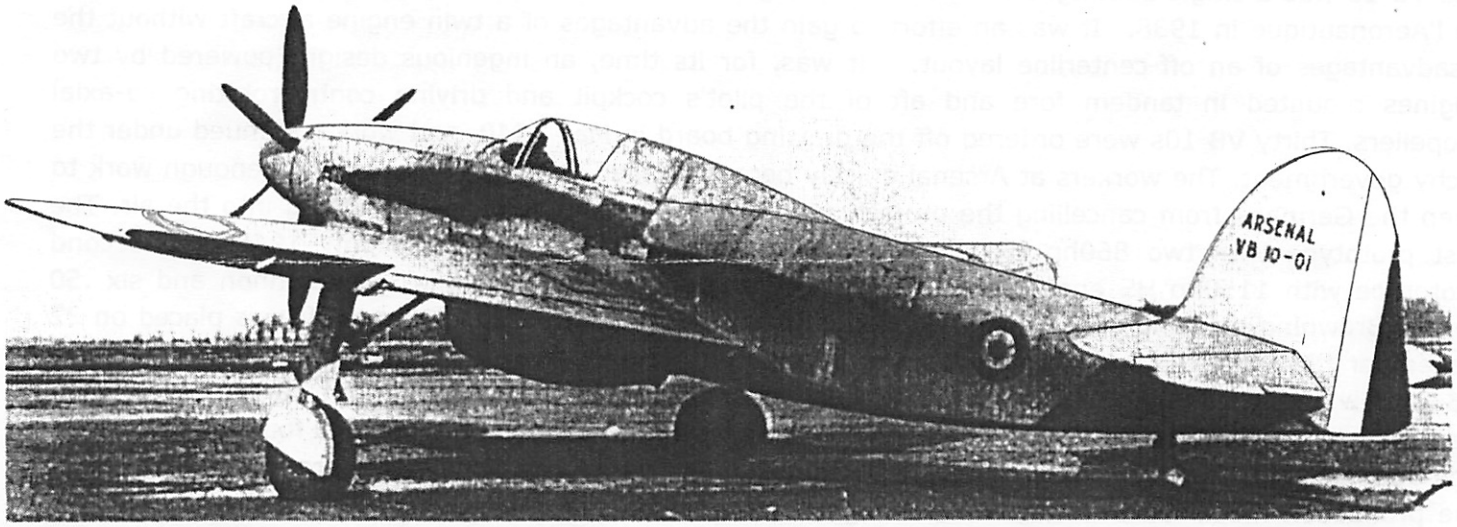
CROSSWINDS #128

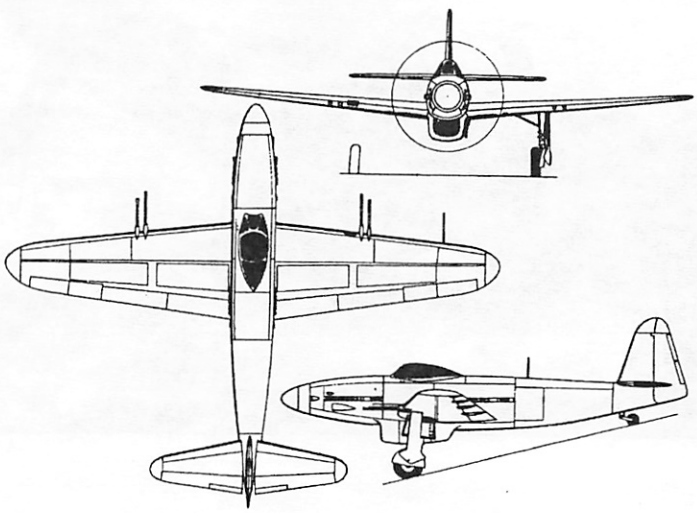
21-1/2" Arsenal VB 10-01



CROSSWINDS
RUSS BROWN
4909 N. SEDGEWICK
LYNDHURST, OH 44124

Rear Motor Tube Cover

Arsenal VB 10 production aircraft

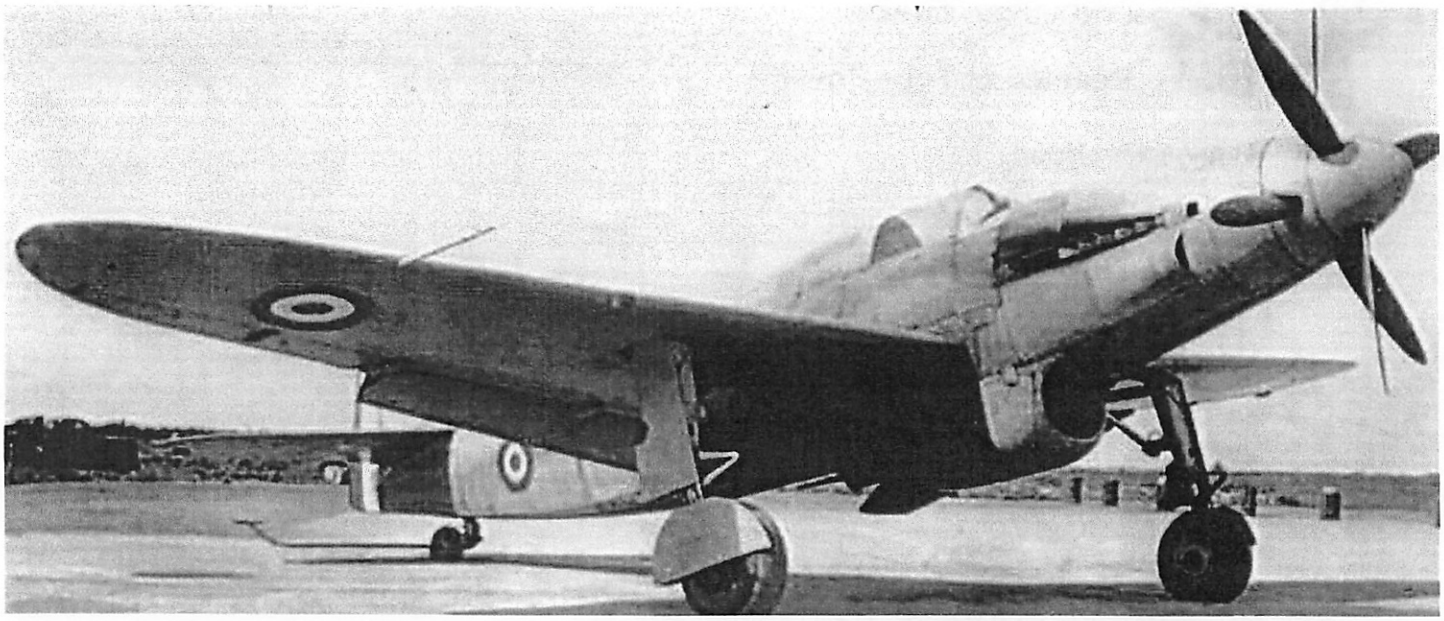


Arsenal VB 10

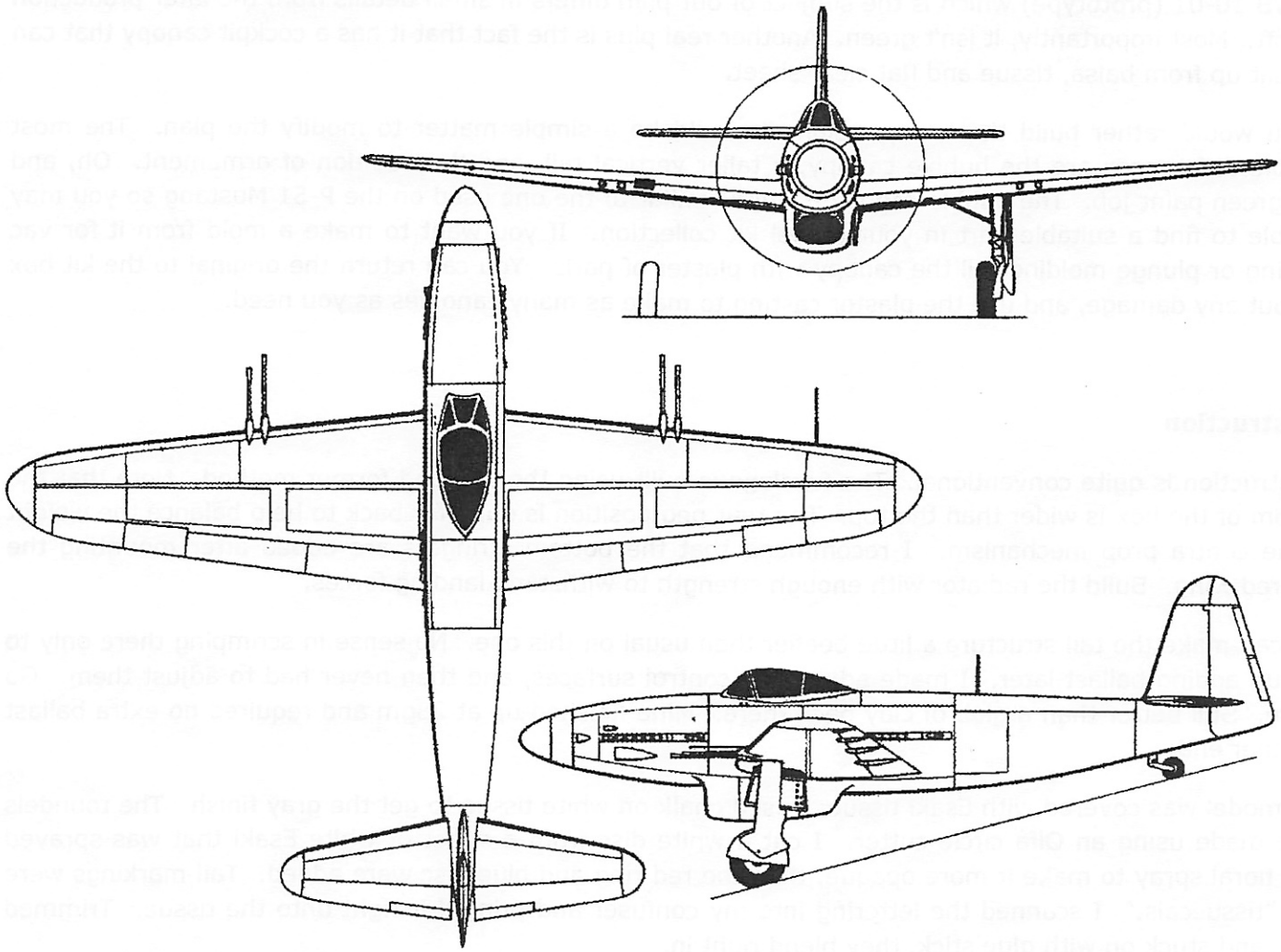
CROSSWINDS
CLEVELAND FREE FLIGHT SOCIETY

The VB 10 was a single-seat fighter conceived by Ingenieur-General Vernisse and M Badie of the Arsenal de l'Aeronautique in 1938. It was an effort to gain the advantages of a twin engine aircraft without the disadvantages of an off-centerline layout. It was, for its time, an ingenious design; powered by two engines mounted in tandem fore and aft of the pilot's cockpit and driving contra-rotating co-axial propellers. Thirty VB 10s were ordered off the drawing board in May 1940, and work continued under the Vichy government. The workers at Arsenal quickly became skilled at the art of doing just enough work to keep the Germans from cancelling the project, but not enough to actually get anything into the air. The first prototype with two 860hp Hispano-Suiza engines was not flown until 7 July 1945. The second prototype with 1150hp HS engines and an armament of four 20mm Hispano-Suiza cannon and six .50 caliber Browning machine guns flew on 21 September 1946. A contract for 200 aircraft was placed on 22 December 1945, but this was later cut back to 50 aircraft due to budgetary restraints. The first production VB 10 flew on 3 November 1947 with 1150hp engines and an armament of four 20mm cannon. Production was cancelled in September 1948 after completion and testing of three prototypes and four series aircraft. The decision was made in some part because of development problems. One of the prototypes and one of the production machines were lost on test flights. It was too complicated, too big, too heavy, and too slow; at a time the world was flooded with surplus high performance fighters left over from the recent war.

