by this interpretation and rule 28.3.3.1. The intent of the Profile Carrier rules is that the engines be inexpensive and easily obtained. To this end, engines assembled in small numbers, or to special order, by business enterprises not normally involved with the mass-production of engines and which are, therefore, not readily available in hobby shops are to be considered "custom" engines, and do not qualify as "factory assembled units."

3. The following parts are not considered a part of the engine under the meaning of this rule and may be freely substituted: screws, nuts and bolts, glow/spark plug, propeller-drive washer, front propeller nut and washer, and all gaskets except head gaskets. Replacement of other engine parts is permitted as long as parts are unmodified and are supplied by the original engine manufacturer for the specific engine size and designation. Configuration must be the same as on the original engine, i.e., a flat top piston may not be substituted for a baffled piston, etc. The number of head gaskets must be the same number as originally supplied on the engine.

4. The words, 'acceptable only if it and its single barrel intake throttle are unmodified factory produced units with unmodified venturi throat area and they are advertised and sold as a factory assembled ready-to-run combination,' merely specify which engine/throttle configurations are acceptable and do not apply to each individual engine used in competition. Any engine/throttle combination which meets these requirements will be acceptable regardless of its source. Example: a contestant may purchase a Perry carburetor for a Testor/McCoy Series 21 engine and be just as legal as a contestant who purchased a complete Testor/McCoy RC engine. Since these two engines would be identical, they would both be legal, regardless of their source.

Background. These interpretations, having been processed and accepted in accordance with current Contest Board Procedures, are official and will continue in force as part of the competition rules unless superseded by later action. The Navy Carrier Advisory Committee asked the CL board for approval in light of administrative problems that these rules have caused due to previous lack of uniformity in their interpretations. The Contest Board provisionally voted acceptance in July; following publication in the AMA *Competition Newsletter*, providing opportunity for interested modeler comment, the board unanimously ratified acceptance of the new interpretations in September.

Council Summer Meeting

(continued from page AMA 2)

Insurance Supplement

A proposal to provide AMA with a comprehensive accident-medical insurance program, to supplement the existing liability protection for all members, was described by Worth. The cost was noted to be only 25¢ per member, and up to $1,000 would be compensated for each of the following accident situations: injury, dismemberment, death. Coverage would apply to accidents which occurred to members while operating in accordance with the AMA Safety Code. Following general discussion, Alex Chisolm, District X vice-president, noted that the cost was exceptionally low, and he made a motion to accept the proposal as outlined in previously distributed literature and as an additional membership benefit without a dues increase. The motion was seconded by District IV Vice-President John Spalding, and was approved by a vote of 12 for, 1 against (II), 1 abstention (Sec.-Treas.).

Scholarship Program

A report was given by Worth which noted that the current program was stalled pending further action by the AMA Scholarship Committee. He said he would communicate with the committee chairman to seek some positive action in time for the next council meeting after the Nats.

Clemens then requested Hardy Brodersen, District VII associate vice-president, to comment concerning status of the National Free Flight Society's Scholarship Program. Brodersen noted that the program was based on obtaining AMA and industry matching funds. He also made a brief summary of program details. No council action was taken other than to agree that the subject should be tabled until after further discussion concerning AMA's Scholarship Program at a future council meeting.

Next Meeting

Recent correspondence exchanges between council members were discussed concerning the need for more than two council meetings per year—some favoring three, others four. There was an apparent consensus that three were needed and that a fourth could be called if necessary. Clemens then noted the need for a meeting within a month or two and suggested the first weekend in October at Hutchinson, Kansas, in conjunction with the RC Team Selection Finals there at that time. He further noted that this would provide an opportunity for the council to inspect the former naval air station at Hutchinson regarding its possibilities as a Nats site and permanent home for AMA activities. Piper then made a motion, seconded by District VIII Vice-President Murry Frank, for the next council meeting (after the Nats) to be at Hutchinson on Sat., October 5, 1974; approved unanimously.

Hutchinson Site

District IX vice-president Stan Chilton presented information concerning the former naval air station at Hutchinson, Kansas, relating to its availability for model aviation activities. He noted that the site is now mostly in private ownership and that AMA had been invited to use it for major events such as the Nats and team selection meets. He advised that the airfield owner would be at the Nats the next day and would be available to address the council. He then suggested that further discussion be tabled until then; agreed by consensus.

Special Awards

Clemens commented on the two normally handled by the council: Distinguished Service and Fellowship. The former, he noted, was usually in the form of a plaque for a specific effort by individuals or clubs in connection with a particular AMA event or program; Fellowships are

"All work and no play makes Jack a dull boy," might be appropriate here, even though the Indian wrestlers are John Spalding (Dist. IV V.P.) and Hardy Brodersen (Dist. VII Assoc. V.P. and NFFS Exec. Dir.). Photo is from February 1974 Executive Council meeting.

usually for more sustained individual efforts, usually over a period of years, on behalf of AMA or model aviation in general, with a certificate and life membership for recognition. Clemens pointed out the need for greater PR in connection with such awards so that there might be greater recognition of those receiving the awards and greater appreciation by the membership.

a. Distinguished Service. Four such awards were approved unanimously, three to individuals (publicity for which will be released upon presentation of the awards) and one to a club, the Lake Area Radio Kontrol Society (L.A.R.K.S.), Lake Charles, La., presented during the 1974 Nats banquet on August 10 by President Clemens.

b. Fellowships. Jack Josaitis, Vice-President of district VII, proposed a fellowship for one of his area leaders, with publicity to follow upon presentation; seconded by Frank and approved unanimously.

The meeting then adjourned at 12:20 am, with agreement to meet the next evening, August 8, at 9 pm, same location. The council reconvened and the meeting began at 9:25 pm, with the following in attendance: the Executive Council as listed for the previous meeting, plus associate vice-presidents from District VIII (Ned Barnes, Lake Charles, La.), District VII (Hardy Brodersen, Birmingham, Mich.), District V (Luis Rodriguez, Puerto Rico), District XI (Dick Carson, Spokane, Wash.). Action on the agenda continued from where it ended the night before.

Monthly Mailing

This item had been tabled at the March Executive Council meeting. Previous discussion had centered on the question of whether to expand circulation to include all Open age members or just to all Open age members of chartered clubs; it had been agreed in March to expand circulation to include all Leader members, but the question of still greater expansion had been tabled. New discussion indicated a consensus to include all Open age members, so as to assure that AMA members not in clubs would get equal communications treatment—it was noted they paid the same basic dues.

Cliff Piper made a motion, seconded by Murry Frank, that circulation of the AMA *Monthly Mailing* be expanded to include all Open age members, beginning in 1975, as an additional membership benefit, without dues increase, subject to review at the next (1975) Nats council meeting. The motion was approved by a vote of 13 for, with one abstention (IX).

Nomination Committee Question

Earl Witt, who served as AMA Nominating Committee chairman the night before, explained that a problem remained from the meeting. The committee had been unable to agree on an interpretation of the qualifications required of a candidate for the national office of AMA president. The basic question had to do with whether a candidate's status as a member of an AMA committee was required to be a matter of direct or indirect appointment. The council got into much discussion as to whether one of the candidates met the minimum standards for nomination. The eventual consensus was that the candidate should not be rejected on the basis of a technicality which was subject to various interpretations.

Homer Smith, District XI vice-president, then made a motion to accept the candidate and include his name on the ballot and also to instruct the executive director to present a rewrite of the appropriate portion of the Nomination Procedures to clarify the requirements question. Spalding seconded the motion which was then approved by a vote of 12 for, 2 abstentions (VIII, Sec.-Treas.).

