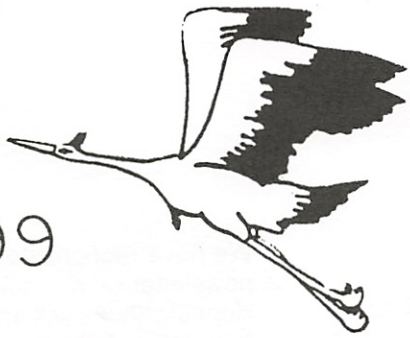
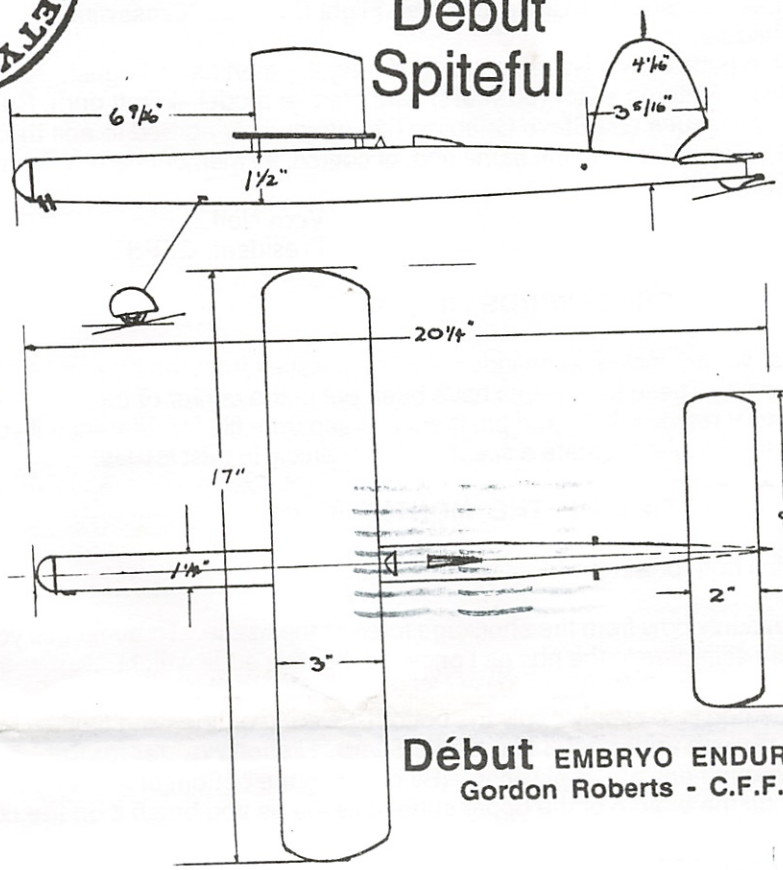
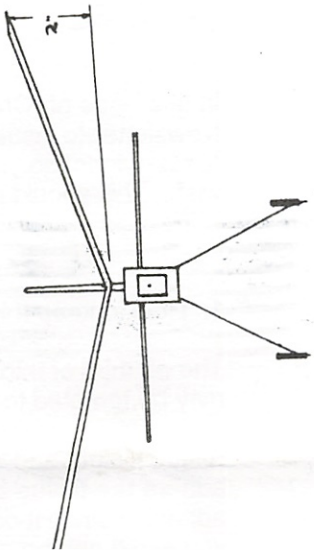
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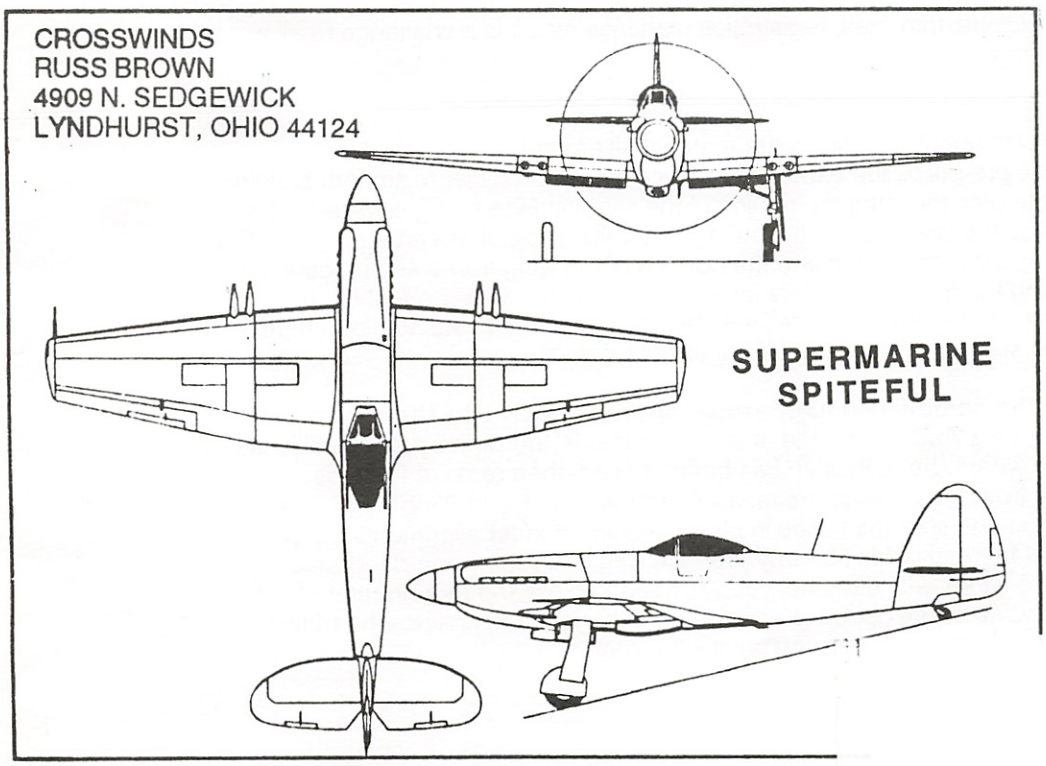
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Début
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Début EMBRYO ENDURANCE
Gordon Roberts - C.F.F.S.

CROSSWINDS
RUSS BROWN
4909 N. SEDGEWICK
LYNDHURST, OHIO 44124



SUPERMARINE
SPITEFUL

ISSUES OF "CROSSWINDS"

We have recognized the need to issue The Cleveland Free Flight Society's "Crosswinds" newsletter on a regular schedule.
Henceforth we will attempt to publish four issues annually during the months of August, November, February and May. Veteran editor (30 years), and premier model aircraft guru, Russ Brown will continue to edit two issues and Steve Griebling has generously agreed to edit the other two. Overall editorial policy will remain the same and, of course, all members are welcome to submit articles to either editor.

Vern Neff
President, CFFS

CROSSWINDS INDEX:

In this issue of "Crosswinds" we are including an index of all past issues from the beginning of the Newsletter to issue Number 99. These four pages have been put in the center of the "Crosswinds" so you can easily remove them and put them in a separate file for reference if you wish. This should make it much easier to locate a specific plan or article in past issues.

TIPS OF THE MONTH:

1. How to keep thin wing ribs from bowing:

The aft third of thin ribs commonly bow from the shrinkage force of the tissue. To avoid this you may be tempted to add balsa stiffeners to the ribs as I once did, but this adds weight.

A light weight and simple method is to simply apply the bottom covering on the wing first and adhere the tissue **to each rib** with adhesive! I like to use 50/50 "Titebond"/water for the adhesive since it does not require any pre-application. (By covering the bottom of the wing first you avoid getting adhesive on the bottom of the upper surface tissue as you brush it on the ribs.)

2. Alignment of tissue to flying surfaces:

If you pre-color tissue with scallops, trim lines, registration markings etc., it is a challenge to align the tissue perfectly on the wings.

An easy solution is as follows:
Cut the bottom tissue panel with about 1/2" inch extra material all around.
Place the wing frame over the pre-cut tissue exactly where you want it on a clean, smooth building board and pin it down with the pins touching the outline of the wing surface being covered. (Two pins next to the root rib, two at the tips and two at leading and trailing edges are enough.)
Carefully lift the wing away, apply your adhesive to the **bottom** of the wing frame and place it right back down where it was, using the pins as registers for the wing outline - viola- perfect alignment without a fuss! Pull the pins and after the glue dries you can plunge your #11 Xacto blade right in to one of the pin holes to get started on trimming off the excess tissue!

