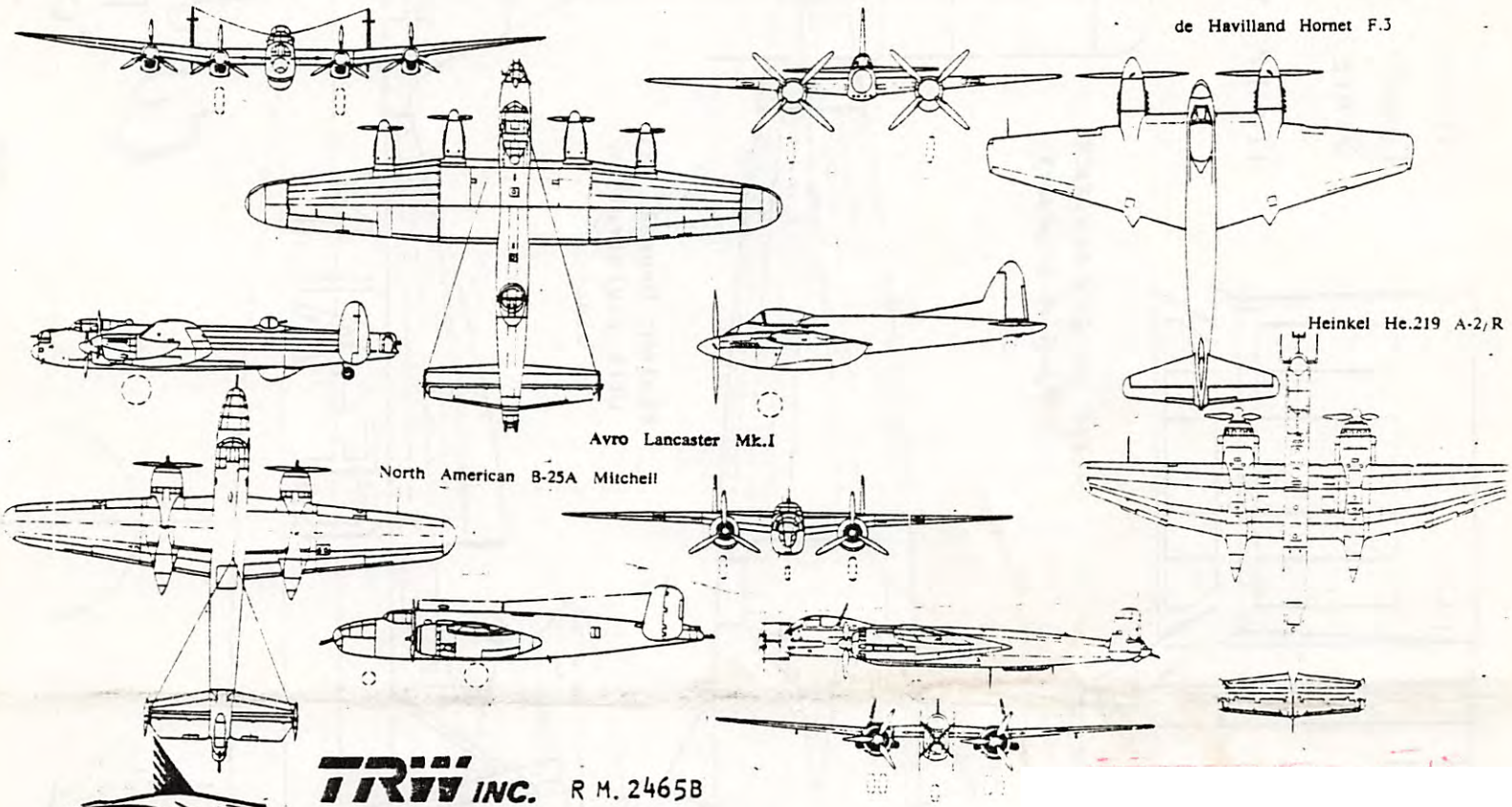
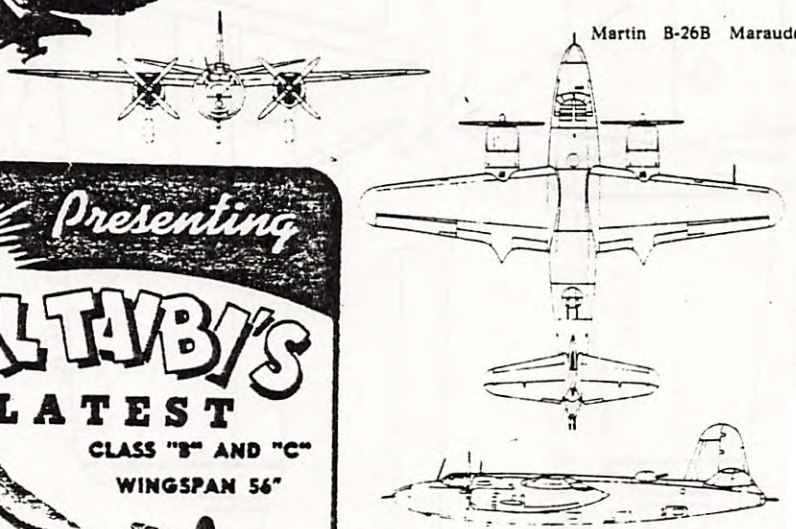
CROSSWINDS 72

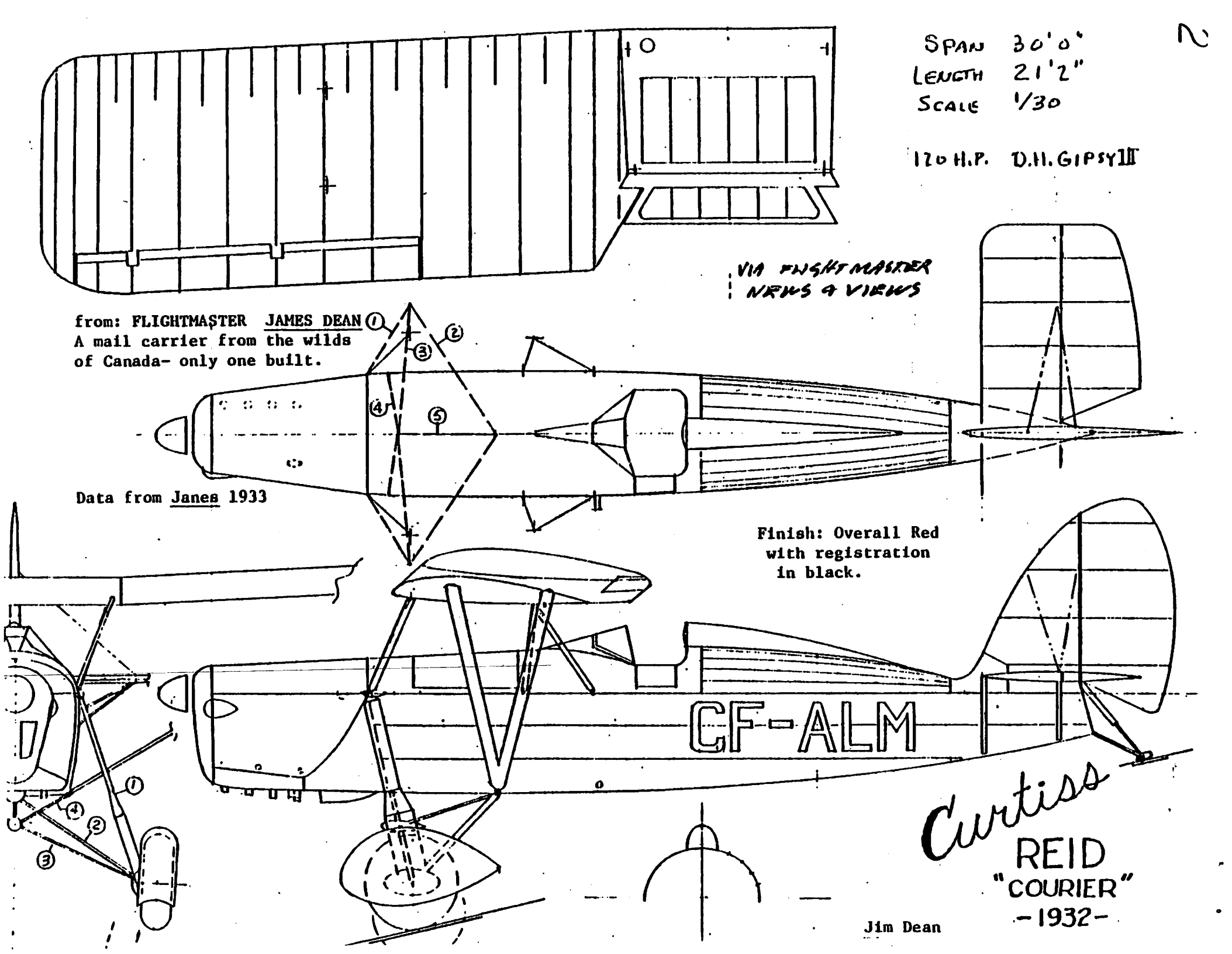


TRW INC. R M. 2465B
23555 EUCLID AVENUE • CLEVELAND, OHIO 44117





AIR TRAILS JAN, '42


SPAN 30'0"
LENGTH 21'2"
SCALE 1/30
120 H.P. D.H. GIPSY III
VIA FLIGHT MASTER NEWS & VIEWS
from: FLIGHTMASTER JAMES DEAN
A mail carrier from the wilds of Canada- only one built.
Data from Janes 1933
Finish: Overall Red with registration in black.
CF-ALM
Curtiss
REID
"COURIER"
-1932-
Jim Dean

CROSSWINDS QUARTERLY

THE JOURNAL OF THE CLEVELAND FREE FLIGHT SOCIETY

ISSUE NO. 72

EDITOR: MICHAEL C. ZAND
7055 Seven Hills Blvd.
Seven Hills, Ohio 44131
TEL. 216-524-3480

EDITORIAL COMMENT

Once again it is time to plan the CFFS Indoor contest. A few changes are in order, due mainly to the unavailability of city recreation centers, to outside groups on weekends. Hopefully this moratorium will be lifted in the future. In the interim this annual meet will be held on Sunday evening, February 17, 1985 at the Brook Park Armory. This site is only available to the club, either on Friday or Sunday evenings, and since the contest has been held previously on the day before the President's Day holiday, the contest will again be on this date. Other sites considered proved to be way out of line costwise. So it is back to the Brook Park Armory, and CFFS hopes that a lot of you will attend, despite the evening time frame.

The summer of '84 proved to be a very successful flying season. For the most part the weather co-operated, the only real dissappointment was the on site cancellation of the Canton Scale Meet, and the strong wind that deleted a lot of flying time at the first "Calm Air Meet." The glowing reports about the success of the FAC Nats really made me regret not attending this gala.

A new wrinkle to all of the CFFS contests was the increased CO2 power activity. There are some happy FAC'ers with new Brown engines received as prizes courtesy of the A.H. Zed Aircraft Co. and Jack Dietrick. Jack also supplied the club with a refillable 2½ lb. CO2 tank. By the way, there will be one CO2 engine prize for first place in Peanut Scale at February's CFFS Indoor contest. This , of course, only if the winner has not previously won an engine. There will also be other interesting prizes in all events.

In the last issue of Crosswinds I reported on my struggle to build a light indoor peanut DH-6. It is now complete, weighs just under 10 grams and is very detailed. Initial test flights look promising and I am eagerly aviating the chance to compete with it.

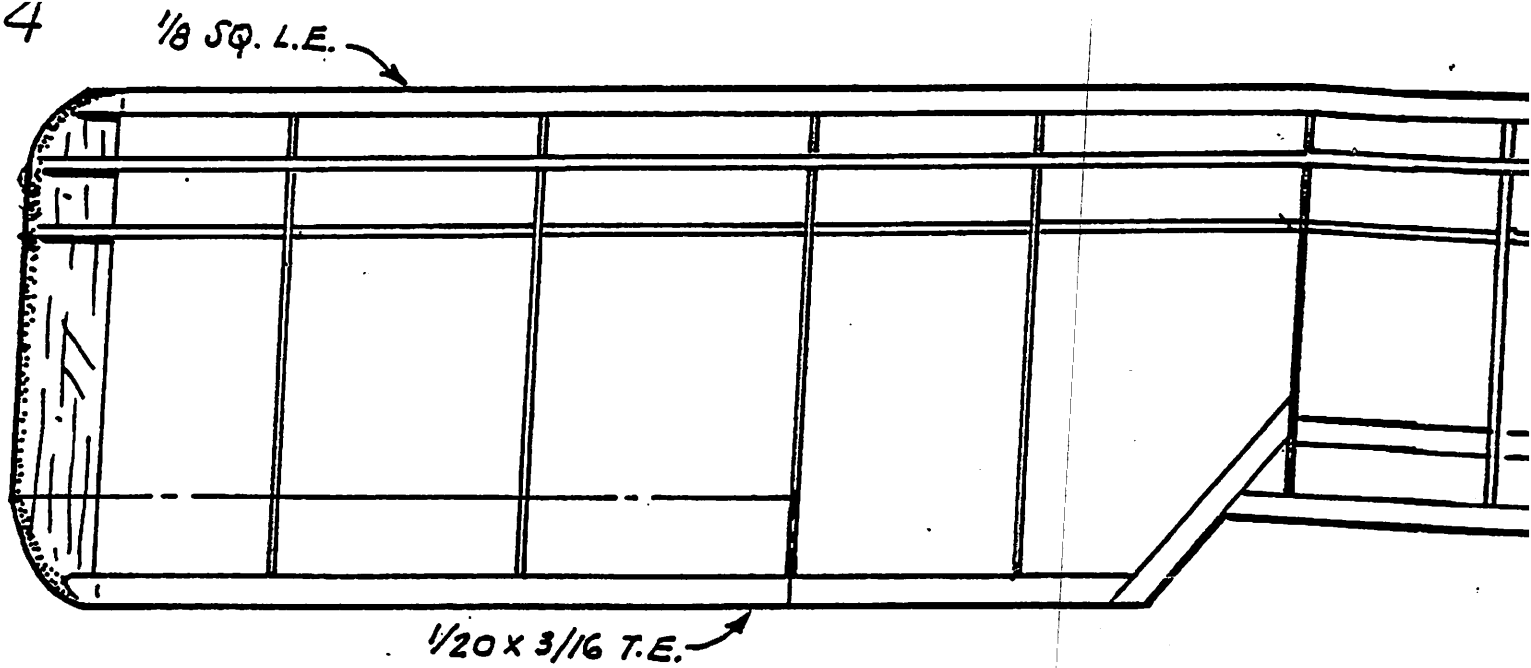
New projects for the winter include a 30" Rearwin Speedster, a Seaglen kit. Glen O'Rourk of Seaglen, plans to expand his line and is asking for suggestions for new models to be kitted. If you wish to write him the address is: Seaglen Model CO., Box 123, Plympton, Mass. 02367

Recently I received a plan catalog from Allen Hunt. Lots of offerings and the prices are most reasonable. Send $2.00 (refundable) for the list.
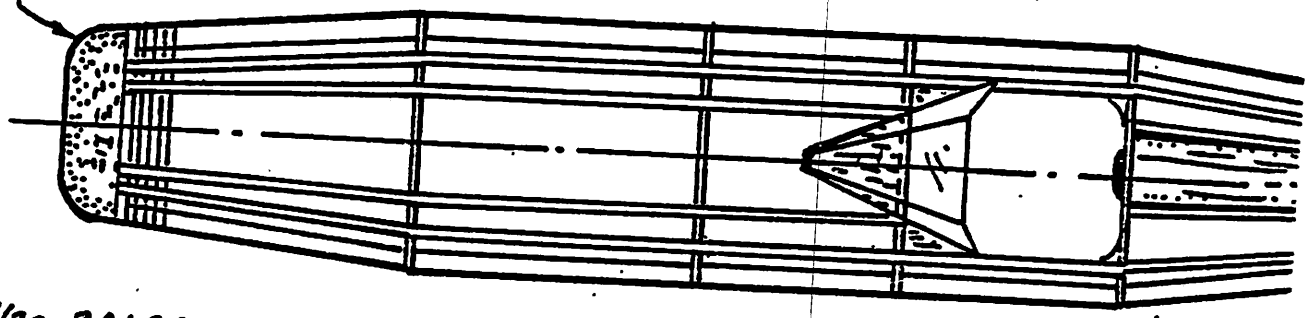
Allen Hunt Plan Service
Box 726
Dunbar, WV 25064

In this issue there is a reduction of the Stahl Spitfire, available from Allen Hunt. Allen has provided three vouchers for plans to be used as prizes