Future Nats Site

Stan Chilton resumed the previous night's discussion regarding the possibility of using the former naval air station at Hutchinson, Kansas. He introduced his guest, Bill Seed, who is the current owner of most of the airfield. Chilton then suggested that questions be asked of Mr. Seed on any and all aspects of possible use. Council members followed up by asking for details of the site, size, physical condition of the property and buildings, legalities, short and long range possibilities for use by groups such as AMA.

Mr. Seed described the site and noted that portions of the air station other than the runway, parking ramps, and taxiways, are available for sale by the City of Hutchinson. He detailed his own purchase and plans for eventual use by many sport aviation groups. He noted that his primary interest is soaring and that the airfield would be the base for regional soaring activity. He indicated, however, that there would be no problem sharing with other activities and that model flying would be compatible. He also stated he was willing to include AMA in a trust group to administer use of the airfield.

The summation was that the airfield is amply large for a Nats (with several runways approximately 1½ miles in length), is available on a no charge basis to AMA and that lease or purchase arrangements for land/or buildings are available for long time use. Mr. Seed invited the council to inspect the property during its October visit to Hutchinson. He then departed from the meeting. Further council discussion noted that AMA's RC Team Selection Finals would be held at Hutchinson during the weekend of the council visit and that this would provide an opportunity to sample opinion of AMA members from various parts of the country as to the suitability of the site for additional events.

Alex Chisolm next brought up the fact that Las Vegas, Nevada, had been proposed as a 1975 Nats site, but noted that Jim Scarborough, District X associate vice-president, had indicated a lack of support by Free Flighters from California, even though one of the proposers, Steve Geraghty, another District X AVP, was a Free Flighter. Chisolm also noted that the executive director had asked the proposers for more details, since the proposal did not seem to meet basic Nats requirements, and so no council consideration was necessary until more information was forthcoming.

Chisolm then presented copies of a letter from the mayor's office of the City of Los Angeles regarding a possible 1976 Nats, at the Los Alamitos Naval Air Station or some other equivalent area site, in conjunction with the 1976 bi-centennial celebrations. He noted that the letter requested a reply by August 16. Discussion by the council indicated a consensus to the effect that all future Nats possibilities, including L.A.'s, should be explored. Worth then said that he could and would respond in time and favorably concerning AMA's interest in pursuing the possibility further. (Note: AMA's letter was sent to Los Angeles the next day, on August 10th.)

Frank next brought up the subject of the 1975 Nats returning to Lake Charles. He

called on District VIII Associate Vice-President Ned Barnes to elaborate. Barnes then explained that AMA would be welcomed back and that a number of improvements could be expected over 1974. He noted that much more of the airfield would be cleared of trees and underbrush, that paths for easier Free Flight retrieving could be provided, that the college dormitories would be available again, that one or two more motels would be built, that the interstate highway would be completed directly to the airfield.

Barnes invited AMA, on behalf of the LARKS, to return and emphasized that the availability of local labor for the Nats was a strong point of their offer. He noted, however, that the LARKS were willing to help with future Nats regardless of location.

Clemens, on behalf of the council, thanked Barnes for the invitation and noted that the Lake Charles offer was exceptionally strong and that a decision before the end of the year could be expected, possibly at the October council meeting.

Matching Funds

Jack Josaitis asked his district associate vice-president, Hardy Brodersen, to describe the National Free Flight Society's interest in obtaining matching funds from AMA's FAI budget for various projects such as transportation support for meetings of Free Flight Team Selection Committees (Indoor and Outdoor), transportation of regional winners to team selection finals meets, and similar areas of support. Brodersen explained that the cost of a 20-man meeting would be approximately $3600. He also quoted by-laws purposes of AMA which supported his request for support and noted that the National Free Flight Society had been operating in accordance with these purposes whereas AMA had not.

In pursuing details of the request for support it was indicated by Brodersen that the funds were desired to come from AMA. Worth pointed out that the agenda subject was for matching funds and that the requests for support would only be appropriate if the National Free Flight Society was willing to provide half. He also noted that funds for team selection finalists would require consideration of such support for all interests, not only Free Flight, and so the matter was beyond the subject of matching funds. Council discussion indicated a consensus that the matter of funds for finalists would involve a major cost escalation of the FAI budget and so should not be pursued at present.

Worth then made a motion, seconded by Jim McNeill, vice-president of District V, to approve an AMA expenditure of up to $1800 in funds, to be matched by the National Free Flight Society, for the purpose of transportation assistance for a special meeting of FF Team Selection Committees to take place in 1974; approved unanimously.

Control Line FAI Program Review

Glenn Lee, District VI vice-president, requested council permission to form a team selection committee to review past FAI Control Line Team Selection Programs and to make recommendations for future programs. The council consensus was that such approval was not necessary, that Lee should feel free to proceed.

Sport Scale Proposal

The council noted receipt of a petition from Charles Viosca for postponement of the September 1, 1974 deadline for submission of rules proposals, until one year later for the subject of Sport (Standoff) Scale. Council discussion indicated a consensus in favor of following existing procedures but also receptive to seeking a recommendation from the Scale Contest Board regarding further consideration of the petition. Worth indicated he would request an indication of interest on the part of the Scale Contest Board concerning possible postponement.

Adjournment

McNeill made a motion, seconded by Piper, that the meeting be adjourned, with all remaining business to be considered at the next council meeting in October; approved unanimously at 12:30 am.

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.

Dec. 1—Taft, Calif. 8th Annual SCIF Texaco Class Event. Site: Taft. B. Chandler, Sr. CD. 7858 Farralone Ave., Canoga Park, Calif. 91304. Sponsor: Southern California Ignition Flyers.

Dec. 1—Canoga Park, Calif. (A) San Fernando Valley Silent Fliers RC Meet. Site: Pierce College. T. Koplan CD, 13914 Hartsook St., Sherman Oaks, Calif. 91403. Sponsor: San Fernando Valley Silent Fliers.

Dec. 6-8—Las Vegas, Nev. (B) Tournament of Champions RC Meet. Site: LVRC Field. G. Nelson CD, 23 Marie Dr., Downers Grove, Ill. 60515.

Dec. 8—Dallas, Tex. (AA) 4th Annual Pearl Folly Pot "74" FF (Cat. II) Meet. Site: Dallas. D. Horn CD, 3915 Boca Raton, Dallas, Tex. 75230. Sponsor: Dallas Cliff Cloud Climbers.

Dec. 8—Visalia, Calif. (A) Sky Kings FF Meet. Site: Manzanillo Ranch. D. Adams CD, 624 S. Velie, Visalia, Calif. 93277. Sponsor: Sky Kings.

Dec. 8—Elsinore, Calif. (B) Thermal Thumbers Wakefield Annual FF Meet. Site: South Side. A. Payne CD, 2337 Ewing St., Los Angeles, Calif. 90039.

Dec. 15—Sepulveda, Calif. (A) San Valeers Monthly December '74 FF (Cat. II) Meet. Site: Sepulveda. G. Weissenberger CD, 17776 San Francisco St., Fountain Valley, Calif. 92708. Sponsor: San Valeers M.A.C.

Dec. 15—Opa Locka, Fla. (A) MIAMI Park & Rec. Indoor (Cat. II) Contest. Site: Opa Locka Airport. G. Myers CD, 13918 SW 90th Ave., Miami, Fla. 33157. Sponsor: M.I.A.M.A. Club.

Dec. 15—Lake Elsinore, Calif. Annual Jumbo & P-Nut Rubber Scale Meet. Site: Lake Elsinore. C. Hatrak CD, 3825 W. 144th St., Hawthorne, Calif. 90250. Sponsor: Rockwell International Flightmasters.

Dec. 22—Fresno, Calif. FGMAC Monthly FF Meet. Site: Fresno. F. Ginder, Jr. CD, 5740 E. Ashlan, Fresno, Calif. 93727. Sponsor: Fresno Gas Model Club.