For the **top** surface, follow the same procedure, except **apply adhesive to the trailing edge and rear third of the end ribs only**. Place the wing inside the pin register outline as above and stick the tissue to where the adhesive has been applied, then remove the pins, carefully roll the tissue away from the unglued areas, apply adhesive to the leading edge and forward portions of the end ribs and stick the tissue in place. Again - perfect alignment! Tip panels are usually small enough that there shouldn't be any problem with positioning pre-decorated tissue to them. (For one piece wings with dihedral, you will need to place the root rib right at the edge of the building board and allow the opposite wing panel to hang out in space. The building board edge serves as a register for the wing as you put it in position.)

Steve Griebling

ONE OF THE TEN BEST MODELS OF 2001
THE DÉBUT BY GORDON ROBERTS

At the January meeting this year I was asked to submit a plan for submission to the National Free Flight Society as a candidate for one of the ten best free flight model designs for the year .

I chose to submit the **Début,** the Embryo Endurance design by Gordon Roberts, and was pleased to learn that Gordon's plan was one of those selected for this honor.

A short biography of the designer was part of the submission requirements, so it gives me pleasure to reprint Gordon's condensed biography below, knowing that many of you who have flown with Gordon over the years will find it interesting:

Condensed biography for Gordon Roberts, designer of the "Début" an Embryo Endurance Model

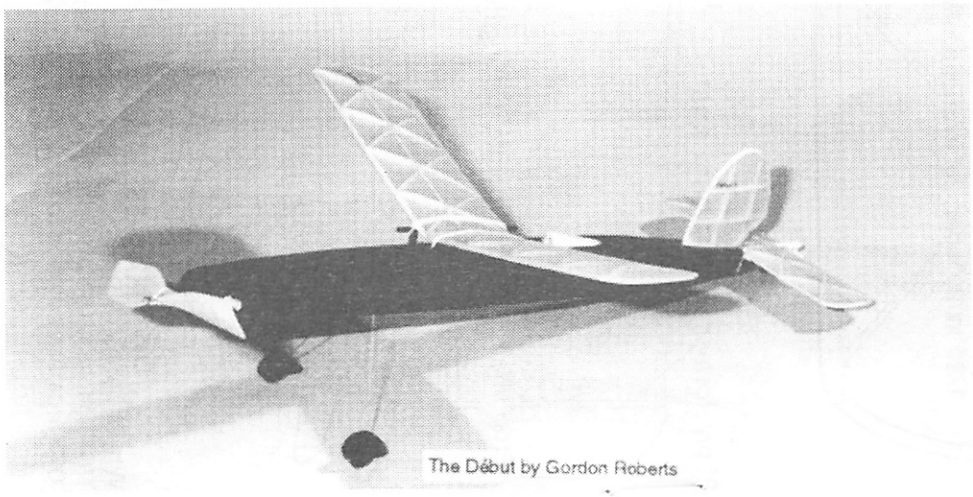
Gordon Roberts was born and raised in England and earned a Ph. D. in Chemistry from Leeds University. He has worked in the field of Ceramics all his professional life, and emigrated to the United States in 1970 to work for the Ferro Corporation in Cleveland, Ohio. Gordon holds the record for the number of patents held by Ferro employees. He officially retired from Ferro at the age of 67, but worked part time until fully retiring this year at the age of 74.

While still in England, he was high point winner on the Nordic Glider team in 1956, and competed in Italy at the International level. He took up rubber powered endurance models in England in 1961 and carried this expertise with him when he came to the U.S.A.
Gordon has over 450 first place awards (Kanones) in the Flying Aces Club. This is by far the highest number of first places of anyone in the Flying Aces . He is a member of the 'Stork Squadron' (Cleveland Free Flight Society = CFFS) and keeps the other members on their toes with his great skill and experience but willingly gives advice on trimming, construction techniques and design with anyone who asks for it.

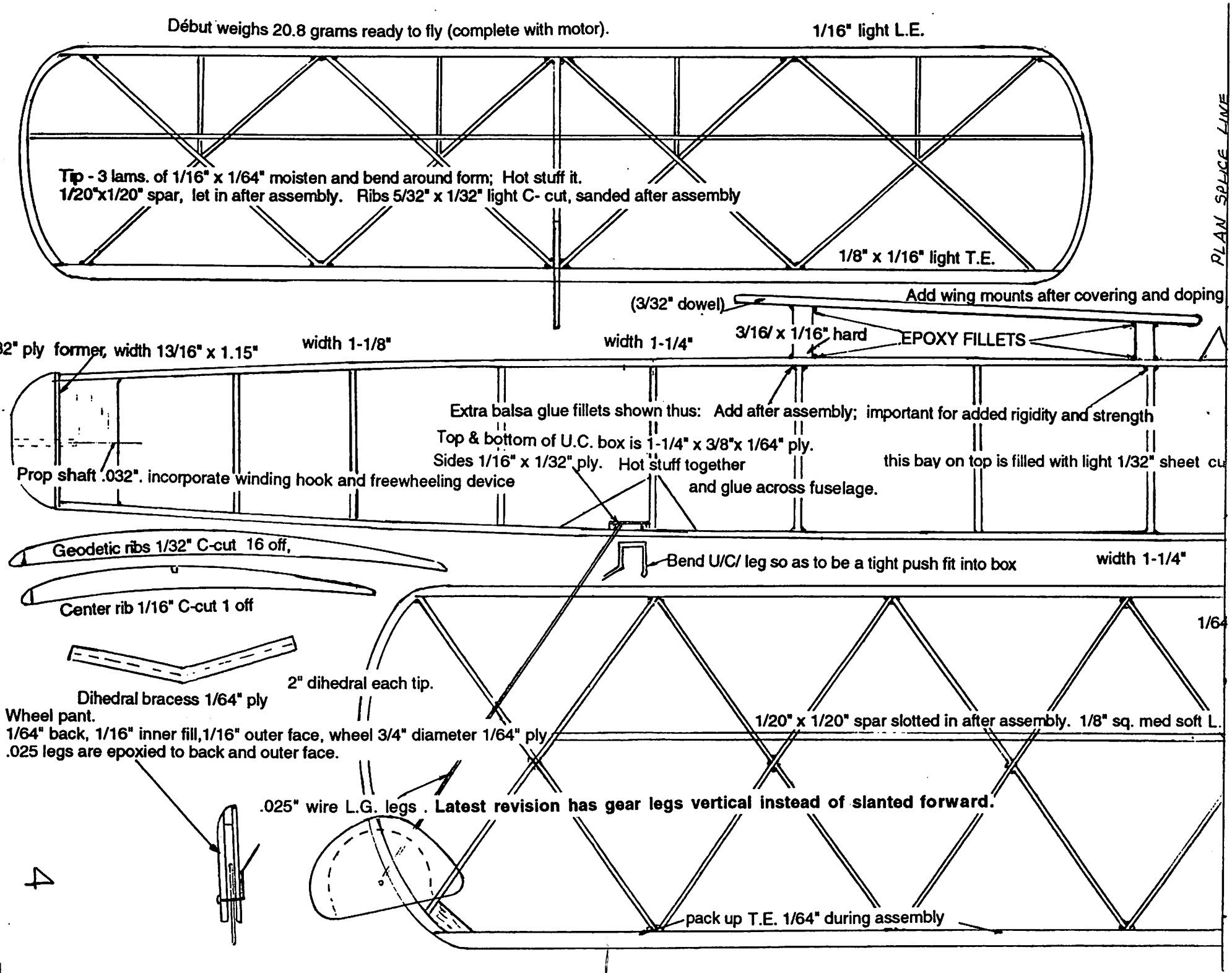
The Début was designed several years ago and has won somewhere between 40 and 50 first places for Gordon alone, and a number of "firsts" for other modelers who have built and flown it.

Congratulations to Gordon for this excellent design and for his outstanding contest record!

There is a reprint of the Début plan submitted to the National Free Flight Society in this issue of Crosswinds and, for those willing to wait, we have learned that **"EASY BUILT MODELS"** will be introducing a laser-cut-parts kit of the **Début** later this year; probably in September, 2001. Stay tuned for the introduction and pricing of this great Embryo Endurance model. Incidentally, the quality of "Easy Built" kits, now owned by fellow Flying Aces modeler Dave Niezielski, has been vastly improved.