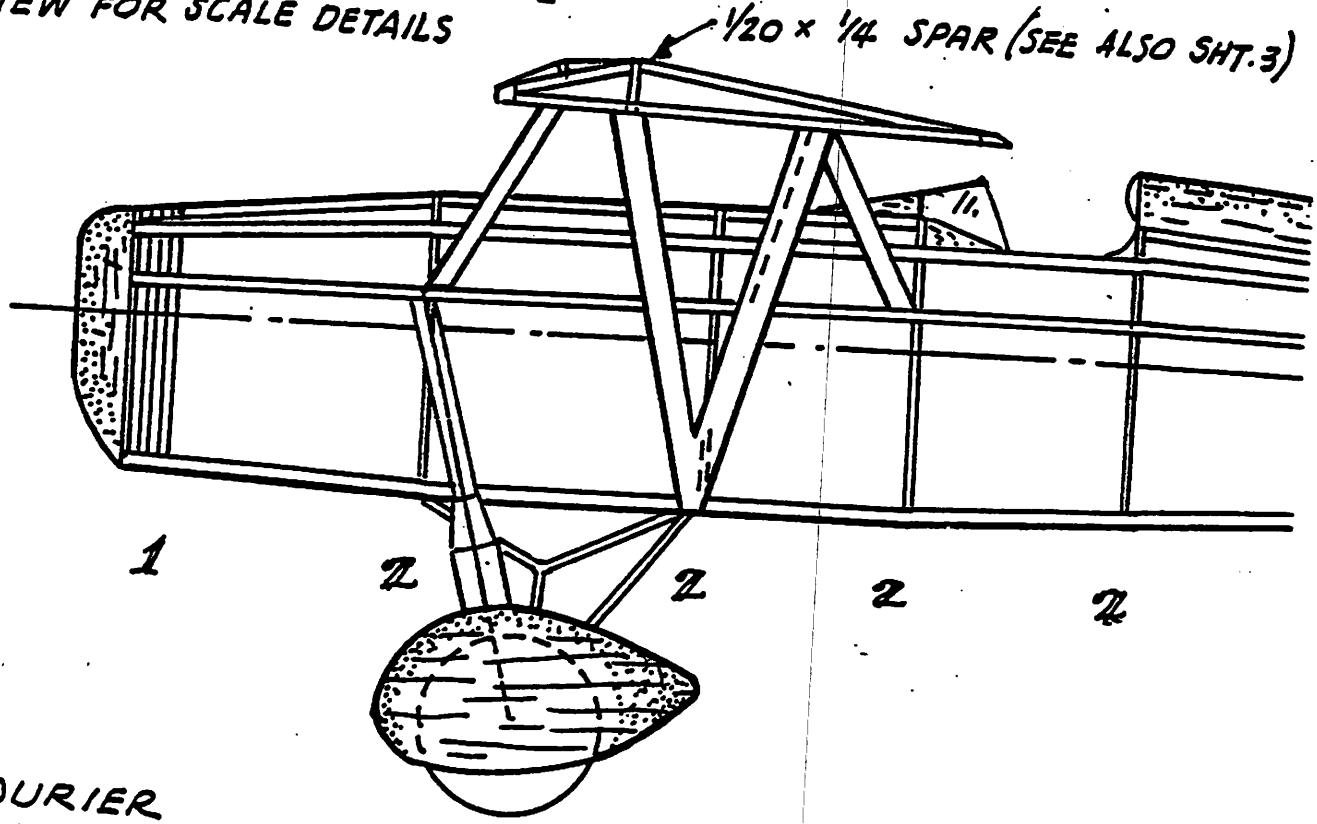
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INSERT KEY INTO FORMER 1 OF COMPLETED BODY BEFORE SANDING NOSEPLUG TO FINAL SHAPE



USE 1/20 BALSA EXCEPT AS NOTED
COVER WITH RED TISSUE ... SEE 3 VIEW FOR SCALE DETAILS



REID COURIER
SHEET 1 OF 3

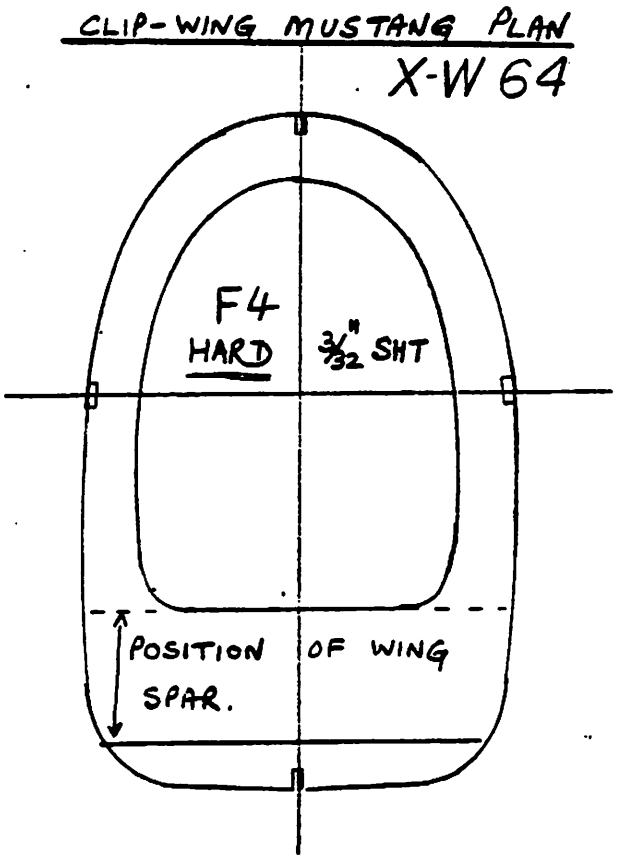
at the Indoor Contest in February. Currently I am looking at two jumbo models that are listed in the Hunt catalog, the Stahl Hurricane (enlarged to 37") and the Waco E at 30". I hope to be able to build the Waco this winter. At this size I think it a perfect jumbo subject.

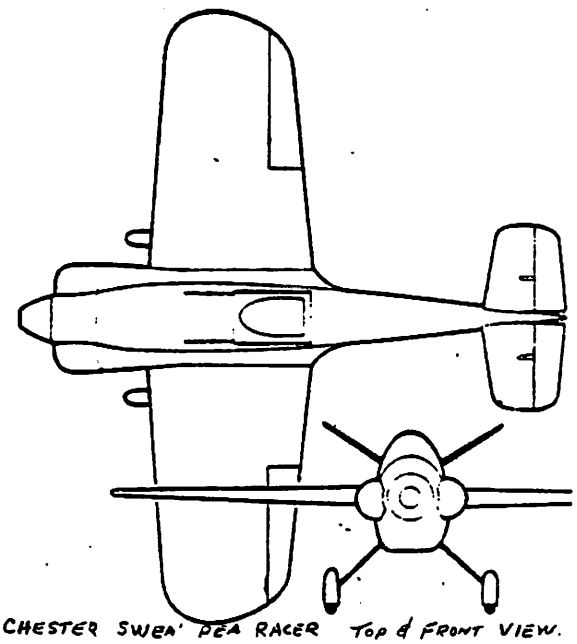
Included in this issue is the Reid Courier plan by Bob Howard of Canton, Ohio. Bob gave me the plan at Don Assel's contest in September. This was Don's first cancelled meet due to unfavorable conditions. However, the trip was most interesting as the Zand family visited the President McKinley Memorial. For history buffs and youngsters this is a worthwhile stop while in Canton, Ohio.

Hopefully a few more CO2 powered airplanes will appear next summer. There will be more engine prizes so it is well worth one's time to compete in these events. Also it is a pleasant change from rubber power. Along with free CO2 from the A.H. Zed tank, it is just to good an opportunity to overlook. As a bonus, Crosswinds includes a Minolta copier enlargement of the Brooklyn Dodger, a classic O.T. free flight readily adaptable for the CO2 O.T. Precision event. This airplane appeared as a construction article in the December 1971 A.A.M. Change the wood sizes, lighten the construction and extend the nose a bit to help the balance. The size presented might surprise you and appear a little large, but the Brown Co2 engines are powerful and since a 45 second engine run is about all you need for a time target flight of 50 seconds, this size should be about right. My modified Waco Coast Guard has a 25" wingspan and is not especially light and it flies over fifty seconds with power to spare on the MJ 70. So go to it. The Dodger is for all of you that enjoy building.

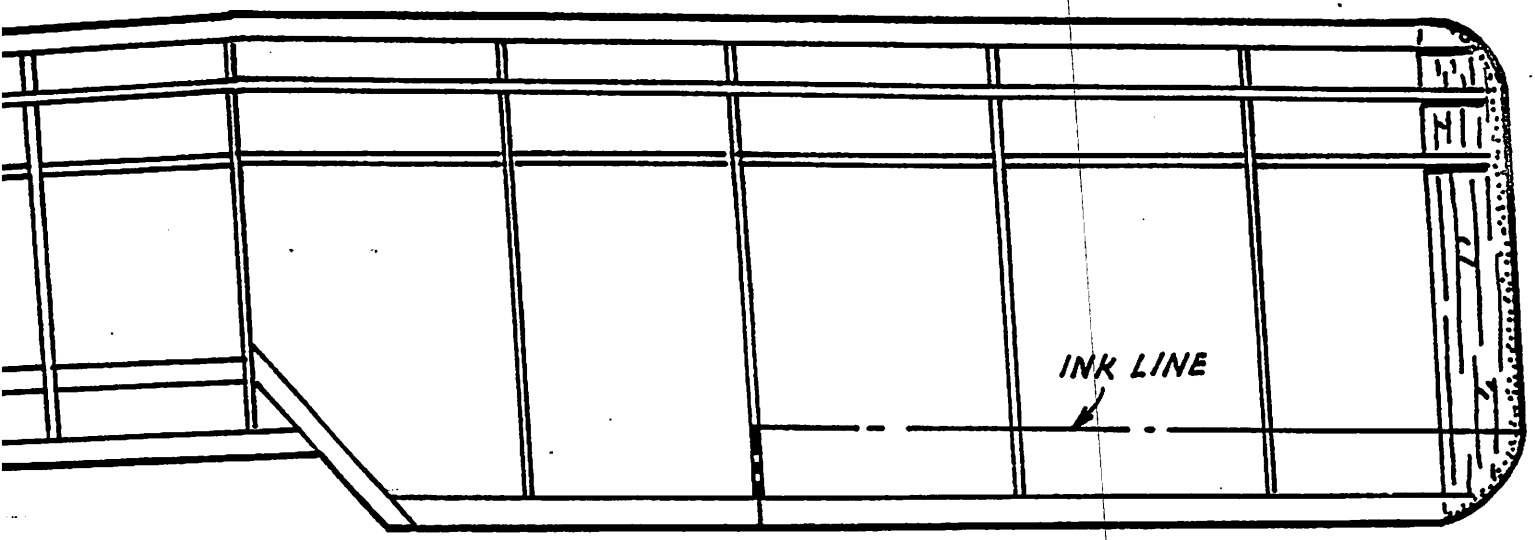
Please send me any items you'd like to see in my editions of Crosswinds. It will be most appreciated and if appropriate will be published.

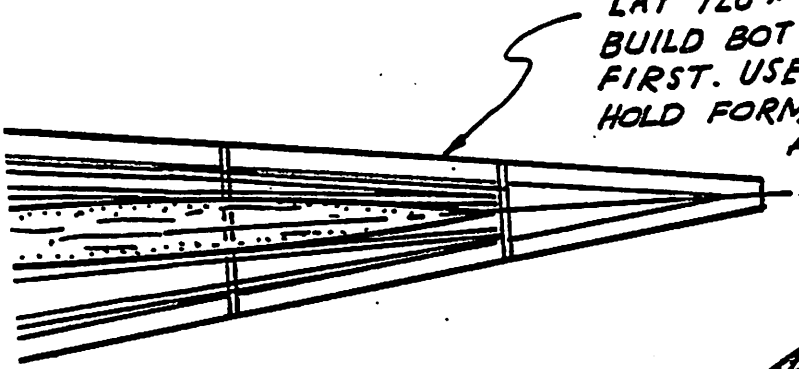
Michael C. Zand
October 1984



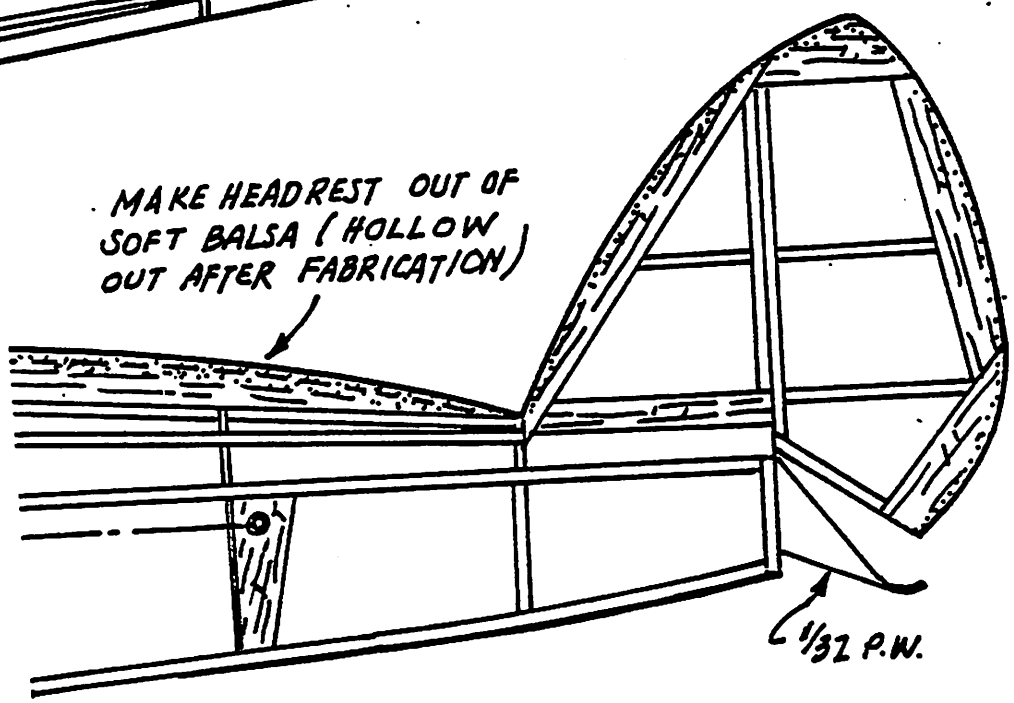


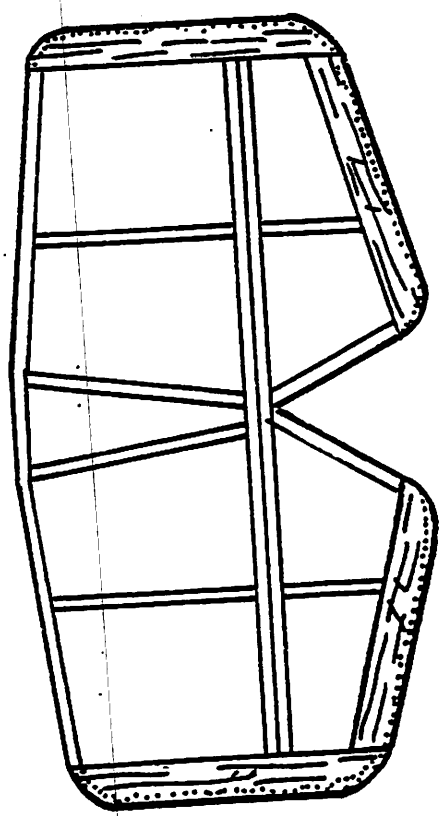
CHESTER SWEN' PEA RACER TOP & FRONT VIEW.
SIDE PROFILE AT FAC NAT'S IV NO CAL TABLE.





LAY 1/20 x 1/8 STICKS OVER PLAN BUILD BOTTOM HALF OF BODY FIRST. USE CENTER STRINGER TO HOLD FORMERS SQUARE AND THEN ADD OUTSIDE STRINGERS. TOP FORMERS AND STRINGERS ARE ADDED LAST.





