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Designed by Chris Williams, the optional E-Assist of this 4.6 metre span scale glider converts it to a model for all occasions. At 1:3.25 scale it is still an impressive size but at 20 lb it is light enough for those of advancing years to still be able to throw it off the hill

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Whilst on holiday in Australia, Bruce Corfe caught up with the latest scale model from multi-motor maestro Rob Woodhead. Rob's new model took a year to build from scratch using ply, balsa and fibreglass. Power comes from three Saito 30 cc four-stroke, three cylinder radial petrol engines

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Neil Hutchinson takes us on a tour of the Large Model Association's new Static Show at Haydock Park Racecourse, which follows in the footsteps of the much missed Haigh Hall show near Wigan. The LMA only used the downstairs area so there is a lot more room for expansion...!

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Bill Bowne got so carried away when enlarging a much-liked previous design (called the Valkyrie) that he ended up with practically a new model that deserved a name all of its own. The new model, now called the Shrike, spans 51 inches and suits a 4S-2200 mAh LiPo

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Are you interested in building a Gardan Minicab from our Feature Plan in the May issue? Phillip Kent passes on some pictures of a Minicab model in an alternative colour scheme, plus some archive pictures of the full size aircraft that it was based upon

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In his last article in this series John Bristow concentrates on cyanoacrylates and reveals what puts the Super in Glue! Since its introduction to the modelling market cyano has become a firm favourite because it sets so quickly and bonds so many modelling materials

66 NEAT 2016

At the annual Northeastern Electric Aircraft Technology Fair visitors get to see some innovative electric model tech. It's also a great place to make friends, eat great food (it's nicknamed 'The EAT Fair') and swap ideas. Bill and Micki Bowne report from the 16th consecutive NEAT Fair



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Pre-flight

Welcome to the June issue of RC Model World. In recent weeks I have been giving the folks in the warehouse a helping hand at the end of each day by cutting a few sheets of wood on Traplet's laser cutting machines. My time there is limited and I can't help too much, but every little bit helps when trying to get a recent spike of orders for wood packs into the postman's van each day. Being at the 'coal face' has certainly been a real eye-opener for me and I can tell you that despite the highly accurate technology involved, working with organic materials like balsa and plywood is not an easy task. The wood has to be kept as flat as possible on the bed of the machine using weights or tape, otherwise it has a knack of moving as the laser head moves about overhead. I have taken to taping it down because if the weighted bars are inadvertently put over an area to be cut then you are left with a bar shaped 'shadow' where the cuts should be! Also, if a piece of wood is allowed to bend whilst in the machine the distance to the laser can change by a small amount and the beam will de-focus, which will cause cutting errors. It's a bit of a fine art to be honest and I have renewed respect for my colleagues who operate the 'lasers' on a daily basis.

Operating the machines has also given me a new insight into the problems of generating a computer generated wood pack from the older hand-drawn plans. While some of the plans, especially the scale ones, are works of art the parts drawn are not always that accurate. In the past, when parts had to be hand cut using patterns or by pin pricking through the plan (which sometimes introduced even more inaccuracies!), fettling parts and filling the odd gap here and there was all accepted as part of the fun of model building. But when converting such a plan into laser cutting files such inaccuracies become all too obvious and steps will be taken to correct them.

A case in point is an oval fuselage former that bulges out slightly on one side due to drawing errors. An informed decision has then to be taken on which side of the former is the most accurate and the operator will flip the computer drawn version so that it is an exact replica on the other side. By correcting such asymmetries the model will be more accurate and easier to build. However, when the customer opens his/her new wood pack and lays out the parts on the plan they may notice that the parts supplied do not exactly fit the drawing. The best answer we can give is to build the model using the computer generated parts as they are sure to be more accurate, but still be willing to adapt things a bit as you go along. When building from plans, especially older, hand drawn ones, a bit of 'real modelling' is still required!

Back to the magazine, let's take a quick look at what we have in store for you in this issue...

Our main feature this month describes how to build the latest large scale glider designed by Chris Williams. Finding a new aircraft to replicate cannot be easy for a busy designer such as Chris but the 4.6 metre span Super Javelot ticks all the right boxes.

We also welcome back another of our regular plan designers, Bill Bowne, who has donated his Shrike EP sport aerobat as this month's pull-out plan. Bill also takes us on a trip to the NEAT electric fly-in, which is held each year in the USA.

On test we have the Fokker D7 built from the all wood construction kit by Super Flying Model. And we also take a critical look at the latest version of the Galaxy Models Chipmunk, which is now being sold by Traplet Publications.

Scale interest is assured when we visit the LMA's new static model show at Haydock Park, plus we unearth some full size scale details for anyone wishing to build a Gardan Minicab from last month's Feature Plan.

Add in a couple of your favourite regular columns on thermal soaring (Soarers' Slot) and small models (Light Flight) and we are sure that you will find the June issue of RCMW to be an entertaining read. So until next time...

Happy Flying!

Kevin



Kevin Crozier

Editor | Radio Control Model World

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Take Off R/C News and Views

If you have any news or special interest announcements to make, or even a recently completed RCMW plan design, then why not drop RCMW a line or email RCMW@traplet.com

Building E-Vulcan

In the last Take Off we featured Roger Vaughn's model of the E-Vulcan that was published as a pull-out plan in the January 2017 issue of RC Model World. Roger has now sent in some flying pictures of his lovely model taken by his flying buddy, Andy Stone. She looks stunning considering that she is only a small 42" span Depron delta. More inspiration, if any was needed, to have a go at making your own mini-Avro!

The E-Vulcan was originally designed by Graham Dorschell. Graham has told us that he has received some emails from builders of the E-Vulcan who have had cracks form when they have tried folding the Depron foam wing panels.

In Graham's previous plan articles using similar construction he has covered this topic but it seems it was not made clear in the E-Vulcan text.

Apparently the trick is to make sure to cover the foam first before bending it and be sure to use a brand new blade when cutting the Depron. Graham uses a fresh blade from an expandable box cutting knife for each new model that he builds. He also recommends that you watch his 'how to' videos on YouTube. This one is a good place to start:

www.youtube.com/watch?v=BKzpykeO3kg



Swindon Model Centre Bows Out

Our roving reporter, Chris Bowler, has sent in details of another long established model shop that is closing its doors. Chris writes:

"It's a fact that there are many things in life that one takes for granted. Places we might visit, or favourite items. It is equally factual that things change, morph into something slightly different, or vanish from our 'normal' sphere of activities.

For me model shops became one of these essentials and living in Cirencester, a Cotswold town that long ago lost its model outlet, the most convenient was Swindon Model Centre, run by husband and wife team, Jan and Rose Korda.

After 44 years trading in Theatre Square they have decided to close the shop and retire. "Big isn't necessarily best", quoth Rose and she is spot on with that. Their small retail outlet offered a more than comprehensive products of modelling fare, from the smallest screw to fancy kitted 'copters and a huge range of plastic kits, which for many was their first taste of model building.

Stock apart, between them they had unrivalled in-depth knowledge of their stock and were able to supply everything for ready to fly modellers and the scratch builder alike. The one thing for sure was that if a customer required something

unusual, after just one phone call their mantra 'If we haven't got it, we'll have it by tomorrow!' came into play. I think it fair to say that all of my models over the years have contained something from their emporium.

Jan said, "Things change and it is not the same as when we started. The internet had a massive impact on the hobby and fewer people now build models, preferring ARTF or similar."



BMFA National Centre Opens



Manny Williamson, Development Officer at the British Model Flying Association, has sent in some exciting news about the new BMFA National Centre at Buckminster, near Grantham.

Manny writes:

"Since signing the lease in November 2016 the development of the BMFA National Centre has progressed well and in accordance with the original project plan. The site, located on the Leicestershire/Lincolnshire border, is set to open its doors for business on the 1st of May.

Initial facilities will be limited, and at the time of writing we are still waiting to get the seed in the ground for the runways (following a very wet, late winter). Temporary runways will be created until the main runway is ready for use (the main runway is 340 metres long x 40 metres wide.)

Initial facilities will consist of the flying site, covering some 40 acres, a large events building (18 x 22 metres) with heat, light and power, a support building for the event building and a reception, office and meeting room facility, all supported by plenty of hard parking, plus overflow parking and camping for events.

The new website is now live at www.nationalcentre.bmfa.org and season tickets are on sale for those who wish to show their support for the project and visit on a fairly regular basis. The cost of a season ticket is equivalent to 10 weekday visits.

The events calendar is also filling up nicely with a broad range of activity throughout the coming year. The main event is the BMFA Buckminster Summer Airshow, taking place over the weekend of 29th and 30th of July. This will consist of a two day flying display, an indoor swap meet, trade presence and catering, camping and evening 2.4 GHz sport flying on the main runway. It promises to be a good weekend!

The calendar also includes a number of sport fly and fly-in type events, with the first of these on May 20th and 21st, providing a 'low key' opportunity for members to visit the new centre so that they can learn about the project and enjoy some sport flying in relaxed surroundings. Camping will also be available.



There will also be plenty of opportunities for members to turn up and fly. As well as R/C there will be plenty opportunities for sport Free Flight and Control Line activities. The website features a 'status box' so that visitors can check whether their discipline will be available; the status will run three days ahead. All of the events are featured on the website, as are all of the visitor information and booking forms.

We look forward to welcoming you at BMFA Buckminster during 2017."

Plan Notes For Model Designers

Those generous souls who contribute plan features to the magazine have not been backward in adopting new technologies and the overwhelming majority of plans we receive these days are drawn using some form of Computer Aided Design (CAD) software. (We hasten to add that hand drawn plans are still gratefully received!)