Dec. 28-Jan. 1—Winter Park, Fla. (AA) Tangerine International RC Championships. Site: R.C.A.C.F. Field. W. Schoonard CD, 2080 Sharon Dr., Winter Park, Fla. 32789.

Jan. 18-19—Buckeye, Ariz. (AAA) 25th Annual Southwestern Regional Model Airplane FF (Cat. I), CL & RC Contest. Site: Buckeye Airport. E. Raphael CD, 3622 W. Brown St., Phoenix, Ariz. 85021.

Jan. 19—Opa Locka, Fla. (A) MIAMI Park & Rec. Indoor (Cat. II) Contest #4. Site: Goodyear Blimp Hangar. G. Myers CD, 13918 SW 90th Ave., Miami, Fla. 33157.

Jan. 25-26—Phoenix, Ariz. (AA) 4th Annual Southwestern RC Championships. Site: Aux. II, Beardsley. W. Cranston CD, 6823 N. 38th Dr., Phoenix, Ariz. 85019. Sponsor: Arizona RC Society.

Feb. 9—Glastonbury, Conn. (AA) Winter Wings Indoor (Cat. I) Meet. Site: Glastonbury High School. G. Armstead, Jr. CD, 89 Harvest Ln., Glastonbury, Conn. 06033.

Feb. 16—Opa Locka, Fla. (A) MIAMI Park & Rec. Indoor (Cat. II) Contest #5. Site: Goodyear Blimp Hangar. G. Myers CD, 13918 SW 90th Ave., Miami, Fla. 33157.

March 16—Opa Locka, Fla. (A) MIAMI Park & Rec. Indoor (Cat. II) Contest #6. Site: Goodyear Blimp Hangar. G. Myers CD, 13918 SW 90th Ave., Miami, Fla. 33157.

April 15—Glastonbury, Conn. (AA) Spring Fling Indoor (Cat. I) Meet. Site: Glastonbury High School. G. Armstead, Jr. CD, 89 Harvest Ln., Glastonbury, Conn. 06033.

April 20—Opa Locka, Fla. (A) MIAMI Park & Rec. Indoor (Cat. II) Contest #7. Site: Goodyear Blimp Base. G. Myers CD, 13918 SW 90th Ave., Miami, Fla. 33157.

May 17-18—Bowie, Md. (AAA) 4th Annual Maryland State RC Championships. Site: PGRC Airport. J. Solko CD, 6307 Martins Terr., Lanham, Md. 20801.

May 17-18—Pittsburg, Calif. (AA) DVRC Spring RC Tune-up Meet. Site: Hwy. 14 & Loveridge Rd. B. Doughty CD, 1921 Argonne Dr., Walnut Creek, Calif. 94598.

May 24-25—Jacksonville, Fla. (AAA) Rebel Rally 1975 FF (Cat. II), CL & RC Meet. Site: Whitehouse Field. C. Belcher CD, 1235 Hamilton St., Jacksonville, Fla. 32205.

May 25—Opa Locka, Fla. (A) MIAMI Park & Rec. Dept. Indoor (Cat. II) Contest #8. Site: Goodyear Blimp Hangar. G. Myers CD, 13818 SW 90th Ave., Miami, Fla. 33157.

July 4-6—Cleveland, Ohio (AAA) 40th Annual Cleveland National Junior Air Races and U.S. CL Championships (Plus World Record Trials) for CL. Site: Cleveland Hopkins Int'l CL Model Flying Field. R. Sargent CD, 1694 Wright Ave., Rocky River, Oh. 44116.

Aug. 16-17—Cedar Rapids, Iowa (AA) Skyhawks 7th RC Meet. Site: Seminole Valley. D. Lewis CD, 2215 12th Ave., Marion, Iowa 52302.

Aug. 24—Milwaukee, Wisc. (AA) Circle Airs U-Control Meet. Site: Dretzka Park. L. Sidabras CD, 1217 S. 48th St., Milwaukee, Wisc. 53214.

Aug. 31—Glenview, Ill. (AA) Scalemasters 7th Annual Scale FF & RC Rally. Site: NAS Glenview. C. Macomber CD, 922 Oak St., Winnetka, Ill. 60093.

AMA OFFICER DIRECTORY

The most recent complete directory was published in the September *AAM*, page 101.

Smith /*(Continued from page 105)*

groupers exceed even the safety factor built into the rules. Until a thorough look is taken at what may be a very dangerous situation, the Speed Advisory Committee asked that the CLCB pass an emergency measure banning the lines. The person behind the original request was Carl Dodge, of Cleveland, who has been a member of the U.S. FAI Speed Team, and who has a set of these controversial lines in use. Carl knows the problems involved in using these lines and he feels that we'll lose fliers if we allow such "specialty" items.

FAI isn't much of a problem, because two .016" wires are required. But, with two wires, AMA Class A would be flown on two .012" lines! (1/2A Speed is required to use .014" on single line!) We would be on .018" in C, while we now fly B Speed on .024" single wire! So, before you think that a "Big Brother" is trying to shoot you down, look at the total problem. If the lines are allowed, be on your toes around the Rat and Goodyear circles when these cats with their 150 mph Rats pop full down to shut off.

With the present line sizes specified, grouper flying is not safe with the expected increase in speed (15-20 mph). (At this writing the CLCB is running tests and will soon have some results available for their decision.) Please note that FAI would not be involved in any ban, should the CLCB decision be to make them illegal.

Using "funny lines" got Allan Hodgkins the best place of our U.S. team in Czechoslovakia.

Rutherford/*(Continued from page 77)*

is No. 1 to me and to this column. So let's get started.

Miniature Aircraft Combat Association: MACA looks to be the hottest thing to hit Combat since long booms and honkin' engines. After a slow start in '73, MACA came on strong in '74. In May, the first newsletter

Howard Rush's Nemesis II (August, 1972, AAM) is still a consistent combat winner.

was mailed out, and they have been coming through every month. *(Continued page 118)*

SCHWEIZER AWARD
(Continued from page 18)

will be inscribed on the trophy base, and in years to come will be joined by the names of future recipients.

Don will retain possession of the trophy for a full year, when it will be presented to the next recipient at the 1975 Harris Hill Invitational RC Soaring Meet.

When **AAM** asked Don how he felt about receiving the award, he said:

"Quite honored and pleased, of course. I guess I really don't know why they gave it to me. . .there are probably a lot of other people who are equally deserving of the award.

"I think that the involvement of Schweizer Aviation can only contribute to the betterment of model sailplanes. We modelers have long looked to them not only for designs to miniaturize, but as a company whose technology has had a great impact on our thinking.

"It's also quite a compliment to the Harris Hill gang that they've come up with an award of this nature.

"Yes, I'm very honored, indeed."

QUIET BIRDMEN
(Continued from page 57)

Lipetsk. Because it was no longer needed, it was officially closed in October, 1933. Also, by that January day, contingency plans established by the pre-Hitlerian German Army could count on 550 pilots ready for active service. Behind them stood a nucleus of ground crew, observers, navigators, bombardiers, administrators, meteorologists, armorers, shop and maintenance workers. And aircraft manufacturing was about to burst its tethers.

Yet, under "Germany" in the 1922 Armaments Yearbook of the League of Nations, all the entries are still showing zero, zero, zero.[8]

The pretense is about to end.

REFERENCES

(1) Walter C. Langsam, Ph.D., *The World Since 1914* (New York: The MacMillan Co., 1948).

(2) William L. Shirer, *The Rise and Fall of The Third Reich* (New York: Simon and Schuster, 1960).

(3) Hanfried Schliephake. *The Birth of the Luftwaffe* (London: Ian Allan.