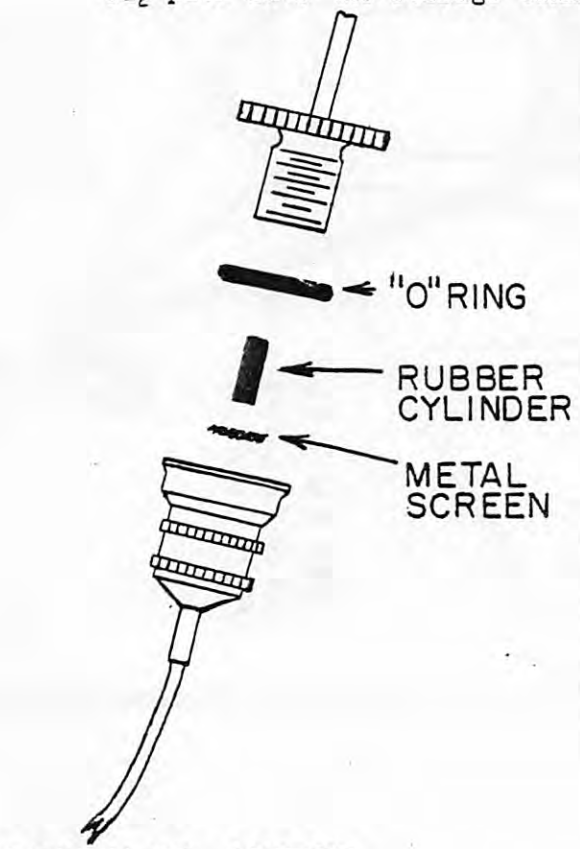
3 4

BOB HOWARD
JULY 1984

REID COURIER
SHEET 2 OF 3

TROUBLE SHOOTING THE BROWN CO_2 MOTOR

It is very important that you carefully reassemble the Brown CO_2 charging valve if you should ever need to take it apart. In particular, be sure to replace the small piece of porous metal or screen that is normally seated at the bottom of the filler housing. The purpose of this screen is to prevent the rubber cylinder (check valve) from closing the CO_2 path into the storage tank. If you should fail to replace this small piece of screen the check valve will likely prevent the CO_2 from entering into the storage tank. The normal purpose of this check valve is to prevent the escape of CO_2 back through the filler nozzle when the charger is removed.



BROWN CO_2 MOTOR FILLER VALVE

OTHER NEWS FROM BROWN JR. MOTORS

Bill Brown is currently planning a new CO_2 motor to be known as the P10. The P10 will have half the displacement of the current Brown peanut motor, the A23. This gives the P10 a 10 cu. mm or 1/100 cc displacement. The P10 will use a 2 cc tank and weigh about half as much as the A23. The P10 should be available in the spring of 1985.

Another item from the Brown Jr. Company will be a commercial CO_2 tank adaptor with a rubber hose. This will be a syphen-type device designed to give a liquid charge to the motor.

STEAMING BALSA FOR LAMINATIONS

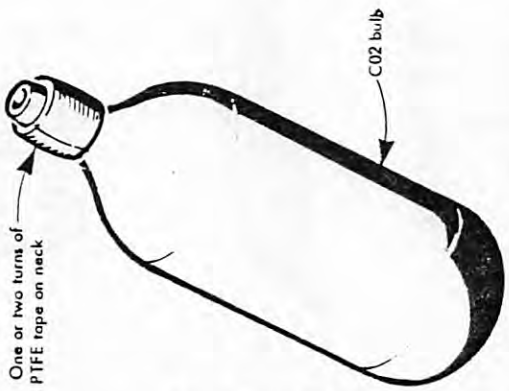
Here is another construction idea that may have some possibilities. Balsa normally needs to be soaked or steamed to make it more plyable to make laminated wingtips or body formers. Another way to soften the balsa may be to soak the balsa in water for a short time, and then cook it in a microwave oven. The idea is that the microwaves will quickly steam out the water throughout the balsa wood. It may be necessary to repeat the procedure a couple of times to soften the wood.

--R. Woodward

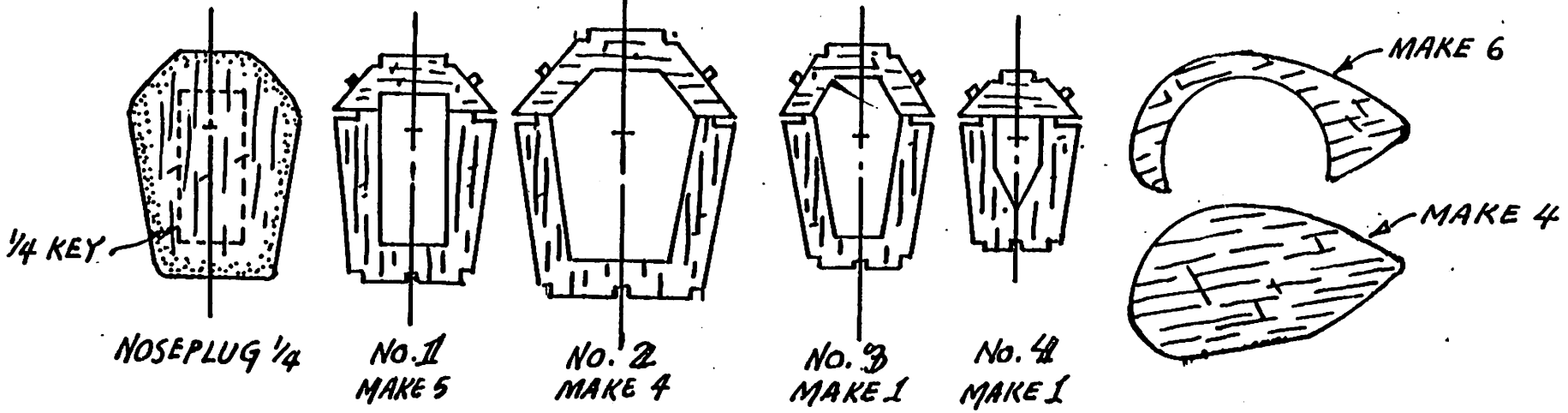
CO_2 charger leakage
P. Harvey — Henlow

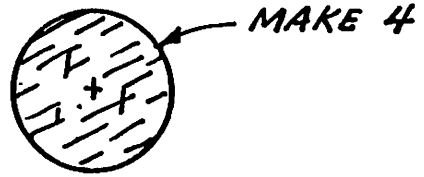
I had been having an abnormally high rate of gas leakage on inserting the cartridges in the charger. At least four chargers gave the same trouble. This pointed to a problem with the cartridge. Perhaps the new type of cartridge now available since *B.O.C.* bulbs disappeared from the market, was not quite to the same dimensions as previously. Although no such differences were noted, the leakages continued, so a solution was sought...

Leakage from CO_2 *Sparklet* type bulbs in *Telco* type chargers was completely cured by wrapping one or two layers of plumbers PTFE tape around the neck of the bulb before inserting it in the charger. The tape is available at about 36p from all good DIY shops.



COURTESY AEROMODELLER





CF-ALM

CUT FROM BLACK TISSUE

REID COURIER
SHEET 3 OF 3

CROSSWINDS

QUARTERLY

ISSUE 72

CROSSWINDS

4909 N. Sedgewick

Lyndhurst, Ohio 4412

FLAT HATIN' ON THE
RED HAT RENDEZVOUS

Check your address for issue No. due for renewal of $10 CROSSWINDS contributions to Russ Brown at 4909 N. Sedgewick, Lyndhurst Ohio 44124 USA Thanks for the lift!

Reflections from FAC NAT'S IV sparkel brightly on."TREMENDOUS" is the view from FAC GHQ. You just had'a be there to appreciate and enjoy the planning social and flying show put together by the Detroiten Geschwader and Detroit Cloudbusters. FLYING ACES CLUB NEWS #98 lists credits and results with details of the exceptional effort from the guys and gals. The place de resistance was provided for the special event by FORD MOTOR CO. on a 2½ mile oval test track at Utica Mi. The wide infield of proverbial soft grass is sure the FORD quality No. 1 place to fly. Look at the good magazine coverage for many fine models.

MAX*FAX Sept./Oct. '84 Newsletter adds FAC NAT'S IV photos by Tom Schmitt to a nifty 14 inch wingspan Boeing MB-3A Bipe "P Shooter" plan by Kevin Ray Sharbonda. FLYING MODELS Dec. '84 has text by Dave Rees complimented by more Tom Schmitt photos. Fernando Ramos photo coverage of this "greatest gathering of sclae modelers" adds well desirved praise in Nov. '84 MODEL BUILDER. Bill Warner shot up FAC NAT'S fliers in brilliant flying colors for Nov. MODEL AVIATION. The color prints here are the Counts' Pizazz! The lead in photo shows a big four engine lofted Lancaster and the Lanc crew being sold a rubber donut by the Red Cross (flag shirts). Even Don Srull's pointish P-13 (Me-Lippisch late WW II wing) looks fan-tastic. Brightest of all may be the great chrome snake charming editor Glue Guru Leon Bennett. GG bought it Russky war surplus in Afghanistan and wet shrunk it polishing off heavy OD paint? Letza great photos of the happy hundred flying at Detriotenville. Don Srull minded his p's and q's (points and queers) with consummate craft and FAC leader Air Commander Gordon Roberts again flew ever so well through swirling air to rack up most kills. Roland Hoot and Ken Groves scored deubles, while Mark Fineman and George Meyers won tallys also. Wild '84 flying season weather brought two days of heat buffered by strong steady breeze. Turbulent air boiling over boundary trees added an erratic element for all, but minimized thermal losses. Even so, the final rounds of mass launch events had long flights as fliers let it all hang out (full winds). Just for fun, let's broaden the focus past first places and see what the "high five" fliers flew to push them there.



Red Cross crew from city of Lancaster sold all on four rubber donuts topped with sand and spinach color frosting. Jumbo Lancaster 50 inch wingspan 4 motor WW II bomber flew 30 plus seconds for Gen. Dennis Norman, Linda and crew. Outboard wing panels knock off. Long nacelles at wide spaces allow usefull power. All 4 props right hand rotate.

FAC NAT'S Photos by Russ Brown

BROOKLYN DODGER

Nationals winner Taibi produces another tried-and-true warrior. It's a Class B job with a Forster 29 motor.

BY SAL TAIBI



THE Brooklyn Dodger is a super-simple gas model to build, and one that has very good flight characteristics. The climb will amaze you; it climbs at about forty-five degrees and is extremely fast under power. On the test flights the ship was consistently turning in flights of 3 minutes on a 16-second motor run, so clean off the bench, fellows, and put everything where it is easily accessible so you won't waste any time and get started on one of the best flying ships I've ever owned.

CONSTRUCTION

The fuselage is of crutch construction, which the author has found to be one of the strongest types of fuselages that can be built. First splice a gumwood motor-mount bearer into the crutch, then lay the crutch down on the board and insert the cross braces in their proper positions. Bulkhead A is cut from $^3/_{32}$" plywood and the other bulkheads are cut from $^1/_8$" sheet balsa. The bottom halves of the first five bulkheads (A, B, C, D and E) are identical, and a good way to save a lot of grief when assembling the ship is to pin these bulkheads together and cut the $^3/_{32} \times ^1/_4$" notches all at once. This will assure perfect alignment later on. The notches for the crutch, of course, are cut individually.

Remove the crutch from the board and inser *(Turn to page 63)*



Test glide. Dodger has proper incidences built in, no side thrust, slight downthrust. Climbs wide left circle, glides sharp left circle.

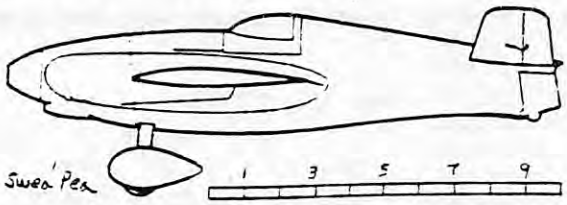
FLAT HATIN' ON FAC NAT'S IV HIGH FIVES

GHQ FACTOR PEANUT SCALE	PTS.
1. Ken Groves Fike Dream	580
2. Al Lawton Folkerts SK3	491
3. Mark Fineman N. S. IS4	454
4. Dave Rees Lacy M10	436
5. Roland Hoot Cougar	427.5

FULL FAC POINT PEANUT SCALE	
1. Don Srull Voisin	158¼
2. Roland Hoot S.D. 14bis	156½
3. Al Lawton Folkerts SK3	139
4. Gordon Roberts Andreason	132¾
5. Ken Groves Sop. Triplane.	128½

WW I PEANUT DOGFIGHT MASS LAUNCH
1. George MeyersS.E.5
2. Jim Miller dH-6
3. Ross Mayo Halberstadt D II
4. (Hoot, Groves Tripe, Norman Alb.,
5. (McGillivray C-Type & Roberts cracked.

NO. CAL. PROFILE SCALE	
1. Roland Hoot Chester Swea' Pea	318
2. John Stott Floyd Bean Racer	313
3. Jeff Briehl Turbo-Porter	207
3. Dan Briehl Turbo-Porter	171
4. Tom Schmitt Bell XFL-1	146
5. Padre Bill Anderson Luscombe	142



EMERYO ENDURANCE	
1. Ken Groves M-ERIO Cabin Maxed	369
2. Dan Briehl Debut Parasol	356
3. Roland Hoot Rarie	301
4. Chris Rubrich	293
5. Jim Hyka Debut	290
Don Srull Twit (plus O ?)	288

WW I DOGFIGHT MASS LAUNCH
1. Don Srull Port Victoria Grain Kitten
2. Dudley Prisel P.V. 7 Grain Kitten
3. George Meyers Euler Type 2
Rol. Hoot's Red tail Alb. and
Woody Eggert SE5 trailed.

Phil Cox Monocoupe 110 Special at above right photo flew 40 seconds plus a good 52 scale points for 19th place. Dave Rees 110 Sp'l flew 45 sec. for 14th behind Ted Dock Texan. Texan was highest place cabin type.

GHQ original Peanut Scale is the cornerstone FAC event for international emphasis on fun to fly airplanes with added detail. The significance of this event is not lost to larger size, dramatic mass launches, and spectacular creations to follow. Especially appropriate to the international trend is the GHQ factored Peanut Scale win by Ken Groves from Toronto Canada. Ken epitomises Flying Aces; old enough to enjoy Old Timer tradition with fresh friendly and very helpful enthusiasm. Ken's Fike Dream model is a neat, well detailed and doccumented Canada homebuilt version of a Fike cabin monoplane. Al Lawton achieved 2nd place honors with the ever popular and good flying Folkerts SK-3 racer. Mark Fineman reached third with his Ninitkin Schevchenko IS-4 gull wing experiment. Green over lt. blue Russky camouflage colors make long flight recovery an adventure! Dave Rees Lacy M-10 and Rolland Hoot Cougar demonstrated more good results with high wing cabin types. Walt Eggert's P-47N and Thorp T-18 low wing macho machines penetrated at 8th and 9th.

FAC Peanut Scale event encourages fanciers of high bonus point subjects to compete. Don Srull "floated" a 40 pt. Voisin in first place. Roland Hoot's 30 pt. Santos-Dumont 14bis backed up bipe flew well. Al Lawton's SK-3 was highest of the race types, followed by Gordon Roberts nice Peck Kit Andreason Biplane and Ken Groves' sensational Sopwith Tripehound.



Research at Blue Fox Base on all Clip wing Special 110 Monocoupes inspires mention of Phil Cox orange and black NX-1161 and Dave Rees red and white N36Y "Little Butch" trim. Thirty six official flights and lots more fun flights attest Peanut popularity. Books could be written; Bill Hannan, where is you? Haw-aw-w-w-w.



Brooklyn Dodger

(Continued from page 20)

bulkheads. After these are in place, a strip of ¼"-square soft stock is glued from the top of Bulkhead D to Bulkhead H. Individual pieces of $^3/_{16}$ x ½" are glued between the bulkheads to give greater strength. The bulkheads are mounted on the crutch by first sliding them into their respective spaces until one notch engages the crutch, and then twisting into place carefully so that the bulkhead rests flat against the cross piece. The lower rear former that connects the bottom stringer and crutch is glued in place. The $^3/_{32}$ x ¼" bottom stringers are glued in place. The cabin wing rest is cut from ¼" sheet balsa and cemented to tops of Bulkheads A, B, C, D. The ¼"-square top longeron is cemented in place, as are the $^3/_{32}$ x ¼" side stringers.

The landing gear is cemented in place with a piece of ⅜ x ½" grooved basswood; glue at least four times. If in doubt, consult sketch on plans. The cowl blocks are next glued in place and shaped. It will be noted that although the motor is fairly well cowled, the needle and other parts of the motor are easily accessible. The engine is wired according to plans. Motor mounts are bolted in place with $^1/_{16}$" bolts. The stringers right behind the firewall are filled in with ⅛" sheet. This is to prevent the firewall from backing up on a hard landing. The window is covered with celluloid. It is advisable to cement the body again before covering. Next, the fuselage is covered, either with silk, bamboo paper or Silkspan. Since the fuselage is subject to spray of gas and oil from the engine exhaust, the fuselage should be given at least six coats of clear dope.

The dowel pin to hold the wing in place is ⅛" diameter. It is inserted into Bulkheads A and B. The rear dowel is braced in a triangular piece of balsa just in front of Bulkhead D. The tail skid is embedded into the balsa keel at the rear of the fuselage. It is $^1/_{16}$" diameter piano wire, and also serves as a hook for the tail.