Like most technical drawings it helps if designers try to stick to some basic standards and so our in-house CAD guru, Mal Luff, has drawn up a list of things to bear in mind when offering us a plan for possible publication:

1. Do not use different colours – everything should be in black
2. All text should be the same size in the font 'Myriad Pro'
3. If possible include a scale bar along the bottom edge so that we can double-check the size
4. Make sure there are no duplicated lines
5. Ensure that all shaped parts (fuselage formers, wing ribs, etc.) are drawn separately, with material specified
6. Units can be imperial or metric, as you see fit, but when planning a wood pack we convert everything to metric as that's the way our wood is supplied:

Balsa	Birch Ply	Lite Ply
0.8 mm (1/32")	0.4 mm	2.0 mm
1.6 mm (1/16")	0.8 mm	3.0 mm
2.4 mm (3/32")	1.5 mm	
3.2 mm (1/8")	2.0 mm	
4.8 mm (3/16")	3.0 mm	
6.5 mm (1/4")		
9.5 mm (3/8")		

NOTE: All ply parts will be Birch Ply unless Lite Ply is specified.

7. 'Free' plans should be no bigger than 800 mm x 560 mm, maximum two sheets
8. Feature plans should be no bigger than 2500 mm x 900 mm

For feature plans please keep to to 900 mm wide, if possible. However, we have three paper widths (841, 914 and 1066 mm) and can go up to any length, so please ask if you need to use the widest paper.



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www.cmldistribution.co.uk

PICHLER MESSERSCHMITT BF-108



This model of the classic Bf-108 Taifun is now available from Pichler. The aircraft is of ARTF wooden construction and has been developed for electric power. The model comes standard with a fixed undercarriage, however an optional retractable landing gear set can also be installed. In flight this model is said to offer excellent flight performance and it is sure to have great presence in the air.

www.pichler-modellbau.de

MULTIPLEX G-RATE SENSOR



The G-Rate Sensor from Multiplex now makes it possible to measure the G forces imposed on your model in flight. A load of 1 g (~9.81 m/s²) corresponds to the gravity of earth (earth

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www.multiplex-rc.de

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Now available through Pichler Modellbau are these powerful new LiPos from battery specialists LemonRC. Their 35C range have a lower weight-to-performance ratio and are available in packs from 350 mAh to 650 mAh.

www.pichler-modellbau.de

HACKER PILATUS TURBO PORTER XF FREDI



This model is based on the Pilatus PC-6 Porter. It features an unusual X-style fuselage and is suitable for normal and aerobatic flying, both indoors and out! The lightweight 890 mm wingspan model is built up from 5 mm EPP foam sheets and carbon reinforcements give it a solid and stable construction. The colourful designs are inspired by real aeroplanes used for skydiving in Australia and in Spain. For easy flying Hacker recommend a 2S 260 mAh LiPo battery and 8" x 4.3" propeller. For aerobatic flying use a 3S 260 mAh LiPo and a 7" x 3.5" propeller. See the Hacker Model Production website for the other items needed to complete, i.e. the radio, servos and motor etc.

www.hacker-model.eu

UNILIGHT NIGHT BLADES



Now available from uniLIGHT are a series of night lights, which are sure to add extra brightness to your model during night time sessions. These new lights can fit any aircraft in seconds and include the following features: compact dimensions with maximum power, minimal influence on light behaviour, new mounting system without cable and plugs, reduced self-dazzling, available in 5 sizes with different versions for the wing and tail, asymmetrical design for maximum robustness. There is also a single battery version for large systems.

www.unilight.at

SKY AVIATIONS ESPRIT VFII



This 1:3 scale Esprit VFII features a cantilever low wing, a single seat enclosed cockpit under a bubble canopy and a fixed landing gear with wheel pants. This 80" wingspan large model of the Esprit is sure to draw the same high levels of attention as the full size version. The manufacturers claim that its sleek lines, high quality finish and, above all, its performance, will set new standards at the model flying field. All parts are of composite construction with coloured surfaces; panel lines and rivets are moulded in. A complete set of accessories is supplied with the Esprit so in just a few hours you can have the petrol engine (or electric motor) and R/C equipment installed, ready for your first flight. Delivery time is scheduled for September 2017.

Recommended equipment is shown below:

IC Engine: 60 cc 4-stroke petrol engine (i.e. Valach VM60)
Electric Motor: Leomotion LEO 8025-0180 F3X
Battery: 44.4 V 12S (6S x 2) 5000 mAh LiPo
Servos: 5-6

www.skyaviations.com

FMS A-10 THUNDERBOLT II



This highly detailed twin ducted fan A-10 from FMS incorporates many new and advanced construction and assembly features, such as the optimised screw based assembly, ball links, a heavy duty wing spar and multi-connect technology. In addition the A-10 uses a locked-rotor mode E-retract system, coupled with the CNC processed metal landing gear set, which helps it absorb those not-too-perfect landings! The power system uses a twin 70 mm, 12 blade EDF V2, KV1850 in-runner motor system, which provides high power and speed when coupled with a 6S battery. Scale details included the all-around rivets and panel lines, detachable bomb and missile sets, and a pilot figure.

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Pilatus Turbo Porter XF

Wingspan
890mm
Weight
>185g
HC 1384



Master Stick

Wingspan
1200mm
Weight
>700g
HC 1390



HotWing 1000

Wingspan
1000mm
Weight
>320g
HC 1329



Vagabond

Wingspan
1510mm
Weight
>480g
HC 1220



EDGE 540 V3 Toxic

Wingspan
812mm
Weight
>145g
HC 1381



Fun Master

Wingspan
1300mm
Weight
>700g
HC 1391



HotWing 1200

Wingspan
1000mm
Weight
>330g
HC 1330



Bergfalke II/55

Wingspan
2000mm
Weight
>780g
HC 1229



MX2 Toxic

Wingspan
812mm
Weight
>145g
HC 1382



Cool Master

Wingspan
1650mm
Weight
>1950g
HC 1392



P 51-D Mustang

Wingspan
840mm
Weight
>340g
HC 1308



Blanik

Wingspan
2000mm
Weight
>780g
HC 1225



MXs-304 Vector

Wingspan
804mm
Weight
>210g
HC 1361



Bellanca Super Decathlon (clekro)

Wingspan
2000mm
Weight
>3950g
HC 1008



Focke-Wulf FW 190D

Wingspan
840mm
Weight
>340g
HC 1307



Luňák

Wingspan
2000mm
Weight
>780g
HC 1226



EDGE 540 v3

Wingspan
1000mm
Weight
>390g
HC 1702



MX2

Wingspan
1200mm
Weight
>950g
HC 1339



Mitsubishi A6M2 Zero

Wingspan
840mm
Weight
>340g
HC 1310



FOX

Wingspan
2000mm
Weight
>780g
HC 1227



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GT 3B6-D

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GT 3B6-D	160W (3x 60W)	1-6	1-15	2-20V	11-18VDC 220-240VAC	0.1-6A	0.1A-1A	300mAh	£99.99
GT Duo 612	400W (2x 200W)	1-6	1-18	2-20V	11-18VDC	0.1-7A	0.1A-1A	200mAh	£99.99
GT X-Drive 607	320W (4x 80W)	1-6	1-15	2-20V	10-18VDC	0.1-7A	0.1A-1A	300mAh	£99.99
GT X4 Pro Quad	400W (4x 100W)	1-6	1-15	2-20V	10-18VDC 100-240VAC	0.1-7A	0.1A-1A	300mAh	£149.99
GT X4 DJI P3P4	100W (4x 25W)	4x Output 17.3V, 5A Plus Tx charge O/P and 2x 2.3A USB O/P			100-240VAC	5A	Upto 0.65A	DJI Phantom 3 and P4 Batteries	£149.99 NEW
E-Flite Celecra 4 Way 1S	4x 1S	1	N/A	N/A	Internal Batteries or PSU	4x1S@ 300mA	N/A	N/A	£28.49 NEW

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Fokker D.VII

Ripmax have been distributing the all-wood construction kits from Super Flying Model for just over a year. Frank Skilbeck puts together their WW1 biplane



SFM's Fokker D.VII sits well in the air



The kit is supplied in a colourful box. The colour scheme is one from the ARTF versions



Parts are well packed and identified. Decals are provided for two different schemes

Aside from the Fokker DR1 Triplane the D.VII is probably the most well known of the axis aircraft from World War 1, and with good reason. When introduced in early 1918 it was a big shock to the Allies and when the Armistice was signed Germany was required to hand over all D.VIIs to them. It's been a long term favourite with scale modellers due to its benign flight characteristics and lack of rigging, making it a good everyday scale model.

