



The News Letter of the Burlington Radio Control Modelers Club

Box 85174 Brant Plaza, Burlington, Ontario, L7R 4K4

Editorial

Election of a new board of directors went very smoothly – certainly much better than the Florida mess! A chart showing the current members of the executive is included with this edition.

In this month's edition it is my pleasure to present an article by Harry Curzon about the art of fibre glassing. Harry wrote this some time ago but I had forgotten it until my own interest in the subject was recently aroused (see Your Editor's Progress.) I also present an interesting article on twins and a delightful account from Wayne Gilbank about a recent experience.

I have included a photograph from the archives of one of our members. Can you identify the member? Or the car? I would like to have more photographs like this so, please, let me have something from your own, forgotten archives.

As always, I am looking for input from the membership. I can be reached at 416-622-3705 or FAX 416-622-4134 or by E-mail: Lawrence.Cragg@Sympatico.ca or S-mail to suite 2010, 820 Burnhamthorpe Road, Toronto, M9C 4W2

Your Last Chance!

Members are reminded that the February meeting is your last chance to renew your membership without a late penalty of \$15.00. If you haven't signed up by the end of March, you will be dropped from the membership list.

Frequency Pegs

Members are reminded that they must have a club approved frequency pin for every frequency that they use. If you do not have a pin for each channel/frequency, please make your request known to Kurt Fritz. Members are also reminded that the club requires all members to display their membership and MAAC cards in plain view while flying at either of the club's fields. Bernie Sudol will laminate your cards if you bring them to the meeting.

Toledo

There may be a bus trip + two day hotel included for \$179.90 (2 per room) if there is enough interest. Contact Art Titmarsh if interested.

The President Writes

Our Board of Directors for the 2001 season has held its first meeting, and work is underway to provide BRCM with another good year of training and flying at our two flying sites.

From last year's Executive Committee, Bill Montgomery is moving to the job of co-manager (with Peter Hagens) of the Bayview Park site. Bill Hemp-hill has moved smoothly into the Secretarial job, Ivan Wismayer is staying on as Treasurer, and one of Brian Taillieu's duties on special assignments will be to monitor the job, with the possibility of Brian taking over next year as Treasurer. We are still

awaiting confirmation of Harold Jones' acceptance of the office of Vice-President.

Bill Swindells will continue to attend Board meetings (as time permits) to assist us with his experience and expertise as Past President,

Orderly use of frequency pins has been a topic of discussion at Board meetings over the past couple of years. Last year, through the efforts of Kurt Fritz and Barry Ward, considerable progress was made in producing a standardized Club pin. As a current Board member, Kurt has again accepted responsibility for developing the idea further. Please give him your fullest co-operation when he announces his plans for this year.

Ground School and Flight Instruction will again be under the direction of Bud Childerhose, who has a history of doing a superb job of this vital function in the past several years.

Skywords remains in the capable hands of Lawrence Cragg. A new project for this year will be that of "Official Greeters". Art Titmarsh and Howard McNamara will meet the membership at the door on meeting nights and find out who is a "new member" or "guest". They will then properly introduce these folks to the Club, once the meeting is called to order. Howard will also take care of ticket sales for draws as Don Mallory has been transferred to China by his company. Art will continue as manager of the Bronte Field, Ted Toth, in his first year back on the Board since 1988, will be bringing us news of related modelling activities: Flying Aces Club, Southern Ontario Glider Group, Electric Model Flyers of Southern Ontario, etc.

We thank those who have gone before us in these offices and pledge to continue the level of excellence that has been traditional in the Burlington R/C Modelers Club.

*Next Meeting
Thursday, February 22
All About Engines
Helmut Schmitter and Len Ashdown
will talk about engines with
particular reference to aerobatics.*

Coming Events

These are the events that I know about so far.

February 22 Monthly meeting

March 7 Rubber match at the Hamilton club

(Bill Swindells liaison for this)

March 22 Monthly meeting ~ sign up for wings program

April 6, 7 and 8th Toledo

April 26 Monthly meeting

May 24 Monthly meeting

June 2-3 Float Fly, Christie Conservation Area

June 9 Oshawa Float Fly

June 16-17 Niagara, Chippawa Creek Float Fly

June 23-24 Simcoe Fun fly (contact gaunt@nornet.on.ca)

June 23-24 Long Sault Float Fly

September 15-16 Float Fly, Christie Conservation Area

Semantics!