In its test flights the ship was found to need a little more incidence, so two wedges were glued to the wing rest connecting the first four bulkheads. These wedges are 9½" long and measure $^3/_{16}$" at the thick end.

In designing the Brooklyn Dodger, simplicity of construction in the wing was one factor that was given particular attention, such as simple sparring, butt leading edges, et ceteras. In constructing the wing it will be necessary to elevate the front wing spar $^1/_{16}$" above the board. Pin the lower front spar to the board, slip all the ribs in place, attach the trailing edge and then the leading edge, glue the top spar in place. The rear spar is cemented in place after the wing has been removed from the board. Repeat this procedure to build the other half of the wing. The false ribs are inserted between the full-size ribs. The wing is then joined at the proper dihedral angles as shown on the plans. Finally, cover with either bamboo paper or Silkspan.

The rudder is built flat and is self-explanatory. After the rudder is built, the tab is attached to it with strips of aluminum.

The stabilizer is flat in construction. The leading edge is cut out of ½" sheet, the trailing edge from ¼" sheet. After the edges are cut out, lay down the spar, then leading edge and trailing edge. The ribs of ⅛ x ½" are glued in place. When dry, remove from the board and cut the ribs to airfoil shape. (See stabilizer detail.)

FLYING

The Brooklyn Dodger has been thoroughly test-flown and therefore all the incidences are built in. There is no side thrust, but there is two degrees downthrust. First glide the ship until a smooth glide is obtained. It may need minor adjustments such as $^1/_{16}$" incidence under either the leading or trailing edge.

The first flight should be at half power, with about a 20-second motor run. Study the flight characteristics carefully, and if the ship performs satisfactorily, fly it again with slightly more power. Repeat this procedure until a fast, zippy climb is obtained. The ship will climb in a very wide left circle and glide in a tight left circle. If any information is needed, write to Sal Taibi, c/o Air Trails, 79 Seventh Ave., New York City. Good luck!

BILL OF MATERIALS

Fuselage

3 pcs. $^3/_{16}$ x ⅝ x 36", crutch
11 pcs. $^3/_{32}$ x ¼ x 36", stringers
1 pc. ¼ x ¼ x 36", top longeron
3 pcs. ⅛ x 3 x 36", bulkheads
1 pc. ¼ x 2 x 36", cabin top
1 pc. ⅜ x 3 x 6", upper nose block
1 pc. 1 x 2½ x 6", lower nose block
1 pc. $^3/_{16}$ x ⅝ x 18", mount bearers

Stabilizer

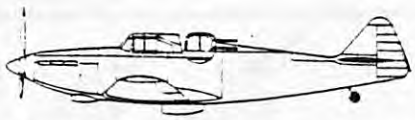
1 pc. $^3/_{16}$ x ½ x 36", spar
4 pcs. ⅛ x ½ x 36", ribs
1 pc. ½ x 2 x 36", leading edge
1 pc. ¼ x 3 x 36", trailing edge

Rudder

(Built from scraps)

Wing

4 pcs. $^3/_{16}$ x $^3/_{16}$ x 36", spars
2 pcs. ⅛ x ⅜ x 36", rear spars
2 pcs. ¼ x ⅜ x 36", leading edge
2 pcs. $^3/_{16}$ x 1 x 36", trailing edge
2 pcs. ¼" sheet balsa, tips
6 pcs. $^3/_{32}$ x 2 x 36", ribs
1 pc. 2 x 2" aluminum, rudder fittings
1 pc. $^3/_{32}$ x 24" wire, landing gear
1 sheet celluloid



FLAT HATIN' ON FAC NAT'S HIGH FIVES

GREVE TROPHY RACE MASS LAUNCH/ INLINE
1. Rol. Hoot K. R. R-1 SUZY
2. Geo. Meyers Keith Rider also
3. Dave Rees Crosby CR-4
   Tom Schmitt, Mark Fineman, and Hank Komp Folkerts SK-2 trailed.
   Mark flew a Mr. Smoothie.

THOMPSON TROPHY RADIAL RACE M.L.
1. Mark Fineman Cessna CR-3
2. Ralph Kuenz Lockheed Altair
3. Roland Hoot L. T. Pesco Sp'l
   Ross Mayo and Dan Briehl CR-3's and George Meyers trailed.

GOLDEN AGE MASS LAUNCH
1. Gordon Roberts R. Speedster
2. Paul Helman Fairchild 24
3. John Stott Curtiss Robin
   Mark Fineman flew Monocoupe next over Dan Briehl

FAC RUBBER SCALE	PTS
1. Don Srull 35 pt. Me-L P-13 wing	148
2. Ken Groves Sopwith Triplane	143½
3. Earl Schick Zippy Sport Cabin	132⅔
4. Jack McGillivray Twin Sea H.	132
5. Dudley Prisel Waco SRE bipe.	131½

WW II COMBAT MASS LAUNCH
1. Gordon Roberts B. P. Defiant
2. George Meyers Barracuda
3. Mike Midkiff Aichi B7A Ryusei
   Fineman, Briehl IS-4's, Rees Nakajima B6N Tenzan (Jill), S. Meyers Ki-61 Hien shot down. Lawton also.

FAC POWER SCALE	
1. Don Srull Santos-Dumont 14bis	160½
2. Roland Hoot Dunne-8 bi-wing	157½
3. Walt Eggert Fok DR-1 tripe	152½
4. Bob Clemens Farman Jabiru	138½
5. Mike Midkiff Boeing P-26A	115½

FAC JUMBO SCALE	
1. Don Srull push pull L P-13	134
2. Gary Hunter F.W. TA-152	129½
3. Dave Rees G.H. Gadfly	125½
4. Jack McGillivray Sea Hornet	125
5. Jack Moses Curtiss P-40	121
6. Dennis Norman 4 m'tr Lancaster flew 30 sec of a good long flight. Leon Bennett P-39 flew wrong day. B-25 by Mike Midkiff flew 37 sec. Tom Arnold He 219 Owl cracked at 15. Emerson Elwell's big red SK-2 Foo flew 42 sec., 9th behind Iron Mike.	119

Mass launch events add excitement and action with a variety of conventional shape subjects not entered in point events. In WW I Peanut Dogfight for combat used biplanes (MULTIPLANES), George Meyers S.E.5 flew off over Jim Miller's dH 6. Ross Mayo flew the Halberstadt DII fighter well to eliminate Ken Groves' fine flying Sopwith Tripe. Dennis Norman's light Alb. DIII slimmed down from CROSSWINDS looked good.

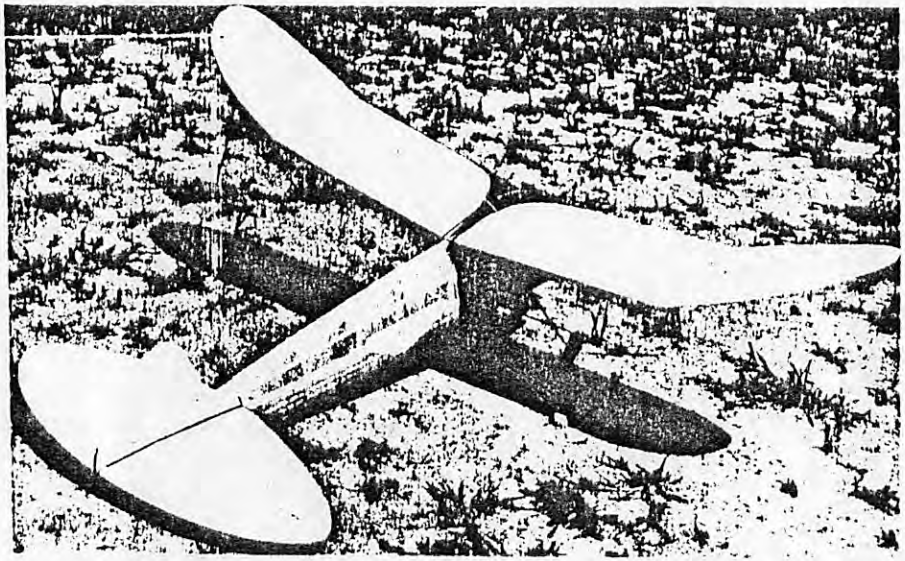
WW I FAC Class introduced the Port Victoria Grain Kitten as a combat wepon. Don Srull and Dudley Prisel wound up in a best li'l cat showdown. Don hung onto air a few seconds longer. The P.V. 7 is a nice little biplane, but the 1-2 win here is more the craft of two talented fliers, than a subject shape research mandate. George Meyers found the flat nose Euler Type 2 to his liking and shot down Roland Hoot's Alb. DV and a pair of Eggerts in S.E.5's. Hoot try a Roland!

Light NO. CAL PROFILE times were modestly good as none hooked a long out o' sight ride. Roland Hoot won with the Vee tail Chester Goodyear racer Swe' Pea. John Stott liked the Floyd Bean racer shape for a close second. Jeff and Dan Briehl flew cabin Porters to edge photo snapper Tom Schmitt's salty Cobra XFL 1.

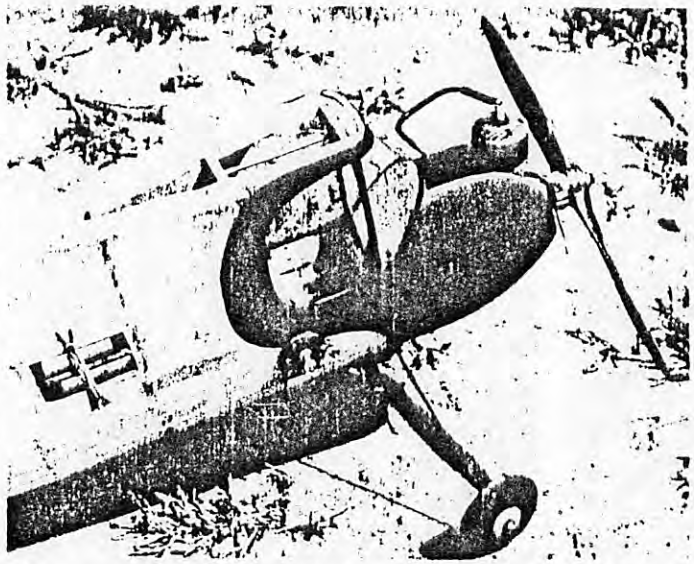
EMBRYO ENDURANCE flyers posted lots of 120 sec. maxes. Only Ken Groves' M BRIO cabin type got all three plus 9 bonus. Dan Briehl dropped 13 seconds in the first round and then maxed out for 2nd with a Debut. Roland Hoot's Rarie was 3rd, and Chris Rubrich 4th over G 8 in a red and blue Debut. Just to show he doesn't give a Twit about bonus points, Don Srull didn't check to see if his got posted. Don might be 3rd here with 9.



WW II 3rd round formation launch left to right are S. Meyers Ki 61, Rees Jil, Briehl and Fineman I.S.4s D. Prisel Battle up high, and W. M. Eggert P-47N ↑ low right at the test track. Dud Battle and Woody's low P-47N were eliminated this round.

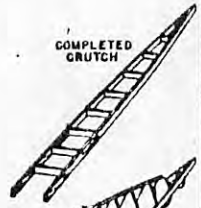


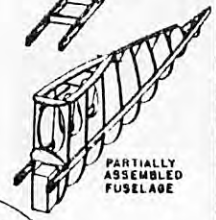
The fuselage employs "crutch" backbone with a teardrop cross section, triangular on top, round on the bottom. Wings and tail—both rudder and stabilizer—fly off in a crash.



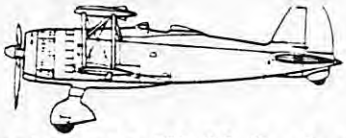
Close-up shows front wing attachment dowel, the Forster 29, position of the pencells, and Austin timer. Front bulkhead is of plywood.







FLAT HATIN' ON FAC NAT'S



The Greve Trophy Race for inline engine pre-WW II U. S. raced planes brings out lots of real good airplane subjects. Roland Hoot's Keith Rider R-1 Suzy won over George Meyers III in an all Keith Rider racer fly off. Dave Rees did remarkably well in getting the enormous bodied Crosby CR-3 racer to 3rd over such as Mark Fineman's Mr. Smoothie, Tom Schmitt, Henry Komp's SK-2, Ken Groves Wittman Bonzo, Al Lawton's SK-3, Paul Helman's Caudron, and Gordon Roberts' Chambermaid.

THOMPSON TROPHY races bring out the Cessna CR-3 fliers. Mark Fineman kept his Cessna CR-3 in trim to win. Ralph venRottensox Kuenz flew his Lockheed Altair to 2nd over Roland Hoot's mid wing, fixed gear Laird Turner Pesco Special. Dan Briehl and Ross Mayo Cessna CR-3's chased the leaders . Other macho type Thompson racers included Mike and brother Rick Midkiff Travelair ships, and Del Balunek's Laird Solution Biplane. John Stott flew another Cessna CR-3. Dick Bennett tried the Hall Bulldog again. Dennis Norman had a Hughes Racer from CROSSWINDS, but may have missed the race working on the Lanc.



GOLDEN AGE MASS LAUNCH is another popular event where high wing cabin types dominate. Gordon Roberts Golden Age Reproductions Kit Rearwin Speedster flew best, longest of 29 at the starting lines. CROSSWINDS co-editor Mike Zand is researching Speedster detail for a future issue. Paul Helman's Fairchild 24 and John Stott's Curtiss Robin followed with good long flights. SEAGLEN MODELS, Box 123 Plympton MA 02367 has 30" kits of the Fairchild 24, Cessna C-34, Monocoupe, and Rearwin Speedster plus WW II Fairey Battle for $10 plus $1.50 each. Mark Fineman flew a red wing and tail Monocoupe well to 4th over Dan Briehl.

Dudley Prisel winds low wing, fixed down gear type Ercoupe for Golden Age launch. Agent Re 2005 Richard Bennett holds in photo at left. Flag is red, white and green.

F.A.C. RUBBER SCALE had 47 entries listed by 'Sox. Lots more there just foolin' around. Don Srull found a 35 bonus point push/pull flying wing Me Lippisch P-13 and got it up for 80 seconds to score a kanone. Ken Groves Sopwith Tripehound trailed at 143½ points with more flight points (78½) than scale (65). Earl Schick's bright blue Zippy Sport hit on a max flight for third at 132½ pts. Jack McGillivray's twin motor deHavilland Sea Hornet was the best flying multi engine at 68 seconds, for 132 pts and fourth place. Dudley Prisel's bright yellow Goodyear trim Earl Stahl design WACO SRE was 5th at 131½. Roland Hoot's remarkable counter screw drive twin pusher Curtiss XP-71 flew 27 seconds for 17th. Roland showed all about the gear box at the banquet. See MODEL AVIATION 11/84 color photo by Bill Warner. Pres Bruning's magnificent Earl Stahl Trophy winning Fiat CR-42 flew 40 seconds.