(Continued on page 122)

Rutherford/*(Continued from page 117)*

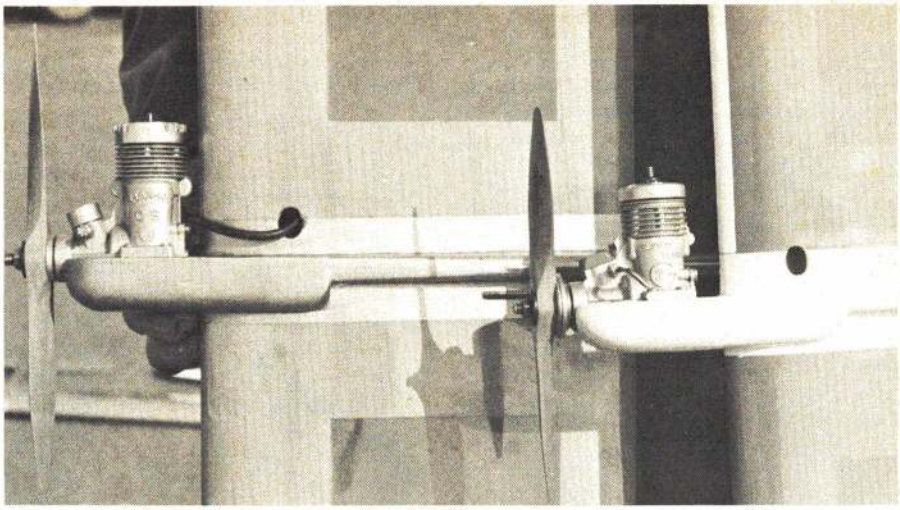
The NATS issue (Vol. 1, No. 5) is outstanding, and it would be worth your while to get a copy of it from one of your on-the-ball friends who already belongs to MACA. Tom Southern and Bill (Moose) Allen are the ones responsible for the newsletter, and they are doing a good job of it.

It is about time that Combat fliers had their own organization, and MACA looks as if it can do the job. MACA members have already run Combat at the '73 and '74 NATS. Future programs include selecting a "Killer of the Year" from the nation's Combat fliers, formation of a Combat Advisory Committee to the Control Line Contest Board, selection of an FAI Combat Team to represent the U.S. in a future CL World Championships, and more.

To pick up on all that is happening in Combat, why don't you join MACA? For four bucks, you can't beat it. The newsletters alone are worth more than that. To join, send check or money order for $4.00 to Tom Southern, 2207 Paul, Longview, Tex. 75601.

The New Fox Combat Special: Will it honk, or will it go beep-beep?

As of this writing, the Combat Special is due (overdue, actually) and hopefully will be a good motor. Using a Fox engine in Combat has advantages. The engines are light, easier to find when you need a new engine, and parts aren't hard to come by. By now I am sure that everybody is tired of begging and/or stealing ST 35s and parts for them. It is ridiculous to not even be able to get crankshafts for the Tigres, expecially when that is the weak point of the engine.



Detail of the business end of DeLaney's FAI Challenger IV (right) and AMA version.

In fact, the problem with parts is so bad with the Tigres that I have stuck it out by using only Fox engines. I don't even own a G-21 Tigre! At contests this means that I am usually one of the few running a Fox engine, and occasionally (not as often as you might think) I am down on top speed. But an elbow in the ribs does wonders for offsetting any speed advantage that an opponent may have!

Even if the Combat Special is only the equal of a good Tigre, it should prove to be very popular due to the previously mentioned advantages of light weight and availability. They should be easily obtainable as Duke Fox is supposed to be making 5,000 engines on the first run. The 5,000 figure is only second-hand information, but feel free to quote it as fact!

As soon as possible this column will deal with the new Fox engine. If it honks, we'll tell you how loud. If it blows on the first run, we'll tell you that, too.

What is ahead: In future columns we will be getting into anything and everything concerning Combat: Rules proposals, building techniques, flying tactics, motor rework, new covering materials, and anything else that you suggest or I can dream up.

To make this column interesting, I need to hear from as many of you Combat Freaks as

(Continued on page 124)

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SPECIAL HELP FOR YOUTH MEMBERS: Membership fee, with full competition privileges, eligibility for AMA scholarships, only $3.00 for either Juniors (up to 15) or Seniors (15 thru 18). (Does not include magazine subscription or AMA section reprint.)

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LIABILITY PROTECTION is included with all AMA memberships. Bought separately, this protection would cost more than the adult AMA membership fee. Coverage is for $1,000,000!

SPECIAL OFFER COUPONS. Many free and reduced rate offers from model industry firms included with all AMA memberships; some items are completely free with the AMA coupon—others require some amount of money plus the AMA coupon to obtain the sample product. Altogether, use of the coupons represents many dollars in savings.

SUPER DECAL SHEETS—a big 9" x 12" sheet contains AMA wings and FAI emblems in many sizes; another 7½" x 9" vinyl self-stick decal contains an attractive bumper sticker and also the official AMA Safety Code.

COMPETITION PRIVILEGES. All AMA members are licensed to enter the National Model Airplane Championships and all other non-restricted meets (over 500 each year—fun-flys, local, state and regional meets, and record trials); to establish national and international records; to compete on U.S. teams in World Championships (two or three held per year).

***THE ACADEMY OF MODEL AERONAUTICS**—a non-profit organization, organized in 1936, guided by regional officers elected from among the membership. National headquarters is in Washington, D.C. AMA members have privileges in other organizations: National Miniature Pylon Racing Association (NMPRA) open only to AMA members. Membership in the National Free Flight Society (NFFS) is $1.00 less to AMA members. All AMA members are automatically part of the National Aeronautic Association (NAA) and the Federation Aeronautique Internationale (FAI); may become voting members of NAA—with other special benefits—for half price, and may obtain an FAI sporting license for international competition.

Join now and receive AMA benefits, including $1,000,000 liability protection, for all of 1975 **plus** the remainder of 1974.

Pay only the 1975 dues for this bonus.

Subscriptions included with memberships (American **Aircraft Modeler** Magazine or reprint of the 8-page "AMA News" section) start with the issue distributed during January 1975 (dated March) when the application is received before December 13.

USE THE ADJACENT CARD NOW
TO ENJOY THESE BENEFITS AS SOON AS POSSIBLE

BIRDMEN/*(Cont. from 117)*

Ltd., 1971). I am also indebted to Mr. Schliephake for correspondence and the photos accompanying this article.

(4) On May 8, 1919 (the day after the Treaty of Versailles was published), Hermann Goering (a Fokker "salesman") flew a one-way ferry job (D. VII) to Sweden, where the climate was more amiable. Adolf Hitler (whom Goering didn't meet until 1921) remained with his regiment until April 1, 1920. After the war it was Hitler's job to ferret out the politically "dangerous" from within the ranks. Contrary to its own tradition, the German Army was now deeply political itself.

(5) *Fokker Vliegtuigenfabriek*, 1919-1929. (House organ.)

(6) In January, 1921, even as Russia's Red and White Air Forces faced the business ends of one another's gun barrels, the country's internal strife had stabilized to the point where Soviet Leader Lenin ordered a commission to begin a 10-year program of national aeronautic development. Both WWI and the Russian Revolution had so denuded the country of the necessary technicians that until native talent could be developed, it had to swallow its pride and rely on outside help—even German.

(7) Karl Ries, *Die Maulwurfe, 1919-1935* (Germany: Verlag Dieter Hoffman, 1970).