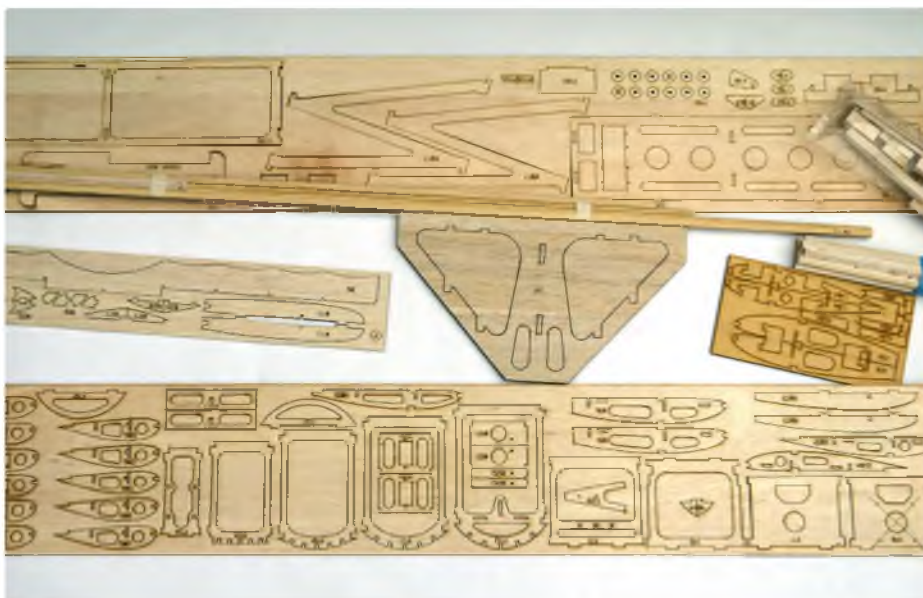
I have the Flair version with a Laser 61 four-stroke so I was intrigued to review this new, smaller electric version from Super Flying Model, distributed by Ripmax. The D.VII is available as an ARTF in three colour schemes, as well as the kit version, which we will be reviewing. The model requires a 600 to 800 KV motor and 3-4 cell 2200 plus mAh LiPo.

Nicely Cut

The kit version is supplied in a colourful box, comprising of precut parts in ply and balsa, some mouldings and all associated hardware. This leaves the builder to supply the covering, motor, ESC, servos and radio. The instruction book covers the build sequence and then the assembly and fitment of the power train. I suspect the same manual is provided for both the kit and ARTF versions as the second part of the manual shows the radio fit out and final assembly etc.

No plan is provided as the kit is designed with interlocking parts, which all jig together. The manual provides step-by-step assembly instructions, along with a couple of diagrams showing the overall model with all the parts identified.

On opening our kit all parts were found to be in good order. The main fuselage parts and wing ribs were from several sheets of



Laser cutting quality is very good



The top wing assembles very easily and quickly



Note the pre-shaped scalloped trailing edge



All parts are self-jigging so no plan is needed. The photo assembly instructions in the manual include drawings that identify all parts

laser cut ply, which were all very well cut and easy to release. The tailplane and rudder are laser cut balsa for lightness and the ailerons, with lightening holes, are also balsa. Plastic mouldings are supplied for the motor cowl, upper forward fuselage and dummy engine. Ply and balsa parts are provided to make the machine guns and while a very nice pilot is provided he is unfortunately the wrong era, being more suited to a WW2 Pacific Allied fighter! A set of stickers is provided to finish the D.VII in either of two schemes.

After a read through of the instructions and a check over of the parts a start was made on the upper wing by gluing the lower spar to the precut ply main shear web. The ribs, which have the strut slots in them, are then glued together and the whole lot is assembled dry on the main and rear shear web/spars. The slotting in the shear webs ensuring everything aligns and no plan is needed.

The instructions then show some drops of cyano being used on the end ribs to tack the assembly together while the dowel leading edge is fitted. Rather than use cyano I used Superphatic glue and followed the instructions in fitting the leading edge and top spar and then running glue along every joint while the wing was weighed down on a flat surface to ensure it is built without any warps. The scalloped trailing edge and aileron front edge are then fitted to the trailing edge of the

ribs; these are slotted so they all align very easily.

The wingtips are then glued in place, requiring a little sanding to round them off, and the servo and wing support plates fitted. The ailerons are supplied as a shaped solid balsa section, with lightening holes, and with a built up end section that extends past the main wing, as per the full size.

The whole assembly was very easy and quick, building into a lightweight wing with no warps. The lower wing is built up in a similar fashion, with no ailerons in this case.

Similarly, the landing gear sub winglet is built up in a similar fashion, a neat point being that the holes for the wheel axle are smaller in the centre ribs with progressively larger vertical slots moving outwards, giving the wheels some suspension. In this instance the leading edge is a rectangular section that slots into the ribs, which is then rounded off prior to covering.

The elevator and rudder are built next. These are all flat section so no shaped ribs are required. The horizontal stabiliser is supplied in one piece, with large cut outs on each side that are strengthened by strips running fore and aft. This not only simulates the full size construction but with the grain running at 90 degrees to the main body they also act as anti-warp sections. The two elevator halves are each constructed from two pieces with similar reinforcement

to the horizontal stabiliser, making for a strong, lightweight construction. The vertical stabiliser and rudder are built in a similar way.

Fuselage

The main fuselage is built from laser cut ply parts, starting with the battery tray, to which the forward formers are glued into position. Note that front former/motor bulkhead is built up from two laminated pieces, as are the undercarriage supports and the lower wing bolting plate. Before gluing the engine bulkhead into place I deviated from the instructions and drilled this for the motor mount on my chosen motor and I also fitted some captive nuts, this being easier to do at this stage rather than with the fuselage assembled. Once done the formers are glued into the respective slots in the battery tray and then the front cowl support former can be added.

After adding some doublers to the ply fuselage sides, these are added to the front formers/battery tray sub-assembly and weighed down while the glue dries. Tabs on the front formers/battery tray and slots in the fuselage sides ensure it all builds true. The photo assembly sequence in the manual is easy to follow and there are itemised drawings showing all parts for additional clarity.



Superphatic glue was run into all joints



Tail surfaces are made from laser cut sheet pieces with strengthening pieces orientated to prevent warping



Undercarriage winglet. The middle three ribs have holes for the axle and the outer ribs have slots to allow the axle to flex, providing some suspension. The outside ribs are of laminated construction, with provision for the undercarriage legs



Wings and undercarriage winglet built and ready for covering



Fuselage sides and battery tray with doublers and formers ready for assembly. Make sure you make left and right sides!



Fuselage assembled and ready for covering

The rear formers and tail support pieces are added next. Again these all fitted well and they were secured with Superphatic glue. A front horizontal former is then fitted above the battery tray and stringers added to the curved upper surface of the rear formers. The undercarriage mounting plates and lower wing attachment plate are glued into their respective positions. The rear formers also have holes provided for the control wire tubing, so they are supported at regular intervals along their length and these are fitted at this point.

The forward top deck, including provision for the dummy engine, machine guns and pilot, is a plastic moulding on a ply subframe. In the kit version this is unpainted and based on the tex fabric I had available, I had decided to follow the red and white colour scheme shown on the box. So I sprayed this red and then hand painted the canopy area black.

The pilot is also supplied unpainted and, on closer inspection, he is more suited to a WW2 plane, being complete with a Mae West and intercom set! But using a little bit of imagination with paintbrushes it can be made to represent a typical WW1 pilot. The machine guns are made up from pre-cut ply and balsa parts and are finished off with the supplied stickers before being secured to the forward decking with small screws.

The top deck is held in place by a tab at the front and a simple spring wire latch into some slots at the back, providing a secure but easy to release fixing. The forward motor cover is a plastic moulding with a section of radiator grille to be glued in. This slots over the front former and is held in place with small screws; on my chosen colour scheme this is white so it didn't need painting.

At this point the airframe was covered in heat shrink tex. As noted earlier I followed the simple red and white scheme shown on the box artwork. But for the more artistic there are plenty of alternative schemes, including the famous lozenge pattern.

Once all the surfaces were covered the tailplane was glued in place and the control surfaces attached using Mylar hinges. The undercarriage is assembled by gluing the lower winglet to the metal undercarriage legs after these have been fixed to the fuselage. To ensure proper alignment a jig piece is provided, which holds the winglet in position while the undercarriage legs are epoxied into slots in the winglet.

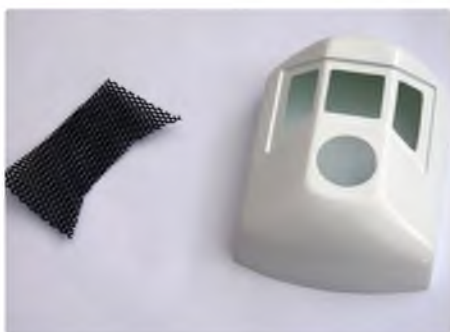
The main axle running through the winglet is designed to allow some vertical spring in the axle. The undercarriage though is fixed to the fuselage in front of the lower wing, and while being very practical, it is forward of the full size, which is further rearward, with the rear support being attached to the lower wing. Similarly, the wheels provided have large plastic spokes whereas the full size had covered spoked wheels, so solid wheels would have been more appropriate.

Final Assembly

One of the tricky points of building a D.VII is the cabane struts for the upper wing and here Super Flying Models have come up with a neat solution by making the struts from carbon tube with a threaded bar screwed and cyanoed in. A ply template is provided to make sure these are all the correct length. They are then fixed to the metal wing mounting plates and the fuselage using



Forward upper fuselage and battery access hatch is made from a ply tray with a moulded plastic cockpit and engine



Front engine cover is a plastic moulding with a glued in radiator grille



The pilot supplied, while very detailed, is from the wrong era



The top hatch was sprayed red and the engine and cockpit area painted black



The fuselage was covered in red and white tex, following the colour scheme on the box

plastic ball ends fitted with small bolts and screws. As is my normal practise I reinforced the screw holes in the fuselage with thin cyano.

Nine gram servos are used for all control surfaces, one on each aileron, rudder and a single servo driving dual control rods to the elevator halves. These all fit easily, as long as you remember to insert the servo cable drawstrings in the wing before covering! The top wing is screwed onto the wing mounting plates and the interwing struts are then fitted by squeezing the struts together so they spring out in the slots in the wing. This keeps them securely in place and is simple and easy to install. The lower wing is then fitted and held in place by a single screw, then the inter-wing struts are inserted into the slots in the lower wing.