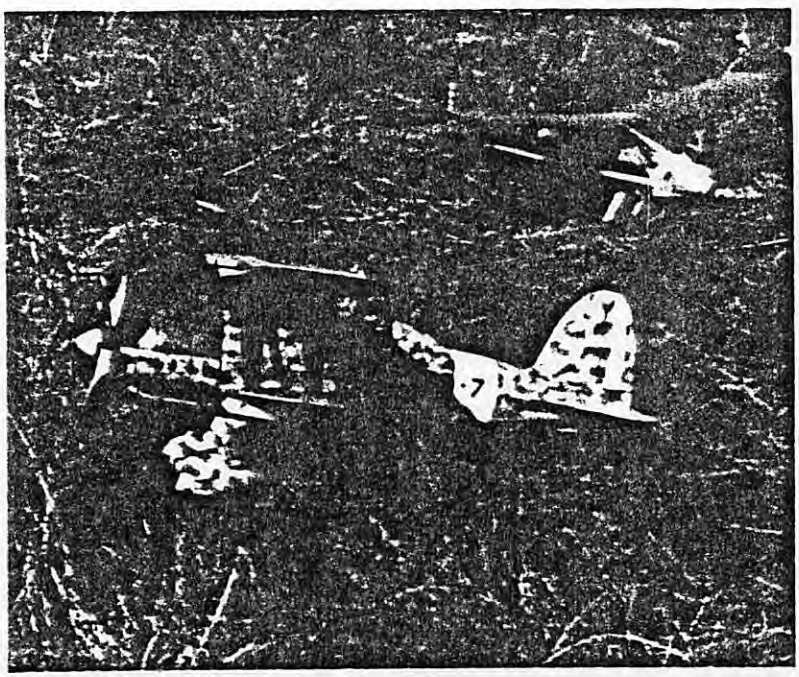
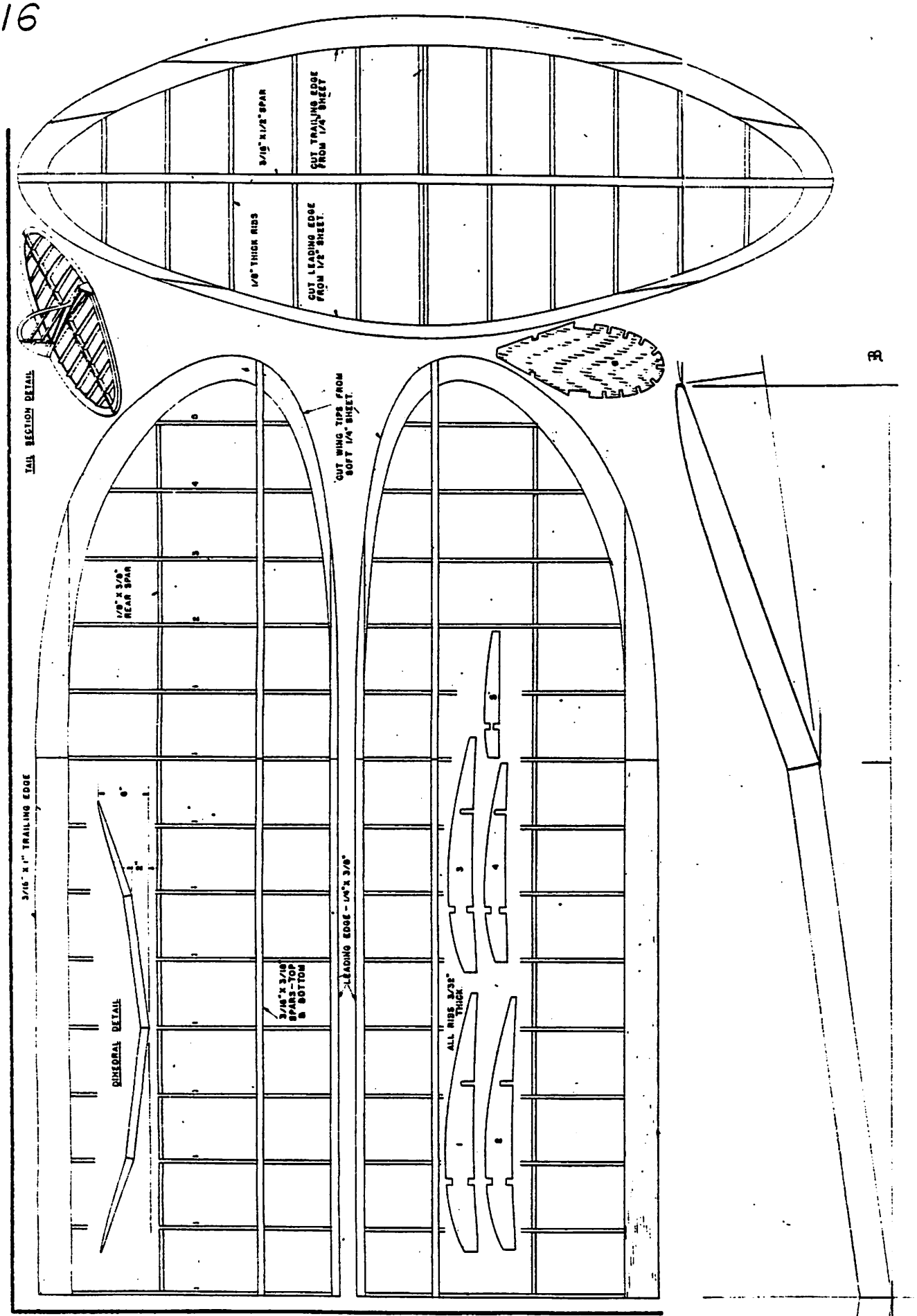


Photo left is Bruning's CR-42 and Zippy Sport by Earl Schick. Tall grass hides beauty here.



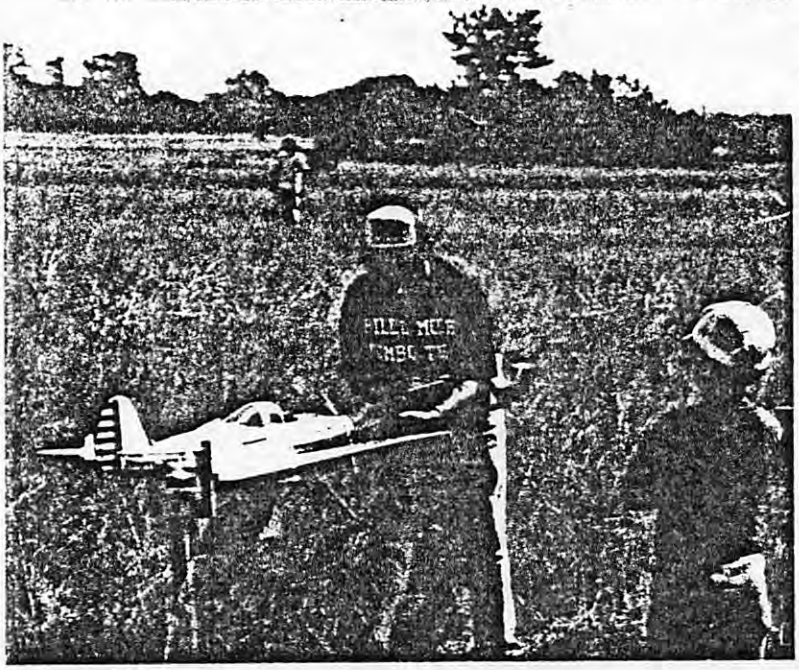
FULL-SIZE PLANS of this model may be obtained by sending ten cents to

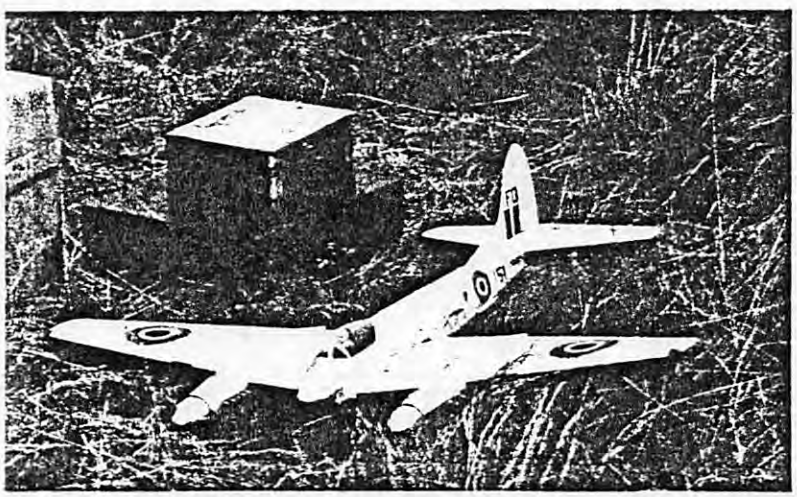
AIR TRAILS FULL-SIZE PLANS, 79 Seventh Avenue, New York, N. Y. JAN. 1942 BROTHER, CAN YOU SPARE A DIME?

FLAT HATIN ON FAC NAT'S

FAC POWER SCALE followed the point event trend with Don Srull's Santos Dumont 14bis first. Roland Hoot 's swept bi-wing Dunne-8 next and Walt Eggert third with a red Fokker triplane. Bob Clemens maxed a Farman Jabiru to place fourth over Mike Midkiff's beautiful Boeing P-26A pea shooter. Paul Gaertner's bright red Swiss Pilatus Porter CO_2 power model wasn't officially listed, but looked ever so snappy in red Poly S waterbase spray paint thinned 30% by alcohol.

JUMBO FAC SCALE is last but certainly not least! Don Srull doubled his trouble tweaking the P-13 flying wings. Don launched to the deck lots of times, but stuck with it to catch a 55 second flight, plus 79 scale points to win. Gary Hunter flew a long nose Focke Wulf TA-152 best for 85 seconds and second place. Dave Rees had a Jumbo Glenny & Henderson Gadfly third. Jack McGillivray also doubled his trouble with a Jumbo size Sea Hornet. The Sea Hornet tried to tie dowd at a post and retired with a back ache. Jack Moses flew a big Curtiss P-40 well at 74 seconds and fifth. Just behind in sixth place yes it really flew, is a giant 50 inch wingspan 4 motor Lancaster Bomber by Dennis Norman and Red Cross crew. The Lanc racked up 30 flying points to earn the admiration of all. Yep, big, black, and beautiful! See guys, Dennis didn't move to Lancaster Pa, or England. He was in Cleveland all along frantically building the big show bomber. Glue Guru editor Leon Bennett demonstrated all that theory is great by test flying the big chrome snake (P-39) well on Saturday. But again the snake bit GG. Jumbo day, the python inside broke off the prop shaft. GG may cover hookers and metallurgy in the future. Haw-aw-w-w-w. Below is Leon Bennett and gloss silver Micafilm skin iron dog.



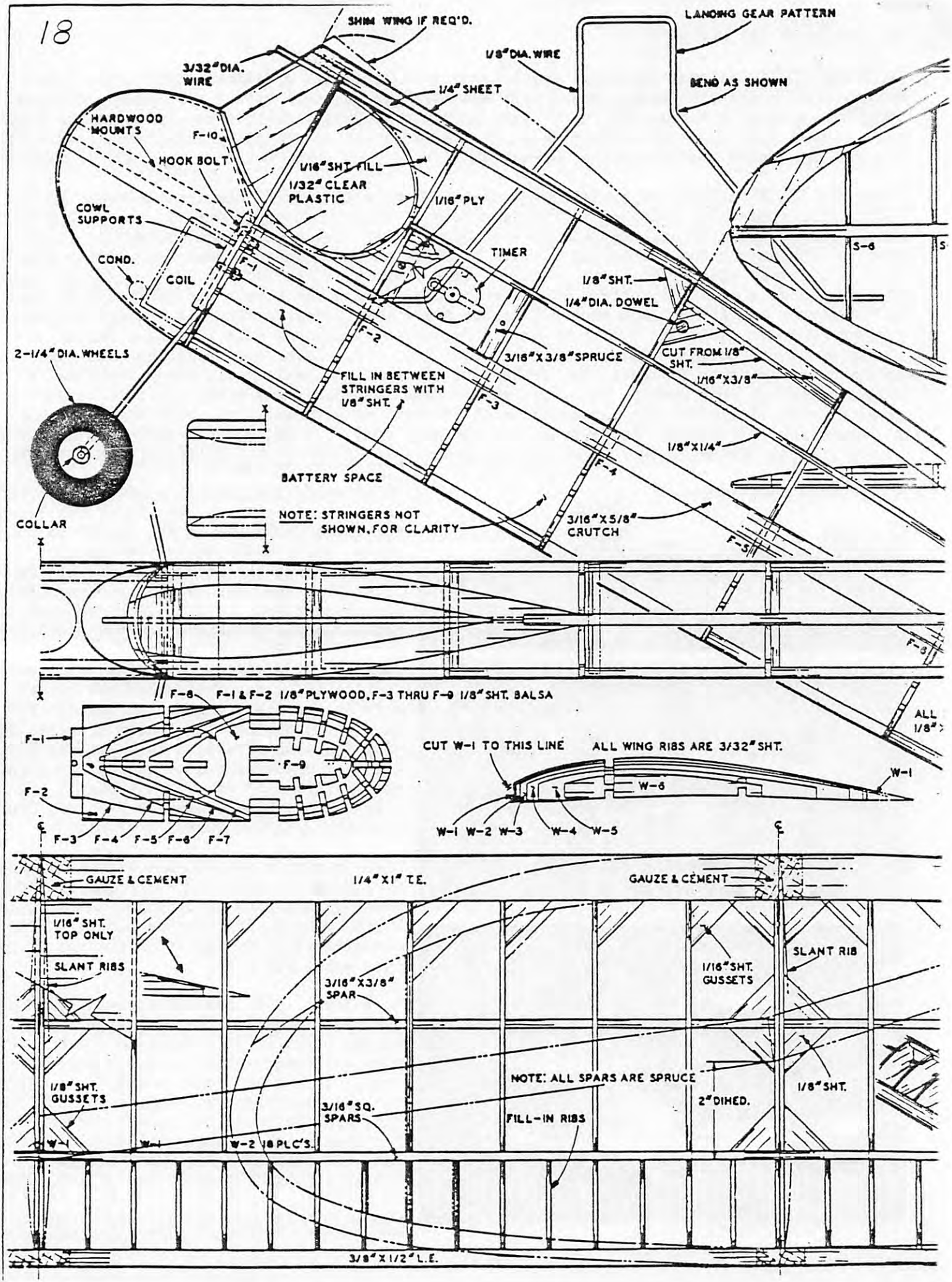


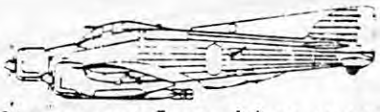
Multi mania invigorates propwash over FAC Nat's IV. Jack Mcgillivray's dH Sea Hornets flew best at 68 sec in FAC and 48 sec. in Jumbo. Multi motor enthusiast Dennis Norman earned the Nat's comeback of '84 Oscar with the impressive four motor AVRO Lancaster Bomber in half inch per foot, 1/24 scale. Dennis and Linda are now proud parents of son Patrick, Congratulations! Roland Hoot's counter rotation twin pusher Curtiss XP-71 was the mechanical marvel both on the field and at the banquet for 130 af ACtionados. Tom Arnold from So. Cal SCUM Squadron brought a twin Heinkel 219 Oul that maybe wanted to waight for night air to fly. Andy Medovitch tested a big silver P-38. Mike Midkiff's B-25 was 8th in Jumbo (FLYING MODELS 6/82 plan).

Pres Bruning's twin engine Martin Maruader B-26 from FAC NAT'S II was right at home. The B-26 and plan is featured Nov. '84 in FLYING MCDELS. Long engine nacelles aid duration. More up thrust on the inside turn side works for Pres.

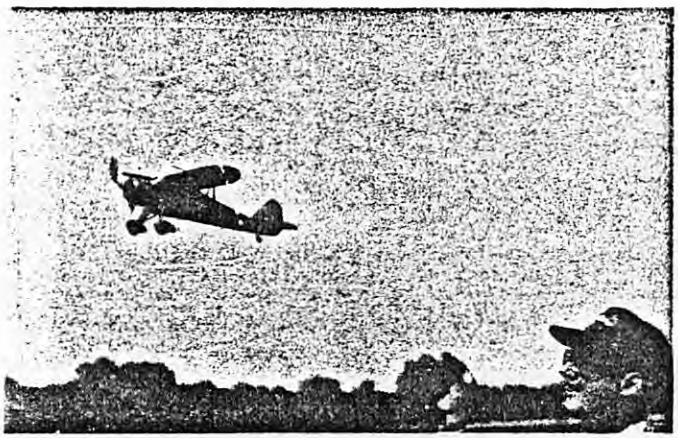
Dave Diels P.O. Box 101 Woodville, OH 43469 followed the FAC NAT's with more multi engine plans in 1/24 th scale. Dave's TU-2 Russian Bomber spans 31 inches with more than 7 inch motor hook length. Four blade cut off Peck plastic 8" props way out front will make it go to the Eastern Front! Two big sheets and 5 pages of Plan#50 for $5.00 plus 15% shipping. Big Gunston book of COMBAT AIRCRAFT OF WW II has 3V and color.

Photo left is Jack McGillivray Jumbo dH twin.