The Début by Gordon Roberts


Début weighs 20.8 grams ready to fly (complete with motor).
1/16" light L.E.
Tip - 3 lams. of 1/16" x 1/64" moisten and bend around form; Hot stuff it.
1/20"x1/20" spar, let in after assembly. Ribs 5/32" x 1/32" light C- cut, sanded after assembly
1/8" x 1/16" light T.E.
PLAN SPLICE LINE
(3/32" dowel)
Add wing mounts after covering and doping
3/16/ x 1/16" hard
EPOXY FILLETS
1/32" ply former, width 13/16" x 1.15"
width 1-1/8"
width 1-1/4"
Extra balsa glue fillets shown thus: Add after assembly; important for added rigidity and strength
Top & bottom of U.C. box is 1-1/4" x 3/8"x 1/64" ply.
Sides 1/16" x 1/32" ply. Hot stuff together
and glue across fuselage.
this bay on top is filled with light 1/32" sheet cu
Prop shaft .032". incorporate winding hook and freewheeling device
Geodetic ribs 1/32" C-cut 16 off,
Bend U/C/ leg so as to be a tight push fit into box
width 1-1/4"
Center rib 1/16" C-cut 1 off
1/64
2" dihedral each tip.
Dihedral bracess 1/64" ply
Wheel pant.
1/64" back, 1/16" inner fill,1/16" outer face, wheel 3/4" diameter 1/64" ply
1/20" x 1/20" spar slotted in after assembly. 1/8" sq. med soft L.
.025 legs are epoxied to back and outer face.
.025" wire L.G. legs . Latest revision has gear legs vertical instead of slanted forward.
pack up T.E. 1/64" during assembly

SUPERMARINE SPITEFUL
A PEANUT SCALE ENTRY?

The Spiteful was conceived as a successor to the Spitfire. Type 371 was projected from November 1942, initially mating a laminar flow wing with a Griffon-engined Spitfire XIV and a new fuselage. Three prototypes were ordered to specification F.1/43, which was written around the project, and the first of these flew on June 30, 1944. The prototype had the Griffon 2,935 hp engine and four 20-mm cannon, The second prototype, named Spiteful, flew on January 8, 1945 with a new fuselage and an all-around vision cockpit with a 2,375 hp Griffon 69 driving a five bladed propeller. Production orders were placed for 188, but only 16 were flown of 19 built or partially completed as the end of the war and advent of the jet fighter made them unnecessary.

Data for Spiteful F Mk14:		
	Max. speed:	483 mph at 26,000 ft.
	Time to 20,000 ft:	4.9 minutes
	Ceiling:	42,000 ft
	Range:	564 miles
	Empty Weight:	7,350 lbs.
	Loaded weight:	9,950 lbs
	Span:	35 ft 0 inches
	Length:	32 ft 11 inches
	Wing area:	210 square ft

Sources: "The Complete Book of Fighters" William Green and Gordon Swanborough Published by Smithmark 1994 16 E. 32nd Street New York, N.Y. 10016 (212) 532-6600
"Flying Models" August 1999 issue, page 36 - by Jim Newman.

Construction of the model is conventional with a box structure supporting formers and stringers. A reverse saddle formed of soft 1/32 sheet at the bottom of the fuselage accommodates the one piece wing and is stiff enough to resist the shrinkage of the tissue. The rather deep curvature at the lower front of the fuselage is produced by fore-aft formers instead of square stringers. Cover the wing and all but the wing mounting area of the fuselage and assemble the wing to the fuselage, then add the lower, center stringer and cover the fuselage under the wing. Note that the center, lower stringer is supported by a notch in the center nose contour former. This stringer simply continues the contour of the nose contour former toward the rear.
I used Ganpi tissue colored with felt tip markers on my model, but any light weight coloring method can be used. I will supply a color photo for anyone who has actually built the framework if you drop me a card or phone me at (330) 864-7533. The color scheme is brown and dark gray on top and light gray on the bottom. If you use felt tip markers I recommend a light coat of matte Krylon be sprayed on to fix the color. The roundels can be applied as appliqués or colored directly on the tissue if you have a steady hand! If you draw them on the tissue, do them first, then apply the camouflage afterward.

The canopy is easily formed of hot .010" butyrate plastic over a male mold using a vacuum box. Shape the mold from a piece of pine or other hard wood and sand it smooth so the grain is not raised. It is best to allow about 1/8" of extra depth beyond the bottom edge of the mold for trimming and fitting the canopy to the fuselage. Heat the plastic with an electric heater. The plastic is taped to an open frame whose cutout provides about 1/2" clearance beyond the mold. When the butyrate is hot enough it will sag. It this point your vacuum should have been turned on. (A shop vac or vacuum cleaner provides plenty of suction).Very quickly place the frame with the plastic down over the mold, which is centered over holes on the vacuum box, before the plastic has a chance to cool. It will assume the correct shape immediately, and can be cut to fit right away.
I found that the model required about 1/16" downthrust to fly well. You may wish to build this in to the fuselage instead of adding shims in order to achieve a better looking model.

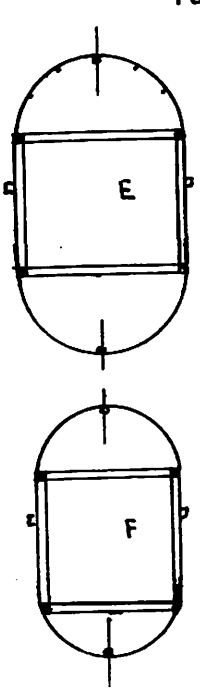
Since the "Spiteful" never saw combat duty, it will probably not be allowed as a WWII entry and does not qualify for modern military either, but should make a good peanut scale model.

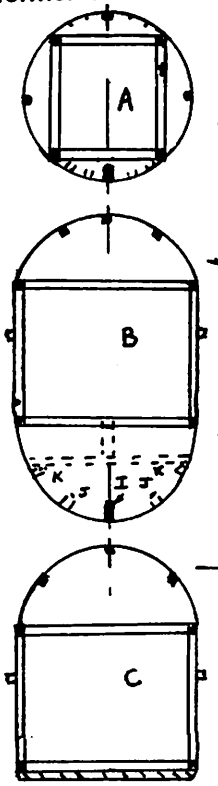
FAC GHQ confirms that with only 22 built, and no combat use,the SPITEFUL can fly in FAC point events, not in WW II Combat.

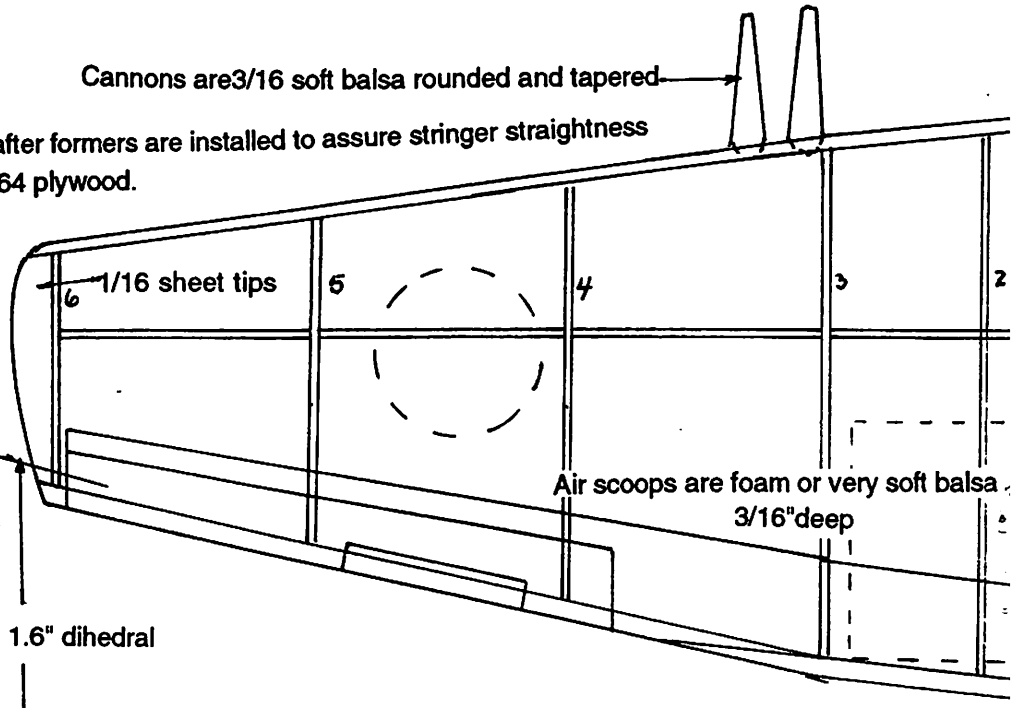
Cannons are3/16 soft balsa rounded and tapered

Formers are 1/32" sheet - file notches after formers are installed to assure stringer straightness

Face former "A" with 1/64 plywood.