Spoilers kill a lot of lift along with some reduction in air speed.
Airbrakes kill a lot of air speed along with some reduction in lift.

Your Editor's Progress

Those of you who have read recent editions of this newsletter will know that your editor is building a 1/7th scale P51. Here's a progress report:

The fuselage, complete with the upper half of the engine cowl, is done. The tail feathers are complete with the dorsal fin reasonably faired in. As predicted, the cowl produced copious amounts of wood chips and I found it necessary to add considerable reinforcements to avoid going right through the cowl during final shaping. However, all went reasonably well. Certainly, the fuselage was much easier to build than the wing.

Working in confined quarters does not permit me the luxury of a bench big enough to support the wing from end to end. I knew this was a bit of a risk but I thought I had got away with it. I suspected that I might have a small twist in the wing but nothing to worry about. In any event, I couldn't get a good "grip" on the finished wing until it was mounted on the fuselage so I couldn't measure it.

I finally got the two married and took the assembly to the last club meeting whereupon Helmut immediately spotted the twist which I subsequently measured at no less than 4 degrees tip to tip. In fact, the port tip incidence was -1.5° and the starboard tip was $+2.5^\circ$ – a totally unacceptable distortion. Note the past tense. While I was quite prepared to scrap the model, Norm Harris did a magical job of correcting the twist. But he didn't stop there, he finished the wing and led me step by step into the art of fibre glassing. The end result is a very good looking wing albeit with some unplanned wash out.

With Norm Harris, I also learned a lot about balsa wood which has a remarkable range of qualities. Unfortunately, the wood supplied with the P51 kit has the strength of wet kleenex. Without the fibre glass, the wing was very weak, eagerly accepted hangar rash and I have lost count of the number of times I crushed it simply by picking it up.

I think my next lessons will be about the art of painting. It's all wonderful stuff to me.

A gift to the Club

The club has received a cheque in the amount of \$350.00 from Mrs. Earle Smith for the club to build a transmitter stand at Bronte Creek in memoriam to the late Earle Smith.

Fuel Sale

Karl Gross' Skycraft Hobbies is offering his annual special fuel sale to BRCM members:

5%	\$14.65
10%	\$16.45
15%	\$17.95

The fuel is XP sport or synthetic. Orders must be prepaid before February 28th.

Skycraft Hobbies is at 115 Plains Road E. Burlington

Our Members Write

This from Wayne (the coffee / donut guy) Gilbank

A fun thing to do

On Monday evening, December 4th, I was the guest speaker at the local United Church in Carlisle. The function was organized by Mr. Wayne Eastwood of Carlisle, a local parent, who has been instrumental in starting a father and son social group here.

Wayne asked if we could do a show of the newly completed Giant Scale P-51 Mustang; describing radio control, building methods and the hobby in general.

Although I seldom have had an opportunity to do something of this nature, I accepted the invitation and went ahead with planning something the boys and the fathers might find entertaining. The Mustang was assembled, complete with charged batteries, air in the retracts and, of course, the pilot on board. These very young boys were full of questions as they watched everything go together and I think I was enjoying this as much as they were.

After a complete demonstration of the aircraft and a brief overview of aerodynamics, the floor was open for questions – and the response was incredible! By the spring, we should have a whole squadron of new pilots. The fathers asked as many questions as their sons.

To complete the evening, we showed 20 minutes of video taken at various scale warbird meets in Canada and the USA.

The message here for all of us, no matter what age, is that we enjoy one of the best hobbies available and it can be further enhanced by sharing it every chance we get. This was both fun and rewarding. If you get the chance, try it!

Axioms

There are three simple rules for making a smooth landing: Unfortunately, no one knows what they are.

Those who hoot with the owls by night should not fly with the eagles by day.

Flying Twin Engined Models

This is from Norm Harris whose twin Grumman Skyrocket is shown here.

Fun with Twins

Well some people call it fun, double the fun, (or double the trouble) depending on the way you look at it.

It is some years since I flew a twin. The last one I had was a Portavia twin scale model which I flew for a number of years until one day I was starting the engine when the whole nacelle came away in my hand. Upon closer look, the other engine nacelle was rotten and felt like blotting paper. What had happened was the fuel tanks had to be built into the wing/nacelle and, although I had fuel proofed it, over the years the vibration had crazed the finish and the oil had soaked into the nacelles. I still have the fuselage and one day I will get around to rebuilding the wing etc.