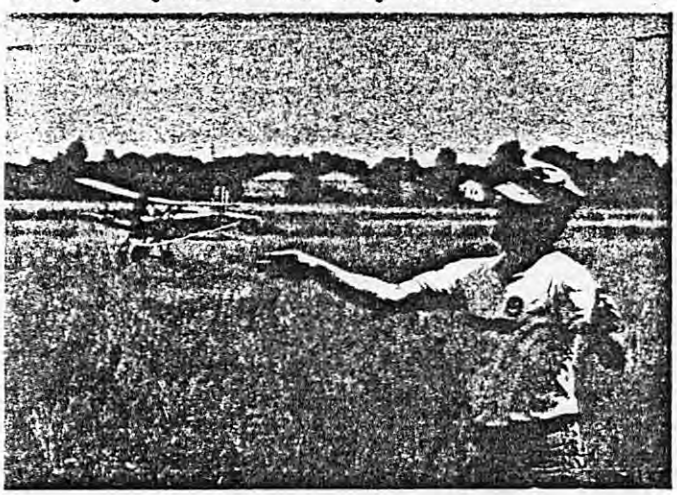

SHIM WING IF REQ'D.
LANDING GEAR PATTERN
3/32" DIA. WIRE
1/8" DIA. WIRE
1/4" SHEET
BEND AS SHOWN
HARDWOOD MOUNTS
F-10
HOOK BOLT
1/16" SHT. FILL
1/32" CLEAR PLASTIC
1/16" PLY
COWL SUPPORTS
COND.
COIL
F-1
TIMER
S-6
1/8" SHT.
1/4" DIA. DOWEL
F-2
3/16" X 3/8" SPRUCE
CUT FROM 1/8" SHT.
1/16" X 3/8"
2-1/4" DIA. WHEELS
FILL IN BETWEEN STRINGERS WITH 1/8" SHT.
F-3
1/8" X 1/4"
BATTERY SPACE
F-4
NOTE: STRINGERS NOT SHOWN, FOR CLARITY
3/16" X 5/8" CRUTCH
COLLAR
F-5
F-6
F-8
F-1 & F-2 1/8" PLYWOOD, F-3 THRU F-9 1/8" SHT. BALSA
ALL 1/8"
F-1
F-9
F-2
CUT W-1 TO THIS LINE
ALL WING RIBS ARE 3/32" SHT.
W-6
W-1
W-1 W-2 W-3 W-4 W-5
F-3 F-4 F-5 F-6 F-7
GAUZE & CEMENT
1/4" X 1" T.E.
GAUZE & CEMENT
1/16" SHT. TOP ONLY
SLANT RIBS
3/16" X 3/8" SPAR
1/16" SHT. GUSSETS
SLANT RIB
1/8" SHT. GUSSETS
NOTE: ALL SPARS ARE SPRUCE
2" DIHED.
1/8" SHT.
3/16" SQ. SPARS
FILL-IN RIBS
W-1
W-1
W-2 18 PLC'S.
3/8" X 1/2" L.E.



Italian fondness for trimotors ledto several working nose multi engine subjects. Dave Diels drew the S.M. 79 Sparviero at 34.8 inch FAC size. Plan #50 for $5.50 plus .83 shipping. Civil or military markings allow several choice options. The race version S.M. 79 C (corsa or race) I-6 was bright red with blue trim stripes. Three green mice of the sorchi verde ride on the fuselage stripe! Affection for this plan critique: the boxy S.M. 79 fuselage encourages use of a box frame in place of Dave's usual keel and formers. A wing shape fix to sharper nose, flat bottom airfoils and a modestly enlarged stab. will aid duration. Less experienced builders will want to start with a 5 motor conversion of the GG-Grillo B-17 and crash test it down a bit. Haw-aw-w-w-w. Dave's Macchi C.202 Folgore WW II combat plan no 24 for $3.00 in 1/24th scale is a good escort for the S.M. 79. Send $1 and check the list.



Dudley Prisel Waco SRE NC 20967.
Goodyear yellow and navy blue trim.



Subject selection may be the lure of a great shape, "beau coupe" points, color and marking art, or a natural attraction that transcends all of the above. Biplanes can be a wing and a half ahead in a flight to nostalgia 'Nes Paw?. Earl Stahl's WACO SRE in July 1940 MAN is a classic old timer aged 44 years and beautiful as a butterfly in fresh scales. Both Dudley Prisel and Bill Warner built Earl's E with added detail and bright yellow scale markings.

Mike Mulligan's Oldtimer Models P.O. Box 913, Westminster CA 92683 has the 20 3/4 inch span plan No. 25 for about $1.50. See IMPS Quarterly 18-1,-2 from Fall '82 for colors and detail. Double your pleasure and get the Udet Flamingo plan #111 by Bill Winter. 2 for $3 plus $2 postage.

Al Hunt Plan Service, Box 726 Dunbar WV 25064-0728 plan list #1040 for $2 has both Waco E and Udet plans above plus 30 inch span Jumbo Biplanes. The Waco Aristocrat SRE looks outstanding. Dan Driscoll flew a beautiful yellow with red and white candy stripe struts Udet Flamingo per Profile #257 in FAC rubber scale. The AL Hunt plan #108 Jumbo size is $4.00. Al has 13 biplane plans at 30 plus inch and 16 monoplanes at 36 inch plus spans.

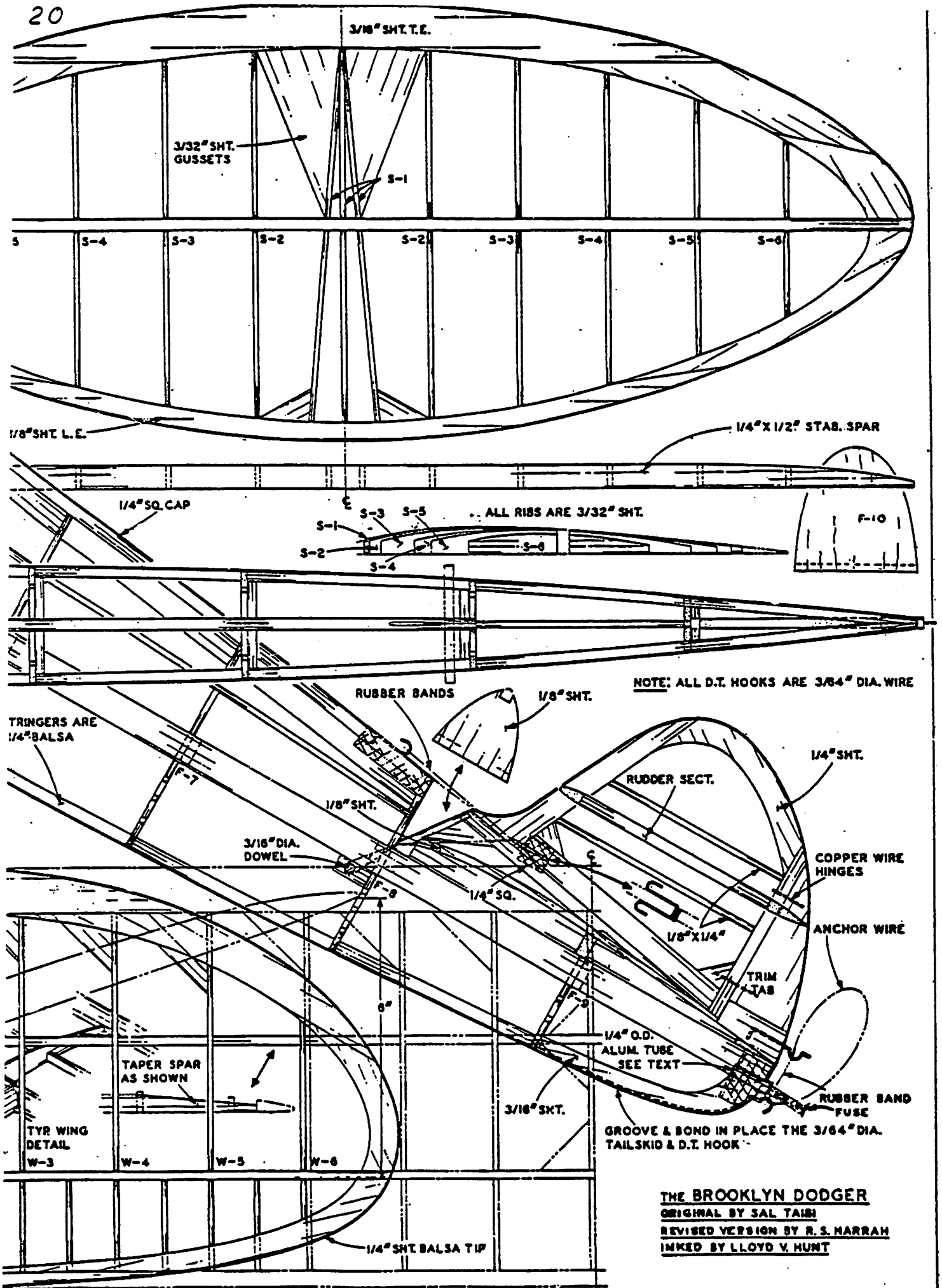
Dan Driscoll at left launches Udet Flamingo, but his shirt says WACO!

Wiley Post A update: Factory color of at least one was silver with blut stripe. Have cream with red data.

An entertaining sequel to FAC multi mania was the CFFS meeting at Dennis and Linda Norman's. Son Patrick at 2 months looks just great, like Linda, not Dennis Haw-aw-w-w-w.
Special guest was Lancaster WW II pilot RCAF Flt. Lt. "Deacon" Pat Cameron from Toronto, Canada. Pat flew Lanc's with Canadian and Ausie Sq'dn 622 and 323 at Mildenhall. Pat learned to fly Fleet Finches on skis and then wheels. In England, Pat flew Miles Master, Oxford, Wellington, and Short Sterling aircraft. The hanger session with Pat recounted long flights over the North Sea at 200 ft. altitude under radar; flak at "happy valley"; Corkscrew diving out of dual cone search lights; and how a Lanc waddles through the air with 1500 lbs of gas and 4000 lb. bombs.

Flat Hatin' wants to go on and on, but this bit took a whole month, and still didn't get into an update on Jack Fike's Dime Scale, lotsa words drafted on composites and a new table "wire" foam cutter called the Great American Foam Shop. The Next CROSSWINDS is just about ready to go, so we will carry on there. Gordon Roberts has two Spitfire Mk XIV plans drawn, and had the big size bones on a jig at the CFFS meeting. Hope you are on the latest mailing list.(#72+) Doc Martin reported his dog ate the Hanger Pilot mailing list last fall. Wish I would'a thought of that! Haw-aw-w. CROSSWINDS is alive and well, thanks for the kind words and support.

Russ Brown



THE BROOKLYN DODGER

ORIGINAL BY SAL TAIBI

REVISED VERSION BY R. S. HARRAH

INKED BY LLOYD V. HUNT

6-26-71

INDOOR STUFF PART 3. BY LARRY LOUCKA

Most people probably build a Micro-X or IMS kit Easy B as their introduction to Indoor Duration flying. All goes well untill the first contest is entered and the times done by the old hands comes as quite a shock. While both the beginner's and experienced builders' models may both meet the rules, there some basic differences that account for the disparity of the times that they are capable. During the course of this article, I will attempt to "close the gap" by listing various improvements to the basic kit models.

Let's start at the front with the prop. As has been said many times before,"The prop is the heart of an Indoor Rubber Model". In my opinion, truer words were never spoken. When cutting out the blades it is best to put the tips towards each other on the sheet of wood to minimise the differences in grain and strength thru the length of the sheet. Both leading edges should be toward one edge of the sheet too. A full "C" grain sheet in the 4-5 lb. range with a grain running straight down the sheet and no hard spots or holes is recommended. Thickness can range from .010 to .015". In my experience, only a "C" cut blade will retain its twist. The Kit type props have constant pitch, having no twist in the blades from root to tip. A large improvement can be made by making a prop with pitch twist using a bottle or can to form the blades. minimum diameter should be 12". To a point, the larger the prop diameter the lower the RPM, thus increasing the duration. I form the blades by first soaking them in hot water for 10-15 min., putting one down on the form, then covering it with a piece of Jap tissue and finally posititioning the second blade over the first. Last step is to wrap the whole thing with 1/4" rubber or gause. Be sure not to pull too tight or it will crush the soggy blades. Bake in an oven for 10-15 min. at 250 degrees. I usually turn the oven off after the 10-15 min. and leave everything in overnight. The blades should be room temperature before unwrapping. The Jap tissue helps to separate the blades when removing them from the form. Baking locks in the twist.

The prop spar should be made from stringy "B" grain wood in the 6-7 lb. range. Diameter should be .062" tapering down to .032" round at the end. I prefer to round the prop spar to give more gluing area for the blade. Props with very light blades can benefit by using a full length spar. It seems to be preferable to glue the spar to the underside of the blades, as any distortion will pull a little more curve into the blade.

Most of my props are formed on carved balsa pitch blocks. An airfoiled spacer, the same size of the blades is soaked and installed on the form. Best way is to bake the spacer dry, unwrap and then put the wet blades over. If the spacer is not glued to the form, a different spacer can be made up and used on the same form if you deceide to try a different blade shape or diameter. Make the spacer out of 3/32" balsa and sand in about 1/16" camber into it. The curve could be sanded into the form block but doing the spacer is a lot less work.

For best results, a double thrust bearing should be used. Attach it to the motor stick with about 2 degrees left thrust and no down. This will allow a more rearward c.g. posititon and give a left turning force when the plane is climbing at a high angle of attack.

I have never had much luck with the rear "keyhole" type bearing as sold by Micro-X or IMS. To install the prop shaft, the rear hole must be a "click fit" on the shaft, which is difficult to maintain as the hole wears. If the shaft comes out during a flight, interesting things usually happen as the thrust line has been changed radically. I use and recommend a Harlan bearing. This is a "pigtail" type that supports the prop shaft 360 degrees around at the rear. They cost $I.00 each and are available in three different sizes for EZB, Pennyplane and, FAI Microfilm. Some people bend thrust bearings from music wire. These are strong and very long lasting. However, I have never been much of a wire bender and, so I use the Harlan.

After building just about every type of wing dihedral layout there is, I have settled on the Polyhedral type. There seems to be a better resolution of forces and flight loads on this type as opposed to Vee or the Tip dihedral type. Stability and recovery are enhanced also. The stability improvement can allow a large reduction in post height, which in turn reduces the twisting effect transferred to the wing via the posts from the motor stick when the rubber is fully wound and, saves a little weight too.

A useful increase in stability can come by lengthening the tail. I have sucessfully used booms in the range of 8-I2". Both Micro-X and IMS sell tapered stock that is excellent for making tail booms. A perfectly tapered boom can be made with one cut.

Stabilizer area should be 40-50%, the upper limit of which is the max allowed by the AMA rules. Incidentally, the Two EZB designs featured in the English Magazine, Aeromodeler, over the past year have stabs in excess of 50%, so beware!

Generally, the longer the boom and the larger the stab, the further back the balance point can be placed. Its not a bad idea to have three or four sets of wing post sockets on the motor stick to allow experimental shifts in balance. In some ways Indoor is like Outdoor F.F. in the sense that model trim and power must be optimized for the site conditions on the day that the model is being flown. If the air is turbulent or cold or both, a more forward C.G. and more wing incidence must be used than if the air is calm.

The best way to build an EZB wing, I have found, is on a dihedraled jig. I beleive these were first developed by Stan Chilton. It should be made of 3/I6-I/4" soft balsa or paper covered foam core board. The width should be 4". Each panel should be exactly as long as its corresponding wing panel. The dihedral joints should be beveled like a HLG wing. The sections are glued to a heavy wood or flakeboard base using riser blocks under each dihedral break. Mine has the has the left wing panels flat with no wash. The right side has I/8" washin built in at the dihedral break. This is set up to put a twist in the whole right wing panel. The extreme tip is blocked to retain the resulting angle. The reason for this set-up which is the exact opposite of conventional Indoor practice is to allow for the twisting forces that afully wound motor transfer from the body to the wing thru the wing posts. The aim is to have the right hand wing panel at a zero angle and some washin in the left when the plane is fully wound and launched. This will minimise the tendency that many models have to snap roll into the floor to the right when fully wound. When building a wing on a jig of this type, the cardboard template should be somewhat thinner than the wing spars height as this type of jig allows the wing to be covered while still on the jig.

Due to the fact that the dihedral is being built in as the wing is framed up on the jig, it's not practical to use weights to hold down the spars. I use I-II/2" lengths of soft I/I6x I/8" balsa. The strips are pinned down to the jig outside of the spars, pushing them against the cardboard template.

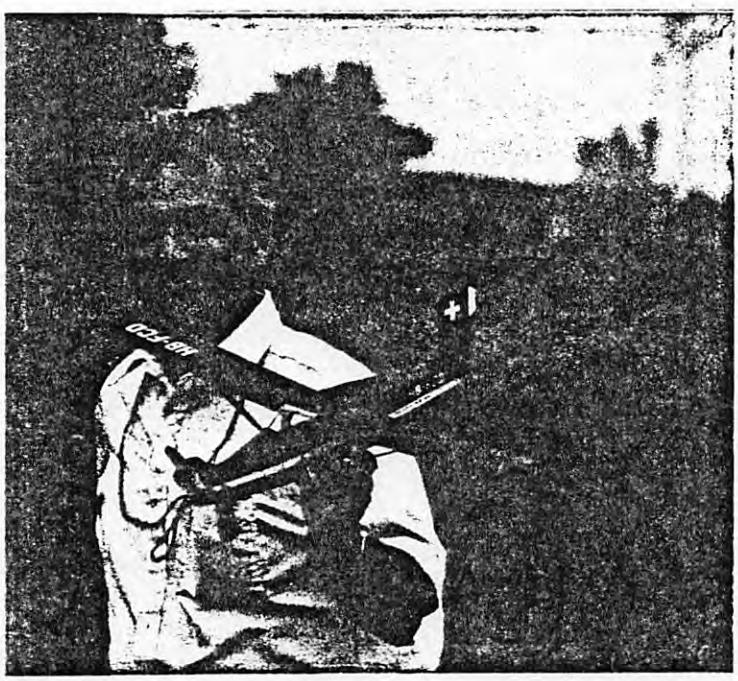
Quite a bit of weight can be saved by the choice of adhesives used to attach the paper. Jim Richmond pioneered the use of saliva, as used in attaching Microfilm. For the typical "bang them off the girders" low ceiling flying, a mixture of a thimblefull of saliva and 6-I0 drops of Pica white glue holds the paper on a lot better with virtually no weight penalty.

