

# PETERBOROUGH MODEL FLYING



## NEWSLETTER— JANUARY



**A Very Happy New Year to all P.M.F.C members.**

We here at the editorial offices in beautiful downtown Stamford would like to take the opportunity to wish you all the very best for the forthcoming year. May our lines remain tight, our rubber un-frayed, our cells sprightly and full of volts. May all our warps be the ones we intended and may all our glue joints be firm and strong. May our evenings be balmy and caressed by nothing more than a soft gentle breeze and may the god of thermals smile kindly upon us.



**Chairman Ted**, this years winner of the

Photos courtesy Marc Ashby



**Kev Tatlow**. First, (and well-deserved) winner of the new **Brian Oliver Trophy** for Unorthodox models.

*"This perpetual motion machine Lisa invented is stupid. It just keeps going faster and faster. We obey the laws of thermodynamics in this family, young lady!!"*

*H. J. Simpson, Philosopher*

**I think** we have a great issue this time. A wonderful article by our esteemed **Chairman Ted**.

It's a full how-to-do-it for his new FET Timer. I've been trying to think of an acronym for it and the best I've managed to come up with is TAFFETA. That's **Ted's Amazing Free Flight**

**Electric Timer Already!** Further suggestions on a postcard to the editorial mansions please.

There's a rather sweet little indoor model that comes from Turkey, in fact the plan is in Turkish! But I don't think it needs any great amount of translation. 1.5 mm balsa seems to be fairly universal! I've also included an article on building "cracked-rib" wings. Because this seems like a model that would benefit from this very simple way of building wings for models up to 30" span. (and also because I actually tried it out and it seems to work beautifully). The other plan was going to be a bi-plane no-cal. But many of you probably already have it. So I'm going to leave it as a surprise. (this means that I haven't yet made up my mind what it's going to be!)

This years B.M.F.A. and club fees are now due for those of you that haven't yet paid. The club fees remain as there were at £10.00 for seniors and £1.00 for juniors. The B.M.F.A. fees have gone up by a pound to £24.00 for 2005. I would remind you that if you haven't paid your

B.M.F.A. fees then you will be flying without insurance. (probably not the wisest of moves in these litigious times, besides which, I do believe that flying down at Ferry Meadows requires us to be insured). Cheques etc can be posted to the club treasurer. Her address is:



***"I know it came down around here somewhere!"***

*To do is to be--Descartes  
To be is to do--Voltaire  
Do be do be do--Frank Sinatra*

*All those who believe in psycho-kinesis,  
raise my hand !*

Right, as they say. On to the main event of the evening. Here is **Chairman Ted's** article of his amazing F.E.T. Timer.

**The Frostbite Fly**-in thawed away to start the New Year off on a day when yet again an ever increasing number of electric powered flying models appeared to dominate the skies at Ferry. There is no doubt in my mind that Electric Flight is here to stay as today's unleashed technologies just keep on leaping ahead at full pelt with boundless imagination and inventiveness.

More and more modellers are trying out electrics with a resounding success and it is easy to understand just why when you look around and see how the Lithium battery spin offs from the phone industry, the superb miniature electric motors and the fantastic quality of the CNC kits in the shops are making our hobby so much more affordable and accessible to new and old hands.

The traditional building techniques which we all know don't need to be abandoned as they can blend so well in a true amalgam with modern technology when using such materials as carbon fibre, depron, Mylar and blue foam for the benefit of our model making to gain structural strength and save weight.

On another personal note, electric flight in all honesty can be just as hard or as easy as you really want to make it....

I've tried reading Electric Flight magazine religiously every month for the last 4 years and I'm still baffled and no wiser for all my efforts, but it still hasn't stopped me from finding my own special formula for building and flying a host of successful electric models both indoors and at Ferry Meadows.

In my own stance against those magazine editors who write Electric Flight articles full of baffling jargon and mathematical gobbledegook, I am now going to show all you budding electric flyers out there how to make a dead cheap and really easy peasy electric timer without any rocket science.

But before we start, just why does anyone need an electric flight timer anyway?