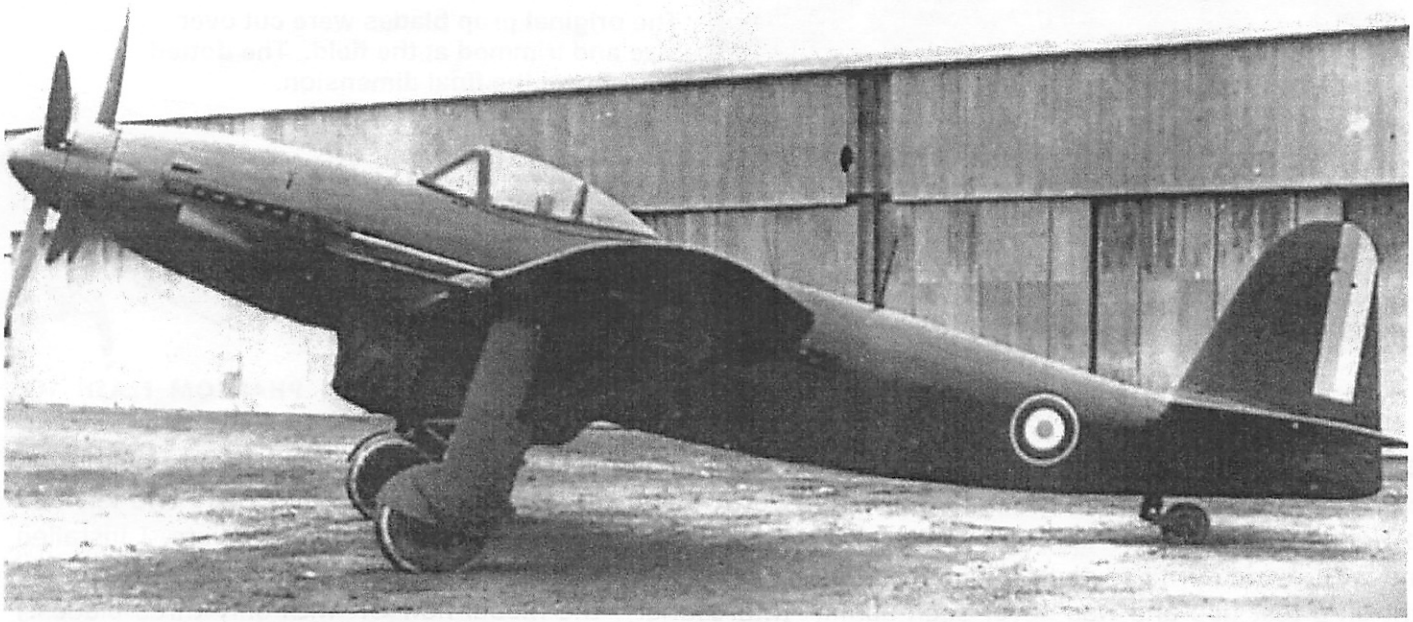
While not a great success as a fighter, the layout of the VB 10 has what it takes for Free Flight, and offers several options for the competitive FAC flyer. It qualifies for Modern Military, as well as the Contra Prop event, and the French Design event held at Geneseo. Mine flew well enough at the 2007 Non Nats to take second in the Contra Prop event. You will need to build or buy a contra prop mechanism for your model. If you'd like to purchase a CRP unit, I've included a write up on your options in this issue of Crosswinds.



Arsenal VB 10 production aircraft



Color scheme on production aircraft was overall glossy dark green. Note the white outline visible on the roundels.



The VB 10-01 (prototype) which is the subject of our plan differs in small details from the later production aircraft. Most importantly, it isn't green. Another real plus is the fact that it has a cockpit canopy that can be built up from balsa, tissue and flat clear sheet.

If you would rather build the later version, it would be a simple matter to modify the plan. The most notable differences are the bubble canopy, a taller vertical tail, and the addition of armament. Oh, and that green paint job. The bubble canopy is quite similar to the one used on the P-51 Mustang so you may be able to find a suitable part in your model kit collection. If you want to make a mold from it for vac forming or plunge molding, fill the canopy with plaster of paris. You can return the original to the kit box without any damage, and use the plaster casting to make as many canopies as you need.

Construction

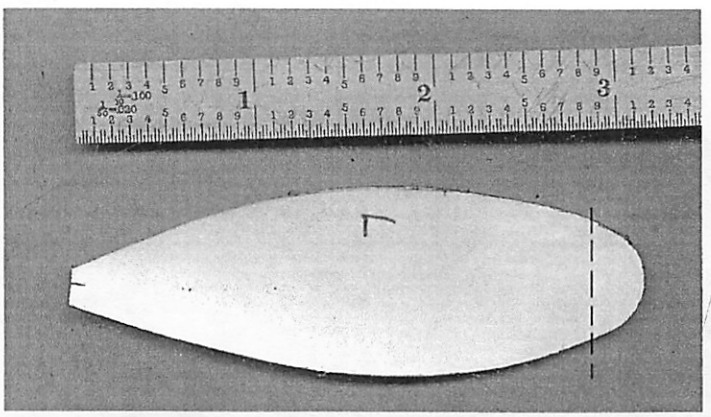
Construction is quite conventional. The fuselage is built using the box and former method. Note that the bottom of the box is wider than the top. The rear peg position is quite far back to help balance the weight of the contra prop mechanism. I recommend that the bottom stringers are added after mounting the covered wing. Build the radiator with enough strength to withstand landing forces.

You can make the tail structure a little beefier than usual on this one. No sense in scrimping there only to end up adding ballast later. I made adjustable control surfaces, and then never had to adjust them. Go figure. Still better than a glob of clay back there. Mine finished up at 28gm and required no extra ballast at either end.

The model was covered with Esaki tissue. I used chalk on white tissue to get the gray finish. The roundels were made using an Olfa circle cutter. I cut a white disc from a sheet of white Esaki that was sprayed with floral spray to make it more opaque, then the red ring and blue disc were added. Tail markings were also "tissuecals." I scanned the lettering into my confuser and printed it right onto the tissue. Trimmed close and stuck on with glue stick, they blend right in.

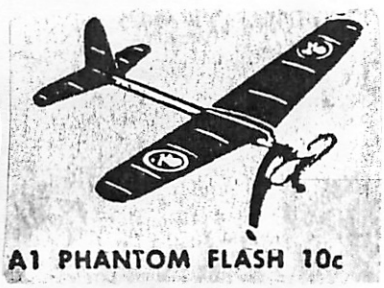
2009 Comet Model SAM Champs

PHANTOM FLASH



The original prop blades were cut over size and trimmed at the field. The dotted line shows the final dimension.





The propeller blades are made from 2 liter pop bottles or large size yogurt tubs. The pattern is laid out on the side of the bottle at a 15 degree angle from vertical and the blades cut out. You'll need two left and two right. Cut some spares while you're at it. The shafts were made from bamboo skewers. I installed mine with a friction fit in the aluminum tubes to experiment with pitch settings. (One popped out mid flight on a test hop and was never seen again. Interestingly, the model flew OK with only three blades.)

Probably the trickiest part of the build is making the two piece spinner. I used a Regalbuto in-the-spinner type mechanism (covered elsewhere in this issue) so a vac formed or plunge molded part was the best way to go. In a switch from the usual scale Free Flight practice, you'll need to keep the nose as light as possible because of all the extra hardware up front.

Flying

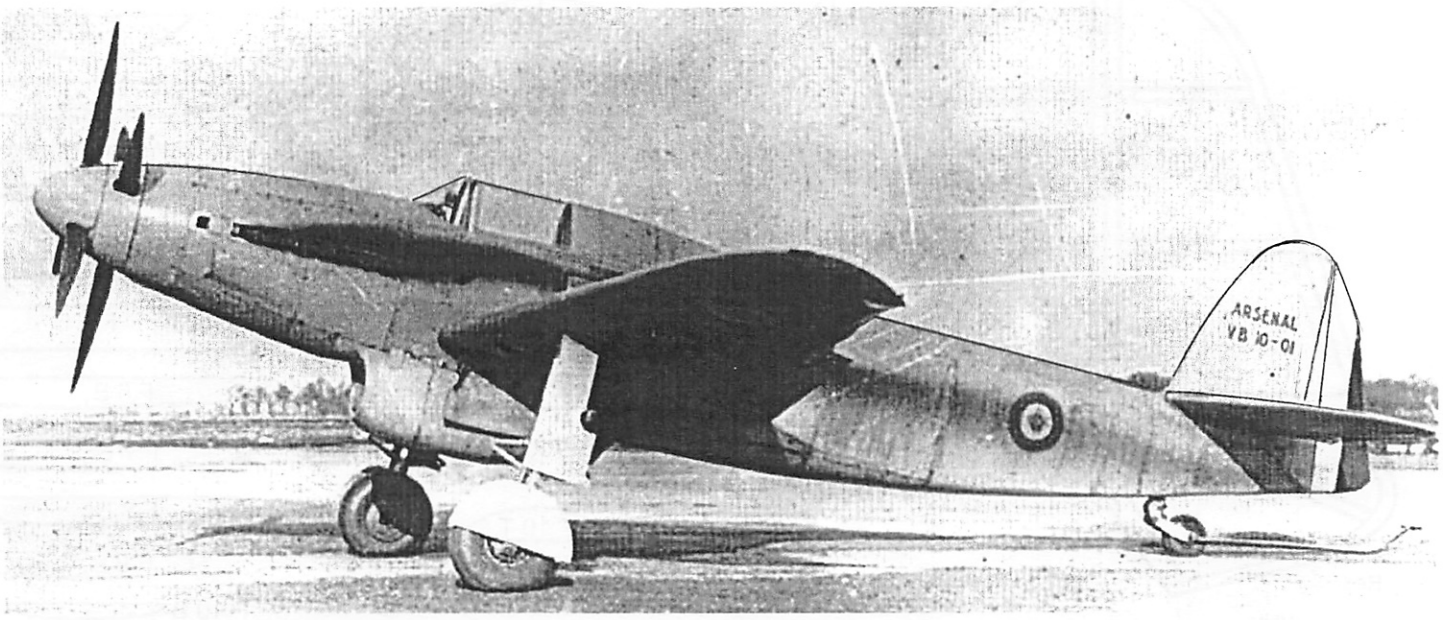
Trimming the Arsenal was easier than most of the other FF models I've built. The balance point is at the usual 30% of the chord. The torque effect, or spiral airflow if you want to be aerodynamically correct, is eliminated by the contra prop set up. I added the usual couple of degrees of downthrust, and a bit of right to get the thing to turn. It didn't seem to care which way it turned. There was no tendency to spiral.