Probably the best way to reduce the weight of a given model is to make minor reductions in the wood sizes and improvements in wood selection. To make intelligent assesments as to where weight problems lie, a weighing scale is necessary. These can range from a simple spring scale to p precision beam type as sold by Ray Harlan. The spring scale is a good place to start as it is also useful for weighing rubber motors. There is a good one detailed in the Williams book, Building & Flying Indoor Model Airplanes. A good set of weights for calibrating can be obtained from Micro-X.

Most experianced builders, including myself, have, at one time or another, fallen into the trap of using "punky" wood for wing spars. Use "A" or "B" grain wood in the 5I/2-6I/2 lb. range. Most 4-5 lb. wood will not tolerate much bending before it goes "clink". A wing built from this sort of wood will fold just about every time the model touches something and, in short order will weigh more than one made from stringier wood from the resultant patching.

If you're ordering wood by mail, tell the supplier what it's going to be used for. It will minimize the chances of getting unsuitable stock for the intended purpose.

Useful address for Indoor Supplies & tools: Ray Harlan
I5 Happy Hollow Rd.
Wayland, Mass.
0I778



Paul Gaertner at FAC NAT'S IV with Brown MJ-70 CO_2 powered Pilatus Turbo porter from Micro-X Kit. Paul machined a brass prop extention. Bright red and white trim is Poly S paint thinned by 30 percent alcohol.

**********A Pharewell to Phugoids**********.

Mumbo Jumbo #13 from the Glue Guru, aka Leon Bennett

Salutations, disciples! Today we shall complete our meditations on phugoids;sections concerning theory (MJ #8), practice (MJ #9), and velocity effects (MJ #12) will be assembled into a seamless whole. Yes--through a series of awkward and even obnoxious questions and answers, these seemingly diverse chapters will be pulled together into a single, powerful statement.

Know this stuff and you can put labels on strange disasters even before the pieces are swept up. Join with us and the fear of the unknown is eliminated forever. Unfortunately, the known is enough to scare the daylights out of anyone.

****

Question: Greetings, Guru, and let me say I love the way you've decorated the cave. But on to the matter at hand--what are phugoids?

Glue Guru: A phugoid is a flight path.

Q: Then why not call these things flight paths?

GG: A certain set of flight paths are of particular interest to modelers. These describe the action of a model experiencing "excessive static stability." This particular set is generally known as Lanchester's phugoids. Sometimes this set is simply called phugoids, for short.

Q: Why the "excessive static stability" proviso? What is static stability anyway?

GG: Static stability is the determination of the model to return to the original wing angle of attack after an upset. We achieve sufficient static stability by using a big tail, a long tail moment arm, and by placing the CG somewhere near the quarter chord position of the wing. By "excessive static stability" we mean that the determination to maintain a given wing angle of attack is so strong that no matter what gyrations are being performed, the wing angle of attack is never altered.

Q: That "excessive" stuff seems unreal. Why bring that in?

GG: It is somewhat exaggerated. Mathematical modeling is a strange game in which oversimplified pictures of reality, if handled with genius, can lead to practical ends. Such is the case here. The "excessive static stability" condition, implying a fixed angle of attack, happens to describe rubber scale models well enough. By chance, the fixed angle of attack condition is also at the heart of Lanchester's stability calculations. He needed this assumption to simplify the math. The resulting Lanchester's phugoids describe the gyrations of every overpowered FAC model with reasonable accuracy.

Q: You mean the garden variety FAC model flies around with a fixed angle of attack? Even Grillo Kits?

GG: Yes, that is roughly correct; it is hard to believe, but close enough to the truth.

Q: But how do we achieve that fixed angle of attack? And if it's fixed--what is it fixed at?

GG: We achieve the fixed condition by pressing for maximum static stability. We do this out of fear that our models will lack sufficient stability to survive turbulence type upsets. Hence we cheat on tail area, etc, in a desperate attempt at more static stability. By the time the model is finished and balanced at the quarter chord point, we have achieved the maximum amount of static stability available for that particular model. In turn, this means that we have achieved the most nearly fixed angle of attack that can be realized for the model.

The actual fixed value of angle of attack is determined by the trimming process. The purpose of the classic trimming procedure (trial and error setting of tail incidence angle to establish flattest glide) is to lock in the largest possible wing angle of attack short of stall. Such is the fixed value.

Q: Are these trim adjustments wise?

GG: Yes and no. In this valley of tears, everything has drawbacks. Flying at an angle of attack yielding the flattest possible glide is best for duration, not only in glide, but when under moderate power as well. The catch is that these very same trim adjustments are not good at handling extreme power, and at the moment of launch, many of us use extreme power.

Q: What happens with excess static stability, classic trim adjustments, and extreme power?

GG: The phugoid follies. Depending on the power (speed) available, we see progressively: a gentle undulation, the zoom to doom, or a series of loops

Q: But don't these maneuvers imply that there is something wrong with the model--some defect in stabilizing action?

GG: No.

Q: Aw, c'mon now, Guru! Here we have a model that is tearing itself to pieces in the course of flying all sorts of crazy maneuvers. There's got to be something wrong with it! Perhaps some warp has crept in--

GG: No. The model is doing exactly what it is supposed to do. We are unhappy with the results only because we had hoped for something else. The hope was unrealistic. As it is written, the search for a kitchen maid whose foot fits a tiny glass slipper will yield many smelly feet.

Q: You mean the search for stability under high power is hopeless?

GG: No, far from it, much that is positive and practical can be done; but our actions must fit Lanchester's stern conclusions. We must counter the consequences of classic trim in the high power phase of flight. The practical approach is to reduce either the model speed, or the angle of attack, or the determination to maintain the angle of attack. By doing one or more of these things, we can tame high power. Practical instructions for achieving these ends have been set forth in MJ #9.

Q: These high power trim suggestions sound like old ideas. What exactly is new here?

GG: Nothing. Lanchester did his work in 1908; sufficient theory to understand high power longitudinal gyrations has existed ever since. As to the various practical measures, all were in place by the 1940's and thoroughly understood by the 1950's.

Q: If all this stuff is old hat, why are you bothering us with it?

GG: The phugoid story has not gotten an adequate press. Bits and pieces have appeared here and there, much of it distorted and some of it wrong. Of the various stability gurus, Zaic gets top grades in this matter and is worth reading today. Yet even the Zaic material is not aimed at our target (rubber scale) and leans toward solutions to high power(such as spiral flight) that are not realistic for most of our low dihedral, low wing models. In this, the FAC series, the ancient phugoid story is retold in terms of our thing.

Q: If this phugoid stuff is so important, why has so little been said on the subject by NFFS?

GG: My guess is that the problem is not that severe for those unconcerned with the scale-like aspect of models. Performance class people have unlimited dihedral, tail area and tail moment arms to deploy. Many use timed tail and rudder settings. With a full bag of tricks ready for use, the performance people face the wrath of unleashed high thrust with a certain equanimity. In scale with few defensive measures, we stand nearly naked before the onslaught.

Q: But aren't you exaggerating the difficulties of high power? Certainly many of us cope and do so without trauma.

GG: Many of us do exceedingly well with high power, by incorporating the knowledge born of much experience. But I suspect that many more of us have dropped out entirely when confronted by the gap between bitter reality and such piffle as "now that the model is flying well on 100 hand turns, it only remains to sock in several hundred mechanical winder turns to enjoy long, satisfying flights." May sick, sick dogs befoul the graves of those who write such instructions.

Q: You feel that something has been left out?

GG: Everything!

Q: How should such instructions be prepared?

GG: "On the way to full power, your model will experience a personality change; what appeared to be a gentle dreamer, under a few hand turns, may well turn into a foul-tempered monster unless handled ever so carefully. The following table gives essential trim information on the road to full power. Ignore these at your peril."

CG Location	Turns	Downthrust	Rudder Settings
x	xx	xx	xx
x x	xxx	xxx	xxx

Q: But don't the inevitable warps and imperfections of the designer's prototype influence his adjustments? How applicable is such a table to another model--even a carefully made duplicate?

GG: You have a point; there are limitations here. Still, such information is much better than none. Trimming for high power is by far the most difficult and painful part of the entire modeling exprience. Any crumb of data is precious in this area.

Q: On a different tack, Guru, would you mind if I were to ask some personal questions?

GG: Go right ahead. I have nothing to hide. Sleeping habits? Favorite author?

Q: No, I had something different in mind. If you know all this stuff, how come you never win a national contest?

GG: I'm a philosopher, not a man of action! (noticable twitch develops here)

Q: We've got a grandmother and a twelve-year old kid with a better contest record than yours. Are you suggesting that these people are "men of action"?

GG: (Smiles thinly, twitch increases in intensity, drums fingers on table-says nothing)

Q: What happened at FAC IV? Blew it again, huh?

GG: (Sighs deeply) If you must know, I shall tell you. But first, a warning: when acquainted with these dismal facts, hardened criminals burst into tears and strong men become mad. The risk is considerable.

Q: Try me.

GG: So be it. I prepared a 51" P-39 swinging an 18" three bladed prop. The model weighed 360 grams, of which 84 were given over to rubber. While of uncertain demeanor in glide (tendency to spiral dive to the right), the climb was rousing indeed.

On Jumbo day, with 84 grams of rubber ever so carefully wound to capacity, the winder removed, and the noseblock being turned this way and that to seek the proper key with the fuse, I heard a faint click. No burst, no recoil--just a faint click. Whatever this implied, seating of the noseblock suddenly became wonderfully easy. Even stranger, the prop began to freewheel! Now that seemed odd--definitely odd. The very same motor that had demanded all my strength to wind now lacked any tension whatsoever. The noseblock and prop assembly fell off at this point. Would there be no end to these strange events? The "Say it ain't so, Joe" form of reality-denial principle continued to operate for a few more seconds until I at last peered grudgingly into the fuselage.

There was the motor, proudly wrapped around the rear peg in a manner that would do credit to a python. Yes, here was one rear peg that was not about to fall out. Discrete poking with a hooked wire seemed to accomplish little but annoy the snake. I snatched up the prop and one more oddity stood revealed-the rubber hook was gone. There are those who would claim that these various events are somehow connected. I cannot say. The mind has its own protective devices. When the pain becomes too great, a shutter falls and thought ends. I turned an anguished face to the heavens and screamed out, "Will there be no end to these tribulations?"

Q: Like I said, you blew it again, huh?

GG: (Seizes his walking staff and belabors the questioner without mercy, bringing the interview to a conclusion.)

The Others Strike Back
Mumbo Jumbo #14 from the Glue Guru aka Leon Bennett

Salutations, disciples! We shall once again pause in our series of meditations concerning Jumbo, so that I may report a recent adventure.

My accommodations at FAC IV proved sadly inadequate. Initially, I placed my bed roll at the top of the sloped test track. In this way I could monitor the speeding cars and quickly roll out of the way when necessary. But sleep in these circumstances was difficult. Moving to the infield proved equally fruitless. The underlying matrix of discarded greasy blown motors produced an endless slithering and sliding of my bed roll as I respirated. Returning to the top of the track proved a final error ; the lube-soaked bed roll tobaggoned down the incline, shot across the infield and zoomed half way up the opposing track before I was able to bail out. Talk about sleepless nights!

Hence it was almost with relief that I spotted Mr. Bob Thumbsome, flashlight in hand, searching back and forth across the infield. The reader already knows of certain adventures shared with Mr. Thumbsome; experiences that have taught me to be wary of his energetic companionship. Yet, facing a sleepless night, conversation with even Mr. Thumbsome seemed desirable. I hailed him.

"Mr. Thumbsome, it is I, the Glue Guru. What are you seeking?"

"You, GG ! There's a Red Alert crisis meeting on right now for all Jumbo flyers. This is it,GG! The Others have struck back! Quick, to the Grudging Hospitality Suite at the official motel."

* * * * * *

Mr. Run Likehell, our mild mannered CO stood before us, pale but determined. "Gentlemen, I think these movies tell the story better than words. Lights, please."

The assembled Jumbo flyers settled in their chairs to watch - a Wakefield model. As it flew the usual course, a sense of anti-climax set in. Our noted statesman, Spiral Agnew has said "If you have seen one Wakefield fly, you've seen them all." He's right. The Jumbo contingent grew increasingly restless as the model climbed out, cruised, folded its prop, etc, etc. Loud yawns were heard. Red Alert indeed! Flyers peered into their beer cans. Feet were crossed and uncrossed. Finally the model came in for a bumpy landing. The camera lens zoomed to supply a close-up of the canopy, a miserable attempt to dress up what was otherwise a standard brand Wakefield. With the canopy filling the screen, we noted that there was some sort of a cutesy-poo doll inside. Disgust filled the room like the stench of dope thinner.

Then the canopy popped open and the doll climbed out. Carefully making its way down the wing walk, it leaped lightly to the ground and gave the camera a big thumbs up and an even bigger grin. That smile, the round head, the glasses -it sure looked like Bob Black, the Wakefield champion. But how -what?

Mr. Likehell broke in. "Gentlemen, that is Bob Black full size. Your sense of scale has been deceived. You have been watching a man-carrying Wakefield look-alike, some 53 feet in span."

The room suddenly came alive. Startled viewers crushed their beer cans. Feet slapped the floor. Muttered oaths filled the air. "I think the next reel will answer your questions."

With a new perspective, we saw the Wake parked on a ski ramp similar to those employed for launching V-1 bombs. A truck equipped with a Huck starter backed to the prop and locked on. The truck edged forward and a huge rubber motor was pulled from the fuselage. As big in crossection as a telephone pole, the motor was slowly wound as the driver clutched in the truck external power drive. Gingerly backing the truck while winding, the driver neatly finished the operation with the noseblock restored to the fuselage. Insertion of a crowbar as a Montreal stop came next- winding was complete. The truck pulled away and the pilot climbed in.

Mr. Hearse Flowers appeared on the screen. The so-called curator of the Others was carrying an enormous transmitter, festooned with countless switches, thumbwheels and sticks. The scene shifted to an adjacent stockade or holding pen, crammed with Others of every conceivable size and shape. Each had one arm up in the air, as though holding aloft an invisible tray. Mr. Flowers began to stroke the levers and the Others came to life, marching and countermarching from the stockade to the Wake. Short Others were positioned under the wing near the fuselage. Tall Others were moved out to the wingtips. The weight of the Wake was easily taken up by the dozens of outstretched arms.

A final platoon was set marching out to the tail when a glitch developed. The tail Others kept marching towards the horizon, no matter how Mr. Flowers twiddled his controls. They soon disappeared from view, each with one arm still raised, as though in farewell. Mr. Flowers shrugged. There are plenty of Others. A reserve platoon was soon in position.

With all the Others in place, the Wake was easily carried away from the stooge. Next, a to and fro motion developed among the Others; the Wake swinging back and forth until Mr. Flowers was satisfied with the velocity and amplitude of the motion.

Now! By pressing a single launch button, the Wake was thrown by dozens of synchronized arms. The pilot hit the release switch and the crowbar flew out. Slowly at first, the enormous prop began to bite air just as the launch momentum died. The Wake was under way again.

The lights came on. Stunned Jumbo flyers stared at one another. What did it all mean? Why? And was there any beer left?

Mr. Likehell took the floor again. "Gentlemen, I have a cable from the Others. We are challenged to defend the International Jumbo Trophy recently won in Paris. The contest is to be held at Taft, under Taft Jumbo Rules.

"Their strategy is obvious. They will enter a model of the Wake we have just seen. Not only will the rib spacing be duplicated perfectly, but so will the rear peg, folding prop and so on right down to the pin holes in the plans!" Gasps and moans rose from the audience.

"As for the flying portion of the contest, they have contracted with Bob Black to serve as their flyer. He will be entering an ordinary Wake model - one he knows perfectly - and flying on his own home grounds. Taft is a notoriously tricky field. Many years of experience are required to master the local air currents. Yet Mr. Black has recorded many 30 minute plus flights over this field. Under Taft Jumbo Rules, there is no Max. The single best flight time in five official tries is your score. If we cant do 30 minutes - well, we're just not in it.(Sob)

"Gentlemen, there are those who would be discouraged by these grim facts.(Sob) I am not. (Sob) I feel that among you there is someone who will arise to champion the FAC cause against this sordid scheme - a scheme that is a travesty of scale modeling - a scheme that could emerge only from the sick minds of the Others!