Well, consider this. It's too late asking that your new pride and joy has just gone out of sight at Ferry Meadows on a full charge and a half because you were too busy listening to Brian Waterland's latest joke. (I for one, know this to my cost and I bet there are a few more out there in the club who can say the same.) now just before we start, do yourself a wonderful favour and ring:

*Humerous Bumper Stickers no's 12 ,33 and 127.*

*"Laugh alone and the world thinks you're an idiot."*

*"I want to die in my sleep like my grandfather...."*

*Not screaming and yelling like the passengers in his car...."*

*Heard down at Ferry.*

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*"Daddy, aren't you supposed to light that fuse thingy "before" you launch?"*

## A few specifications to wet your appetite first.....

Ted's FET Timer circuit, weight approx 3.5 grams without the wires.

This particular BUZ71A mosfet will take 16 Amps load but you had better have a very substantial heat sink to drain away the heat if you use anything like a speed 400 or it (the FET) will go pop and then set your aeroplane on fire.

I was doing running tests on a standard KP02 motor/gearbox package which has the regular 6 inch propeller and 3 x 110 ma Nicad cells as this is what most club members use with the larger models at Ferry and I was surprised to see that this same set up drew 5 1/2 amps at launch before settling down to 3 1/2 amps at a steady cruise. After a minute's timed run on my work bench I measured the temperature of my non air cooled FET with my trusty multi-meter thermocouple.

It had reached a temperature of 88 degrees C . In plain language this is the same temperature of a freshly made cup of hot tea just after you add the milk. **So don't touch the FET as it will scald you and necessitate a skin graft if you don't let go!**

If you do need a heat sink in an enclose cabin design, a piece of coco-cola aluminium container about the size of 2 postage stamps is plenty big enough, but even better is just placing the FET in the propeller airstream. This will vent the heat away perfectly satisfactorily.

Another word of caution here which will hurt your pocket to the tune of 95 pence if you pay no heed is that **Mosfets can be damaged by static electricity..** So don't wear your favourite woolen pullover and run up and down the carpet wearing polyester trousers and rubber soled shoes in your workshop when you handle these things.

(I get hundreds of static shocks every day at work doing the photocopying in my office and I can throw 2 inch lightning bolts at people without even knowing it!). Wear cotton clothing and wet



**“yeeeeehaaaaa!”**

### ***You may be an Aeromodeller if:-***

*After spending an hour clearing your work-bench for a new project, within five minutes after starting that project you are down to one square foot of working space left.*

*You buy ten pounds of the type of rubber everyone has been raving about and then find out it is from the one batch of TAN II that goes limp after 30 winds.*

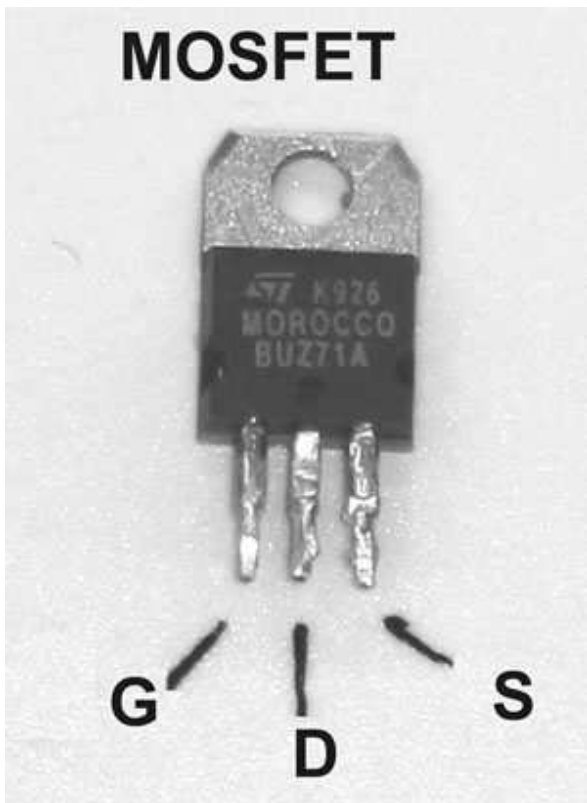
*You never drop a tiny part on the field unless you are in deep grass.*

*You break a motor and some S.O.B. says, "Back off one turn."*

*You occasionally forget the difference between "wash-in" and "wash-out".*

*You sand the inside of your cowls just in case someone sees that part after a crash.*

Time to build, but let's do it by pictures as they speak thousands of words.