Power was provided by a loop of 1/8" and a loop of 3/16" x 27". Remember you're spinning two props and losing some power to the friction of the gizmo so it takes a little more torque to get them up to speed.

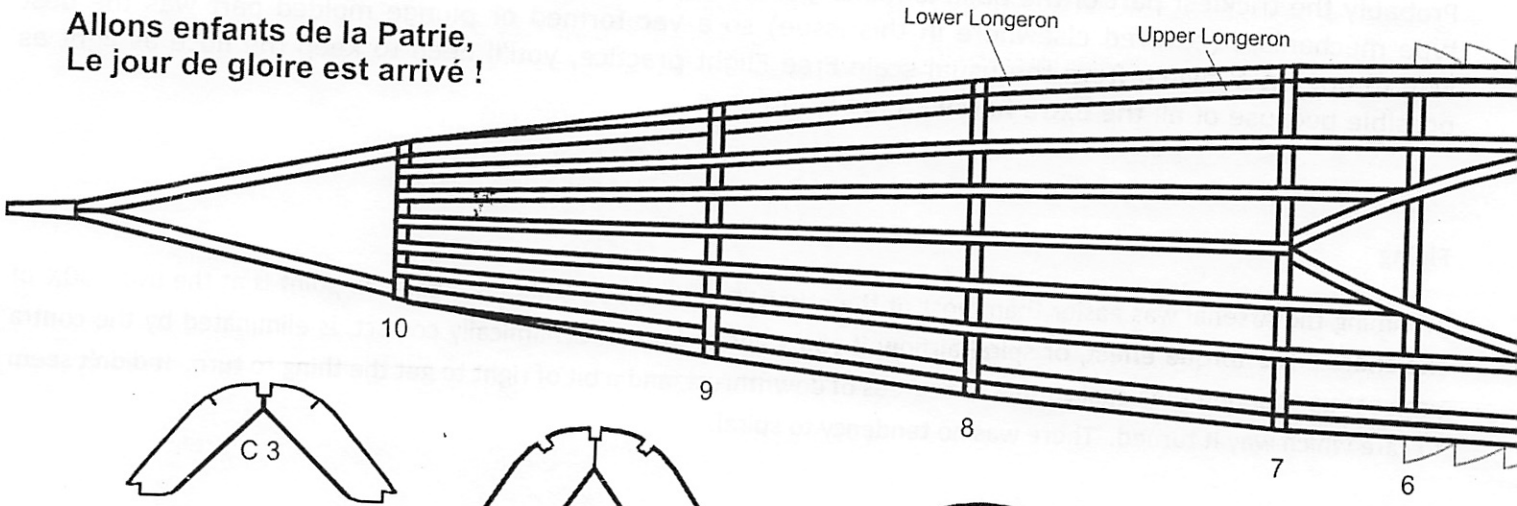
The first trip to the trimming field was nearly the last time it flew. It was looking very stable on low winds in the evening air at the school yard. It was turning nicely and had exhibited no bad habits on the first few flights so I added a few more turns to the motor. Big mistake. As it left my hand, I had a bad feeling. It was climbing a lot more than was comfortable in the limited space. It drifted with the breeze toward the trees on the edge of the field before landing in one of them. A half hour later, as I was reaching out for the model on a branch about 25' up in that maple, I decided that I was officially too old to be climbing trees and resolved to buy that 30' telescoping pole if I got down alive. Happy ending: I got both myself and the model out of the tree with minimal damage, and ordered the pole that evening.

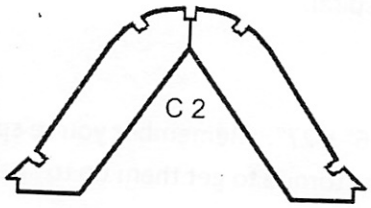
Rich Weber / Wingnut

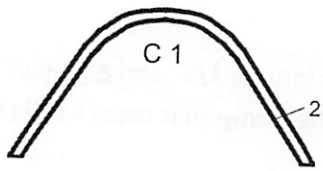
Arsenal VB 10-01 (prototype)



Allons enfants de la Patrie,
Le jour de gloire est arrivé !



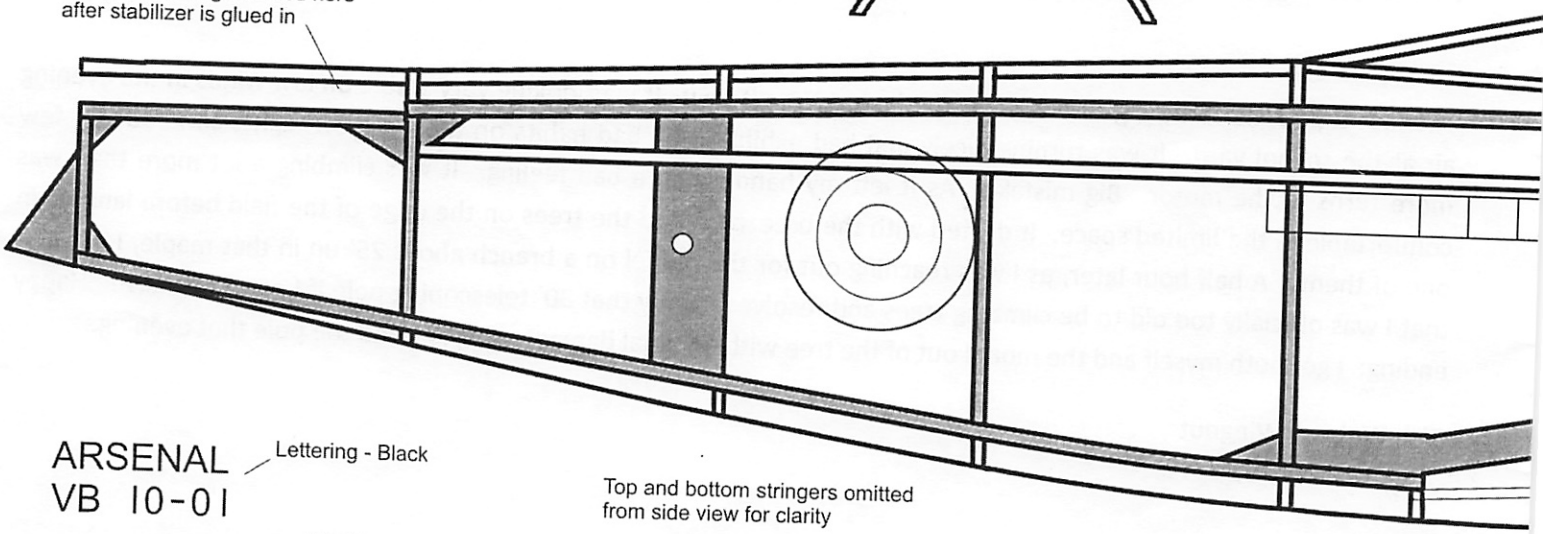




Stringers omitted for clarity, and

2 x 1/32" Laminated

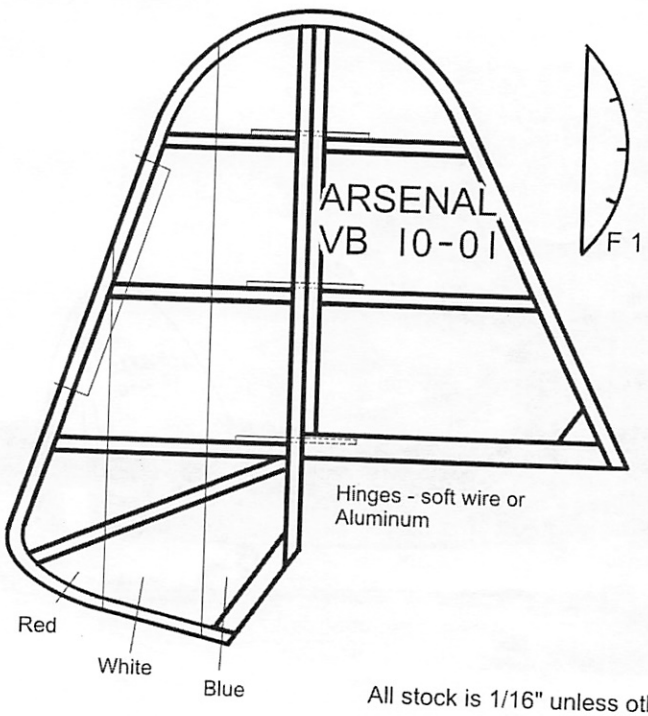
Stiff paper fairing installed here after stabilizer is glued in