Last year I saw a model in the English magazine Aviation Modeller International, the mag included the free plan and I just had to build it. It was a funfly, stand-way-off interpretation of the Grumman Skyrocket. Within a week I had the model finished and up to the flying field. Having set up both engines to run smoothly and done the usual checks I taxied out to the runway and gingerly lifted off. The first flight was hairy – I was not used to such a sensitive model – however I landed safely although a little fast and ran into the long grass. Upon retrieval I found that the tail wheel had snapped off (brittle wire) so I cleaned up the model and in the process dropped it on its tail and broke the stabilizer. Anyway, next day with a repaired model I was up to the field. By now I am confident I can fly the thing no problem. I fire up the motors taxi out, open her up and before I could blink an eye the beast had taken off in two feet and did a 6ft loop and hit the deck 90 degrees vertical nose down. I walked across to the model expecting to see it destroyed and to my amazement the only damage was sheared engine bolts. Within the hour I was ready to go again and this time I opened up the throttle to only half way and did not touch the elevator, it flew like a pussycat and since that time I have had more fun with this machine than I can remember. It will do everything you ask and more and it's totally predictable once you know how to handle it.



Twin engine flying really is not hard if you take the time to set your engines up properly and ensure that they are reliable. You don't have to worry about getting them in sync, 500rpm difference doesn't really show in the air, the main thing is to have them run the full flight. Just think of a twin as two of your regular aircraft. For those who know how to set up their motors properly I would ask how many times does your engine quit ?

Before you contemplate twin engine flying be sure you know how to use your rudder effectively for, if a motor quits, you don't want to be thinking what to do; it should be instinctive to correct with rudder and get your wing level. From that point you can

contemplate the next action; if you are near the ground then throttle back and land straight ahead – you will do less damage than trying to go around. Of course safety to spectators and crew are the first concern. Those interested in flying twins can give me a call for more info for it is a pretty deep subject but, as I said at the beginning, It is FUN .

Grumman Skyrocket specs;

wingspan 50in, wing area approx 850 sq in, weight 4lbs, two O.S. 25FSR. Profile fuselage and engine nacelles. If you would like the address to order the plan give me a call. Norman Harris 905-637-2868

Who's This?

A rare contribution to a series of photographs taken from the private archives of some of our members. So, who could this be?



Fibre Glass Covering

This article was written by my favourite oracle Harry Curzon. Harry flies models and full scale aircraft and writes reviews for RC Model World and other UK publications.

I have added an addendum in the light of my recent tutorial in the hands of Norm Harris referred to in "Your Editor's Progress"

An epoxy/glass covering is the ultimate covering method available. It involves a little more work and potentially more weight than dope and tissue/nylon or iron-on film, however it provides a fabulous surface finish and adds a strength to the structure that none of the others can match. Its biggest limitation is that it can only be used on all-sheet surfaces, it will not cover open areas. Its biggest drawback is the serious sanding required! Its biggest hazard is the addition of weight, for it is easily applied badly. With the extra hazards and work of epoxy-glass covering, why bother? If done properly, after some practice, it will add no more weight than a tissue/dope finish done to the same high standard of final surface smoothness. The strength added is enormous, meaning that weight can be saved at the design/building stage, for instance substituting 1/16 sheet instead of 3/32 balsa to sheet a wing, thereby making a 50% saving on the wing sheeting weight. Hangar rash is much reduced, thin trailing edges become very strong, long thin balsa items like ailerons become much stiffer. The covering is fuel-proof, though whatever you paint on top is not necessarily fuel-proof. There is no shrinkage to warp surfaces or give the "starved horse" effect as you get with dope or film covering. After some time especially with engine vibration, tissue covering may split along balsa sheet joints, epoxy-glass has no such problem. With practice, you too can add an epoxy-glass covering for little or no weight penalty. If you are not convinced about the weight penalty, then consider this. I recently epoxy-glassed the wing of a Simprop Peppo, which is an electric glider of just 46 inches span, powered by a weeny 400 motor of just 0.07 horsepower. On its first outing we managed engine-off thermalling with flights of 20 minutes. Hardly what you would expect if epoxy-glass added unacceptable weight. Even more surprising is that I had used the heavier of the cloths available!

The two secrets to an epoxy glass covering are surface preparation, and the astonishingly small amount of resin to be used. As long as you satisfy these two requirements, there is a myriad of different application methods which will be successful. Every manufacturer and expert will give you a different set of instructions!