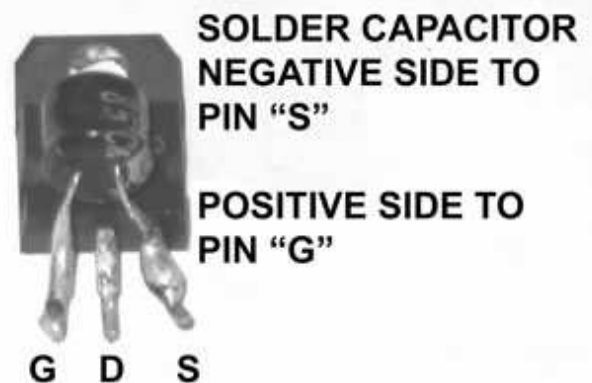


This shows the pin layout of the mosfet laid on its back with the BUZ 71A writing showing up.

G stands for Gate.

D stands for Drain

1.



This shows how to solder the 100 microfarad capacitor. The capacitor will have a band going down one side with lots of minus signs which denotes that that side is **negative**.

Solder this negative wire side of the capacitor to the right hand side "**S**" lead of the FET.

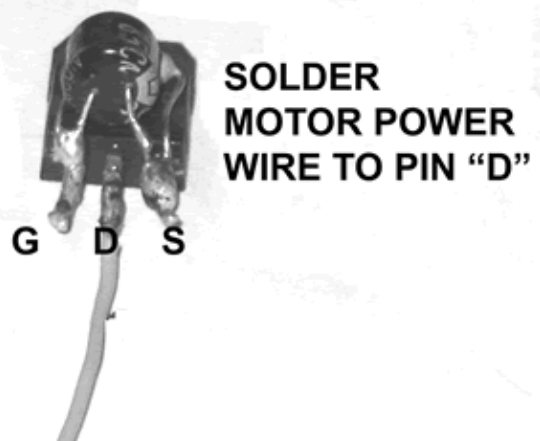
Now solder the remaining **positive** wire side of this capacitor to the left hand "**G**" side of the FET

2.



This shows the 1 Meg Ohm resistor soldered between the "**G**" lead and the "**S**" lead of the FET. What you are doing is wiring this resistor in parallel with the capacitor at this stage.

3.

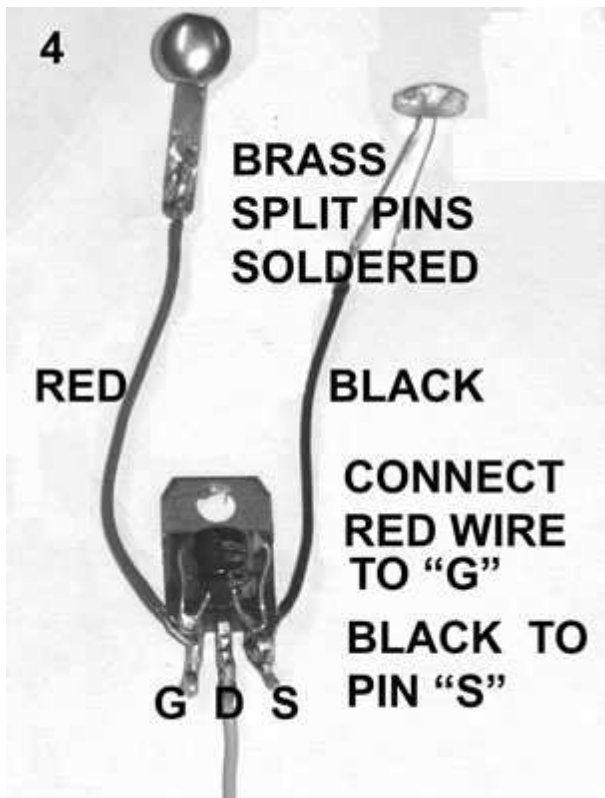


Now solder a **Yellow** motor power wire to the middle "**D**" lead of the FET.