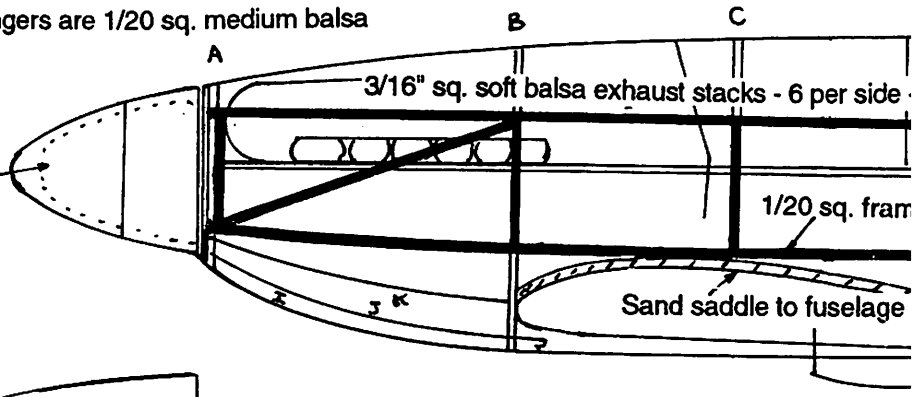
1.6" dihedral

Build in 1/8" washout by canting dihedral setting blocks toward centerline at trail

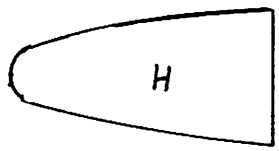
Vacuum form

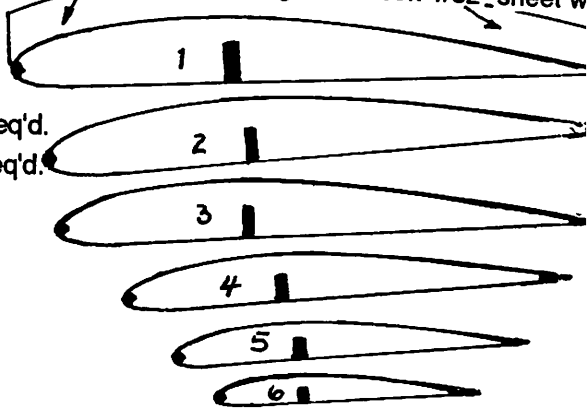
Nose button is mounted in 1/32" plywood and 1/4" hard balsa key

All stringers are 1/20 sq. medium balsa



Hollow, medium hard balsa spinner



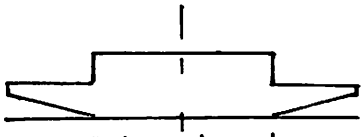


K - 2 req'd.

J - 2 req'd.

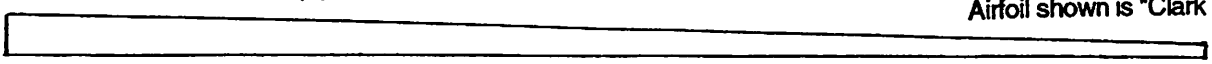
I - Center former -1 req'd.

Nose contour formers - 1/20" sheet



1/64" plywood spar brace

Airfoil shown is "Clark - Y"



Wing spar pattern.

Add stringers under wing only after top of

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Fall 1972	Gordon Roberts Nordic Towliner 1/4 scale; NOFFA Meet Results
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April 1973	Is your airplane the wrong color? (Campbell), Maxwell (Mekina) OHLG
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4. Vol.I No.3 Apr 74	Zephyr Embryo (Mekina) Windy, Unl. 36" (Tideswell), Prop carving, Tow,/HLG DT.
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9. Vol.I No. 8 Oct 74	Wind Drive bubble machine; FAC Results, Chagrin Falls.
10. Vol.I No. 9 Nov 74	Midget R.O.G. (6/35 M.A.) Prop Fittings, Shop Hazzards, Delta Dart Program
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66. Vol. IX No. 3 3Q'82 Nakajima A6M2 Float Zero (Wheery), Peck 13" and 1/2" /ft. scale floats (Brown), Profile Dayton Wright, 16" and 3Views(Zand), 3V. Indoor Stuff (Loucka), Penny Plane (Banks).
67. Vol. IX No. 4 4Q'82 Marcel Besson MB 411 13" (Koutny) 24", (Pishnery) 3V, Mumbo Jumbo #4 (Bennett).
68. Vol. X No. 1 1Q'83 Wright L Light Scout 16" Profile (Zand), 18" 1/20th scale (Brown),3V (8/16 Aircraft) Mumbo Jumbo #5 and #6 (Bennett); 3V 8/16 Aircraft, Jetco ROG (Zaic), A-6 (Mather), Mumbo Jumbo #5 &6 (Bennett).
69. Vol. X No. 2 1Q '84 Martinsyde Semiquaver 13" (Howard), 16")Brown); Penny Planes (Banks/Louca), Mumbo Jumbo #7&8, HSC Glue.
70. Vol. X No. 3 3Q'84 Wiley Post "A" 13" (Kronfelt), 20.5" w/s (Bowers), 3V; Yankee IV (Wood). Skyscraper Too Manhatten (Walt Van Gorder) Mumbo Jumbo #9.
71. Vol. X No. 4 4Q'84 Long Cabin O.T. 20-3/4" (Long), Roscoe Turner 10 cent scale, Boron Interceptor 18-1/2", 20-3/4" CO2, Oppegard rubber stripper, Mumbo Jumbo #10 and #11(Taibi, AT 1/42).

72. Vol. XI No. 1 1Q'85 Curtiss Reid Courier 15-1/2" (Howard) Brooklyn Dodger 14", 22" (Taibi) 1/42 AT,CO2 Indoor Stuff #3 (Loucka), Mumbo Jumbo #13 and #14. FAC '84 Nats; Chester Swea'Pea 3V.
73. Vol. XI No. 2 2Q'85 Spitfire Mk XIV 13", 24.6" (Roberts), 16" Comet dime scale Spitfire I (Fineman)

74. Vol. XI No. 3 1Q'86 Flea O.T. 26" CO2 Power Scientific 6/38. Pou de Ciel 22" Tandem Wing (Hamilton) F.A. 10/36, 3V 9/63 AM, Glue Guru #19.

75. Vol. XI No.4 1Q'87 Three 16" Profiles: Spitfire Mk. XIV (Roberts), Hawker Tempest V (Pishnery), Barracuda V (Zand), 10" Reduction Barracuda I (Boys), Spitfire Mk 21 views (Robinson), LaGG3, La-5 & La-7 Marking.

76. Vol. XI No. 5 2Q'87 Navion 13" reduced (Stahl), Texan 13" (Nallen), P51D 10-1/2" (Weiss). Crusier 20-3/4" (Hollinger), Navion 3V (Wieczorek), GeeBee A Biplane views, 6.56".

77. Vol. XII No. 1 1Q'88 NAA OV-10A Bronco 16" Profile (Zand), 13', reduction of 36" (Houle). 3V Navion 3V (Wieczorek/ R B). Navion data (Hamilton). Curtiss P40 data, 3V, Curtiss Shrike data &colors.

78. Vol. XII No. 2 1Q'89 Multi rubber power feature (Norman) dH Mosquito, JU88, F7F Tigercat, Lancaster (31) 3 views, including Turbo Meter, dH Hornet, Me 410, XP-67, F-82, AJ-1, XB-35 etc.

79. Vol. XII No. 3 4Q'89 Beechcraft Staggerwing B17L (Megow) 13" reduction, G17S 8"&16" (Sellers) 8/80FM 80) 3V, D17S, G17s; '37 Duplex (Lanzo); Indoor results Cleveland Indoor at Normandy H.S., Staggerwing detail (Brown) '37 Duplex (Lanzo). Chester Lanzo, George Jensen, Andy MacIssac and Dusty Carter eulogies.

79.5 Vol. XII No. 4 (Spcl.) Banquet special issue. Fok/ DVII 13" (Norman, Comet plan reduction), 3V.

80. Vol. XIII No. 1 1Q'90 Parnell Imp 13" (Roberts), Boston Scrod (Roberts), Parnell Imp text, Spirfire variants tables, Roy Nelder 1940 Moffett winner plan/postal, Beechcraft 17 text, tissue wt. and Ganpi tissue, wood stripper, Cleve. annual Indoor. Eulogies for Andy Medovitch, Scott Crozier amd Professor Walt Mooney.

80.5 Vol. XIII No. 2 3Q'90 3rd mini news edition Messerschmitt Bf 109E 13" (Norman), Allied Sport 13" (Comet 20" dime scale reduction).

81. Vol. XIII No. 3 4Q'91 Funk Feature, Funk B with Funk engine, 17-1/2" (Roberts), Funk B-85C 13" (Roberts), Akron Funk (B) 13"/11-1/4" Clip wing Comet Dime Scale 20" reduction, Funk History and A/C markings(Brown), B85C 3V, B 2 V, B&B85C colors.

81.5 CFFS Club Info. Indoor Contest Flyer, 10 cent Comet Fairchild 24, 16" w/s, 3V.

82. Vol. XIII No.4 1Q'92 Fiesler Fi 156 Storch 22.7" (Norman), 3V colors. 13" (Norman), 3V, Colors. Tissue coloring and detail marking (Norman), Indoor Tools (Hacker).