The receiver, ESC and flight battery were then fitted. I chose a 2,650 mAh 4S battery for the initial flights and fitted a telemetry current sensor to check the maximum amps with my chosen 700 KV motor and a 12 x 6 propeller. A check of the Centre of Gravity showed that this was easy to achieve by positioning the battery without the need for any additional nose ballast. Some Velcro strips and a Velcro strap were used to keep the battery in position.

One area in which I did deviate from the instructions was to replace the steerable tailwheel for a simple skid, in keeping with the full size. But I think that the additional weight of the tail wheel would easily be accommodated by repositioning the battery.

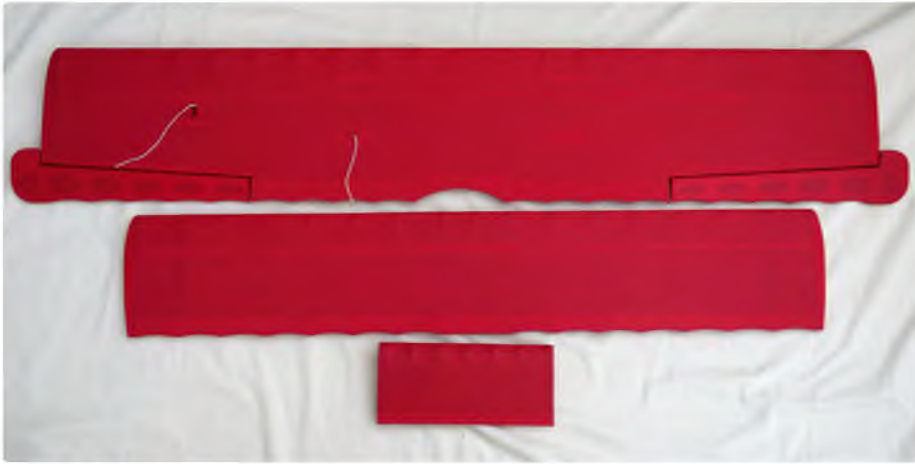
Dawn Patrol

Rather than do some static power measurements with a watt meter I installed a telemetry sensor so I could check the amps drawn in flight and also monitor the mAh consumed. A quick run up showed that with my combination a 4S battery was pulling well over 30 amps at full throttle, and approximately 450 watts. As the model weighs just over 3 lb this was definitely in the lively category!

For the test flights the control surface throws recommended in the manual were used, with a little expo on the elevator and ailerons. I also added a switchable aileron-rudder mix, with 20% rudder movement mixed in.

For the first flight with the 4S battery the Fokker was off the ground before I'd got to half throttle. Climbing strongly, the controls were all smooth and positive, with a little adverse yaw when turning on ailerons only. It was pretty apparent that the combination of a 12 x 6 propeller, 700 KV motor and 4S LiPo was much more than required and the D.VII needed less than 10 amps on this set up to fly basic aerobatics. If anything the Fokker was overpowered and she felt touchy to the throttle. But the D.VII was a delight to fly and landing was very easy, with the forward mounted landing gear preventing any tendency to nose over.

For subsequent flights I swapped the 4S LiPo for a 3S-3000 mAh. With this set-up the D.VII felt a lot smoother and flew in a more scale like manner; there was still plenty of power and she only required 16 amps for basic aerobatics. I also dialled in 50% aileron differential and this reduced the adverse yaw when turning on ailerons only.



Both wings and the undercarriage winglet were all covered in red tex. Make sure you install the servo lead drawstrings before covering



Summary

Despite some of the scale infidelities the SFM Fokker D.VII looks the part and is a very nice flyer. The kit goes together very well and is an enjoyable build. It would make a good introduction for somebody looking to build their first scale model and the fact that the D.VII has so many colour schemes to choose from only enhances its appeal.

The model is very practical, with good battery access and an easy to use hatch securing mechanism, which I will copy on some of my other models! The model is of a nice size and fits in the average sized hatchback/estate car when fully assembled, making it ideal for those quick visits to the flying field. This is handy as while the wing attachment is well thought out it's still a little fiddly.

I was going to finish the article by wishing for further similar kits but I see Super Flying Model and Ripmax have beaten me to it by adding a Mustang and Piper Cub to the range. Happy days! **RCMW**

Far left & left: Upper wing cabane struts are made from carbon tube and studding. A ply template is provided to set the lengths



A template is provided to position the undercarriage winglet while it is being glued, using epoxy, to the undercarriage legs



Upper wing mount is fixed to the fuselage with carbon tubes and ball joints. The wing is secured to the metal mount by four screws



Battery hatch is removed by releasing the latch and pulling it back behind the upper wing. A telemetry receiver was used to monitor current in flight



Plenty of room for 3S and 4S batteries. The 3000 mAh 4S battery used for the initial flight test was replaced by a 3000 mAh 3S pack as the 3S set-up was more than adequate



The Fokker looks purposeful waiting for the maiden flight



On a 4S LiPo the D.VII is away before hitting half throttle. Note the tail skid used by the reviewer instead of the steerable tail wheel supplied



Turns benefit from a little co-ordinated rudder



Loops and other general aerobatics are effortless



Despite some scale discrepancies the Super Flying Model D.VII looks convincing when setting up for a strafing pass



Landings are very straightforward. The forward set undercarriage helps reduce any nosing over tendency



Decals provided are from sticky backed plastic. The pilot can be made to look authentic with a little artistic interpretation

MODEL WORLD

MODEL INFORMATION

NAME:	Fokker D.VII
MANUFACTURER:	Super Flying Model
DISTRIBUTOR:	Ripmax
WEBSITE:	www.ripmax.com/Item.aspx?ItemID=A-SFMEP46K
PRICE UK:	£109.99
MODEL TYPE:	Sport scale
CONSTRUCTION:	Laser Cut Balsa & Ply

R/C FUNCTIONS

1. Ailerons (dual servos)
2. Elevator
3. Rudder
4. Throttle

MODEL SPECIFICATIONS

WINGSPAN:	1200 mm (48 in)
LENGTH:	990 mm (39 in)
WEIGHT:	1450 g (3 lb 3 oz) without flight battery
MOTOR:	35/42 mm dia. 600/850 KV brushless (700 KV motor used on test model)
SPEED CONTROLLER:	45 A
LIPO:	4S-2200 mAh (however a 3S proved ample during testing)

DISLIKES

Stickers difficult to release from backing
Stickers do not adhere well to tex covering
Supplied pilot is from wrong era

LIKES

Flying characteristics • Easy construction
Good quality parts • Easy battery access with easy to use secure hatch release

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Wassmer WA 22 Super Javelot

Designed by Chris Williams, the slightly unusual wing dihedral makes this French single-seat glider stand out from the crowd. Optional E-Assist converts it to a model for all occasions

MODEL WORLD

At A Glance

NAME:	Wassmer WA-22 Super Javelot
SCALE:	1:3.25
SPAN:	4.6 m
WING SECTION:	HQ35/14 (centre section) to HQ35/12 (wingtip)
LENGTH:	2.2 m
WEIGHT:	9 kg (20 lb)
RADIO FUNCTIONS:	Throttle, Ailerons, Elevator, Rudder Brakes.
SERVOs:	Standard Futaba and Corona wing servos
BASIC CONSTRUCTION	
MATERIALS:	Balsa, Ply, Spruce
COVERING MATERIAL:	Solartex and heat-shrink film

CENTRE OF GRAVITY: 90mm

CONTROL THROWS:

Elevator - 45 mm up, 30 mm down

Rudder - 70 mm each way

Ailerons - 35 mm up, 20 mm down

MIXING: Ailerons come up with
airbrakes by approx.
10 deg. or improved
glide-path control

OPTIONAL E-ASSIST

MOTOR: Turnigy G60 Brushless
Outrunner 400 kv

PROP: aeronaut 14 x 8 folding

ESC: 85 A with 5 A SBEC

BATTERIES: 2 x 3S-2700 mAh LiPo

The Super Javelot is a single seat glider from the French Wassmer concern and is an enhanced version of the earlier Javelot model. At 1:3.25 scale (the same scale as my Slingsby Kite 2a design) this model is of reasonably impressive size but at 20 lbs is still light enough for those of advancing years to still be able to throw it off the hill.

In accordance with recent fashion the prototype was fitted with an E-Assist motor, which allows for operating conditions at the lighter end of the wind scale to be considerably enhanced. When the motor is not required the propeller can be removed and the shaft hidden with a blanking plate that almost completely hides the evidence!

On top of that a custom made tow release, one with a sideways pin-and-hole operation, made by my pal Smallpiece (Barry Cole), allows for aerotow operation too. So the



Basic fuselage structure in the jig

Super Javelot can be flown in a range of modes hitherto unknown for a scale glider (details of the release is available on request – see Contacts).

Some things have been changed from the full size for the purpose of simplification, such as top hinging the ailerons and reducing the way the wing trailing edge (TE) curves into the fuselage. This is quite a complex project so the prospective builder will need at least two or three similar builds under his belt to tackle the job.

Fuselage

The prototype was built using 6 mm square spruce in 1.8 m (6') lengths. Even then the front of the main longeron had to be made up from 6 mm ply but at least this obviates the problem of steaming a hard bend into the spruce! The prototype fuselage was constructed on a purpose made jig but all



Left: Main wing mounting bracket



Right: Wing mount bracket in the fuselage



Doubling up F6 with 6 mm balsa to increase gluing area



Completing the front ply planking



Smoothing out the planking with body filler



Shaping up the wheel fairing with block balsa

you need is a flat piece of timber on to which the jiggging supports can be firmly glued. Reinforce the base of each support with triangular balsa gussets. Before putting it together you must first make up the wing joiner support F6a, which has the hardened aluminium bracket bolted to it and which is doubled up for added strength.