*Humorous Bumper Stickers numbers 46 & 47*

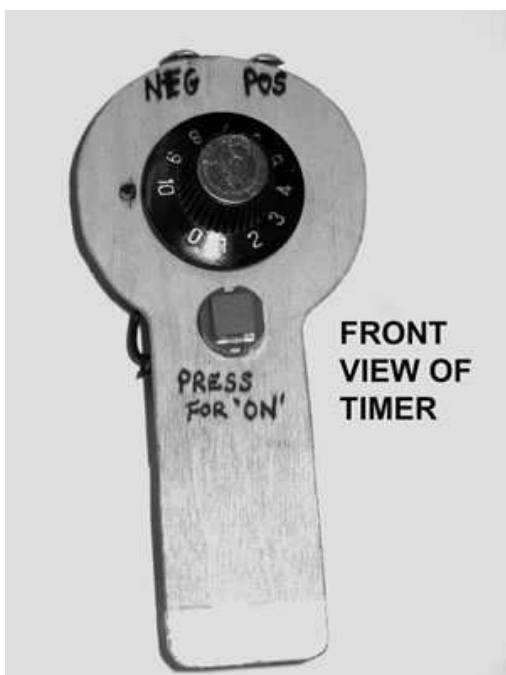
*"I get enough exercise just pushing my luck!"*

*"Sometimes I wake up grumpy; Other times I let her sleep"*



Get two brass split paper fasteners and solder a **red** wire to one and a **black** wire to the other. Solder the remaining end of the **red** wire to the “**G**” lead and the remaining end of the **black** wire to the “**S**” lead of the FET.

Both of these wires can be left about 3” long (or longer) as they will need to be remotely located at an accessible point on the fuselage or wing of the model. The contacts are to take the timed



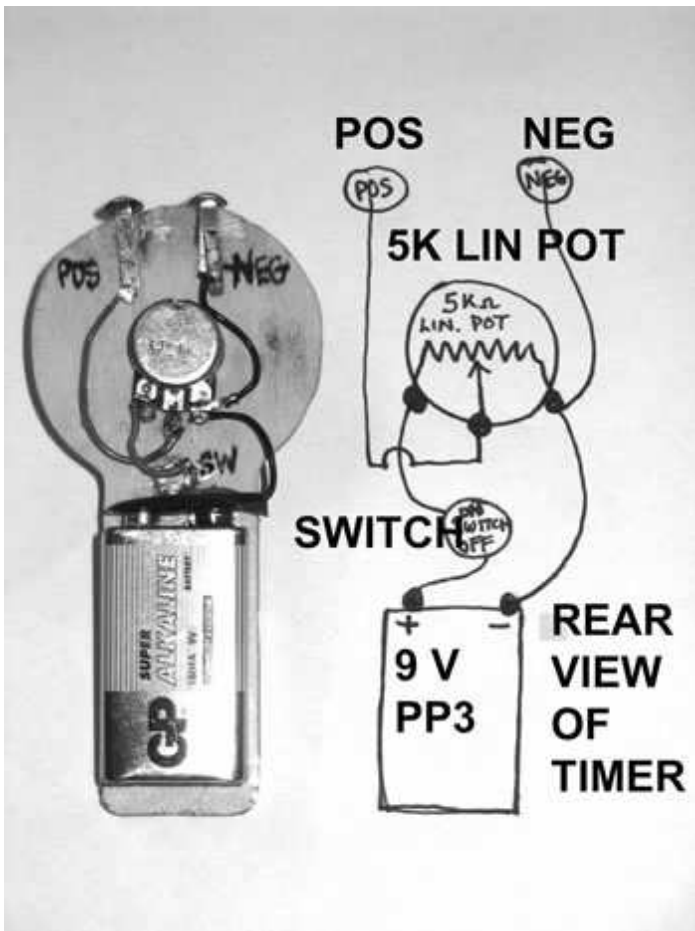
Solder one end of a **black** wire to pin “**S**” of the FET and the other end to the negative (-**ve**) terminal of the battery power pack. Solder one end of a **red** wire to the positive (+**ve**) terminal of the battery power pack and the other end of this wire to one of the terminals on your chosen (KP00) electric motor. Now solder the remaining end of the **yellow** wire from pin “**D**” on the FET onto the other terminal of the electric motor.