83. Vol. XIII No. 5 2Q'92 Yak I (Norman), Yak IM Markings and winter white (Brown), YAK 3 13" (D. Smith), 3V.

84. Vol. XIV No. 1 2Q'94 Rose Parakeet 15-1/2" (SMcCorrison), Fok. DVII 13" Megow kit reduction, 3V. Goering's White D-VII.

85. Vol. XIV No. 2 1Q'95 High wing Peanuts RWD-5 13" (Roberts), Notes on the Rogalski connection - (Zand), Piper PA-20 Pacer 13" (Roberts), 3V (Wieczorek), 3V AirProgress 10 '64. Pacer tail dragger colors (Brown).

86. Vol XIV No. 3 3Q'95 Avia B-534 13" (Griebling), Comet 10 cent Taylorcraft A reduced to 12.9". Volare plans list. Taylorcraft B N44338, white overall, blue stripe and trim.and NC23663 red overall with black diamond point and dual stripe & L.E. trim.

87. Vol XIV No. 4 1Q'96 Martinsyde F-4 Buzzard 13" (Griebling), its history, colors, marking (Brown) Cylinder twist props (Griebling), 3View of Martinsyde F-4.

88. Vol XV No. 1 3Q'96 Waco Coast guard J2W-1, EQC-6, Custom Cabin C-6 7.25" (Comet/Golden Age reproductions) text by M. Zand, 3View, EDO 39-4000 floats for 13" span WACO EQC-6 (Brown). WACO AVN-8 17.4" (Bredehoft), WACO N 3 View. Kunkaldo 9.63" (M.A.N. 5/'80 via Tony Peters). Kunkaldo Colors (Zand , pg 2).

89. Vol. XV No. 2 4Q'96 Gloucestershire Mars I (Gloster Barnel) 23" (Mark Braunlich) 1"/ft. History, construction.

90. Vol. XV No. 3 2Q'97 Rearwin Sportster 16" HighFlyer, evolution, colors, Bill Nyiri's (Zand and Brown)

91. Vol. XV No. 4 1Q'98 Idgit's Midget/Moonshiner 13" F-1 Racer by Gordon Roberts & Martin Braunlich. Text (Griebling) Colors & marking (Brown), 3V's, photos, CFFS '97 X-MAS.

92. Vol. XVI No.1 2Q'98 WACO10 13" (Griebling), Leavens Brothers C-GAFD, WACO 10 ,3 views & photos. NC-6513, Color data, Waco data, source list, Al Chute eulogy, Idgit's Midget photos as #82 " Flying Frenchman", colors.

93. Vol.XVI No.2 3Q '98 Fairey Barracuda 13" Peanut WWII, 16" No Cal. Profile WWII (Volare/Bredehoft); Editorial (Zand) 3V (APS), Profile (Profile No.240), Flat hattin' on Barracudas (Brown).
94. Vol XVI No.3 1Q'99 DH Moth Major 13" with Peck kit parts. (Mark Braunlich) Text (Braunlich, Brown and Griebling), Color (Mark Braunlich), E.T. Packard eulogy.
95. Vol XVI No.4 3Q'99 Falcon Special II 13" Peanut Goodyear (Bredehoft & Brown); My P-24 Science Olympiad (Bob Stalick & Mike Zand. Cleveland Race Plane model plans list (Air Racing Historians & Brown)
96. Vol XVII No.1 1Q'00 Lacey M-10 13" Peanut (Roberts, Brown, Warner & Sephton) FAC Old Timer 25" max. "Two Bit" Rubber Subjects (Griebling & Brown) "Sequi-Scot" 23" w/s. (Mayors). CFFS 2000 Contest Events
97. Vol XVII No. 2 1Q'01 SPAD X14 13" Peanut WWI, color insignia, tissue marking (Norman).
98. Vol XVII No.3 2Q'01 Snuffy 16" 1943 Old Timer Rubber (Dick Obarski) SPAD mail (Stott). G-8 SPADS (Brown) Science Olympiad &CFFS (Hacker) S.O. photos (Goesling), Model Airplanes Poem (Wordall), Wayne Johnson's Wilder type winder.
99. Vol XVIII No. 4 3Q'01 Début reprint and honors for Gordon Roberts, Supermarine Spiteful (Griebling), **Crosswinds Index from Issue #1 to #99,** Construction tips (Griebling) Indoor Insights (Neff), Michigan Indoor Meet Photos (John Wereb).

CROSSWINDS back issues are $4.00 each, or three for $11.00 from Russ Brown at 4909 N. Sedgewick Lyndhurst, OH 44124.

AIR SHOW BIZ

Rumors of an "International Formula One Air Race" at Homestead, FL (South of Miami) on November 17-18, 2001 are upgraded to a definite maybe for now. With non-profit backing, no Av-gas for travel expense,no prize money, and most competitive F-1's out of the area, the entry list looks fuzzy from here. Unlimited or Biplane racers may stage simulated laps or races if available. Check in at www.air-races.com for news and updates before you leave. Hurricane Season will be over, so any Merlin you hear will be in a Mustang. Haw-aw-w-w-w. A Hurricane was painted in Air Race blue and gold trim in England a spell back, and a Spitfire or two also, but not lately. But don't look for more than Formula One's as International entries. A Columbia to Florida XC race is unscheduled for after hours activity. R B.

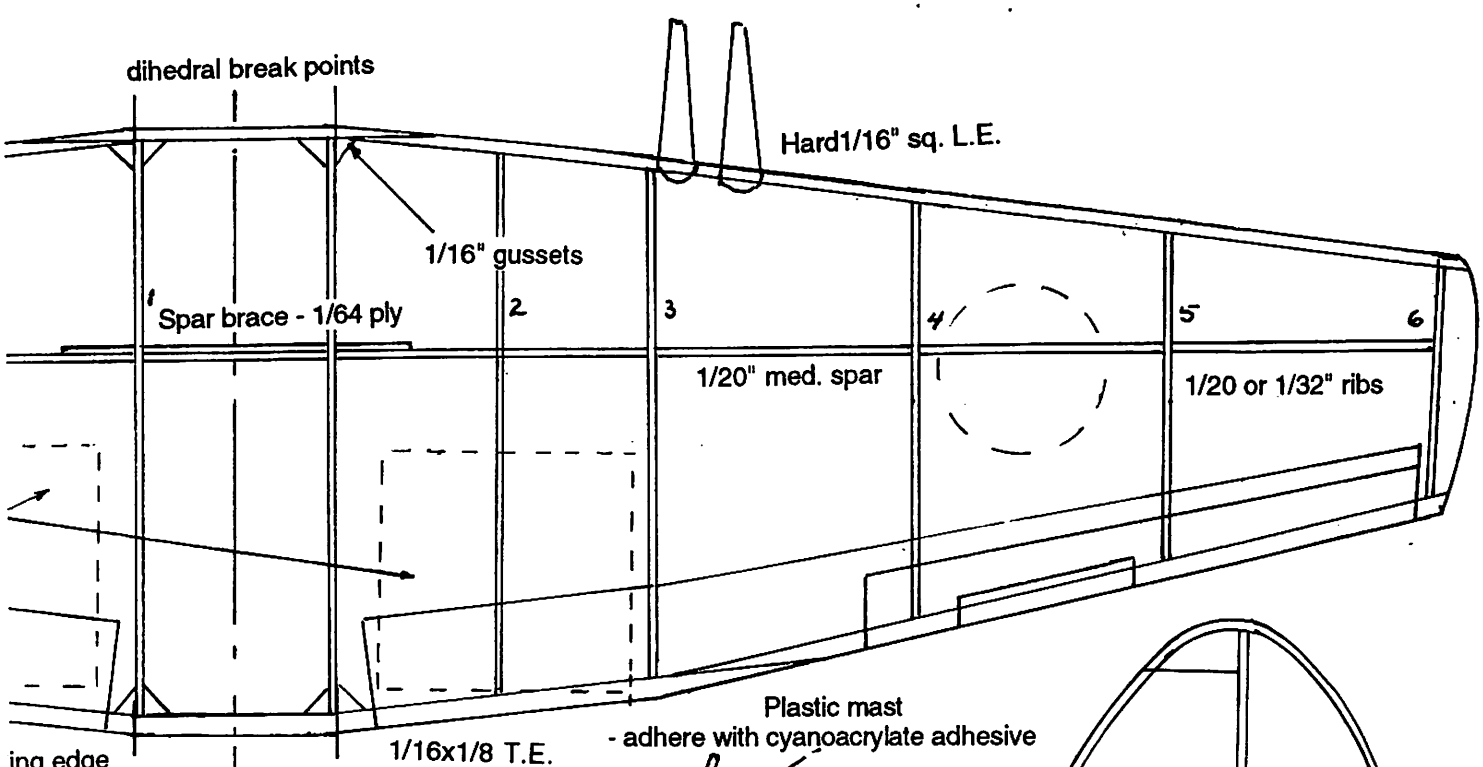
CROSSWINDS readers with the dreaded Red X at issue renewal code No. 99 or lower can send $12 or more to Russ Brown at 4909 N. Sedgewick, Lyndhurst, OH 44124. Thank you.