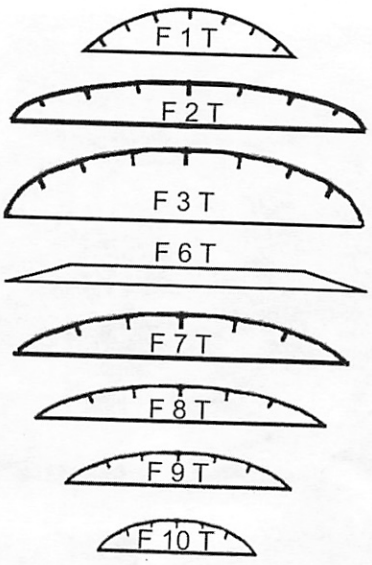
ARSENAL
VB 10-01

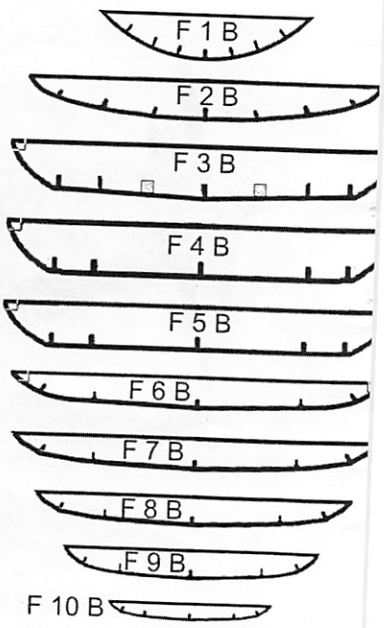
Lettering - Black

Top and bottom stringers omitted from side view for clarity



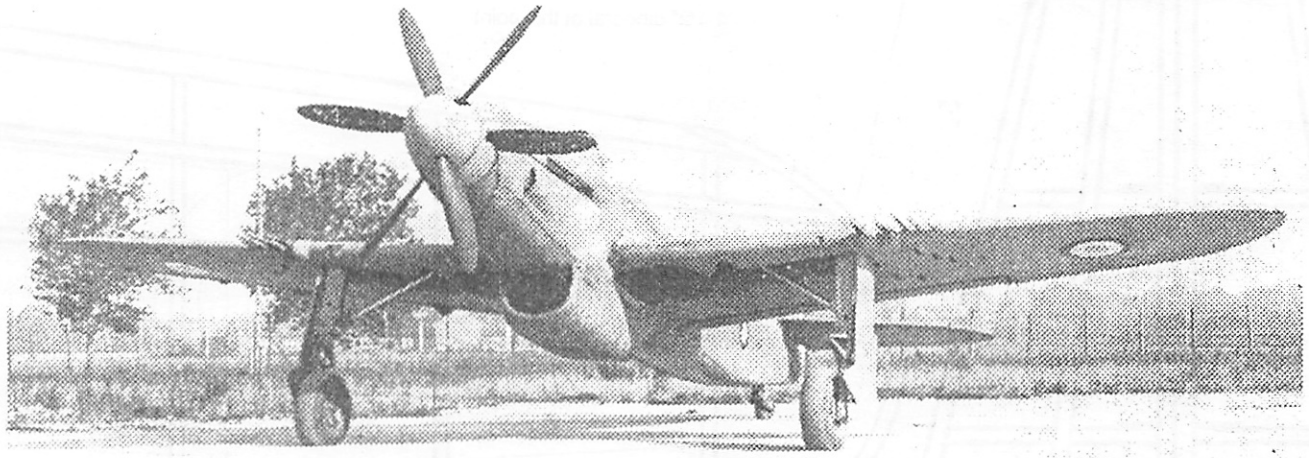
Hinges - soft wire or Aluminum



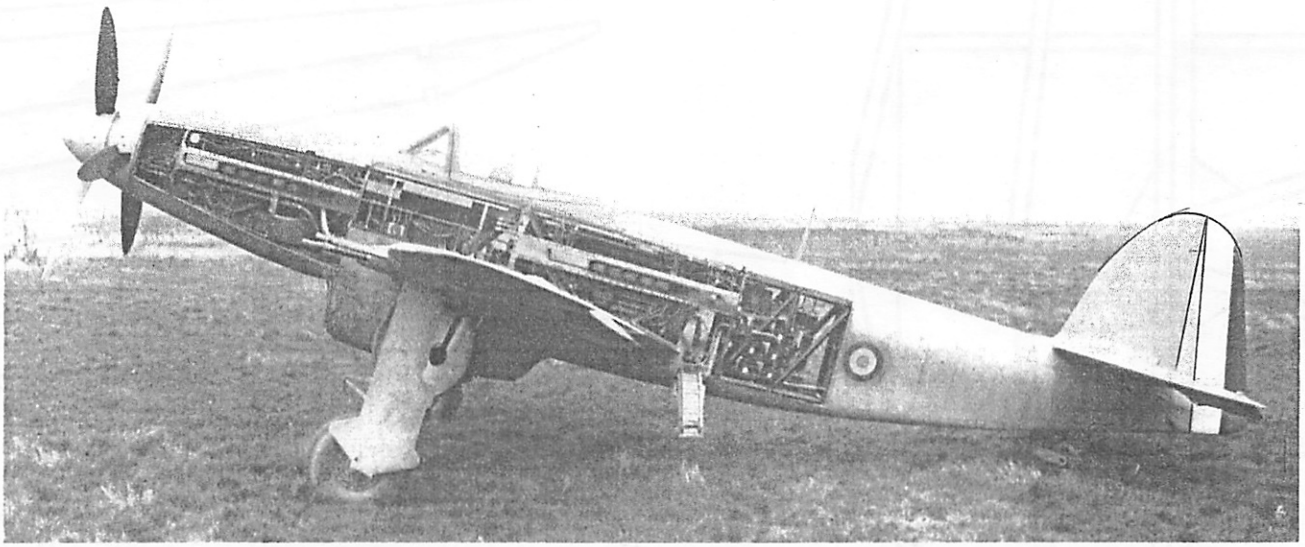


All stock is 1/16" unless otherwise noted

BV-10-02 second prototype



(Above and below) The VB 10.02 which began flight trials at Villacoublay on 21 September 1946. The photograph below illustrates clearly the ease with which engines and accessories could be reached by means of large detachable panels.



The second prototype shown here was armed and was fitted with the bubble canopy adopted for the production series aircraft. It also had a revised form of landing gear doors. This aircraft was lost on a test flight in January, 1948. The test pilot bailed out successfully after staying with the machine long enough to insure that it would impact in an area that was sparsely populated. He survived but suffered severe burns.

The VB-10 had a great deal of potential, but was thwarted by enforced economies that choked development. Had the French been able to follow through with the program, it would have proved a useful aircraft in the conflicts they found themselves embroiled in during the next ten years.

Sources:

L'Fana de l'Aviation No 246, 247, & 248 – French aviation magazine

Air Enthusiast Vol 1. June 1971

PHANTOM FLASH

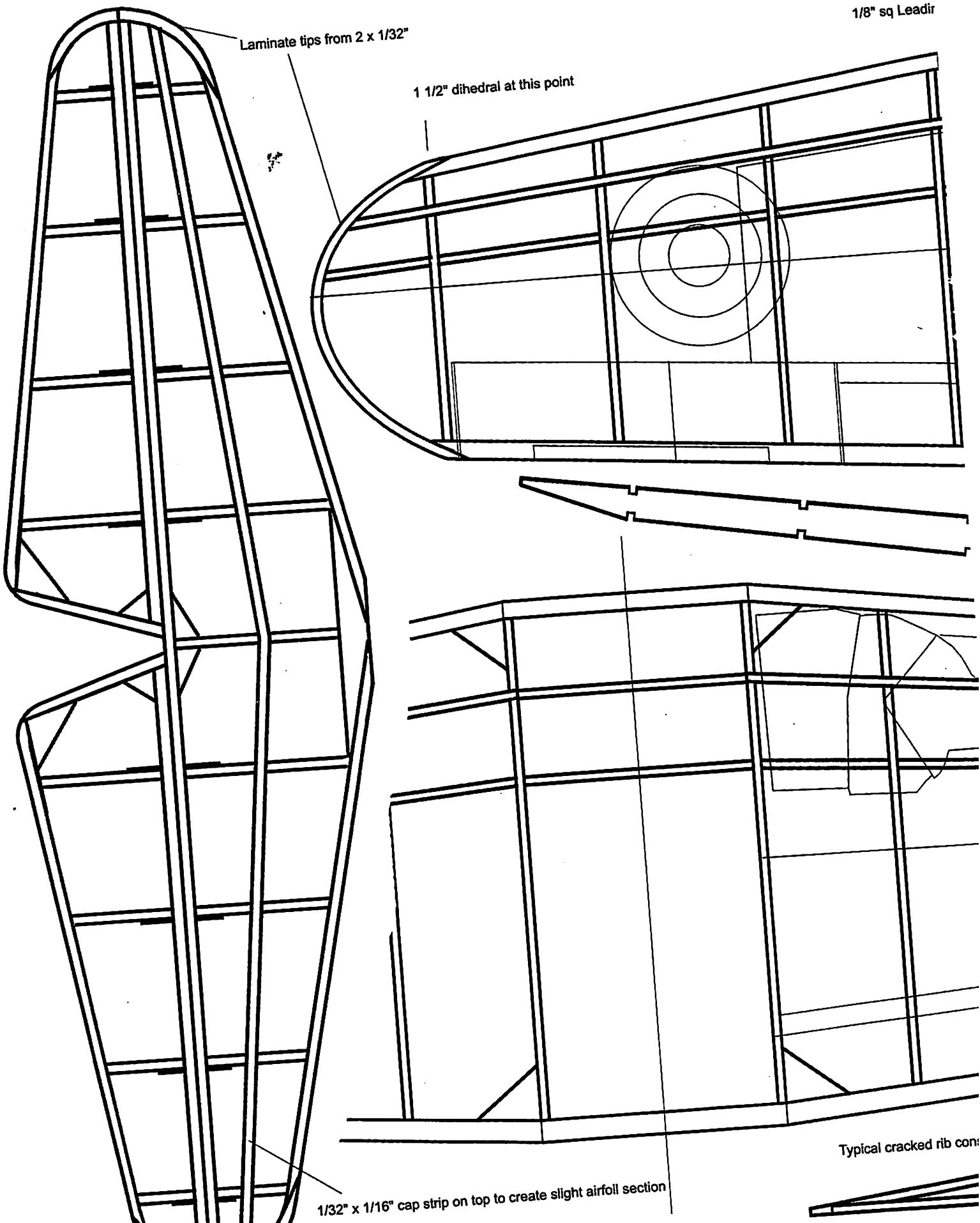


A1 PHANTOM FLASH 10c

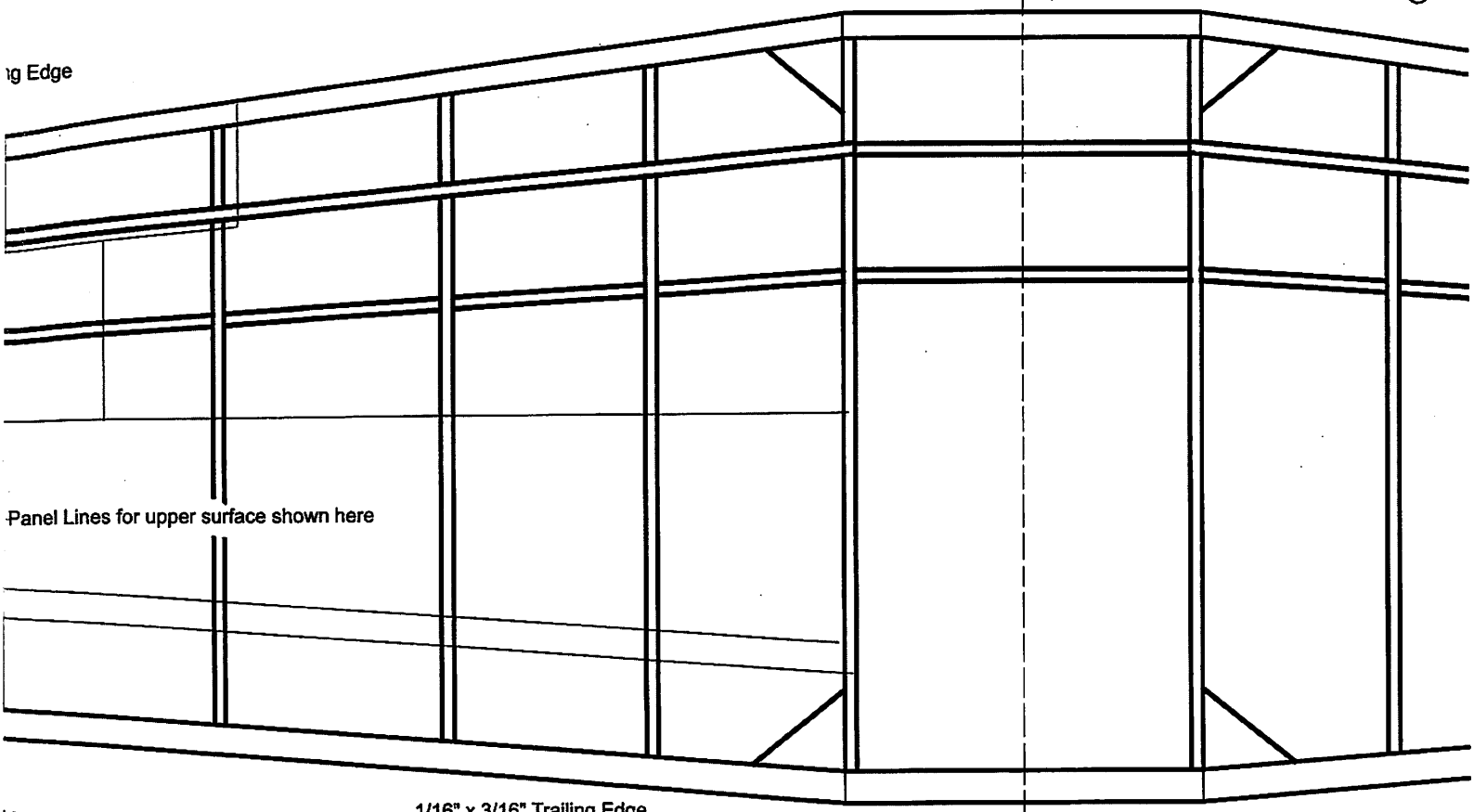
LAZER CUT KIT $ 15 & $ 7 s&h

COMET
REG. IN U.S. PAT. OFF.

Shorty's Basement
1036 Bexley Ave.
Marion, OH 43302 USA
Phone: 1-740-223-7471 or 1-740-225-8671

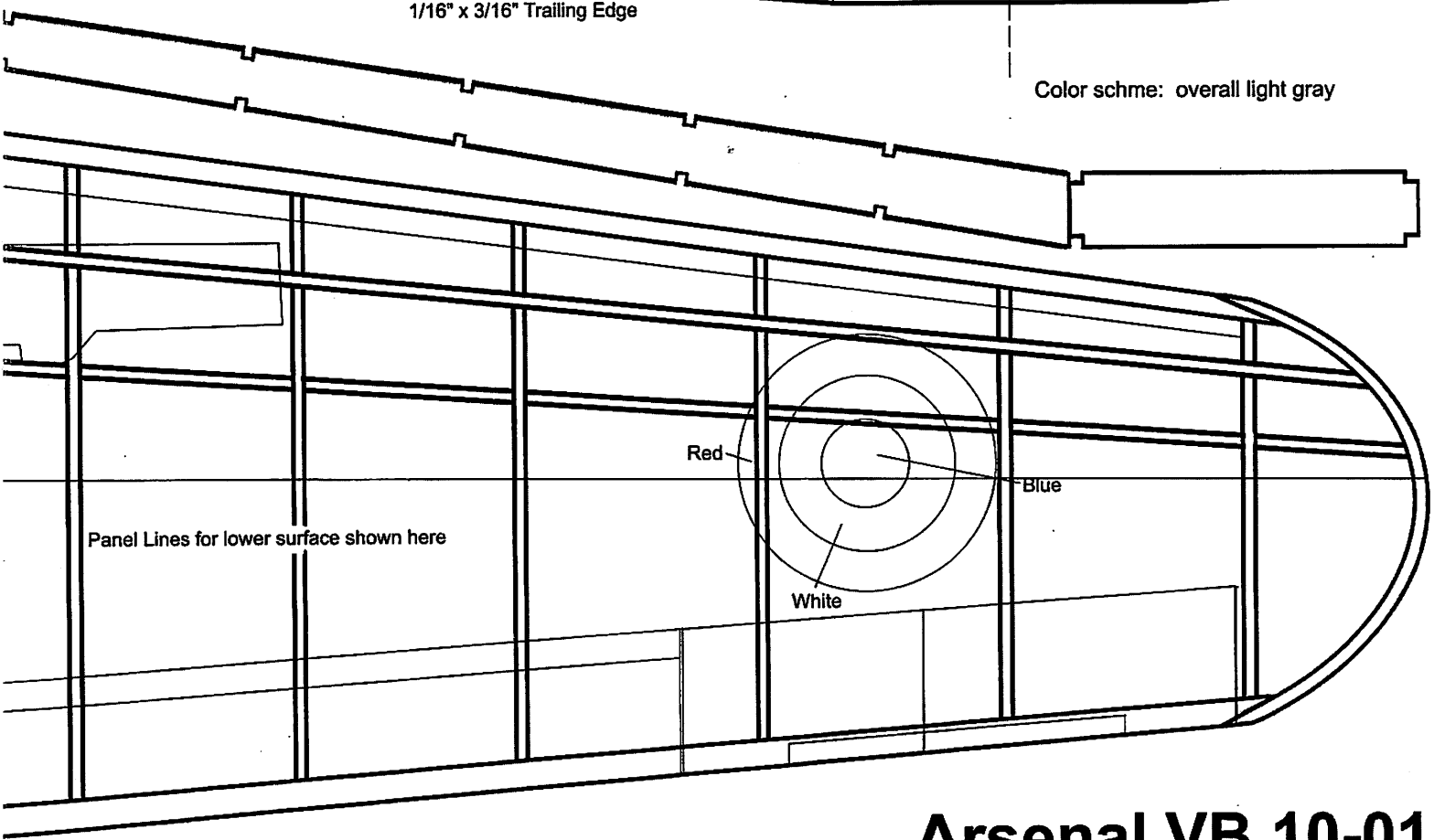

Laminate tips from 2 x 1/32"
1 1/2" dihedral at this point
1/8" sq Leadir
Typical cracked rib cons
1/32" x 1/16" cap strip on top to create slight airfoil section

ıg Edge



1/16" x 3/16" Trailing Edge

Color schme: overall light gray



Liberté, Égalité, Fraternité !

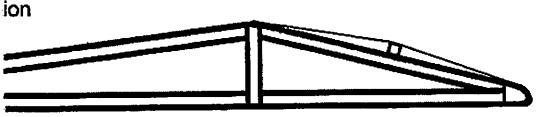
Arsenal VB 10-01

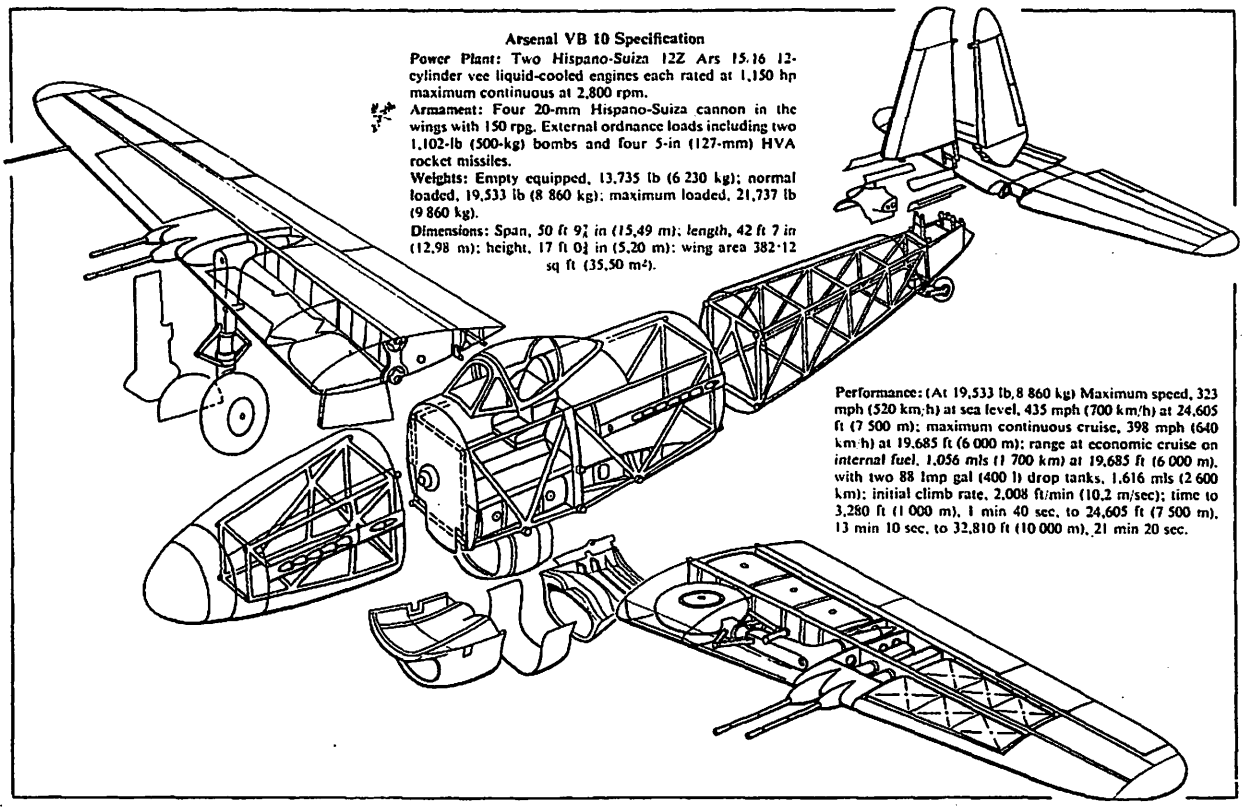
French Experimental Fighter

Wingnut Aero Works, Ltd.