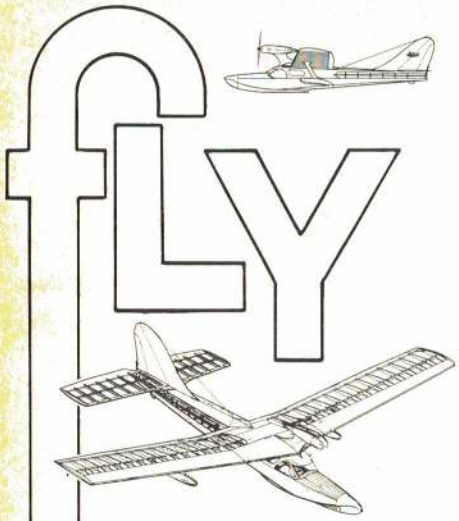
(8) Sidney B. Fay, Ph.D. "The Iron Ring Around Germany," *The World Today* (Vol. I, No. 3), February, 1934.

KRAINOCK

(Continued from page 84)

stopped the cars and watched with heavy hearts as the P.D. descended for an apparently imminent landing.

(Continued on page 125)



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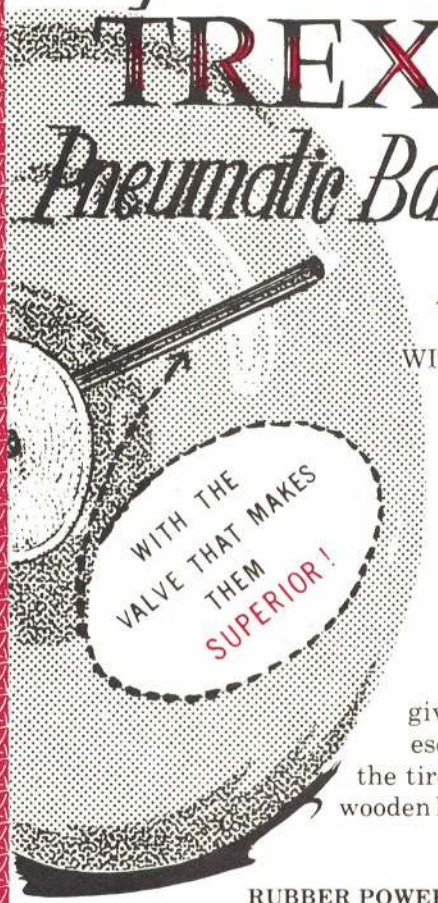

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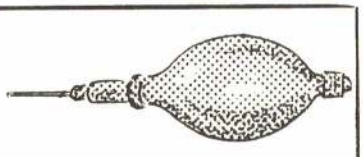

TREXLER BALLOON WHEEL COMPANY
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Rutherford/*(Continued from page 118)*

possible. Newsletters are especially welcome, as they generally reflect the attitudes and practices of fliers in their respective parts of the country. Pictures for use in the column are also welcome, as are building tips, contest results, suggestions to improve this column and obscene mail (? *php*).

To make contributing a little more attractive to you, **AAM** pays $5.00 for each picture or suggestion that is used in this column. This offer is not extended to purveyors of obscene mail, incidentally. So, if there is something on your mind that concerns Combat, or you just want to see your dirty little face in a world-wide magazine (and get paid for it to boot), then send your material to Dirty Dan, c/o **AAM**.

Maroney/*(Continued from page 69)*

Rosemary works part time in one of the local high schools as a teaching assistant. Her boss, head of the Science Department, is also a model builder and she informed us that he had built the plane for her. You perhaps may have heard of her boss. He has, at times, held the unofficial World's Indoor Microfilm Duration Record, represented the United States twice as a member of our international Indoor Team, and flies regularly indoor and Wakefield with the San Diego Orbiteers. His name is Clarence Mather. It was fun to know you'd been had. Oh, well, we can look forward to next year. Rosemary indicated to us that she has retired from further indoor competition.

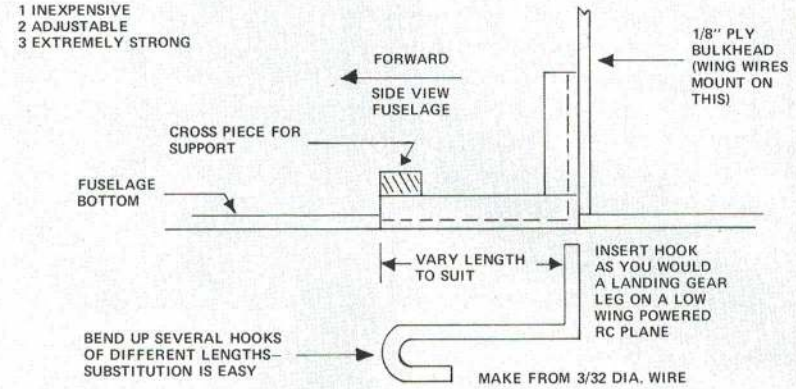
LANDING GEAR MOUNT TOW HOOK INSTALLATION

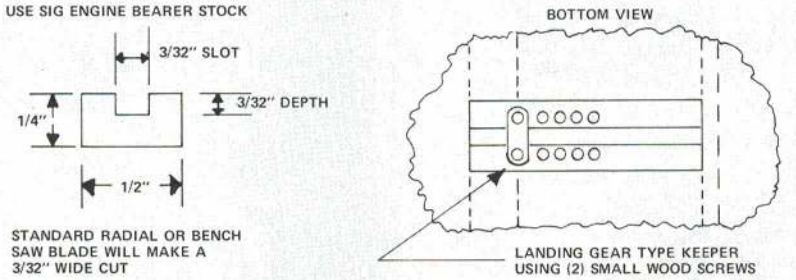
USES PRINCIPLE OF SLOTTED TRUNION BLOCK AS EMPLOYED ON LOW WING RC MODEL MAIN LANDING GEAR MOUNTS

BY BOB ABERLE

FEATURES

1 INEXPENSIVE
2 ADJUSTABLE
3 EXTREMELY STRONG





KRAINOCK/*(Cont. from 122)*

Jerry was just about to cross the telephone wires at about 50 ft. when a slight breeze came up. As soon as Jerry felt it, he began circling. The first two circles were zero sink but after that he started to climb. It wasn't long before he was back up to where it was safe to continue. Since I was driving, I couldn't watch the model, except for an occasional peek out the side window while nervously watching the odometer, and from time to time asking about the estimated altitude. When the odometer indicated we had only three more miles to go and were at 1500 ft., I began to think we might make it.

I told Jerry that we had gone 20 miles and had just passed 70th St., and Jerry remarked "Good, we only have six more miles to go." Something, obviously, was wrong, but as long as we were still up and making good progress, I didn't dwell on it. Shortly afterward, I told Jerry that I could see the freeway about a mile and a half away. He told me that when we got to the top of the ramp that crosses the freeway, we would be able to see the end of the road which was our destination.

When we came within a half-mile of the freeway, I uncrossed my fingers, and for the first time in all of my trips, allowed myself to believe that we were going to make it. We crossed the freeway with about 800 ft. of altitude, and the end of the road looked to be about a mile away. . .we had it made! It just remained to find a soft spot to put the bird down.

As it happened, all of the nearby fields were full of bushes, so Jerry did his thing and landed on the side of the road in the dirt next to telephone poles and between railroad tracks. When I told him that my odometer read 26+ miles, Jerry had figured 23. We did a recheck of the map, and it came out close to 26.2 miles (later verified as 27.2 miles). No one had remembered the champagne, so we broke open a six-pack of Squirt and toasted our victory.

Getting back to the question of "why?", the first reason has to do with the airfoil section used on the Rubber Duckie. Its speed range and the stability, plus a relatively low sink rate so impressed Jerry that he was sure the section, if used on a cross-county ship, would provide the right combination to do the job. He persuaded Bill Watson to cut some constant chord foam cores which went with a standard set of Duckie cores to make up a 10 ft. polyhedral wing.