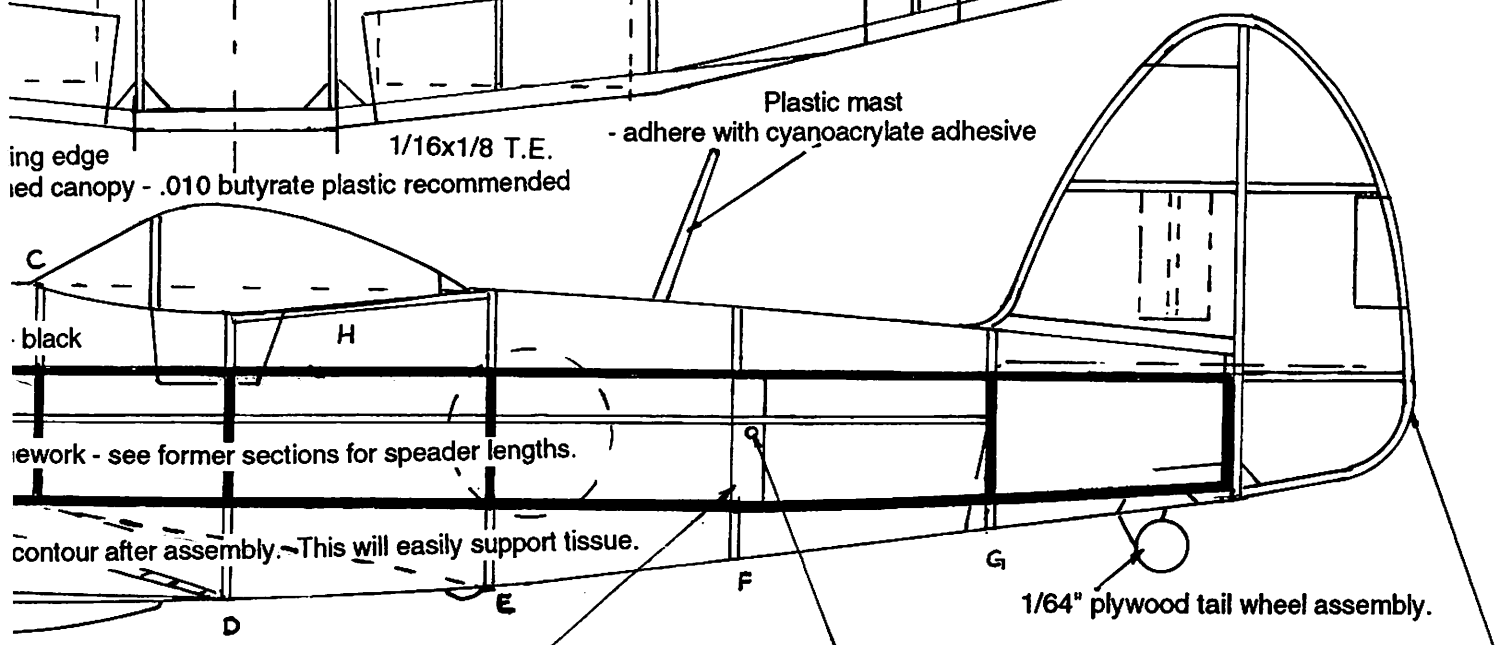
BAD SPAD BULLETIN

Is XWINDS done beating on SPADs for a spell? Did the Federal Bureau of Pony Express close the mail to Blue Fox Base? Did the big I War ever end? No! No! No! All goes on, and on, and on; and XW will continue with SPAD tales next issue. We will learn how to identify the Lone Eagle's SPAD by the slanted white side bars and re-live the exciting break through for flying SPADs from Jake down on the farm.

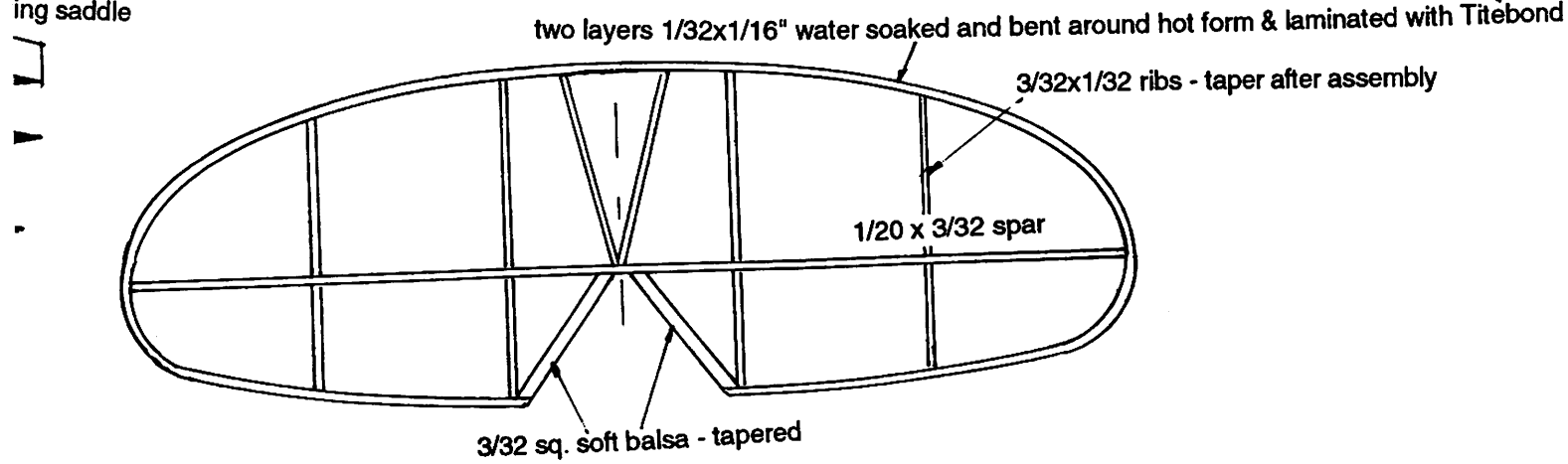
INDOOR ACTION AT ANDREWS

September is a real busy time between Indoor team trials at Akron Air Dock, Model displays and glider flying with youngsters at the Cleveland Air Show again, and the Sept 9 CFFS meet at L.C.C.C., Sept 8, at Erie Prangmore, and the FAC at Muncie, IN on Sept 22-23. After the Oct 7 final outdoor at L.C.C.C. we can plan to fly Indoors at Andrews School on Nov.11. An event for SNUFFYs is a definite maybe if CD Don Slusarczyk buys it.





lear motor anchor support is 1/32" x 3/16"bass. Anchor is 1/16" aluminum tubing
ing saddle