**The FET timer circuit is now complete and can be installed in the model.**

The picture on the left shows the FET Hand charger control unit. This is made out of lite ply in the shape of a large lollipop. The top of the lollipop has 2 of the brass paper fastener pin contacts super-glued in position about 6mm apart so they don’t touch each other. The calibrated control knob is useful and a lot tidier than trying to mark time intervals with a pen on the lite ply. The (red) button is a simple “push-to-make” contact switch. To use the charge controller, turn the knob to about position 5 (halfway). Press the switch, then touch the two brass pins against matching pair on the circuit now installed in the model. The motor will burst into life and continue to do so until it times itself out and throttles down to a halt. Here’s where the dial comes into play. If more time is required, increase to say 6, if less, decrease to 4, until the time is where you want it. The response of the pot is linear so times are easily set up. The switch is there so that the battery on the controller is only used for a brief moment and is normally off.

FRONT VIEW OF TIMER

If you didn't have the switch in the circuit then the battery would gradually run down because it is being permanently shorted out by the variable resistor and losing volts. If the battery volts drop too much then all consistency is lost in the unit and the ability to accurately time flights is lost. Use a good quality alkaline and not a half dead cheapie from down the market.!



This picture show the back of the hand held charger unit and a corresponding simple circuit diagram for wiring it all up. Nothing too difficult here, the one thing to notice is that the brass contacts are polarised and the timer only works when like is touched to like. (+ve to +ve and -ve to -ve) colouring them with a felt tip might be useful.

**The charger is now ready to be used.**

Those who saw me fly at the Frost-bite

Fly-in with the little Aeronca model (the converted Ray Malstrom rubber powered model) will testify to the staggering number of flights which I had in quick succession as I was literally retrieving my model then launching it a second later into the ether for yet another flight. I was using a small Lithium 90 milliamp cell ( £5.00 from Flighthook )

and the whole model with pager motor/gearbox wasn't 18 grams all up flying weight. (and I don't build light either!).

Here's a complete shopping list of components for the FET Timer (less the light ply from your scrap box). If your eyes are worse than mine I'll build you one for a few quids or show you how easy it is to do. **Ed's note.** Chairman Ted has agreed to do a master class on the Timer at the next meeting in Peakirk. (14th January)

### Squires shopping list for the FET timer bits and pieces.

<u>Part number</u>	<u>Item</u>	<u>price</u>
701-566	Power Mosfet BUZ71A	0.90
685-010	16mm Commercial pot 4.7K Linear	0.90
600-753	30mm Calibrated Aluminium Knob	0.90
541-435	100uF 10V capacitor micro min.	0.20
680-665	Ten pack 1M ohm 0.25w resistors	0.40
522-400	min equip wire 10/0.1 5m red	0.75
522-400	min equip wire 10/0.1 5m black	0.75
522-400	min equip wire 10/0.1 5m yellow	0.75
BSN020	PP3 moulded battery snap clips	0.20

**Chairman Ted** recommends that people buy at least a couple of Mosfets and capacitors because they are so cheap that they'll want to leave the circuits permanently installed in the models.

I've been having a little think about Ted's Timer and I've had a little brainstorm! It occurred to me that the joy of this item is the rapid repeatability of the flights. Couple this with another ability that I've noticed electric powered models have (at least indoors anyway) and that's their ability to track around a circle and repeat it again to within a few inches. Put these two together and what does one get? **Indoor pylon racing!** I first saw this when Marc Ashby and I went to watch the British Indoor Nats them at Nottingham. Now these were for rubber powered peanut sized scale models, flown around a course bounded by 4 helium balloons. Two man teams, one winder, one holder/pitman. 4 teams to a race, most laps in a set time wins. Huge fun!

Right!

How about Indoor Electric Powered Pylon Racing? 4 planes, racing each other, most laps in a set time. (say 2 or 3 minutes . Mandatory pit stops! Say at least 4. Each team will need a lap counter/pylon marshal. Each team has it's own pit area that must be used for re-starts, R.O.G's to be used (this may be set aside if the C.D. allows). The course will be set up with 4 helium filled balloons tethered with brightly colored thread. Seems like it might be fun! Whaddya think?