Rich Weber 2007

ion

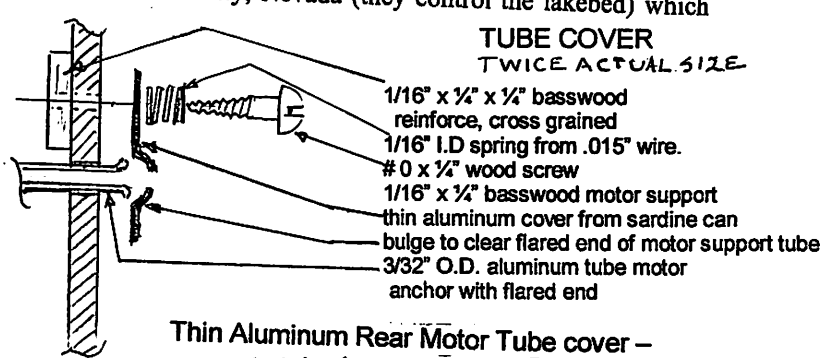




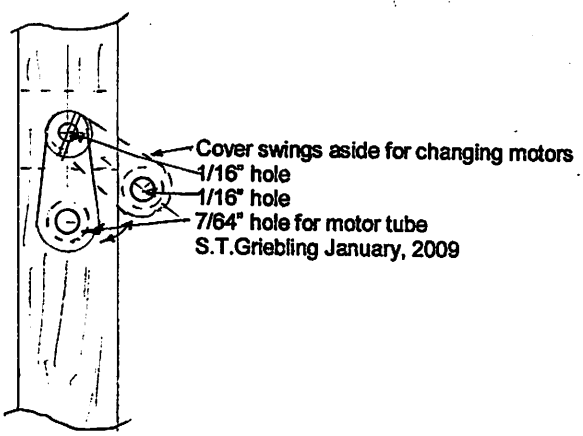
CFFS contest dates at Lorain County Community Collegel Abbe Rd.N. Rt.301 Elyria, OH are: May 31, June 21, July 26, August 16, September 20,Oct 4. 9 am-5pm. Added events for '09 are FAC Sport Rubber R.O.G., AND JETEX/ RAPIER Solid Fuel rocket power for Duration and for Scale events. Phantom Flash 16" w.s. R.O.G. flights in Sport Rubber are dedicated to Comet Models designer and flier Joe Konefes.

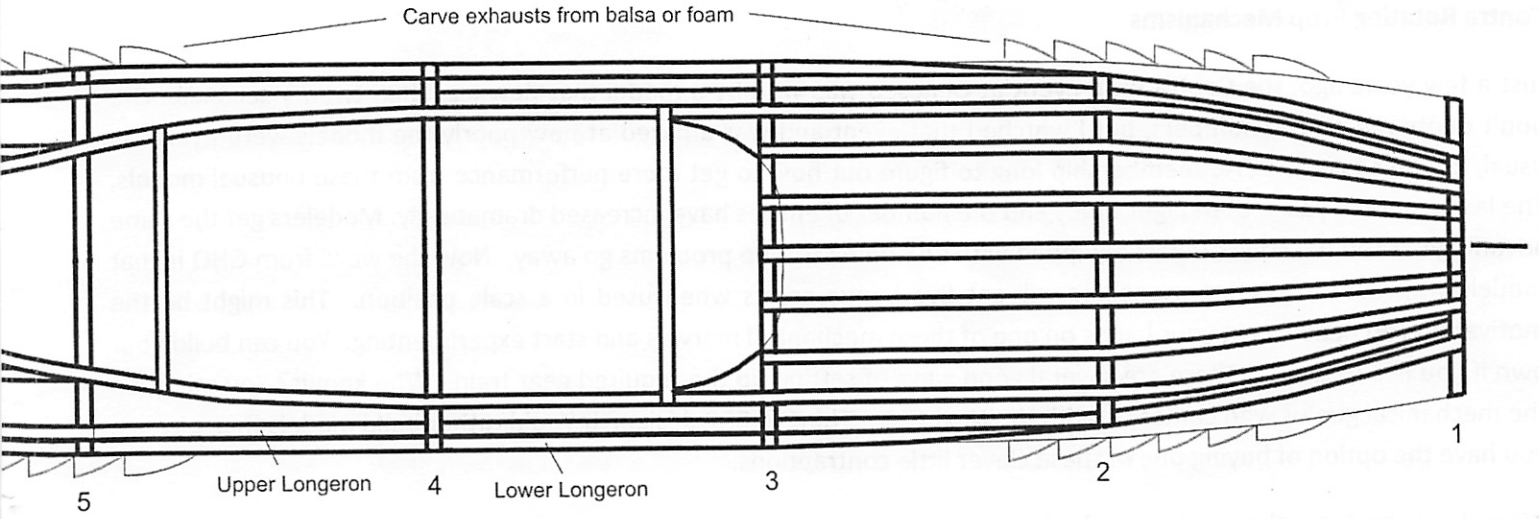
In Cleveland, we greatly regret and mourn the passing of Rich Weber's WW II War Hero father, Geoff Phillips' loving mother, and our friend and active CFFS member Lee Emerson.

The 2009 Comet Model SAM Champs plans are almost complete. We're going to hold the contest on El Dorado Dry Lake south of Las Vegas, Nevada, in October, 2009. We've got a contract signed with Boulder City, Nevada (they control the lakebed) which will let us have use of the lakebed from Sunday, October 4 through Friday, October 9, 2009. Contest events will be flown from Monday, October 5 through Friday.



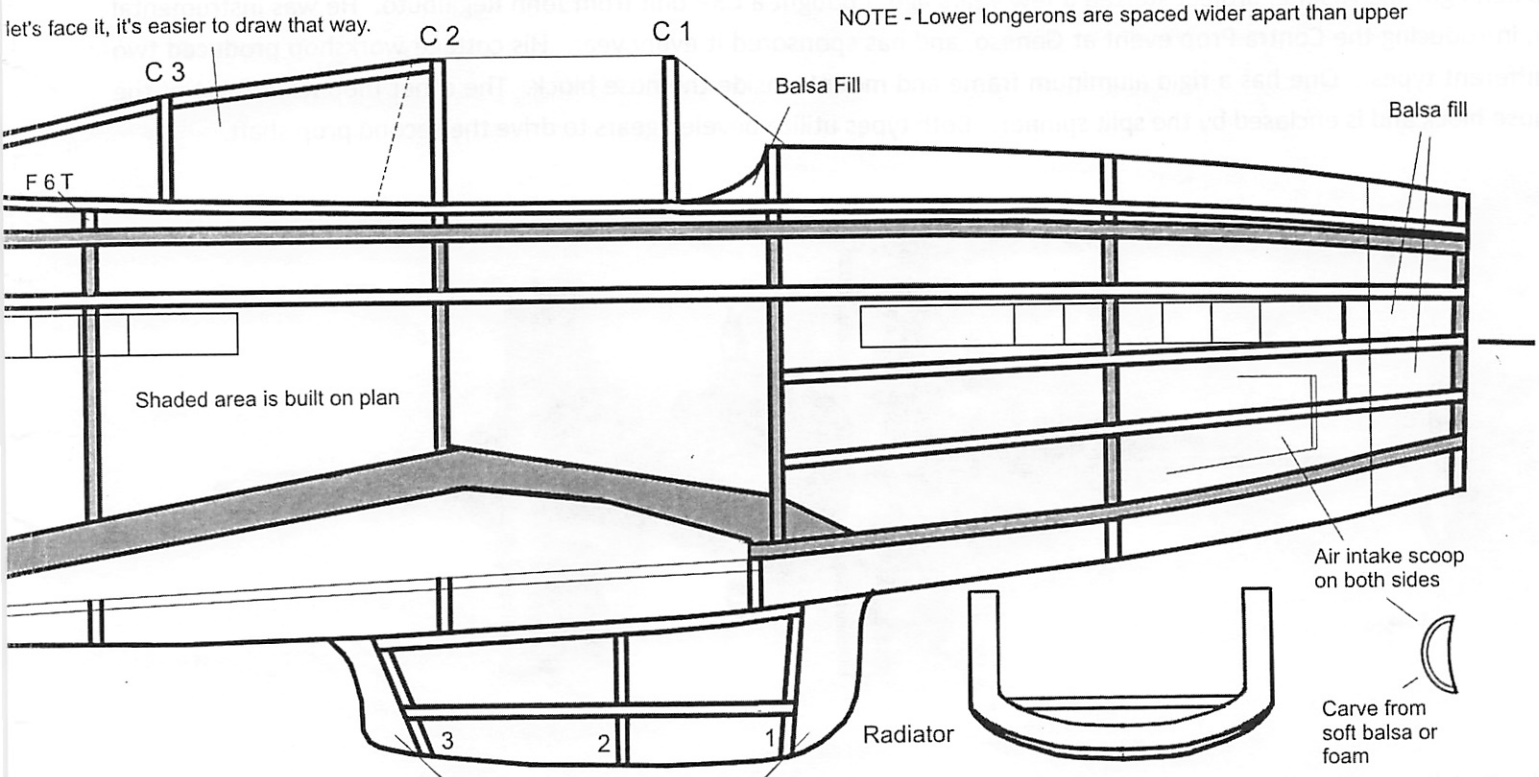
Thin Aluminum Rear Motor Tube cover – prevents tube from working loose during flight and winding, but still allows it to revolve freely.

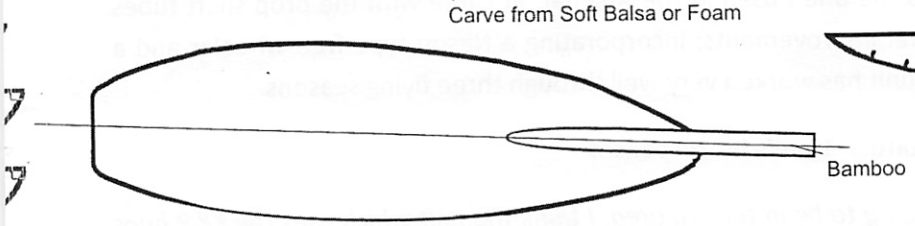


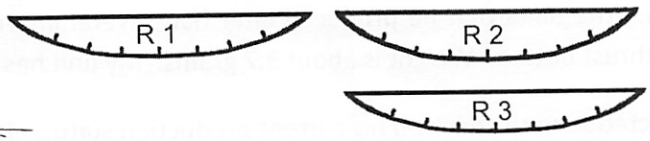


let's face it, it's easier to draw that way.

NOTE - Lower longerons are spaced wider apart than upper



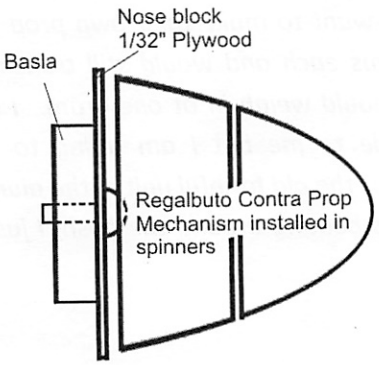




Prop blades are cut from yogurt carton. If you don't like yogurt, find something you like to eat that comes in one of those nifty little plastic buckets, or give the yogurt to your dog.

Two left handed blades, two right required. Blades are set at low pitch.

Power is a loop of 1/8" and a loop of 3/16" Tan rubber, about 24" long.