"What say you, gentlemen?"

By an effort of will, each of the assembled Jumbo flyers made himself small. Some appeared quite hidden behind their beer cans. Only heros and morons speak at a time like this and FAC has blessedly few of either.

Mr. Thumbsome was on his feet within one second - a delay expended in slapping his plastic goggles into position. I began to experience a sense of rising anxiety.

"I volunteer to put those dastards in their place. I have a plan. I will require the services of the Glue Guru."

Even as I rose to protest vehemently, Mr. Likehell, his face wreathed in smiles of relief, was already assuring Mr. Thumbsome of my availability.

"Of course, Bob. You can have whatever you need. But why this clown? Some of these guys are actually competent."

"No, I want GG. He's real patient. I need him to hold the sticks down on the plan until the glue dries."

A puzzled frown crossed Mr. Likehell's brow. "Bob, most of us use pins for that purpose."

"Pins? That's a great idea!"

Groaning loudly, Mr. Likehell tottered on his feet as he vainly attempted to match the extraordinary abilities of the Others, shown by the film, against the relatively modest talents of Mr. Thumbsome and myself. He shook his head sadly as he came to a decision. "I have my own plan. Bob, you and GG stay behind for a strategy session. The rest of you are dismissed." They fled.

* * * * * * *

"Let us face reality." Mr. Likehell paced up and down as he put forth his arguments. "There is no chance of winning the static scale portion of the contest. The man-carrying Wake is simply a scaled up model- and they will be entering the actual model. Our only chance is to take the flight portion of the contest by a wide margin. In writing off our static chances, we gain something - the right to modify our design as we please, to increase the flight potential. After all, a good Unlimited can beat a good Wake.To win, we need two things - a model with the capabilities of an Unlimited and a flyer who knows Taft like the back of his hand. Given the right flyer, even that Puss Moth by Cheat Laslo might win. A bit low in fidelity perhaps - but lots of performance."

Mr. Likehell halted, stared at us as though seeing us for the first time, and sighed. "No - in this case, stronger measures are required. Umm. Let us imagine that we announce that our champions are on the way, by slow boat. The journey is long and uncertain, but we are sure that they will arrive by a certain date, etc, etc. But months pass and nothing is heard of our heros. We organize a sea search. There are pictures on the TV of bereaved loved ones staring out to sea, hoping against hope and so on.

"With all this commotion, the Others would not dare press us for an immediate contest - to do so would make them seem brutally insensitive to our terrible loss. In the meantime, young Egbert, that 12 year old kid in Pennsylvania - he looks real promising - will be in training on Unlimiteds at Taft. Going at it full time, I think he can handle it in a year.

"Photos appear of our new champion, frisking with his dog, saying his prayers and so on. He's got pictures of the two of you in his bedroom and he kisses the pictures every night before he goes to bed! Good stuff, huh? The TV people will go for it for sure. A new FAC champion arises from the ashes of disaster! The whole country will be pulling for us. Even if we lose the actual contest, we'll have won over the public.

"And if we win, we'll arrange to have the trophy handed to the kid right over your coffins! What a scene that would make! The kid saluting the coffins with one hand and while tears roll down his cheeks - he reaches out for the trophy!

"As for you gentlemen, well, we all have to go sometime. Right?"

Mr. Thumbsome snapped to attention. "I regret that I have but one life to give to the FAC"

"That's the spirit! Here's ten dollars. Buy the best boat you can find for the money and get under way. Good luck and dont lose the inventory card this time.Strap it to your body. You cant be too careful about administrative procedures."

Doomed again. I left, sadly trailing an ebullient Mr. Thumbsome. Facing sharks in a ten dollar boat is not my forte. I am but a humble philosopher, seeking the ways of Jumbos passing through the air. Would my fingers ever carve another prop? Was this the end of it all?

* * * * * * *

To be continued

* * * GETTING THERE * * *

Mumbo Jumbo #15 from the Glue Guru aka Leon Bennett

(UPDATE - The Others have challenged the FAC grip on the International Jumbo Trophy. Having flown a man carrying Wake look-alike, the Others intend to compete with a standard - but perfectly scaled - Wake model flown by Bob Black. FAC plans include the loss at sea of veteran flyers Bob Thumbsome and the Glue Guru, thereby buying time in which to train young Egbert to a championship performance level. We are with Bob Thumbsome and the Glue Guru, somewhere at sea in a ten dollar dinghy).

* * * * * * * *

Salutations, disciples! To the small boat sailor, as to the scale modeler, life is but endless toil relieved by moments of stark terror. Non-stop bailing is accepted simply as the price of existence. One merely shrugs and endures.

But given a calm and beautiful day, the senses awaken and eyes sparkle. On such a day, Mr. Thumbsome and I ghosted along, perhaps in the Gulf of Mexico, perhaps not. The calendar placed us late in December and yet the warm breeze spoke of July. We were, for an instant dry, warm and alive. There are such moments for each of us in this valley of tears and we seize them eagerly, becoming benign, expansive and finally foolish in our happiness. At such times, church deacons flee with cuties and Mr. Bob Thumbsome writes poems.

"You know, GG, it's probably Christmas back in the States. A time to celebrate one's fellow man. A time to - well, I think I've caught it best in this poem. Would it be OK if I recited this poem to you?"

"Of course, Mr. Thumbsome."

He looked about and sensed that some ritual cleansing was necessary as a preamble. From some filthy pocket, he whipped out a kazoo and blew a single bleating note. I bowed my head. He closed his eyes, cleared his throat and declaimed:

"Mr. Bob Thumbsome's Christmas Poem
by Bob Thumbsome

Love thy neighbor
As a brother
Even if he is
A lousy Other."

The kazoo sounded the all-clear. Apparently it was over. "Well - umm - the sentiment is noble indeed, Mr. Thumbsome."

"Yes, it is. And it rhymes pretty good too."

"Er - yes."

"You know, GG, I haven't always been so forgiving. There was a time when-well, I used to bite Others." He hung his head in sorrow as he contemplated past misdeeds. "The thing is, they bring it on themselves. Now take their official magazine, Model Aviation. There's nothing in it but Others and their cuties. They do it everywhere! Parks, schoolyards; yes, even churchyards. Have they no shame? Even in churchyards! There's nothing in that rag except pornographic filth."

"Er - umm - exactly what are these people doing?"

"Why, radio control, of course. They commit radio control all over the place. No sense of decency at all. That's why I was forced to bite them. But from now on, it's going to be different. I'm going to love them. If the Others want to do a little radio control now and then - well, I'll let it go."

"That's magnanimous of you, Mr. Thumbsome."

"Yes it is, GG,-say, why are you fooling with those beads?"

"This is an abacus; an early, but precise calculator. I'm working on the problem of besting the model of the man-carrying Wakefield."

"Dont worry about it, GG, the CD has it all figured out. That Egbert kid will win for us."

"Perhaps. But the problem is an interesting one and I feel close to a solution. Given a four bladed lead propeller, some 30 minutes, dead air seem possible. The problem is to increase the dead air time, to say, one hour."

"Lead propeller? One hour? You're nuts, GG. Forget that stuff! Let's just follow orders and guard the boat inventory card until we're lost at sea." Suddenly reminded of the inventory card, Mr.Thumbsome frantically searched under his shirt until his fingers found the document taped to his chest."I've got it! I've got it!"

"Must you find it once an hour, Mr. Thumbsome? I am quite prepared to believe that you have it and will not lose it."

"Well, you've got to be careful about that kind of thing."

* * * * * * * *

My fingers grew weary of shuttling the beads back and forth and I paused in my labors. Time for a break. I looked up and there, not 30 feet from our vessel was a large blue- grey fin, slowly cutting through the water.

"Great Scott, Mr. Thumbsome! A shark! Over there!"

Mr. Thumbsome slapped his goggles into position. "It's the Others. They've come for the inventory card!"

"It's not an Other! It's a shark."

"They cant fool me, GG! I know an Other when I see one! There's only one thing to do with Others - bite 'em!" Pushing me aside, Mr. Thumbsome dived overboard without even a weapon.

The sea heaved and roiled and then became calm. A blood red tint upon the waters was the only reminder of Mr. Thumbsome. I was alone. I shed a tear, for even Mr. Thumbsome is entitled to one tear, in spite of his rotten poem.

I had barely turned back to my abacus when a hand reached over the gunnel followed by the well known helmet. Mr. Thumbsome was alive! I seized his exhausted body and dragged him aboard. Bruised and scratched from head to toe, gasping for air, his clothing gone, he collapsed into the bilge, retching and

spitting out bits of shark flesh.

"That was one tough Other, GG. I've bitten them all over New England, but I've never seen one like this. Maybe - maybe, I'm getting old."

"But that was a man eating shark, Mr. Thumbsome. You beat him at his own game and survived. Very few men could achieve such a thing. Certainly I could not."

"Well, the important thing is that he didn't get the inventory card." Mr. Thumbsome automatically grabbed for the document taped to his chest. It was gone. He paled and frantically searched his body everywhere. "it's gone. He got it. I'm ruined!"

"But you're alive, Mr. Thumbsome. Alive to bite another day."

"You just dont understand, GG. That card stood for responsibility and tradition. That's what makes FAC worthwhile. All that you understand is logic and numbers. That stuff doesnt matter. If we were interested in logic we wouldn't be flying toy airplanes. We would be doing something logical, like cross-rotating our tires or reading the fine print on insurance policies. We're not interested in that stuff. We fly toy airplanes because it makes no sense at all, except to delight the small boy inside us. You, with all your numbers, will never be a small boy. You blew it."

I objected, "But toy airplanes have a logic of their own. To ignore this logic is to produce endless failures and crashes."

"Logic again! Forget logic. Just go with your intuition. That's all you have to do. Once you accept logic, you're in the hands of the lawyers and mathematicians. The magic disappears. Words and numbers and logic are no substitute for a dream."

"It is not so, Mr. Thumbsome! The dream of flight succeeds only if the underlying logic is sound. So it is with all dreams in this valley of tears. To spurn logic is to spit into the wind. You are obsessed with an inventory card. Logic tells me that such a card is merely a record of purchase and has but a trivial value. To grieve over the trivial is foolish."

"You're wrong GG! To fly toy airplanes is to enter the world of small boys. In that world only emotions count. That card stood for responsibility. That's what counts most in any family. And yet I - I lost it." A heart-broken Mr. Thumbsome withdrew to the bow of the dinghy to mourn his lost inventory card while I continued to work the abacus at the stern.

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Many days passed. The beads flew back and forth as parameters were searched. False hopes arose, were studied, unmasked, and then abandoned. The struggle became bitter, peaked out, and then - a solution. With a 6 bladed lead prop, it could be done; one hour, dead air. Some practical problems remained, but such is always the case. One hour, dead air! Elated, I broke the news to Mr. Thumbsome.

"Forget that stuff, GG. One hour? Bunk! If the idea was any good, Megow would have done it in 1937. Whatever you've got, it isnt in the FAC tradition. Besides, what difference does it make? I'm a ruined man. Ruined! There's only one way to salvage my reputation, and that is to win the —. Did you say one hour, dead air ?"

I nodded assent. A sly, crafty look stole over his face. Mr. Thumbsome was about to reason. "You mean that if I got to Taft, I could put up a flight of one hour and win the International Jumbo contest?"

"It is quite probable. Of course there is the problem of the Egbert youth, currently in training as the FAC representative."

Mr. Thumbsome, who prefers to cope with one simple idea at a time, arranged his priorities with dispatch. "Forget the Egbert kid. Tell me about the lead prop. And leave out the math stuff."

"Consider a rubber motor arranged to drive a prop through a freewheel mechanism. However, unlike the usual prop, imagine this prop to have a heavy flywheel effect. The motor is wound conventionally and clutched to the prop. However we do not launch yet. The sluggish prop slowly accelerates as it is driven by the motor. When the slowly turning prop starts to freewheel, the motor is wound again and clutched to the prop. Now the prop begins to turn over a bit more quickly. The process is repeated again and again until 60 repeated winding cycles are stored in the lead prop. We now have a speeding prop that will supply flight energy for an hour. We launch."

"But that's cheating!"

"No, Mr. Thumbsome. The rules merely say that power is to be derived from elastic bands. There is no rule specifying the number of times the elastic bands may be energized for a single flight."

"It's the most disgusting thing I've heard of since radio control! Is this obscene scheme yours?"

"The credit is not entirely mine. An exploratory note appeared in the September, 1944 issue of Aeromodeller."

"Of all the slimy lawyer tricks —." Mr. Thumbsome was beyond words. And yet- and yet, somewhere in this scheme lay possible redemption for some imagined failure on his part. Such was Mr. Thumbsome's agony.

"Damned if you do and damned if you dont" trade-offs are painful at best, for each of us. But unlike most of us, Mr. Thumbsome has suffered the inevitable brain damage incident to judging thousands of Peanuts - in each contest forcibly resisting the terrible temptation to step on some miserable Fike or Lacey, lacking in three views, but well supplied with crushed stringers and painted largely with clotted droplets of flung rubber lube.

To such a man, moral and ethical trade-offs are the stuff of nightmares. He has been to the brink too many times. And yet he struggled manfully to think, a sick leer presenting the only sign of internal turmoil. At last, he slapped his plastic goggles into position, a signal that action was impending. "Grab an oar, GG. We're going in. California, here we come!"

* * * * * * * * *

Heads began to turn as we dragged the dinghy past the kitty litter factory. "They're here!" cried the adoring throngs. Mr. Run Likehell paled. Young Egbert turned to his father and said "Does this mean that I can stop kissing those lousy pictures?" We were back among our people... (TO BE CONTINUED)

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THE CLEVELAND FREE FLIGHT SOCIETY

PRESENTS

Third Annual A.M.A. sanctioned contest for free flight model airplanes

Sunday, February 17, 1985 5:P.M. to 10:30 P.M.

Brook Park Armory
6225 Engle Road
Brook Park, Ohio 44142

Events 1 and 5 are Junior/ Senior and Open combined.

Events 2 to 4 are J,S.O. combined.

The Events:

5:00 P.M. to 8:00 P.M.	1.	EZB	Scoring will be the longest of five official flights. An official flight is thirty seconds and two attempts will count as one official.
	2.	Scraps and Mites	
8:00 P.M. to 10:30 P.M.	3.	Jetco R.O.G.	Scoring is the same as in # 1 & 2.
	4.	No-Cal Scale	F.A.C. Rules Total of three flights. Any flight 20 seconds or over is official.
	5.	F.A.C. Peanut Scale	Models must be presented for judging by 8:30 P.M. Models must be tissue cov. Best flight of three. Twenty seconds is an official flight. Scale data should accompany model.
	6.	W.W. I Biplane Combat	Flown at 9:30 P.M. Minimum of three entries, with a first place prize only. No ghost models. Models must be tissue covered.

Additional Rules

EZB - see page 14 of 1984-5 AMA Rulebook.

Scraps and Mites - 9" maximum wingspan, single wing only.
5" maximum diameter prop, wood or plastic.
No bracing or hollow sticks.
Condensor or tissue covered.

Jetco R.O.G. - Must be built according to CFFS reprint of plan.
5½" maximum diameter prop which can be modified only by sanding thin. Prop must be plastic.
Solid motor stick.
No camber in wing due to structural changes or baggy tissue.
Tissue covering.
Minimum weight of model must be 3.5 grams without rubber.

Prizes

Seven or more entries = 3 prizes per event.

Four to six entries = 2 prizes per event.

one to three entries = 1 prize per event.

CO2 engine (choice of Campus Bee or A23) to first place winner in Senior/Open F.A.C Peanut, provided the winner has not previously one an engine at CFFS competitions.

Entry Fee

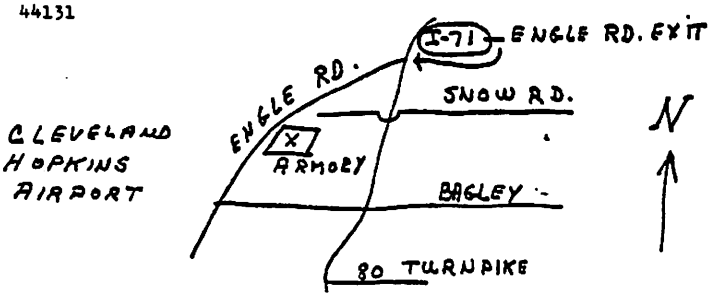
Open - $3.00 first event, $1.00 each additional event. $6.00 max.
Jr. and Sr. $1.00 total.

Contest Director

Michael C. Zand
7055 Seven Hills Blvd.
Seven Hills, Ohio 44131

216- 524-3480

Map



No Record Trials will be flown at this contest.