It's also cleared up what I'm going to include as featured plans this issue, a couple of No-cal



*I said, "Do you have a hobby?"*

*"Sects, sects, sects. Is that all you monks ever think about?"*



## Things you'd love to say at work. But dare not

1. I can see your point, but I still think you're full of sh\*t.
2. I don't know what your problem is, but I'll bet it's hard to pronounce.
3. How about never? Is never good for you?
4. I see you've set aside this special time to humiliate yourself in public.
5. I'm really easy to get along with once you people learn to see it my way.
6. I'll try being nicer if you'll try being smarter.
7. I'm out of my mind, but feel free to leave a message...
8. I don't work here. I'm a consultant.
9. It sounds like English, but I can't understand a word you're saying.
10. Ahhh... I see the screw-up fairy has visited us again...
11. I like you. You remind me of when I was young and stupid.
12. You are validating my inherent mistrust of strangers.
13. I have plenty of talent and vision. I just don't give a damn.
14. I'm already visualizing the duct tape over your mouth.
15. I will always cherish the initial misconceptions I had about you.
16. Thank you. We're all refreshed and challenged by your unique point of view.
17. The fact that no one understands you doesn't mean you're an artist.
18. Any connection between your reality and mine is purely coincidental.
19. What am I? Flypaper for freaks!?
20. I'm not being rude. You're just insignificant.
21. It's a thankless job, but I've got a lot of Karma to burn off.
22. Yes, I am an agent of Satan, but my duties are largely ceremonial.
23. And your crybaby whiny-butt opinion would be...?
24. Do I look like a people person?
25. This isn't an office. It's Hell with fluorescent lighting.
26. I started out with nothing & still have most of it left.
27. Sarcasm is just one more service we offer.
28. If I throw a stick, will you leave?
29. Errors have been made. Others will be blamed.
30. Whatever kind of look you were going for, you missed.
31. I'm trying to imagine you with a personality.
32. A cubicle is just a padded cell without a door.
33. Can I trade this job for what's behind door #1?
34. Too many freaks, not enough circuses.
35. Nice perfume. Must you marinate in it?
36. Chaos, panic and disorder - my work here is done.
37. How do I set a laser printer to stun?

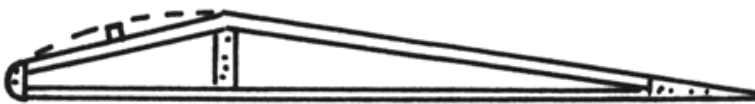


**Here's a little piece on building a cracked rib wing.** This has been copied from the Don Ross book of Flying Models book 2. An excellent book, anyone have book one that I can borrow please?

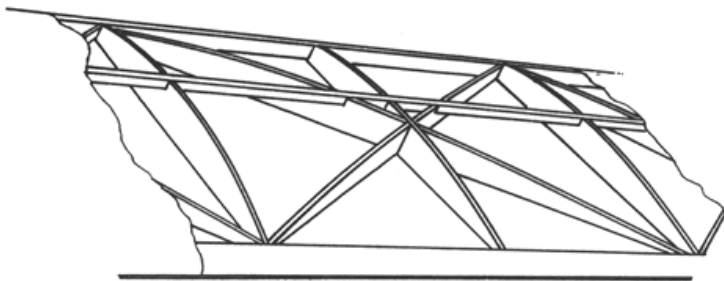
Possibly created by John Oldenkamp in his "Crackerbox" series of P30 models, the cracked rib wing may be the easiest and one of the strongest construction systems. Although we think of airfoils as being important features of good flying models, the fact is that on a small stick and tissue model most airfoils will act the same within very narrow limits. since the covering will sag and ripple somewhat between ribs, holding an exact airfoil is more wish than fact.

I (Don Ross) did a survey at a one design contest and found that the results were quite stunning, after a full days flying with 28 models entered in 6 events the results were that there was no obvious gain to be had by using a "proper" wing section over a cracked rib section. The only areas where it would make a difference is in a high performance free flight competition model such as Wakefield or F1A where even a small percentage increase would be of obvious benefit. But for a sport and club modeller a cracked rib is a real time saver and will produce a very strong wing.