Arsenal VB 10-01

French Experimental Fighter

First flight July 7, 1945

21 1/2" span



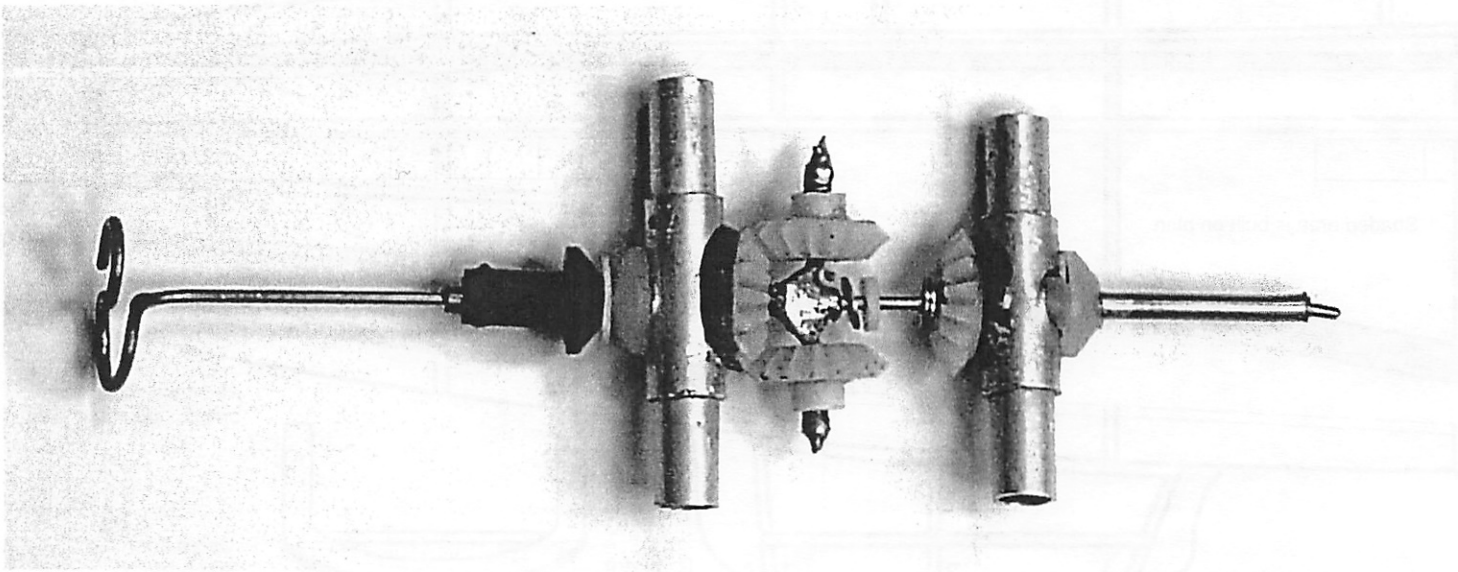
Wingnut Aero Works, Ltd.

Rich Weber 2007

Contra Rotating Prop Mechanisms

Just a few years ago, the Contra Prop event at Geneseo was won by a model that flew less than twenty seconds. OK, don't quote me on the numbers, but I watched that event and was amazed at how poorly the models were flying. As usual, it didn't take the FAC membership long to figure out how to get more performance from these unusual models. The last couple of years, both flight times and the number of entries have increased dramatically. Modelers get the same advantage as the full sized aircraft equipped with CRP units; torque problems go away. Now the word from GHQ is that models with contra rotating propellers will get five bonus points when used in a scale position. This might be the motivation you need to get your hands on one of these mechanical marvels and start experimenting. You can build your own if you like to tinker. There are several good ways of setting up the required gear train. Who knows? You might be the mechanical genius who comes up with the Next Great Thing in CRP design. If you'd rather build models than gizmos, you have the option of buying one of these clever little contraptions.

When I got the Arsenal project started a few years ago, I bought a CRP unit from John Regalbuto. He was instrumental in introducing the Contra Prop event at Geneso, and has sponsored it every year. His cottage workshop produced two different types. One has a rigid aluminum frame and mounts inside the nose block. The other mounts in front of the nose block and is enclosed by the split spinner. Both types utilize beveled gears to drive the second prop shaft.

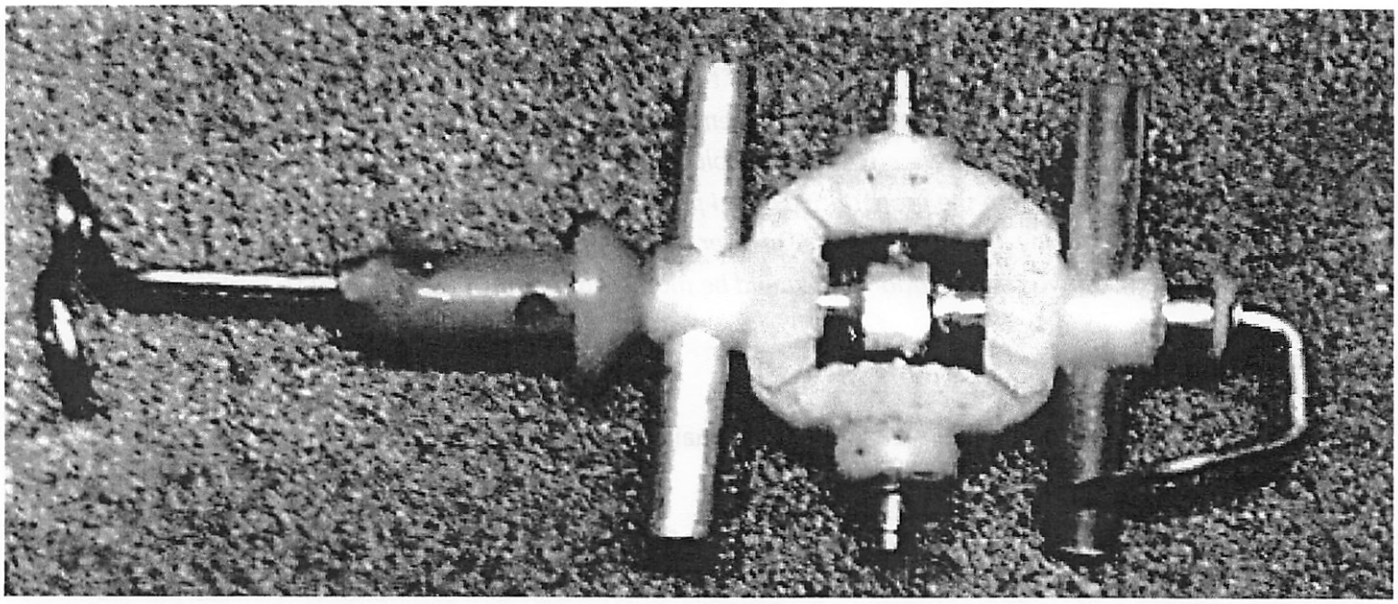


The Regalbuto spinner-mounted unit shown above is the one I used in the Arsenal. It came with the prop shaft tubes built in. The units that he produced later had several improvements; incorporating a Nason type free wheeler and a larger thrust button. Weight is about 3.7 grams. My unit has worked very well through three flying seasons.

I contacted John to check on his current production status. Here's his response:

I haven't quite decided what the improvements are going to be in the crp area. I think the unit which uses the K&P hubs and blades has some advantages for those who don't want to make their own prop blades. The units I made for my flying wing used yogurt cup blades, weighed 1.8 grams each and would still transmit mucho torque. Finally I am mocking up a bare bones unit for peanut scale that should weigh in at one gram. I don't have the production assets others obviously have so the units look a little crude to me but I am trying to incorporate an easy method of incorporating the spinners into the unit. And then there is the old faithful unit in the aluminum frame which fit behind the nose block. It had some advantages also. After all this beating around the bush, I just haven't decided yet how much effort to put into the crp area.

He also sent this photo of one of the 1.8 gram CRP units he built for his impressive Nothrop Flying Wing last Summer.

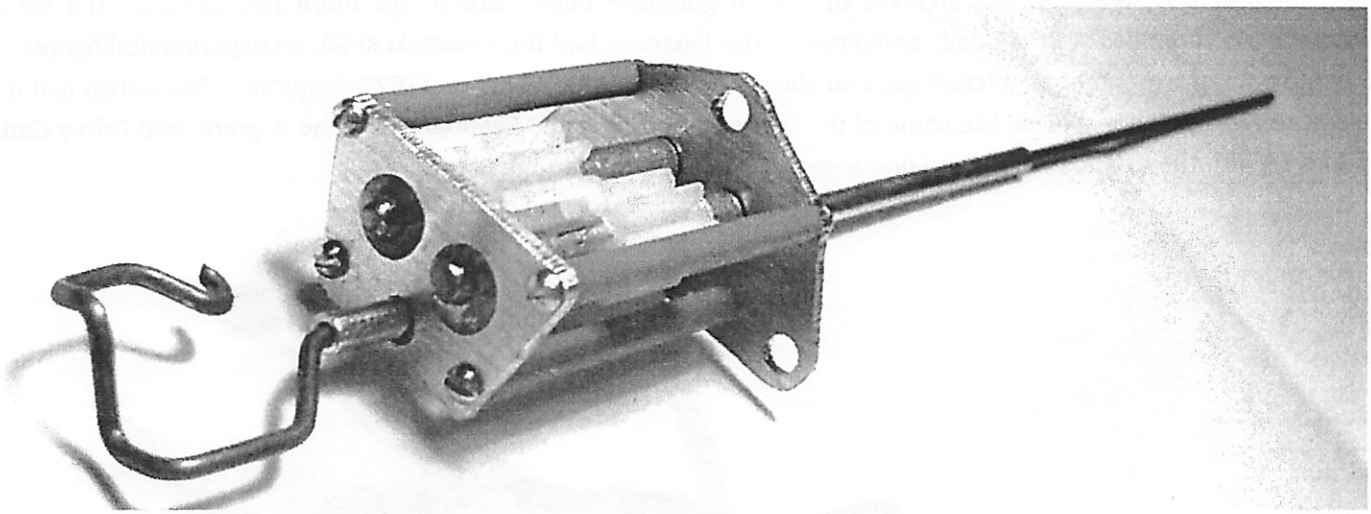


If you flood John's mailbox with requests, I'm betting that he'll get the message!

John Regalbuto, 11 East Geroge St., Georgetown, MA 01833

Currently, there is another source for an "off the shelf" CRP unit.

Keith Sterner (Klass Wings) has recently started manufacturing a CRP unit of his own design. Another of the Free Flight cottage industrialists that keep this hobby going, Keith is also in the process of developing a line of laser cut kits. (Stay tuned for details on those.) His units, one of which is shown below, utilize a completely different gear set up.



They are beautifully made and should last a lifetime. There are two sizes available. The large unit weighs about eight grams and will handle models up to 30" wingspan. The 1/16" shaft will take a large cross section motor. The smaller unit has a 1/32" shaft, weighs about three grams and is designed for smaller models from around 20" span down to the peanut range. Weights given are approximate as the units come with extra long prop shafts that can be trimmed to fit your model. It also includes three mounting screws and soft bushings which allow for thrust adjustment. Tom Hallman used one of the small units in his Koolhoven FK-55, which he flew to victory in the Contra Prop event at the '08 Nats. Price for the small unit is $40, the large one is $50. First class postage is usually about $4.