Probably two thirds of a successful epoxy-glass covering is due to the surface preparation before the glass cloth gets anywhere near the model. A failure at this stage will not become apparent until you come to paint the model and then it is too late. Inadequate surface prep will lead to three problems: when paint is applied, tiny pinholes will appear like a rash and spoil the immaculate effect; some areas will still show the cloth weave, and some areas will be back down to bare wood; and at some areas the cloth may not have bonded to the surface.

Pinholes are caused by holes or gaps in the underlying surface, showing the weave at one point and bare wood at another is

lack of initial sanding to remove high and low points, and cloth becoming detached is usually caused by the epoxy resin soaking away into the surface leaving too little on the cloth. The cure is simple - sand, fill, and seal. Proper sanding to remove high/low points before covering, all holes and gaps must be filled, and the surface must be sealed to stop the resin soaking away into it. Filling the pores and gaps in the veneer of a foam wing is especially important, some veneers look like Swiss cheese and so will your epoxy-glass finish if the holes are not filled. So every hole must be filled, every crack along sheeting joints must be filled, and so on. Lightweight model filler is fine for this. If you skimp this part of the process, I guarantee that it will reappear when the paint has dried. Next you need to seal the surface. I sometimes use acrylic varnish, applied with a 1 inch brush cut down to stiffen the bristles so that the varnish can really be dragged out to cover the maximum area for the minimum weight. It is applied straight out of the tin and so is easy and quick to use. Another sealer is epoxy resin itself, with a dab of either micro-balloons or better still special ultra-light fairing compound added to act as a sealer for no real weight. You should also add 30% or so epoxy thinners to reduce the density and viscosity, improving the coverage. Again use a cut down brush and drag out the resin as far as possible. You do not want a shiny epoxy surface now, you only want just enough material to seal the invisible pores in wood. Ultra-light fairing compound is a special powder designed for use with resins, and if you think micro-balloons are light just wait until you get a tub of this compound! Once sealed, sand down to a smooth surface and check again for any holes that need to be filled. Sealing the surface adds a little weight, but not sealing it will add even more weight because you will have to apply so much resin to the cloth to get it to adhere. Remember, this stage is 2/3 of the success, so do not proceed until it is perfect.

At last you are ready to apply the glass cloth and resin. You need special cloth, 50g per square metre for most purposes or 25g/sq.m for very light weight. The 25g cloth needs extremely careful handling or the weave will distort all over the place and you will not get it back straight again. The resin is special self-levelling resin, which is a lower viscosity than ordinary laminating resin used in making moulds and parts. The strength comes from a tiny amount of resin locking the fibres of the cloth together. Thin cyanoacrylate will also lock the cloth into a very hard substance, proving that a large quantity of bulky resin is not what does the job. Any more resin adds no strength, only weight, so we are going to use the absolute least amount of resin we can get away with. A wing would be covered in four panels, one at a time since the resin is only workable for about 20 minutes. Cut the cloth with a 1 inch overhang all around. The cloth will not turn sharp corners like trailing or leading edges, so wrapping around is not an option. To measure the resin and hardener use syringes, a correct mix is essential. For an average sports model with a 55 inch span I would mix 15ml of resin/hardener for each panel and expect to have some leftover at the end, an expert friend of mine would mix less and have none left over. It is better to mix too much than too little, but it is a lot less resin than people expect. 15ml is about three teaspoons. Some people add a bit of epoxy thinner or even fairing compound though I feel it is best not to at this critical stage since they all reduce the strength. Raise the

wing up off the table on a couple of old margarine tubs so that the overhanging cloth can drape freely. Now we come to point where everyone diverges.

You can brush the thinnest coat of resin out on the wing, then lay over the cloth and without adding any more resin to the brush, dab the brush on the surface to wick the resin up through the cloth. It is like dabbing your foot on the damp sands at the beach, after a few dabs a whole lot of water rushes up to the surface. The disadvantage is that this method takes the longest time and the resin may be on the edge of being unworkable before you are finished, and you may lift the cloth off the surface with the brush. The advantage is that it uses the least resin of all the methods so adds the least weight, and that no dragging and therefore snagging of the cloth will occur. This method takes the most practice, but is the best.

You can lay the cloth on the wing and then brush on resin, working out from the centre. Use the cut down brush and brush the resin out as far as it will go. Only add a tiny dab of resin at a time to the brush, and astonish yourself at how far you can make it go. The disadvantage is that if you press or drag too hard you will drag the weave and leave some areas with little cloth. This is a fairly easy method, and reasonably quick.