It is also worth noting that the upper near full length longeron is supported internally with an extra length of 6 mm spruce, as is the lower longeron at the same station.

Starting at the front, clamp the formers to their supports and add the full length longerons, first steaming the bend at the front. Note that you will need to lift each former up to allow the longeron into its slot, before pushing it back down into the slots on the jig support, which will lock the former/longeron into place. Once all the formers are locked into position start to add the remaining longerons and the wing support pieces etc.

Use the alignment plates P1 and P2 to ensure that F6, F7, and F8 are correctly aligned, before finally gluing them in place.

When you have added the top rear longeron sight up along it, and the side longeron too, to ensure that everything is straight before adding the 6 mm square balsa diagonals that will lock the rear fuselage into its final shape. F6 is doubled up the rear with 6 mm balsa to increase the gluing area and then a 4 mm wide strip of 0.8 mm ply is glued in the centre. This will act as a junction between the 1.5 mm ply at the front and the 0.8 mm ply that covers the fuselage back to F8.

Add the wheel support panels and then start the planking process by first planking the top of the fuselage at the front. The easiest way to apply the planking is to cut out a piece wide enough for three planks, first scoring or semi cutting the wood through to define the three planks. A pair of pliers will help you bend the planking into a curve, slightly splitting the grooves in the process and making the curve permanent. Note that the planks will obviously need to taper to the front and may need a slight curve on the mating edges to achieve a reasonable fit. It is also worth noting that the planking definitely

does not need to be perfect as the outside will eventually be smoothed off with filler and the interior glassed. Note also that the outer arms of the jiggging supports at the front can be sheared off to allow the planking to be continued lower down.

Fin And Tailplane

Whilst the fuselage is still in the jig it is beneficial to sort out the fin and tailplane arrangements so that they can be aligned with the jig. The tail feathers can be quite quickly constructed using cyano for most of the components, other than the 1.5 mm balsa sheeting, which is glued with PVA. Since the fin is behind the tailplane and the rudder is quite high mounted it was deemed preferable to mount a servo in the fin.

Make up the fin post from hard 6 mm balsa and cyano in the top and bottom ribs, laying them over the plan to obtain the correct angles. Offer up the fin post to the fuselage to ensure the bottom rib lines up with the upper longeron on the fuselage. Add the remaining ribs, using the plan as a reference,



Completed wheel fairing



Basic fin structure



View of tailplane mounting arrangement



Basic tailplane structure



Completed tailplane and elevator



Rudder LE is made from solid balsa

and then make up your preferential servo mounting arrangements. Sheet one side with 1.5 mm balsa and PVA, followed by the other, not forgetting the cut out for servo access. Lightly clamp and tape in place, then offer the fin up to the fuselage and make sure the centre-line you have drawn on the top rib lines up with the top longeron, before clamping, pinning and taping the balsa sheeting permanently in place. You should be able now to offer up the fin to the fuselage but the time to permanently glue it place has not yet arrived, as it would be liable to damage once the front end planking recommences.

Rudder construction commences by hinging up the false LE to the fin so as to establish the hinge points. Robart hinges were used on the prototype; two large hinges for the lower half of the rudder and a smaller one for the top. As the hinge point needs to sit so deeply inside the rudder at the bottom it needs to be supported by a 9 mm wood dowel inserted into the fin and drilled out for the hinge.

Now make up the tapered LE from four shaped blanks of 12 mm balsa sheet, taper in the front view, then carve and sand to a semi-circular shape. When a rough fit has been achieved glue the LE assembly to the false LE. Now offer up the composite LE to the plan and cyano in place the top and bottom ribs and TE. Remove and check to see that the rudder is not twisted, before offering it up to the plan and adding the remaining ribs.

The slots in the LE for the hinges will have to be hollowed out to allow the hinge points to sit in the correct place for proper rudder movement inside the rudder shroud. Angle the slots to allow for free movement of the hinges, then attach the rudder and mark out any areas that will need to be sanded off. Finish off by attaching the top balsa block sheeting and the balsa blocks into which the hinges will go.

The tailplane is constructed in a similar fashion, with the centre and tip ribs, and false LE glued in first, using the plan as a reference. Then the remaining ribs are added

and the two centre ribs filled in with solid balsa.

Note that the tailplane tapers in thickness to the tips and that the straight edge is on the top surface. Sheet the top surface with 1.5 mm balsa sheet first, allowing an overlap at the trailing edge to make up the elevator shroud.

When the PVA has dried spot glue the jiggging supports in place, turn the tailplane over and set it flat on the bench. Now the top sheeting can be applied. Weight it down lightly with suitable weights so that the tailplane sits firmly on the supports. Make up the elevator TE and drill out the six hinge points. Now offer it up to the plan and cyano in place the inner and outer ribs, and the TE on the starboard side, followed by the remaining ribs. Then, make up the port side of the elevator, stiffening the structure up by adding the block balsa tips. Glue in place the final 6 mm balsa LE and cut out the 6 mm slots for the hinges. Round off the LE and fettle it until it rotates smoothly within the elevator shroud.



Fin fitted and faired into the fuselage



Fitting the wing joiner box between the spars



Cutting the slots for the sub spars



Aluminium bracket bolted to the ply infill between the spars

When the fin/rudder and tailplane/elevator are more or less complete it's time to set up the tailplane mounting arrangements with the fuselage. Epoxy in place the tailplane mounting plate F17, ensuring that it is in line with the longerons. Drill out the 6 mm hole in the tailplane for the plastic mounting bolt. Offer up the fin, slide the tailplane in place and, ensuring that everything lines up properly, drill out F17. Now double up the underside of F17 with 6 mm balsa and fit a captive nut, ensuring that it is thoroughly epoxied in place.

Note that, for accessibility, the 6 mm plastic bolt is towards the rear of the tailplane: the aperture in the front of the tailplane should locate against the fin post and be prevented from moving sideways or upwards by its close fit to the fin.

Fuselage Continued

Now is a good time to remove the fuselage from the jig. The first job is to fit the 6 mm square balsa diagonals between the next longerons down to render the rear of the fuselage rigid. Finish off the planking at the front. Make up a card template for the 0.8 mm ply sheeting between F6 and F8, and glue in place some 6 mm triangular balsa strip across the wheel box sides and the lower longeron to the rear.

Once the ply has been glued in place you can epoxy in place the 3 mm lite-ply nose templates. Now you can apply filler to the sides, one side at a time, and start the process of filling in the nose cone, a job that will take several applications. Car body filler was used on the prototype, specifically UPOL EASY 1 (highly recommended). The prototype needed approximately 1 lb of lead in the nose to achieve the correct C of G, so screwing some lead plates to the bulkhead before applying the filler would be helpful.

Apply the filler with a flexible card (you get a couple of these with filler), bending the card to the curve of the fuselage as you spread the filler lengthways. The first application can be flatted with 40 grit and the second with 80 grit, after which you need not fuss too much with the finish as most of it will be covered with Solartex.

Now fill in the gap between the wing mounting plates and the longeron with balsa and sand to shape, before fitting the 0.8 mm ply to the structure at the top of F6.

Wheel Fairing

The wheel fairing on the full size is a fairly large fibreglass moulding and is an essential part of the character of the glider. On the model it will be replicated in solid balsa; not an elegant task but worth it in the end. First, drill out the holes for the wheel, at the same time epoxying in place two 3 mm ply plates to reinforce the axle mounting.

Commence by making up the 12 mm balsa side cheeks, roughly to the profile on the plan. Make them slightly oversize to accommodate the curve at the bottom of the fuselage. Now, fill in with balsa at the front and start to shape it up, just to show it will work out right in the end! Make up the 3 mm ply plate in front of the wheel, hollowing it out to accommodate the shape of the wheel and glue in place. While this is going on don't forget to continue the holes for the axle through the balsa! Now repeat the process for the rear of the wheel fairing.

Note that using CA for this job will really speed up the process. When the fairing has been shaped up to your satisfaction, seal it with thin CA and apply some filler, sanding down to a final finish.

Now it's time to remove the temporary internal formers at the front. Drill a finger-sized hole in F2 and F3 to allow you to pull

them out more easily. Once removed, clean up and then glass the inside with strips of chopped mat and polyester resin.

Attention now moves to the rear end. The elevator is actuated by a pushrod that moves between the two sets of longerons that have the diagonal cross members. The 3 mm metal pushrod at the rear end has a step in it to allow it to exit the fuselage and attach to the tailplane. The main pushrod consists of a 6 mm square spruce strip core, with 6 mm square balsa stiffener strips on two sides. Make up a servo mount (standard Futaba servos were used on the prototype), bolt the tailplane in place and make up the pushrod to length, then fit to check that everything works.

Now, glue in place a strip of 3 x 6 spruce between the top and bottom of the rear of the fuselage. Make up tapered 1.5 mm balsa strips to match the width of the lower longeron. Make up the 0.8 mm ply plates that will fit either side and glue them in place, clamping and taping as necessary. Make up the wiring loom for the fin servo and push it into the fin, ensuring, possibly with a knot, that it won't fall into the fuselage after fitting the fin.

With the front end of the fuselage complete the fin can now be glued to the fuselage. Clamp a straight 6 mm square spruce strip to F6, lining it up vertically on the centre marks. This will give you an alignment template when fitting the fin. Epoxy the fin in place, lining it up with the spruce strip at the front. Now make up the 0.8 mm ply plates that will fill in the gap between the fin base and the fuselage. Glue a 3 mm square strip of balsa on the longeron to give something to glue to and PVA the plates in place, clamping and pinning as necessary.