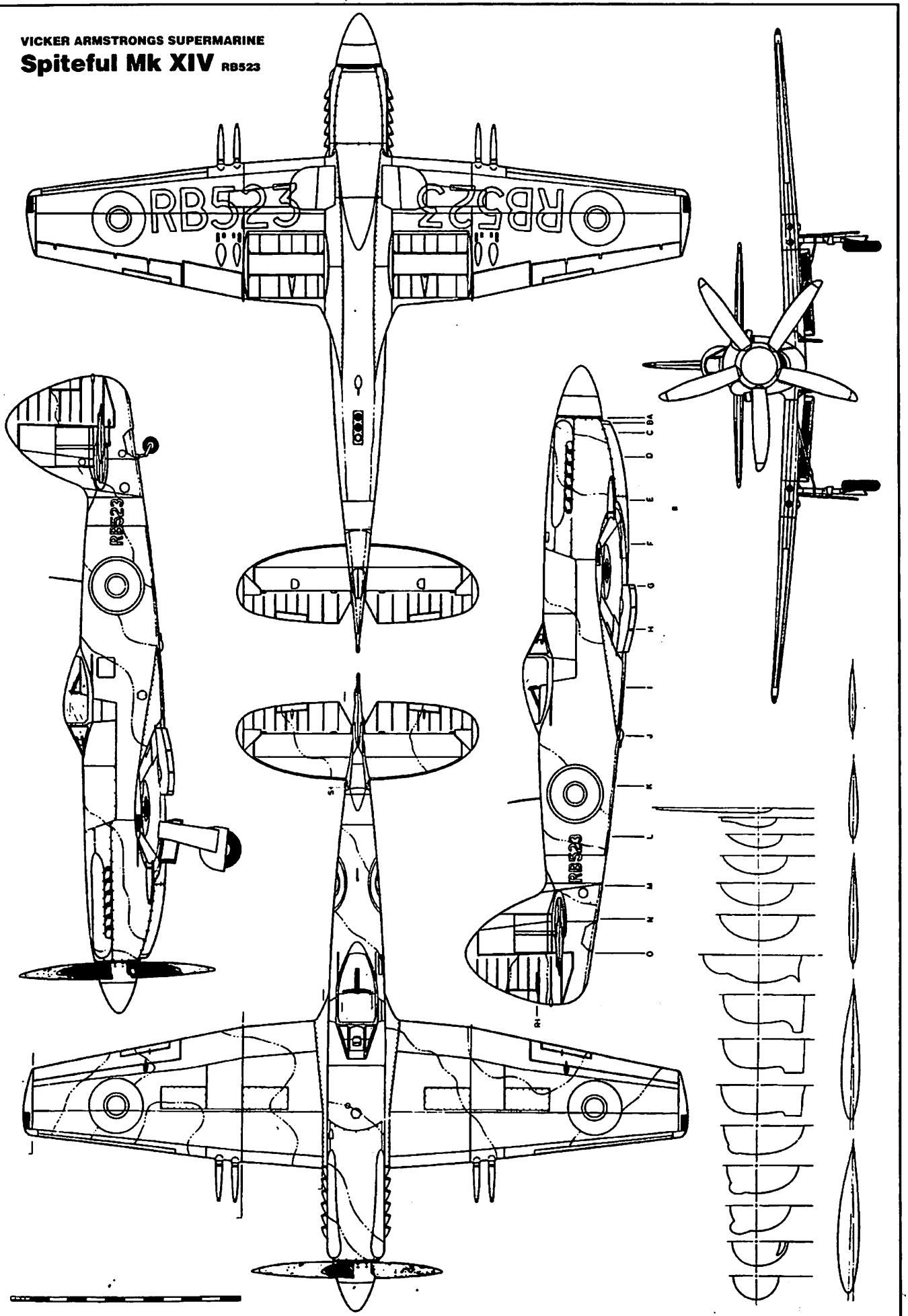
uselage is covered and wing has been installed

13" span SUPERMARINE "SPITEFUL" F Mk XIV

Designed and drawn by Steve Griebling CFFS

VICKER ARMSTRONGS SUPERMARINE

Spiteful Mk XIV RB523



ARTWORK: DRAWN BY JOHN W. BELL, 1998 COURTESY, BELL MODEL AIRCRAFT CO.

Début EMBRYO ENDURANCE

Gordon Roberts - C.F.F.S.

Model is built as light as possible.
Medium hard longerons and spacers.
Medium soft 1/8" sq. L.E., medium hard 1/8"x 1/16" T.E.,
spar - medium hard 1/20"x 1/20".
All ribs light "C"-cut 1/32". Spar is slotted in after assembly.
Prop. is 8"diameter, carved from an 8"x 1"x3/4" balsa block.
Power is two loops of 3/32" flat TAN II, 24" long,
braided and pre-tensioned. Trim for right-right pattern,
cambered fin should give right glide circle.
Add a little right thrust and down thrust for power pattern.

Head rest - very soft 3/16" sheet, sanded to streamline section.
Glue on after covering.

Fin wound from 4 lams. 3/32"x1/64".
Damp, wrap around form, Hot Stuff.

PLAN SPLICE LINE

Ribs 5/32"x1/32".
sanded after assembly.

Lifting section built on plan as shown with spars flat on board.

1/4" x 1/16" crossbrace

Crossbrace 1/4" x1/16".

1/16" rib.

1/16" sheet

1/32" ply. Epoxy to center rib.

t out oval pilot hole, and add windscreen.

width 7/8"

crossbrace
light 1/16" sheet

1/32" ply

Starboard side 1/32" fill

1/32" ply. Epoxy to port longeron

width 1-3/16"

D/T band goes around fuselage, over tailplane and hooks onto the ply stub.
This should tip the T/P to D/T position.

platform 1" long on top.

4" ply dihedral braces on L.E. and T.E.

E. 1/8" x 1/16" med. hard T.E.

Note: wing chord is exactly 3". Check it against plan and adjust if Xeroxing has altered it.

Tips wound from 4 lams 3/32"x1/64"

glue in whole ribs, then cut the half ribs to fit. It's quite easy.

soft 1/16" reinforcement

INDOOR INSIGHTS

Indoor flying is experiencing a renaissance partly due to the involvement of young people in the nationally organized Science Olympiad. Some new flyers are also "old" outdoor flyers who have discovered the advantages of weatherless and thermalless flying conditions. Whatever the reasons, it is time to include some news about indoor flying in Crosswinds. We hope to make this a regular feature.

In this issue we shall report briefly on the activities at the USIC (United States Indoor Contest) held in June at the Mini Dome in Johnson City, Tenn. The Cleveland Clowns, which are and indoor subgroup of CFFS, were well represented at this contest. Attending were Larry Louka, Dr. Vern Hacker & surrogate grandson Ben Sacks, Wayne Johnson & sons Alex and Bryan, John Kagan, Dave Riggotti and son Dave, Tom Sova (Toledo) and myself. The winners and results for individual events can be found on the indoor web site (www.indoorduration.com). The Cleveland group did well and, in particular, we would like to comment on the efforts of the Junior and Senior entrants. Of the 25 Juniors and Seniors **invited** to participate in the S.O. event, 8 were young people who participated in the S.O. workshop held last fall by Vern Hacker, Don Slusarczyk and John Kagan. We also note that a number of these young modelers are now also participating in several other events including F1D.

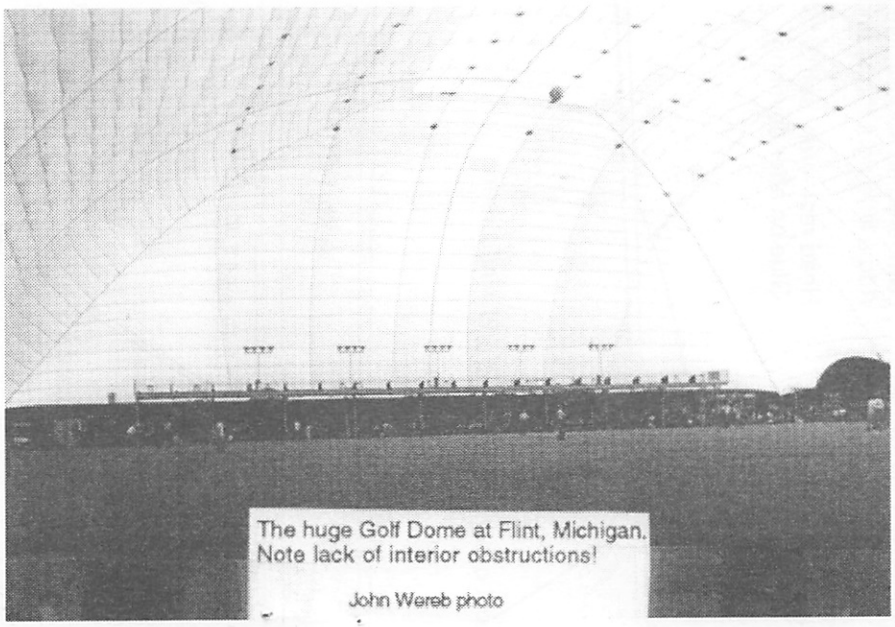
The Mini Dome is an excellent choice for the indoor Nationals. One does not have to be a major competitor in order to thoroughly enjoy this event. The site, located in the foothills of the Smoky Mountains, is both historically and geographically worth the trip. The contestants are most friendly and willing to answer questions. Rich Miller spent almost an hour explaining to me how he gets his Bostonian to fly for six minutes with 42" of rubber in a seven gram airplane. Wow!

Vern Neff President, CFFS

GENESEO 2001 AND BLUR

CFFS members attending this years non nats were: Rich Weber, Dan Kane, Dennis Norman, Gordon Roberts, Del Balunek and Vern Neff. Gordon won firsts in High Wing Peanut, Embryo, Golden Age and the Monocoupe marathon. Dan Kane took a first in WW I mass launch and Vern Neff got a second in FAC scale with his Ford Trimotor.