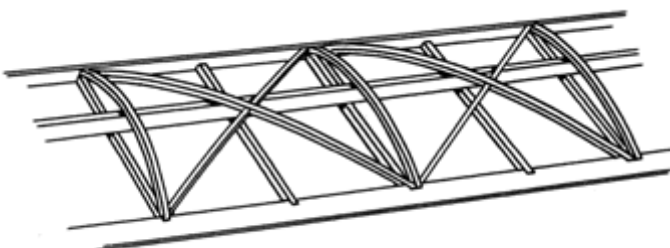
To start, lay down a trailing edge which may be notched to take the back end of each rib. Lay in your bottom ribs which can be flat or under cambered. If the wing is to be under cambered then you may want to block up the front of your T.E. slightly to continue the curve. Use a metal straight edge to make sure the nose of each rib is the proper length to exactly reach the L.E when assembled. The ribs can be 8-10 lb balsa 1/16" or 3/32" depending on the size of the model. Use 3/32" on anything over a 22 " span. Now, lay your spar about 1/3rd back from the L.E. an advantage of this type of wing is that you can make the spar tapered to make the wing thinner from the centre to the tip. This will not only enhance the flight but make a stronger, lighter wing. All the ribs can be the same thickness, even in a tapered wing, since the spar will dictate the shape. Now, just "crack" each rib with a fingernail just at the place where it meets the spar. You can assemble the ribs perpendicular to the spar or at any angle making a truss or "union jack" design. These special shapes will add a lot of strength and almost no weight and will also give you a



This is a side view of how cracked rib construction looks.



Union Jack rib construction. (this is not cracked rib but shows the general arrangement of the Union Jack construction method.)



More Union Jack with bent, not cracked ribs this time, but the method is the same.

I received a few entries to the last issues caption competition. Here they are in all their glory!

Two captions from **Mike Bowthorpe**

"Attention all flyers, calling all flyers ~ Brian has his wallet out!"

"Brian, what I said was—don't turn around your flies are undone "

From **Peter Spalding**, . "Waterland, get your hand out of my wallet."

(there seems to be some kind of trend here!)

From **Brian Whitelock**. (the club's new P.R.O.) "Speak up Waterland, I can't hear!"



A lovely little cartoon from our very own **Ray Innes**

One of Ray's Pithy Pomes

And another of Ray's Pithy Pomes!

**This kinda  
Winder  
With complicated gearing  
Is a marvel of Aero**

**I cannot see the fiddly bits.  
New glasses  
I'll choose**

***You may be an Aeromodeller if ..(part 2)***

*Your model which just flew three minutes on a test flight will only do 21 seconds on your first official contest flight*

*You proudly show up at a contest with the lightest model you ever made and find that Chris Strachan is there with one just like it, only his weighs 1/3 as much as yours.*

*You save every old magazine you have, even though you will never, ever be able to find anything in them you are looking for.*

### Some dates for your diary.

I'm assuming everyone has a copy of the indoor dates for the rest of this season and has them pinned up just over the workbench? Good!

These are the dates for the Aeromodelling days at Old Warden for 2005.

Sunday May 15th

Sunday June 17th.

Saturday/Sunday July 30th 31st. The SAM35 Gala weekend.

Saturday/Sunday September 10th & 11th, the Festival of Model Flight weekend.

Also on Saturday May 14th and Saturday June 16th there is to be a combined modelling day with a full size air display in the evening. Model flying will stop at 3 p.m. to permit the full size arrivals and preparations for the evening display.

February 6th sees the Cookham Gala at Middle Wallop

Easter weekend March 26th-28th is also middle Wallop with special events for gliders.

A reminder for all P.M.F.C. members is the Cabbage Patch World C/L celebration of 60 years of control –line flying to be held on the Embankment on June 19th. Helpers are needed! If you are able to spare some time it will be hugely appreciated.

As always, kindness,  
kudos and small  
change to me.

Bernie Nichols.

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***“If the kit really cost £99.00, how come there was only 5 parts?”***