Lay the cloth on the wing and pour a thin line of resin along the centre line from root to about 1/3 of the way to the tip. Use an old credit card to then squeegee the resin out in all directions, spreading as far and as thinly as possible. Then do the next patch and so on until you reach the end. I find this the quickest method, though potentially the heaviest but not if done properly.

You then scrape off the surplus resin, it may not look like there is any but you will be surprised. Have some credit cards made of thin cardboard cut from a cereal packet, round off the corners to prevent the sharp edge from snagging the cloth. Now squeegee again from the centre outwards. This will force the cloth down onto the surface as it is currently floating on the resin, and small ridges of surplus resin will be left along the edge of the squeegee area. Keep going until you have squeezed it out to the edges and either scrape any surplus ridge off with the card, or dab off with toilet roll. Check that the cloth is on the surface at the edges, it should adhere at least as far as the front of the leading edge, perhaps further if it is very rounded. It will not turn right angles. You should be able to clearly see the weave dimpling the surface, do not attempt to put on enough resin to give a smooth surface, this is the mistake most beginners make. I then attach bulldog clips all around the overhang to weight the cloth down, keeping it adhered to the edges. Leave for 24 hours to cure, then sand very lightly across the edges to cut away the surplus cloth and feather the resin edge. Do the other panels.

Now before you do anything else you must get rid of the waxy substance that will have appeared on the resin surface. [See *addendum*.] You will not see the wax, you will not feel it, but another coat of resin or paint will instantly go like orange peel. Do not think you can sand it away, you will only force some wax into the fine scores in the surface. To remove the wax you wipe the surface down with copious quantities of epoxy cleaner (not the same as epoxy thinner), or iso-propanol, or household ammonia in water. Now do it again! Then sand down using coarse grit wet

or dry paper, used wet. Remember your wing is now sealed in plastic and water will not harm the balsa. You should cut it back to a reasonably smooth surface. This takes some serious sanding, epoxy resin is tough.

Now we come to another major divergence in thinking. Almost every supplier and expert puts on another coat of resin. One of Britain's leading suppliers to modelers goes against this and stops at one coat, remember that the second resin coat adds no strength, only weight and fills in the weave surface to a smoother finish. But there are plenty other substances that can fill in what little is left of the weave on the surface without the weight and sanding required by another coat of resin. I have tried aerosol car primer and filler primer but they will not deal with any pinholes that do appear. I find the best is a tin of car primer, thinned down until very runny, brushed on and scrubbed into the weave and any pinholes. Cut back lightly with wet or dry and repeat as necessary until any remaining weave is filled. This will add only grams to the total weight. Eventually you will have a wing that looks very patchy, part clear resin, part grey primer, but it is now smooth! Now prime it your favourite way and cut back the surface ever so slightly to leave an ultra smooth, uniformly primed surface. Epoxy-glassing is not just for wings, use it on the entire model.

Addendum

My recent exposure to Norm Harris's technique encourages me to describe it. Norm's technique is much simpler:

Norm Harris uses undiluted finishing resin (epoxy) which he applies to the wood surface with a small paint roller - about 1" diameter and 3" long. He applies a *very* thin coat of resin then lays 3/4 oz cloth on top. Then he uses the roller to spread the glass evenly and to force the resin into the weave. It looks easy and, when I tried it, I found it easy to do.

This is similar to Harry's first method but using a roller instead of a brush. While I have no experience other than that with Norm Harris, I instinctively feel that the roller all but eliminates the risk of dragging the delicate fabric that is inherent with a brush. Use of undiluted finishing resin also simplifies matters.

Harry Curzon says that the wax problem is not universal. Apparently, only some resins exhibit this characteristic.

By the way, the 1/4 oz cloth appears to be equivalent to approximately 20 gr/m²

Idiots

This may be the start of a series. We shall see.

IDIOTS AT WORK:

I was signing the receipt for my credit card purchase when the clerk noticed I had never signed my name on the back of the credit card. She informed me that she could not complete the transaction unless the card was signed. When I asked why, she explained that it was necessary to compare the signature I had just signed on the receipt. So I signed the credit card in front of her. She carefully compared the signature to the one I had just signed on the receipt. As luck would have it, they matched.

Burlington Radio Control Modelers

Executive

2001

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