Our own Rich Weber along with Scott Doberfuhl, Chris Parent and Ralph Kuenz organized a new event called the Bee Line Unlimited Race (BLUR). This is a straight line race run on a course laid out with the approximate dimensions of a baseball diamond. The event was well received and the first place went to Ed Pelatowski flying a 20" Folkerts SK-2. It will be held again next year. Contact Rich Weber for details.



The huge Golf Dome at Flint, Michigan. Note lack of interior obstructions!

John Wereb photo



FAC Record Keeper Ross Mayo

FAC Commander Lin Reichel

FAC top Kanone winner Gordon Roberts with his Martinsyde F4 Buzzard

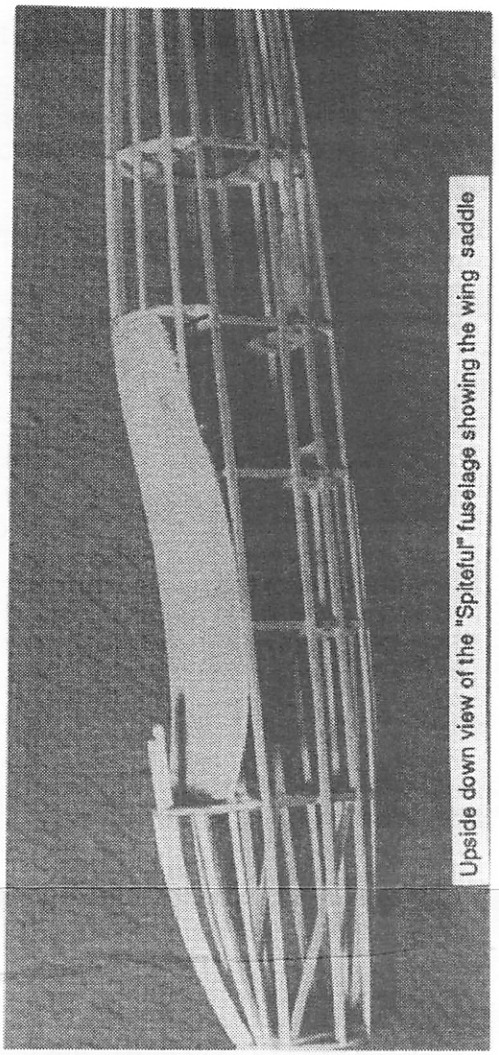
Lundy Goesling photo



Lundy Goesling photo

Expert archivist, scale judge, stooge and CFFS Contest Director Russ Brown

Gordon Roberts winding his old reliable Waco SRE

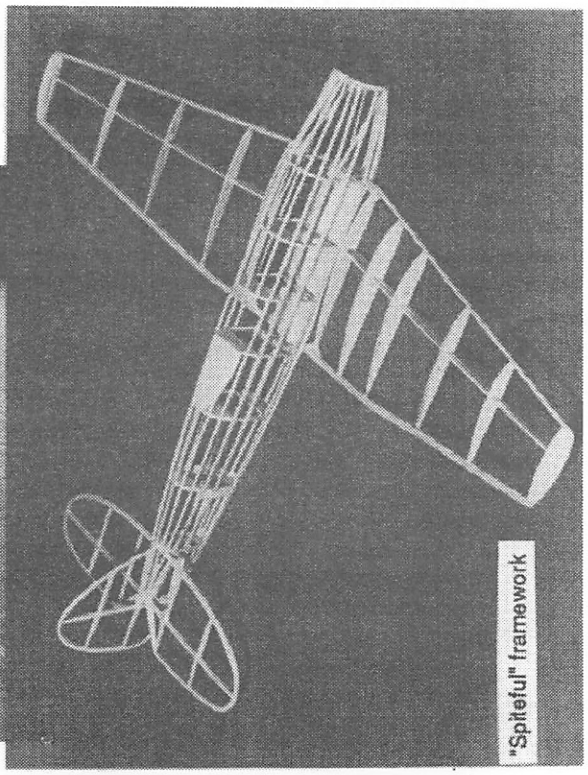


Upside down view of the "Spiteful" fuselage showing the wing saddle



Dave Schaefer, Alex Johnson and Dave Riggotti, Science Olympiad winners at the Flint, Michigan Golf Dome category III site meet May 6, 2001

John Wereb photo



"Spiteful" framework

CFFS CONTEST EVENTS AT LORAIN COUNTY COMMUNITY COLLEGE

1. FAC PEANUT SCALE, FULL PTS.
2. HI-WING CABIN PEANUT EXPERIMENTAL
3. HI-WING CABIN PEANUT PRODUCTION
4. FAC DIME SCALE
5. FAC RUBBER SCALE
6. FAC OH FUNK & WACO LIMITED
7. FAC JUMBO SCALE
8. FAC PIONEER SCALE
9. FAC GOLDEN AGE CIVIL AIRCRAFT
10. GOLDEN AGE MILITARY AIRCRAFT
11. FAC NO. CAL PROFILE SCALE
12. NO. CAL WW II 3 FLT. TOTAL
13. FAC BOWER SCALE ELECT OR CO2
14. O.T. GAS REPLICA ELECT OR CO2
15. EMBRYO ENDURANCE (J)(S)(O)
16. JR. RUBBER 3 FLT. NO MAX.
17. H.L. GLIDER (J)(S)(O) * $1 POT.
18. 6" STICK CATAPULT GLIDER, $ POT.
19. FAC O.T. RUBBER 36" OR 150 SQ. "
20. FAC O.T. STICK 36"/ 150" $ POT
21. FAC O.T. TWO BIT 25" MAX. $ POT.
22. O.T. JIMMIE ALLEN R.O.T. $ POT
23. SHELL SPEED DASH 2 FLT. BY 3:00 P.M
24. MODERN MILITARY MASS LAUNCH 12:00
25. WW I MULTIWING PEANUT M.L. 12:30
26. WW I MULTIWING FAC M.L. AT 1:00
27. WW II PEANUT COMBAT M.L. AT 1:30
28. WW II COMBAT FAC M.L. AT 2:00
29. BENDIX TROPHY RACE M.L. AT 2:30
30. GOODYEAR F.1 RACE M.L. AT 3:00
31. GREVE INLINES RACE M.L. AT 3:30
32. THOMPSON RADIALS M.L. AT 4:00

FAC RULES APPLY WITH INSPECTION OF NO.CAL & DIME DETAIL, MASS LAUNCH 45 PT.MIN DETAIL, AND O.T. PER PLAN. PRE SELECT EVENT FOR MULTIPLE OPTION MODELS. NO SIZE CHANGES IN O.T. 25" MAX. MASS LAUNCH AND O.T. GAS REPLICA OUT OF BOUNDS TO BE SET AT FIELD. ALL MAY PICK A PLAN PRIZE.

SUNDAY MAY 27 CFFS AT LCCC 10AM-5 PM CD RUSS BROWN 216-382-4821. I-90 EXIT 148 TO RT. 301S ABBE RD. CHECK HOAG RD. OR UPWIND.

SUNDAY JUNE 10 CFFS AT LCCC 10AM-5PM CD JIM HYKA 216-481-6525.

SUNDAY JULY 29 CFFS AT LCCC 10AM-5PM CD GORDON ROBERTS 216-749-4817.

SUNDAY AUG. 12 CFFS AT LCCC 10AM-5PM CD PETER ZBASNIK 216-476-4824.

SUNDAY SEPT 9 CFFS AT LCCC 10AM-5PM CD RUSS BROWN & LUNDY GOESLING.

SUNDAY OCT 7 CFFS AT LCCC 10AM-5PM CD GORDON ROBERTS.

FAC NON-NAT'S AT GENESEO, NY IS JULY 20-22. ERIE FAC AT PRANGMORE MEETS ARE 5/19, 8/4, AND 9/8. DAYTON SECTOR SKIRMISH AT WPAFB IS SAT. 6/16 PRE ENTER 6/1 DETROITEN GESCHWADER FAC MEETS AT FLINT ARE 6/24, 8/26, 10/14, 10/28 & 11/4. FAC OUTDOOR CHAMPS IS SEPT 22-23 AT MUNCIE, IN.

SAM O.T. FF & R/C FLY 1ST WED OF MONTH AT SHELBY AIRPORT RT. 96 ON 7/3, 8/1, AND 9/8; AND 3RD OR 5TH WED AT SCHROEDER'S FARM RT. 61, 3MI S. OF RT. 224 ON 5/30, 7/18, 8/15, 8/29, AND 9/19.

CFFS INDOOR AND S.O. FLYING IS ON SUNDAYS AT ANDREWS SCHOOL NOON TO 5PM. CHECK DOC. HACKER OR DON SLUSARCZYK 440-918-0290. HACK IS AT 216-486-4990.

SPITFIRE F24, SPITEFUL TWIN