Combined with the fuselage of a Pierce 970, the design looked good from the start, but later tests indicated it was lacking in climb ability. This was borne out when, in one session, Bill Nibley used his Pierce 970 to scout the area for lift before Jerry launched. Bill would find it and Jerry would launch, trying to climb out to where Bill's ship was. Well, it couldn't get up there. At first it was thought that the extra weight was holding it down, but after Jerry and Bill Watson talked it over, they concluded that the ship was being flown with the CG too far forward (38%).

On the Sunday preceding the record attempt, Jerry took two oz. out of the nose to move the CG back to 46%. They were right. It made a big difference. When flown against Rick Pearson flying Dave Peltz's Grand Espirit, it was only slightly poorer in thermal climb than the Grand Esprit. We all agreed that the climb ability was now excellent. Having watched the development from the beginning, including all of the recent record attempts, I would judge the model, in the hands of a good flier, to be as good as anything presently in the air . . .when all the performance parameters are considered.

Reason Two. Jerry had heard a rumor that someone in Texas or Arizona had broken his record of 18.4 miles. Although a call to the AMA revealed that his record was still intact, Jerry probably figured that the distance was not great enough and was bound to be bro-

ken. Decision—why shouldn't he be the one to break the record?

It is my feeling that it took a combination of a good model, a good flier, and exceptional conditions to do the 27.2 miles. That record is going to be hard to beat. However, I know that Jerry is still bothered by the thought that there may be a thermal street 35 miles long somewhere in Texas. Also, I understand that he is now studying maps for a possible *50-mile* run. Ugh!!!

SOARING RECORDS

(Continued from page 85)

and, hence, a better chance of completing the course. In practice, it doesn't work out that way. When the lift quits, the thermal search begins—and the thermal could be anywhere. A fast-flying sailplane can explore three-to-four times more area than a floater—especially if some upwind or crosswind flying is required.

The second most important design consideration is stability. It is extremely important to be stable around the pitching axis. When your airplane hits turbulence at 3500 ft. and starts into a series of stalls, you have to be able to stabilize it quickly and easily. I would recommend long tail moments, large stabs, forward CGs, and a moderate-sized elevator with minimum deflection.

It is my practice to adjust the airplane to fly in a shallow dive with full down trim. In lift, full up trim and slight back stick are needed to climb at the maximum rate.

Polyhedral is also necessary for the same stability requirements. In practice, you have to be able to fly the airplane rudder only, and polyhedral has to be the best way to do it.

If you feel you need help in laying out a record ship, you can refer to articles in *RCM* by Preston Estep, Jr.; in AAM by Harley Michaleus; in *Model Builder* by Le Gray; and in *Flying Models* by Maynard Hill, for the basic parameters of glider design.

The Grand Esprit is a suitable kit, although a bit small. If an Olympic were scaled up, with a flat-bottom airfoil and sturdier construction, it would probably be satisfactory.

Last year, I flew my 11-ft. Pathfinder I, a J&P products Kestral at 10.5 lb., and an Astro Flight ASW 17, with which I did 18.5 miles. The ASW was lost overhead for about 10 min. on that flight, but was brought back into view after being put into a prolonged spin.

One further word on design: You don't have to have a super airplane, but it does have to be visible. When a glider is up high, wing chord is what shows, not span—so keep your aspect ratio under 15.

This also brings up the importance of color. Orange is excellent, as is any color that shows black at a distance. My personal preferences are metallic blue and red. At altitude, they show black and, when I'm low enough to tell the red from the blue, I start looking for lift in earnest. Don't use pastels, as they seem to fade out in almost any off-color sky.

So now you have an airplane and are ready to go out and fly for a record. What's next?

You need a crew of AMA members and one or two cars. If one of them also happens to be a full-sized glider pilot, it doesn't hurt a bit.

I like to fly from the trunk of a full-sized sedan, lying down, with the trunk lid removed. It makes for excellent visibility. You should have someone else back there with you to relay directions. The driver and another observer can watch for clouds, burned fields, dust devils, and other signs of lift, and in general tell you where to fly. Remember, your bird is at 4000 ft. and you don't want to spend too much time looking away from it.

You will need to find a suitable course to fly. Ideally, the course should have a long, lightly traveled road that is parallel to, or at right angles to, the prevailing wind. The average wind velocity should never exceed 10 mph and, of course, the lift conditions should be good for the length of the run. Flying upwind continuously or over downtown New York City is considered bad form. If the terrain along the road consists of a series of rock quarries, selection of a different course would be prudent.

When you are flying down the course, don't stop to look for lift. Keep going until you find it. Go into a search pattern if you have to. The place you stop is probably the place you will land, unless you have already encountered lift.

If you have another couple of friends in another car with walkie-talkies, trailing at about a half-mile, they often can tell whether you are climbing, or in sink, when you can't tell yourself.

Of course, another obvious question that comes to mind right now is: How did I get this thing off the gound in the first place? Winches are okay, but they are cumbersome, heavy and not always reliable. Try a "hi-start hard-tow." Fifty feet of 3/8" surgical tubing, with 350 ft. of 180-lb. test cord—and one of your

fast buddies running—will tow you up to 380-400 ft. This method has been successful even with an 11-lb. airplane with a 21-oz. wing loading. Out here in the West, we usually have no trouble finding lift at that altitude.

The FAI will accept maps with scales up to 1:100,000 for short flights, but topographical maps like that are not readily available. A series of maps in a scale of 1:24,000, taped together, will serve a few valuable purposes.

First, you can declare your starting point and goal with excellent accuracy. Secondly, the features shown on the maps are excellent references to use in your flight log. Third, you can use the maps for planning the flight—to mark areas where there may be lift caused by a geographical feature; or to show places where you have encountered lift or sink in the past.

If there is a local, full-sized soaring operation, contact them to see if you can find someone who knows enough meteorology to be able to predict to you in advance the soaring conditions. Nothing is quite so frustrating as to drive 40 miles and then be blown out.

And now for the good part—the paperwork. If you go through all the hassle of building the airplane, assembling a crew, and doing a 30-mile hop, but fail to file the paperwork, your whole effort has gone down the drain.

Start out by obtaining your sanctions and FAI stamp from AMA headquarters, along with an FAI rule book. Read those parts of the rule book pertaining to world records, and make sure you follow them.

A recognized scientific body has to measure your distance and pick off latitude and longitude. Go to your nearest college or university and visit the geography department. With any luck, they will have a cartography lab and, if you sweet-talk the head of the department, you'll have no trouble getting a letter on their stationery, certifying your claim.

Have your CD keep an accurate log of the flight, draw your scale three-view, do a brief description (and I mean *terse*!) of the flight, and the rest of the dossier. Add your $20 filing fee (in my club, if your claim is certified, the club treasury picks this up) and your dossier is sent off to Washington. If all goes well, in two months you're the first on the block with a certificate from Paris,

saying you went higher, faster or farther than anyone else. Your friends will love it!

There you are. It really is easy. If you're going to spend the next year flying anyway, give yourself a new challenge for the next season. Pick a record you think you can break and get it on. When you make it, you'll feel a tremendous sense of achievement!

PHOTO CREDITS

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Johnnie Smith - Pages 77 (Left), 105, 117
Gordon Delaney - Pages 77 (Right) 117, 118
Terry Smith - Pages 84, 85

Poling/*(Continued from page 83)*

heavier, but if you are a careful builder, the observer will not see the difference in flight. You will have to use energy management, diving before vertical maneuvers, just as real airplanes do.

Question: How should the correct propeller be selected for a particular aircraft?