Glue in 12 mm balsa sheet blanks between the centre and top two longerons, and carve

and sand to profile. Make up a 3 mm ply curved fairing for the base of the fin at the leading edge, glue it in, then glue in scrap balsa either side and sand to a rough finish. The final job is, once again, to finish off with filler until a smooth transition between the fin and fuselage is achieved.

Wing Centre Panel

The Super Javelot has a three-piece wing arrangement and we start with the centre panel. Make up the parts, including the wing joiner box, which consists of the 3 mm ply cut-out that will hold the 16 mm brass joiner box and a 3 mm balsa blank, the whole assembly sitting between the main spars. Note that the spars of the centre panel and the outer panels do not quite form a straight line, but the flexibility of the steel joiner bar will allow the wing roots to easily sit flush.

Also, the length of the centre panel is such that commercially available spruce strip is not long enough for the job so a join has to be made in the centre of the panel. This will be reinforced by letting in a sub spar behind the main spar and a shorter sub spar to the front.

Start by packing up the lower spar with lengths of 3 x 6 mm strip. Pin the TE to the board and start to add the ribs, with the exception of the ribs that are interrupted by

the joiner box ply webbing. Add the top spar and use the template to set the root ribs at the correct dihedral angle. Check that the joiner boxes are a snug fit between the spars and then epoxy in place, simultaneously gluing in the 0.8 mm webbing plates either side of the spars.

Make sure that when you clamp it all up the plates are properly clamped to the lower spar as well as the upper spar.

Make up simple elongated triangles of 0.8 mm ply and glue them to the rear of the ribs to reinforce what would otherwise be a weak point. Add the false LE and then add two or three webbing plates along the wing. When the PVA has dried remove the panel from the board and add the remaining webbing plates.

Fit a 6 mm ply plate between the spars between the centre ribs. Now the sub spars can be added. This is a very quick and simple process; simply mark out where the slot needs to be cut in the ribs, cut the slot furthest away from the spar with a junior hacksaw and finish off with a Stanley knife, before coating with PVA and dropping the spar into place. Now glue in the second 6 mm ply plate between the centre ribs and between the rear sub spars, ready to drill out for the aluminium wing mounting bracket.

On the prototype 20 x 40 x 1.2 mm hardened ali from B&Q was used but any similar material will do the job. Trim off any protruding parts, such as the webbing plates, with a sanding block and then add the lower sheeting. This can be done free-hand as the wing will not be locked into its final shape until the top sheeting has been added. When the glue has dried add the sub ribs and the 6 mm balsa sub ribs laminated to the root that will give more gluing area to the multi-locks.

Now is a good time to bolt the aluminium bracket in place. Pin the jiggling supports to the board and place the wing panel on them. Note that the front of the supports should line up with the false LE. Apply the PVA, then drop the 1.5 mm balsa sheeting in place, clamping first at the rear. Weigh down the wing with any convenient weights so that it sits firmly on the jiggling supports (but don't go too heavy on the weights!), then tape and clamp the sheeting over the false LE.

When the glue has dried, remove from the board, sand the LE flush and add the 6 mm balsa LE. Now, the lower centre sheeting can be added, followed by block balsa to the rear through which the rear wing retaining bolt will pass.

More next time... **RCMW**



Next month, Chris finishes off the Super Javelot and describes the E-Assist equipment in more detail

CONTACTS

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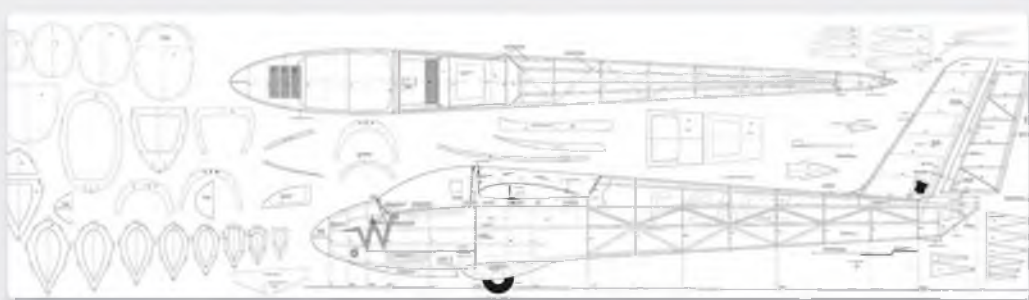
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Woody's Southern Cross

On his regular trip 'down under' Bruce Corfe catches up with the latest scale model from multi-motor maestro Rob Woodhead

The 'Southern Cross' was the Fokker F.VIIb Trimotor, which, in 1928, was flown by Australian aviator Sir Charles Kingsford Smith and three colleagues in the first ever trans-Pacific flight to Australia from mainland USA, a journey of about 11,670 kilometres (7,250 miles). There isn't room here to say more about that epic trip or the amazing life of 'Smithy', but I recommend that those interested check the links at the end of this article.

Woody's Tri-Motor

The model 'Southern Cross' featured here is the work of retired Western Australian plumber and ace modeller Rob 'Woody' Woodhead. Rob has created half-a-dozen mega-models in the last few years and Kingsford Smith's trimotor is the latest. I was lucky enough to see the second and subsequent flights of the model at the annual SWARMS Club Scale Rally recently. It was flown by internationally famous pilot

Steve Coram and Woody takes over when the model is in the air.

The model took one year to build from scratch using ply, balsa and fibreglass. Six metres of stainless steel tube went into the undercarriage and struts, and four gutter bolts from Bunnings (a DIY store) hold the wings in place. Power comes from three Saito 30 cc four-stroke, three cylinder radial petrol engines. Ray Anderson contributed two of the Saito motors to the project – at \$1500 each there might be some marital tension if Mrs A. finds out!

Hand Built

While the model was only ever intended to be 'stand-off scale', I think Woody has really captured the look, feel and 'sit' of the full size Southern Cross, which incidentally is preserved near Brisbane Airport in Queensland. Entirely hand built from a blown-up plan, Woody has added lots of construction notes and other details in the links below. The R/C gear is Futaba, using two servos for the elevators, one on rudder, two on ailerons and three for the engines. She also has a PowerBox on board, plus a Matchbox (from JR?) so each motor can be finely adjusted with engines running (a feature used on all Woody's multi engine machines) plus an electronic kill switch.

The 'Southern Cross' flies just as well as she looks – slowly and stately as a galleon. This is yet another magic model to follow Woody's eight engine Spruce Goose, his giant Catalina and two Boeing B-29s. Keep 'em coming, mate! **RCMW**



Woody (on left) and Steve hold tight while Ray starts one of the Saito four-stroke engines



All systems go! Three times three cylinder 30 cc Saitos burbling away beautifully



'Southern Cross' Fokker Trimotor in her element. Woody has got the look and 'sit' just right



Floating in for a three point greaser of a landing at the SWARMS field in SW Australia, with Steve Coram at the controls. Cue high fives all round!

CONTACTS

SWARMS:

www.swarms.org.au

WOODY'S NOTES & IMAGES:

tinyurl.com/SthCross

CHARLES KINGSFORD SMITH:

tinyurl.com/h97umxq



LMA Heads For Haydock

Neil Hutchinson takes us on a tour of the Large Model Association's new Static Show at Haydock Park Racecourse

New venue. Haydock Park Racecourse conference centre



The large 1/8th scale Junkers Ju 52 built by Mike Eccles dominated the reception area



Andy Johnson's Vickers Wellington, a Tony Nijhuis design, which will be finished in RAF Coastal Command colours

When I first joined Catton Hall Club, and then the LMA back in the mid 1980's, there was always great excitement at the start of a new year, looking forward to the first show of the new season. The show was always a static display of models at a place called Haigh Hall near Wigan. There was always plenty of activity there – lots of models and quite a few trade stands. Haigh Hall was, at that time, the only static model show the LMA put on. However, the use of Haigh Hall as a venue was lost and despite the fact that several other places were tried they too failed to meet expectations and were also dropped from the calendar.

A New Show

The start of the 2017 LMA season has a new static model show venue in the North West, again. Dave Johnson, the LMA Chairman, put in a lot of time and effort to

get the use of this new venue for the Large Model Association display. This new show was held at Haydock Park Racecourse in their conference centre. The conference centre is a purpose built complex within the grounds of the racecourse itself, which is situated just off Junction 23 of the M6 motorway, so getting there is very easy. The car park is only a short walk from reception and then you are in. For this first show the LMA only used the downstairs part of the centre but there is a lot more room for expansion.

Walking through the conference centre doors the first thing that greeted me was the huge Junkers Ju 52, built by Mike Eccles. Mike hasn't flown this model at an LMA show for a long time but he has finally given the Junkers an overhaul and we should see this unusual model flying again, soon.

Falkland Foes

Walking past reception and into the first large room, I saw a well laid out display of large models, both old and new. The first large model was Dave Johnson's huge white leviathan, the Vulcan B2 on the right. On the left was an equally impressive new model, still being built, which was Ken McCormick's FMA Pucara.

Dave's Vulcan has been around for a few years now. He told me he now has original paint from the 'Vulcan to the Sky' team and could be repainting his Vulcan in grey/green camouflage colours, soon. Ken's Pucara is still being built but it is already looking very impressive. The model will have two Wren 44 Turboprop engines.

There were quite a few other models in that first room, new, old and refurbished in new colour schemes. There was also a nice assortment of models, from Ian Turney-White's huge Nieuport biplane to modern jets, such



The VC-10 has been repainted in a BOAG colour scheme. The finish is outstanding



BAe Nimrod built by Mike Altham. I am looking forward to seeing this model in the air. It has a 5.15 metre wingspan and will weigh around 70 kg when finished



Harold Dowbekin's North American T-28 Trojan has a 12 foot wingspan and an Evolution 260 cc seven cylinder radial. The model should look and sound superb in the air!