Keith sent this update just before I wrapped up this article:

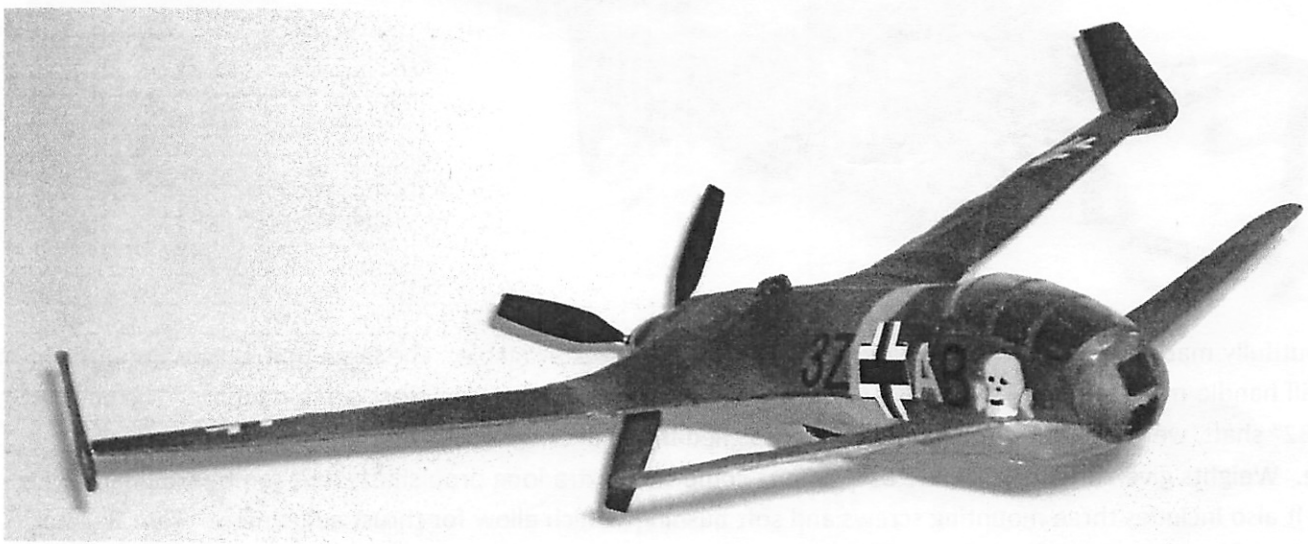
I am developing new designs as the need arises. On this front, I have been working with Mike Isermann who by the way has designed and is building a 26" WS Ki-64!!! I have a copy of the plans and it is an absolutely beautiful design in the Isermann style. I designed and built a special size drive, between my small and large units, to fit this particular model and is specific to this or similar models with the same type of nose plug restraints. Therefore, anyone wishing to build one from his plan will have available to them the proper drive unit. I plan to do this for models that turn out to be popular designs. I am willing to work with any designer/kit manufacturer who intends to produce a short or full kit of a CRPD design that may need a special drive configuration and would be marketed thru my Klass Wings, LLC business.....

You can contact Keith at;

Klass Wings LLC, 4019 Nicholas St., Easton, PA 18045 email: fyteraces@rcn.com

There are a lot of potential subjects for the Contra Prop event. Some have been done before, but without a real CRP unit. Others have never been attempted. The era just after WW II, before jets took over the world of aviation is a sort of a golden age for the twin-fan aeroplane. Piston engine development had progressed so much during the war that conventional props had trouble handling all the power they produced. The torque these high powered engines developed tended to make the aircraft very difficult to handle, particularly on takeoff, and the prop sizes required to utilize all that power became impractically large. While most of the earlier attempts at applying the concept had ended in failure due to the complexity of the gearboxes required, by the end of the war the engineers had gotten ahead of the problems. Postwar, several CRP equipped aircraft attained operational status, although in most cases their service lives were fairly short as their performance levels were overtaken by the jets.

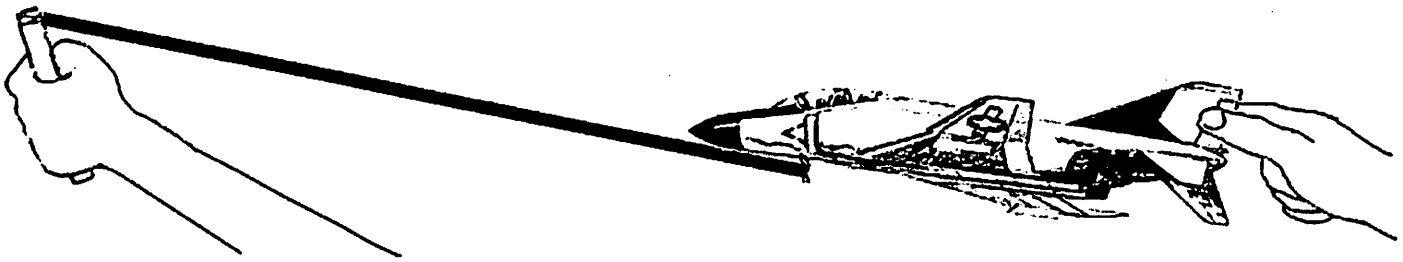
If you choose the right model, it will qualify for the FAC Modern Military event too. Thanks to the structure of the FAC rules, you can also look into the archives of the "might have been" aircraft for more possibilities. The German "Luftwaffe '46" area has several good candidates. The Japanese had the Kawasaki Ki-64, an experimental fighter. The US had plenty of experimental aircraft you can choose from, like the XP-42, or XTB2D Skypirate. The British had a few make it to the operational level, like some of the late mark Spitfires and Seafires, Westland Wyvern, and Fairey Gannet. Time to dig into the aviation library and find something new to bring to the field!



John Reglabuto's CRP equipped Henschel P.87

Jet Cat is Coming Back!

At the end of the last flying season, several of us started talking about coming up with an event that would get the Scale and non-Scale guys flying together. FAC Jet Catapult Scale seemed like the logical choice. The non scale glider events have been a favorite of the NOFFA guys over the last couple of years, and many of the long time members of the CFFS remember when Jet Cat was a popular event here. They are hard to beat for the grins-to-bench- time ratio, and are less likely to fly OOS than No-Cals. There are about a zillion subjects to choose from. It's open to any jet aircraft, military or civil. All you need is a 3v drawing for a "plan." Set it up like any other glider, and add some scale effects: a quick spritz with the rattle can, and some paper insignia and you're ready to fly. The set up for scoring is in your FAC Rule Book. The only field rule will require the use of a 6" stick for launching, as in regular Cat Glider. Join the fun!



There will be a few more changes to the 2009 CFFS contest event line up. Additions include FAC Rapier Powered Jet Scale, Rapier Duration, and FAC Phantom Flash. We'll be dropping FAC No Cal Profile Scale for lack of interest. Should be a sky full of models next Spring!

New Stuff from Easy Built Models

There are a couple new items from Easy Built that should be of interest. First off, there is a laser cut version of the old Comet Ten Cent Fokker D.VII. The original plan has been faithfully reproduced in this 21st century reprise of the Comet classic. The kit includes Esaki tissue, outstanding wood selection, and precut tissue German crosses, and everything else you'll need to build a contender for FAC Dime Scale...in record time.

The other item isn't exactly new, but an upgrade of one of my personal favorites; the Mystery Tailless. Dave has reissued the kit with improvements to the plan and thinner wood on many of the parts. There are also a lot of new laser cut lightning holes in the solid parts on the fuselage. Combine these upgrades with the contest grade wood and you have a model that is capable of some amazing flights. This model is always a threat to win the Fiction Flyer event, and the new version will keep it in contention for a long time. The biggest problem will be keeping it on the field!

One more item of note from EB Models is the new set of tissuecals for the Mystery Tailless. Dave has done a beautiful job with one of the fanciful color schemes that has the vaunted MT in the service of the American Volunteer Group. Gearwheels and sharkmouths look great on this oddball model! RW/Wingnut

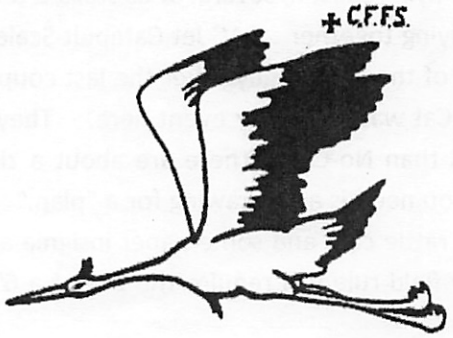
CRP Addendum

One more bit of news on the CRP front. John Regalbuto has just come up with a new smaller and lighter version of his inside-the- spinner unit. It is sized to fit in Peanut Scale models and weighs 1.4 grams. John's prototype with a couple of props (fabricated from yogurt pots) installed weighed only 3.7 grams. John said he is considering a small production run of these units. Price would be $20 plus shipping. His address is listed in this issue of Cw.

2009 CLEVELAND FREE FLIGHT SOCIETY ANNUAL INDOOR CONTEST & RECORD TRIALS

A.M.A. SANCTIONED

Saturday, April 25, 2009
Kent State University Field House



7:00 AM – Building opens (test flying)

AMA Events

8:00 – 11:00
1. Hand Launch Glider
2. Standard Class Catapult Glider
3. Unlimited Catapult Glider

8:30 – 5:30
4. EZB – scoring is best of five officials
5. F1L (1.2 gram EZB)
6. Limited Penny Plane
7. Mini Stick – best of 5 officials, 20 sec minimum

9:00 – 3:00
8. Seven Gram Bostonian – AMA rules

FAC Events

9. FAC Peanut Scale
10. High Wing Cabin Peanut
11. Golden Age Scale
12. Dime Scale (3 flight total)
13. No Cal Profile Scale (3 flight total)
14. WW II Combat – 12:30 PM
15. Phantom Flash* - best 2 of 5 officials, 20" official
16. WW II No Cal Combat – 4:00PM

Minimum Weight for all No Cal Models is 6.2 grams

The building will remain open from 5:00PM to 6:00PM for **AMA Record Trials**



Contest Directors:

Michael C. Zand
5308 East Ash Road
Independence, OH 44131
216-524-3480 imzand@hotmail.com

FYI:

All events are J S O combined

Steering of models as per AMA rulebook

Entry Fees: Open - $30.00 Junior - $2.00

Very Important - You must provide your own table and chair

No Indoor RC flying permitted during the contest

All Flyers must have a valid AMA license.

Awards

Prizes will be awarded for 1st place in each event that there are 3 flyers with official flights. There will also be certificates. There must be 3 official flyers in an event to win a prize, earn a FAC Kanone, or receive a certificate.

*** Phantom Flash rules:**

1. Model must be built according to plan. Wheels must turn and any type prop may be used.

2. Marking must be on model, either cut from plan or similar paper.

3. Rubber band to hold wing is optional, but model must weigh 3.5g minimum without motor.

Don Slusarczyk
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Willoughby, OH 44094
440-918-0290 don@slusarczyk.com