Answer: Start with the recommended prop for the motor. Use a 5½ x 4 for the Pup, a 7 x 5 for the 10, and a 9 x 7 for the 25. To increase endurance, reduce the pitch or diameter. For large planes with a low wing loading, reduce the pitch and increase the

Electrics are being used in RPV research. Dave Shadel ponders a tri-motored design.

diameter. For example, the Pup can swing a 6 x 3, the 10 a 7 x 4 or 8 x 3½, and the 25 a 10 x 5. Do not increase the diameter and reduce the pitch to increase static thrust because the plane is heavy. Use a prop that gives a safe flying speed (i.e., pitch x rpm gives the flying speed). A small prop can fly a heavy plane, as shown by the RPV built by Astro Flight for Northrop Corp. This plane weighed 25 lb. and flew on a pair of Astro 25s turning 8 x 8 Top Flite props at 12,000 rpm. The top speed was over 70 mph, and Bob Boucher did consecutive loops with it on several occasions.

Burkham/*(Continued from page 83)*

its nose down. (Not like Faye Peoples' ship did the other day—screwed itself into the ground inverted from 400 ft. up!) One way to avoid that situation is to have a horizontal stab of at least 1% of the rotor disc area back by the tail rotor. That insures the tail going slower than the rest of the fuselage on the way down.

Due to my recent Figure Nine maneuver, no more rigid rotor experiments will be performed on Square Tubie. Instead, a new tail rotor design is presented here to replace the one in which the pressed-in pins pulled out of the hub. This one is called a door hinge hub. The bending moments from the blades are taken mostly in shear in the pitch bearing pins, and the centrifugal force is taken in compression by the nylon or brass washers.

If desired, the blades can be turned around to make the hub rotate the other way. Then the pitch arms would trail the blades, as in the previous tail rotor (August, 1972, **AAM**). When the yaw servo pulls on the tail rotor control cable, pitch is increased as before.

Another suggestion for improving Square Tubie: Replace the Stock Drive Products No. 1C4-Y3216 mitre gears on the intermediate shaft and tail rotor takeoff with the next size larger, 1C4-Y3224. The smaller ones were found to have only about 15 min. of life left in them after the record flight. The tail rotor gear box is OK as is.

WCCHC: The West Coast Championship Helicopter Contest, held Sept. 22, was won by John Minasian, followed by John Simone Jr., Nate Rambo and John Gorham, all flying Kavan Jet Rangers. Fifth place went to Chris Spangenberg flying an original design with Du-Bro mechanics. The Novice Class had all Jet Rangers, and the first three places went to Bob Mearns, Ed Von Websky and John Simone Sr. Ernie Huber took a day off and won only Best-in-Scale with his Bell 212 rescue aircraft, fitted with Kavan mechanics. (I understand that the NATS at Lake Charles also was a "Kavan show.") None other than Charles Gilbert won best scratch-built with an original design.

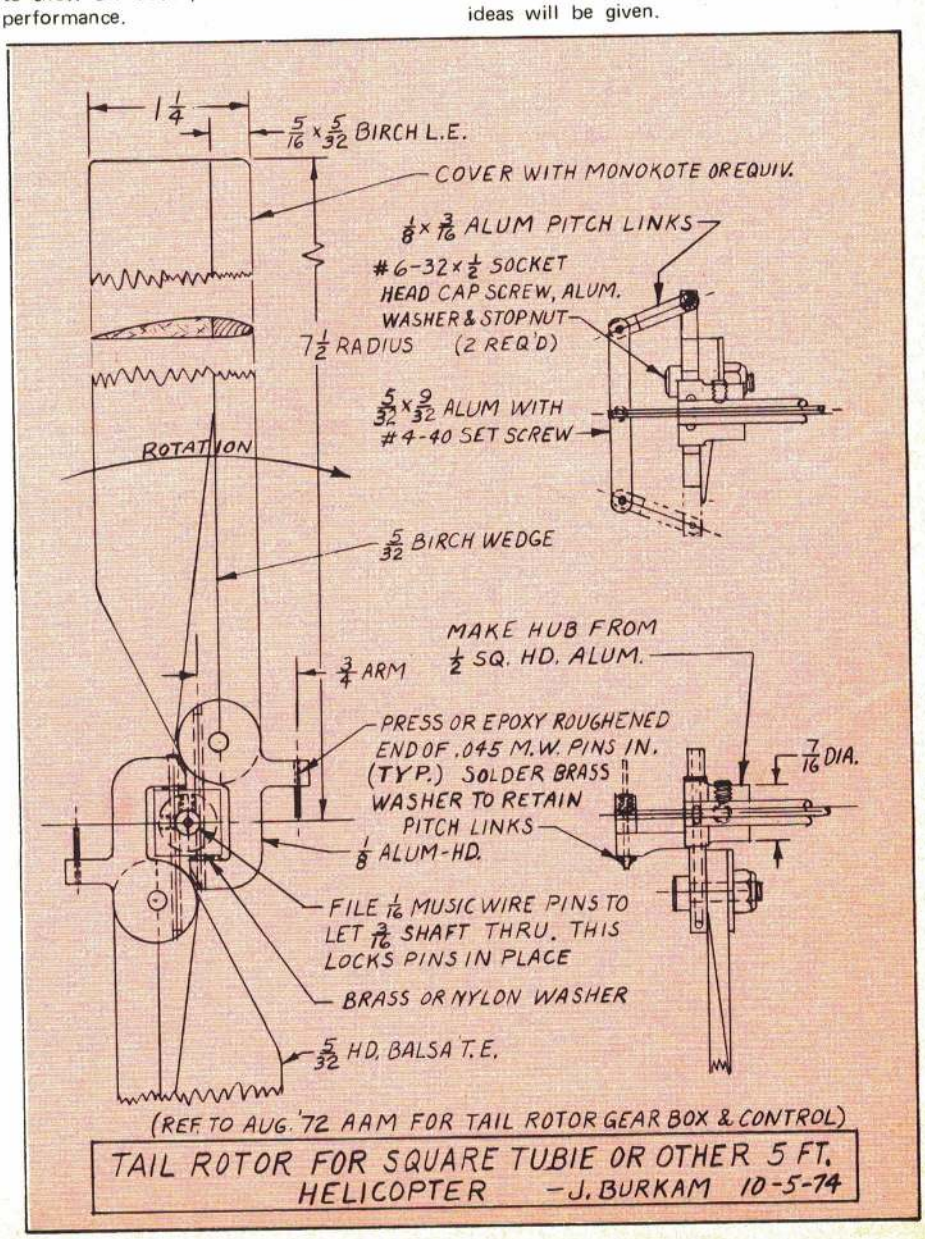
Maneuvers were a balanced diet of slow and fast, namely: (1) Hover; (2) Constant heading square; (3) Pick up hoop, carry it around pylon and return it to pick-up point; (4) A series of different kinds of takeoffs and forward flight maneuvers for experts only (180° turns downwind and upwind, cloverleaf, 360° pirouette, "Ag turns" or stall turns, quick stop, steep descent, etc.).

The past year has seen a delightful variety of maneuvers and events in the five or more helicopter contests held. The AMA Helicopter Advisory Council now should be able to start putting together their provisional rules. These should include both judged and timed events to show off both pilot skill and helicopter performance.

Ed Sweeney's Superbird modification to Du-Bro's Whirlybird 505 (AAM December, 1973) is still going strong. It uses a 19 engine.

Help wanted. Noted model helicopter designer desires partners to build and de-bug his latest designs for eventual publication in **AAM**. Drawings furnished free along with pieces of the harder-to-get materials, if needed, in exchange for clear pictures of the model and constructive criticism of the design, how easily it went together, how it flies and how it can be improved. Applicants should be experienced (not necessarily expert) model helicopter fliers and machinists.

New design ready for building is a 44" rotor, 19-powered aerobatic helicopter of similar construction to the Polecat by Dave Keats. Full credit for building, pictures and ideas will be given.