The DH.90 Dragonfly built and flown by Steve Rickett. Steve has now finished the cockpit with a superb Real Models Pilot, which looks superb for this period model



as James Ladell's Yak 130. All down the right side of the hall were models built by the late Doug Rigby, another prolific builder and pilot, who will be sadly missed at the LMA shows.

Time To Relax

As I headed into the middle hall I caught the smell of coffee. The cafeteria was situated in this one. Good coffee and assorted light meals were available throughout the day at reasonable prices. There was also a small seating area to relax in as well. This hall was where the majority of the traders were. There seemed to be a steady amount of trade going on throughout the day and I saw quite a few people walking out with large purchases. Martin Withers was also there signing books. Martin was one of the Vulcan display pilots and he is also the LMA President. He was the Operation Black Buck Vulcan pilot during the Falklands War.

The Big Hall

Moving onto the final hall, which was the largest of the three, there were a lot more models and more traders. There were plenty more new and old models to see. There was a nice mix of WW1 to present day, like the first hall. The first new model that I saw was Andy Ward's Lancaster. This is another Tony Nijhuis model, which Andy has finished off as Lancaster S-Sugar, which is on display at the RAF Museum, Hendon. There was also a lot of interest in Steve Rickett's scratch built de Havilland DH.90 Dragonfly. Steve has now fitted out the cockpit, which completes this fabulous model. Jon Townsend has a new model, which is nearly complete, the Hughes DGA-6 Mister Mulligan, a 1930s racer. The model is 45% scale, which gives it a whopping 171" wingspan. There were several other superb looking models in this area but the one that gave me a smile was

Stuart Solomon's Moth Minor. The caption above the model details read, "The Not Quite Done Aircraft Company"! I wonder if the wood in Stuart's model will pass its sell by date before he ever flies the model... Just a thought, Stuart!

Let's Have Another One

For a first static display at a new venue the LMA opted for a cautious approach. I think this was a wise move, however I feel there is great optimism for future events here. There was a steady flow of people throughout the whole time I was there and there is also plenty of room for expansion as none of the upstairs area was used.

Dave Johnson has already told me that he has provisionally booked the venue for 2018 and I'm certain this acorn will grow into a mighty oak as time goes on. **RCMW**



'Mister Mulligan' built by John Townsend. The model is a replica of the Hughes DGA-6, which was a 1930s racer that won the American Trophy in 1934-1936



Dummy engine in the Hughes DGA-6. The basic engine was supplied by Pat Cuss and the detail was added by John Townsend



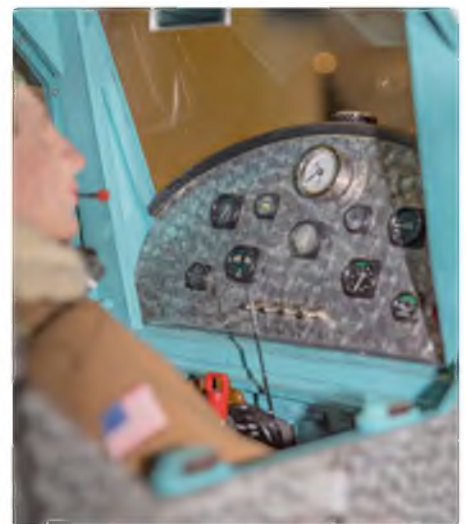
A lovely looking Nick Zirola designed B-25, built by Alan Greaves. The B-25 is 1/7th scale and has a wingspan of 118"



Another superb looking Nick Zirola model, the Douglas C-47 built by Dave Jones. This model has a scale cockpit, which is illuminated



Honey Bee built by Dave Horton. The cockpit has a working fuel gauge and a radio that's tuned to either the local ATC or Radio 2!



Aircraft don't come much more surreal than the Flying Flea. Ian Redshaw's model depicts the original 1936 Flying Flea sponsored by Bassett's of Sheffield



Ken McCormick's massive Pucara, a huge model that will use two Wren turbojet engines



Dave Johnson's Vulcan B2, an impressive model either in the air or on the ground. Soon to be repainted? We'll see!



This Airworld Model BAe Hawk has been donated to the Vulcan Association and will be displayed by Dave Johnson



A Doug Rigby model of the Bede BD-8, which is now owned by Paul Needham. Has a DLE 222 flat four petrol engine



Rearwin Speedster built by Doug Rigby. Wingspan is 17' 6" and it has a ZDZ 180 cc petrol engine under the cowl



An interesting subject for a model, the Saunders-Roe SR/A1 jet powered flying boat. The model is now owned by Dave Johnson, who is going to fit a Merlin 160 turbine into it



Andy Johnson's large Bede BD-5



Dave Swarbrick's latest scratch built creation, a Gloster Javelin



This large Jet Legend Yak 130 owned by James Ladell looks great with all the underlying ordnance fitted



James Ladell's Northrop F-89D Scorpion built from the Air C Race composite model. The model has only one jet engine, a Jet Cat P160, which is offset to counteract asymmetric effects when applying the throttle



Tony Fagan's DH.84. The placard tells you all you need to know!



Superb 1/5th scale de Havilland Vampire FB.9 owned by Mike Whitehead



Jet Legend 1/5th scale F-16 fitted with a PBS TJ20 turbine



Steve Vodrey's Fokker D VII built from a Balsa USA kit. The model is 1/3rd scale and is nearly complete. Just the dummy engine to do, Steve tells me



Stuart Solomon's lovely DH.94. One day, Stuart might even finish building it!



Andy Sherborne's scratch built 1/3rd scale Fokker D.VI, which has a Saito 450 three cylinder radial for power



The huge Handley Page Hampden, now owned by Tony Hooper. Originally built by Mike Eccles, Tony has taken over the project and we should see this model flying soon



Another Tony Nijhuis design, the Avro Lancaster being built by Andy Ward. Based on the Lancaster displayed at the RAF Museum, Hendon



And Finally..!
Some of the traders at the Static Show. These pictures were taken quite early - it got busier throughout the day!

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Soarers' Slot

Mike Proctor details the construction of a hand built thermal soarer using free flight building techniques and he also builds a new Xplorer



Gary Peck with the completed home built model described in the text. He managed a successful test flight after our March competition, even though we could not supply the 'Keil Kraft long grass' he coveted for the occasion!

Spring has certainly sprung as I write this and it's not the only thing!

Over the winter (should you have noticed one in your neck of the woods!) Gary Peck has immersed himself in construction work once again. You may recall that Gary featured in these pages recently, having made a 2 metre eSoarer from a set of Low Drag Aerofoil (LDA) wing ribs, which he had 'lying around' from an uncompleted free flight project. Construction was what you might call 'classic F/F', being from balsa ribs capped with thin carbon fibre. They are

fitted to a carbon spar with a Kevlar 'D' box. You can see the same today but with more conventional sections, in larger format, on many open-framed eSoarers. Even if you have no plans to do such a build it is always good to look at building techniques, as they can often double as repairing techniques at a later date!

Having decided that bigger-is-better, Gary has produced a 3.7 m Open class eSoarer based along AVA/Pulsar design parameters. The amount of work involved is not for the faint-hearted, as the following pictures

and details show, but should you need a challenging winter project, look no further. Do bear in mind that Gary has a wealth of experience in this kind of work, after years of building free flight models, but this new machine is larger by a factor of at least two, which brings other demands!

I'm only going to look at the wing construction this time, although it must be said that one or two shots of the tailplane may magically appear.

The fuselage pod and boom and the centre section carbon/Kevlar 'D' box, were all purchased from CLM in Croatia; the quality of these components was found to be good. The outer and tip panel 'D' boxes were self manufactured from 90 g Kevlar cloth.

A look at the picture of the LDA section will leave you in no doubt as to the main problem when constructing a wing with such considerable undercamber – you can't build it on a flat board! In this case Gary was able to call on another free flyer, recently turned electric soarer, John Cuthbert, who cut the top of an expanded polystyrene block to the lower profile of the section. Gary was then able to pin into the block with reasonable ease, to keep the components in place until the glue dried. Much of the time cyano was used so drying times were not long, but with epoxies some curing needs to be allowed for.

It is important to think carefully about how components can be retained in place. Pinning directly through the balsa ribs, for instance, just like you did on that Keil Kraft kit you never finished, is rarely an option; they are far too thin. If you didn't break them going in, you probably would when pulling them out! Nearly always components need to be pinned at the sides and you will notice that 'T' shaped pins are used; the sides give vertical positioning and the head can overhang to exert some downward force to the board. It is also important to avoid putting the pins anywhere near where the cyano can get to them. Pins cyanoed to a thin carbon strip take a lot of removing!



LDA section at the heart of Gary's new, home built, lightweight 3.7 m model. The extreme undercamber, compared with 'normal' eSoarers, requires the interesting construction techniques described in the text, starting with this aerofoil profile building board



The spar has been constructed and is fixed to the board. Some of the nose ribs are jugged and fixed in place, whilst others have just been produced by the 'sandwich' method, to complete the panel

To get started a plan is needed, but in this case it is only a line diagram of where the ribs and spars are positioned, along with any other bits which will need to be located during the build. The plan needs to be mounted squarely on the building board if you are to avoid building a propeller! It is important to remember that these structures may look flimsy but they are extremely rigid when complete and removing a built-in warp is very difficult.