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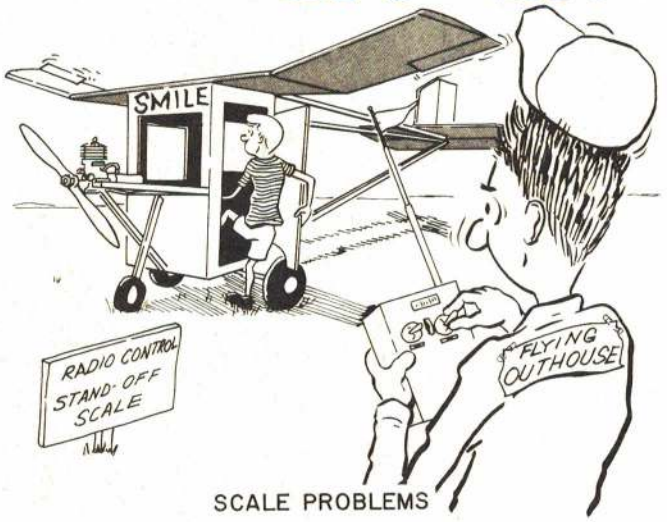
I certify that the statements made by me above are correct and complete.

(Signed) Harvey E. Cantrell
Business Manager

OFF THE SCENE

BILL BLAKE



SCALE PROBLEMS

AMBITION

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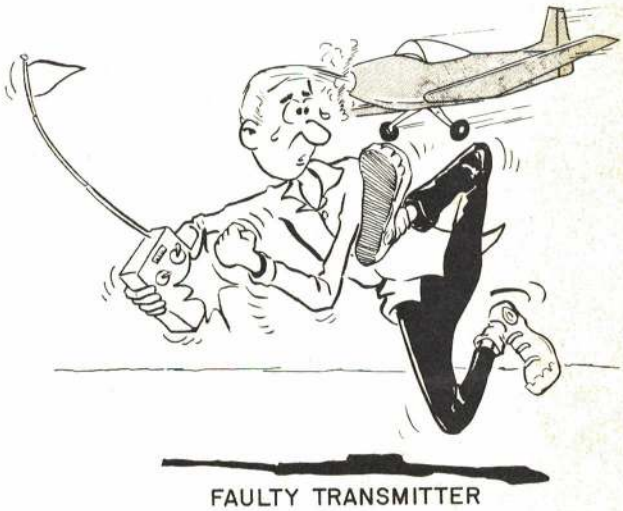

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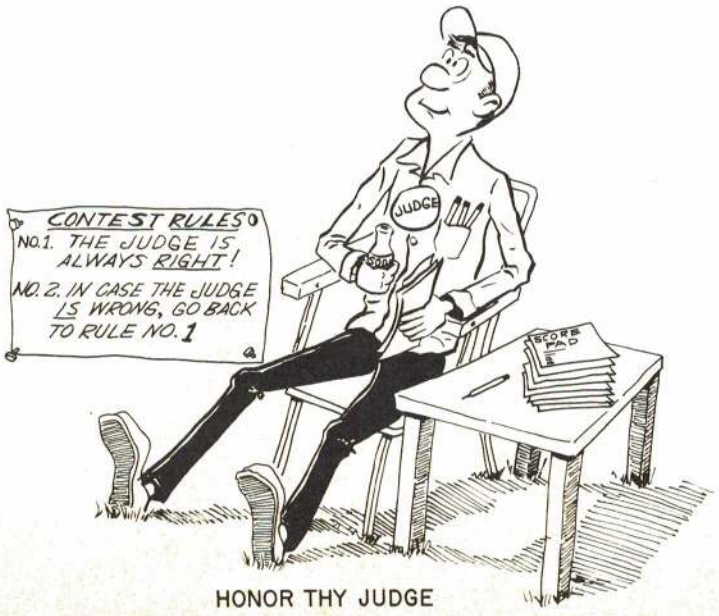
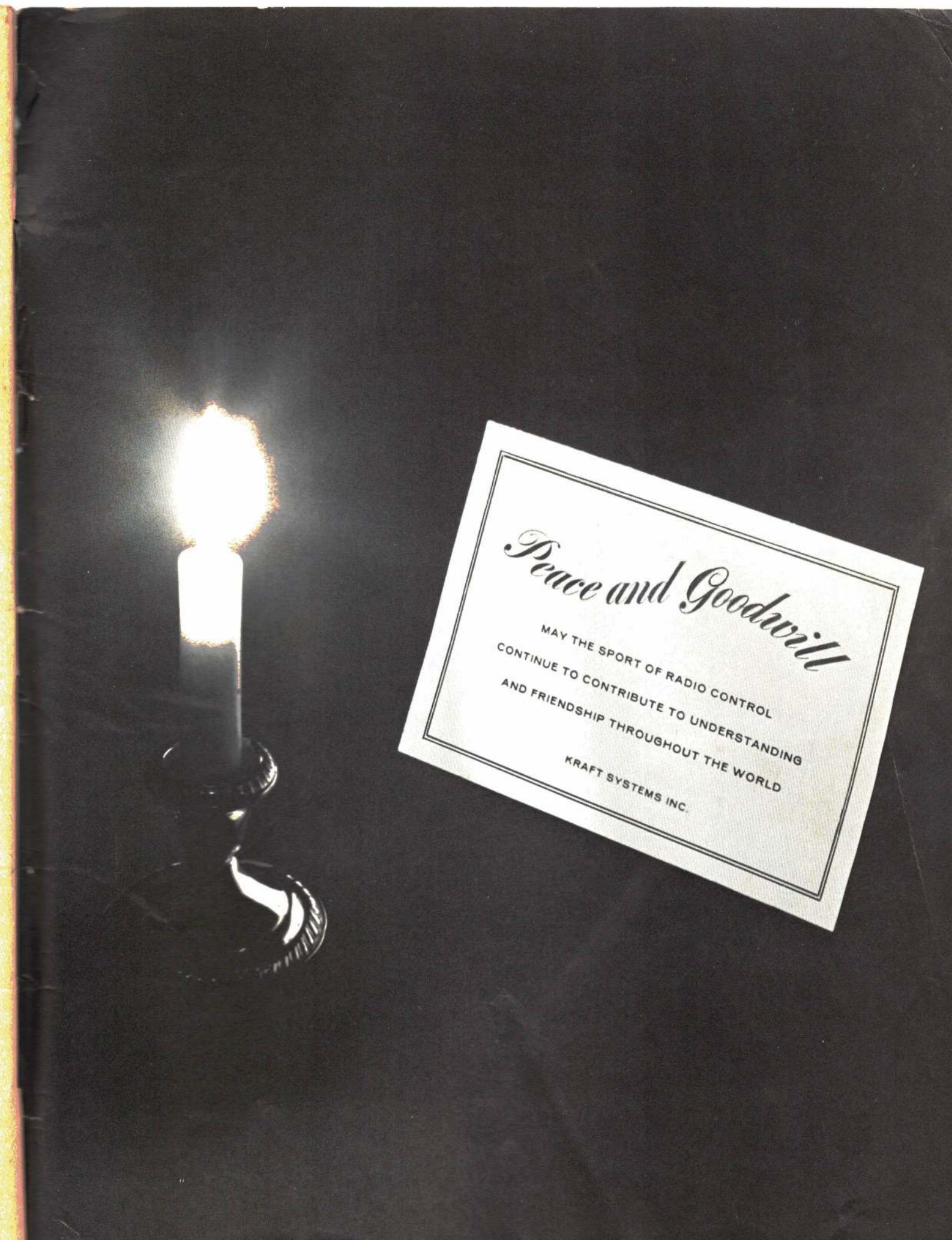


HONOR THY JUDGE

BROKEN 'UP' LINE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