The actual structure, in appearance, when finished, is not unlike any built-up model wing but in construction terms there are many differences due to the materials being used. The main spar is a good example and is usually made separately from a balsa core with carbon strips (caps) epoxied to the top and bottom. This assembly is cramped up, often to some aluminium angle, and left to

cure over a radiator for at least 24 hours. The spar is then bound with Kevlar thread to prevent the caps from de-laminating when the spar bends. Any wing joiners are built into the spar core.

The ribs are made from balsa using the 'sandwich' method, where a number of blanks are fixed between two templates, each having the shape of the profile of each end of the panel under construction. The excess is then removed from the blanks and you are left with a set of ribs having the correct shape for all the intermediate stations. The nose and tail ribs are separate pieces and join to each side of the spar.

Once the spar is on the building board the nose ribs can be jugged in place, then fixed with cyano. Once set this assembly can be removed and glued into the 'D' box. The 'D' box and spar assembly need a fair amount

of pressure to maintain contact with all parts of the ribs, and the top and bottom of the spar until the epoxy dries. This is usually done with a combination of screw pressure and weight, or binding, and is probably the trickiest part of the build.

Once cured the nose section is returned to the board and the rear ribs are attached from the spar to the thin carbon strip that forms the trailing edge. The final part of the wing panel construction is to add the carbon strip capping to the top and bottom of all the ribs, using cyano. This is a nice steady job and uses quite a significant amount of carbon strip; there are a lot of ribs in a 3.7 metre wing!

Next time I shall look at the tail end and the finishing techniques used in this remarkable piece of work.



Nose section construction continues with the introduction of riblets between the full rib positions, to give more rigidity to the very thin 'D' box structure when it is wrapped around them



Once the spar and front rib sections are complete they are ready to be glued into the 'D' box. As this is the centre panel there is extra reinforcement added for the wing to fuselage joiners



The tricky bit! This cramping tool is used to push the spar/rib assembly into the 'D' box to ensure that it is in contact with the ribs at all points. This prevents the thin Kevlar box from wrinkling when twisted by flight loads



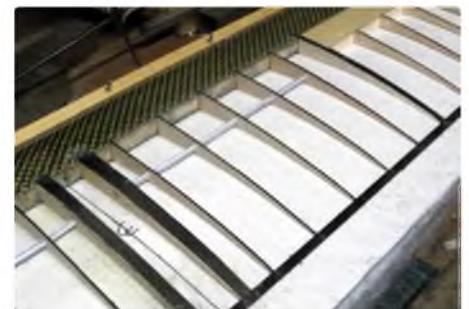
Several steel bars hold the 'D' box in place on the board as it cannot be pinned down, whilst the rear ribs are fitted to the spar and trailing edge carbon strip. Note that only the pin heads retain the ribs in position



The final straight. Carbon capping is applied to the top of the ribs, joining them to the 'D' box top (this is actually the tailplane) before the wing is removed and reversed for the installation of the bottom caps



The rib caps go right over the trailing edge to form a very strong joint and are cut to length as each one is fitted. I'm sure I would need rubber gloves for this!



The centre panel almost complete after several weeks of building time. An excellent piece of work

Exploring The Xplorer

I acquired an Xplorer F5J recently and have been impressed by the quality of the build and the few small but significant improvements that have been incorporated. Rather than attempting anything like a full review, I shall only be considering new features and they are confined to the fuselage.

The '2E' wing is a well made, light moulding; the centre section and tips together weighed 800 g and about 900 g finished. The fin and tail seem to have grown a bit but are very light. They retain the two pin mounting from the fin, through the tail and fuselage, being secured underneath by a turn-buckle fitting. The elevator and rudder horns are secured to the pushrod wire ends simply by the closeness of the fuselage sides. Once you have figured out a system that suits you for assembling them, it generally goes smoothly. Being a light model it is unlikely that I will be doing it in a wind!

The complete fuselage and tail weigh under



Xplorer F5J has been lightened for 2017 and the fuselage is in two pieces. The joint is in the parallel section just ahead of the wing, making it very easy to shorten should you wish (or need!) to do so

600 g with a Mega 16/15/3 and Maxon 4.4:1 gearbox, plus a 40 A ESC and 4S 1000 mAh battery. Being a complete carbon moulding, the fuselage is not 2.4 GHz friendly and the aerials need to exit at some convenient points, I have one vertical ahead of the wing and one downward behind it.

Quite often small details can make a big difference when fitting equipment into a model and this version is much enhanced, for me, by the addition of a removable nose and extra access holes under the wing.

Having often used removable noses on home-builds in the past, both for better equipment access and by trimming some length off, to enable balancing with a variety of motors, I am obviously a fan. To save having to do any tricky work to the nose end the fuselage needs to be parallel over some distance at the joint, which the Xplorer's is, and the removable front needs to have the spigot that can fit inside. This enables the fuselage to be trimmed back so the nose length gets shorter. Most people will then

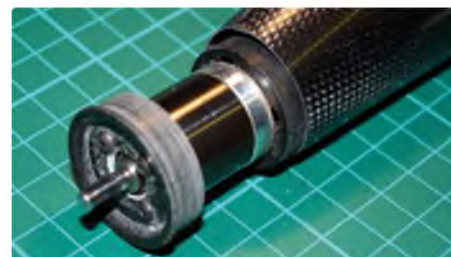


To get my Xplorer to balance correctly, using a 'heavy' 130 g motor, I first removed a 25 mm ring from the nose section to give an approximate C of G. Then, after careful balancing, I cut another 12 mm section. The fuselage spigot needed shortening a little to allow it to fit

glue the nose on permanently but strong tape could be used should future removal be considered important.

The motor mount is a carbon moulding, in the shape of a 'top-hat' washer, and is supplied loose. This is a big help when drilling the holes for mounting the gearbox, or the motor for direct drive systems. Not having the mounting ring pre-installed in the fuselage makes marking out and drilling accurately much easier. The whole motor unit can then be installed through the fuselage nose, as the ring is glued in place.

A final point about the fuselage is that it has three access holes provided in the underwing area, which makes getting things installed much easier and reduces the need to cut holes in carbon – not the safest thing health wise. Also worth mentioning is that the hole edges are very well finished – 'finger friendly', you might say! All I need now is the weather to co-operate for some flight testing.



Nose detail. The mounting 'ring' is supplied loose, in the form of a 'top-hat' washer, which is easy to drill to fit the motor and then install



Left: The shortened nose on my Xplorer now accommodates a 130 g motor/gearbox without the need for tail weight

Right: Underwing area on the 2017 Xplorer has more access openings than previous models. You might wonder why the eight channel Rx has '4 channel' written on it? So do I!



Finally, Some Flying

The Northern League guys were keen to have a pre-season event sometime during March. Having established that we could fit it in with lambing at the flying fields, we settled down to await the weather's pleasure. The internet has revolutionised comp organising, making a final decision by late on the previous afternoon the norm. In this way, avoiding 15 people wasting time and

money travelling to stand in a gale or rain for two or three hours, before giving up and going home wet and miserable, is usually not too difficult. After a couple of cancellations we were lucky to have a day of strange but challenging conditions, which were good for flying but even better for junior, Simon Haley who won the day with a high score. Onwards and upwards... **RCMW**



John Cuthbert attended the Northern pre-season soaring event in March and demonstrated his latest solid (pressed) foam models of 2 m and 2.5 m span



Simon Haley returns to the pit area with a purposeful stride at the pre-season event. His purpose was obviously to do well and he achieved just that, by coming first!

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Shrike

Bill Bowne got so carried away when enlarging a much-liked previous design that he ended up with practically a new model, which deserved a name all of its own



Bill took his inspiration for the Shrike from his pod and boom Valkyrie design that featured in RCMW, November 2014

At A Glance

WINGSPAN:	51 in (1295 mm)
AREA:	432 sq in (2787 sq cm)
WING LOADING:	16 oz/sq ft
LENGTH:	38 in (965 mm)
WEIGHT:	48 oz (1361 g)
MOTOR:	E-Flite Power 15 (950 KV)
PROP:	APC 9 x 6E
ESC:	E-Flite Switching 60 amp brushless
BATTERY:	2200 mAh, 35C, 4S LiPo
RADIO FUNCTIONS:	Throttle, Rudder, Elevator, Ailerons (dual servos)
RECEIVER:	Spektrum AR6200
SERVOs:	Hitec HS-82MG (rudder and elevator), Hitec HS-81 (aileron)
BASIC CONSTRUCTION MATERIALS:	Balsa, Spruce, Ply and Lite Ply
COVERING MATERIAL:	Ultracote, with lettering from computer labels

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Early jet fighters were something special. Back then designers were trying to figure out how to install those new-fangled blowtorches into airframes. Especially, where to put the hot exhaust ducts! One answer was the pod-and-boom, with the fires exhausting under the boom; I used that look, plus an F8U Crusader-styled nose scoop when designing my little Valkyrie of a while back (RCMW, November 2014).

The Valkyrie worked out well but I wanted a larger version, so I started the Shrike as a scaled up Valkyrie. As I scaled it up, I started playing with the wing planform... and the tail... and an English Electric Lightning-style nose intake... and the aerofoil... Well, you get the idea!

I made so many changes that I just couldn't keep the name the same. Besides, I couldn't

think of a good name. I mean, 'Senior Valkyrie' makes one think of a grey-haired grandmotherly type in a horned Viking helmet – not exactly the image I'd want my model to create!

After flying the Shrike for nearly a year, I began to think about making some changes.

First off, the Shrike had trouble maintaining altitude in knife-edge. So I decided to sacrifice that pod and boom look and add an inverted triangular strake under the aft belly. Before I got around to cutting into the completed model I had a minor encounter with Terra all-too-Firma, giving me the excuse

to change the model's nose to something a bit more streamlined (and prettier!) by raising the thrust line half an inch.

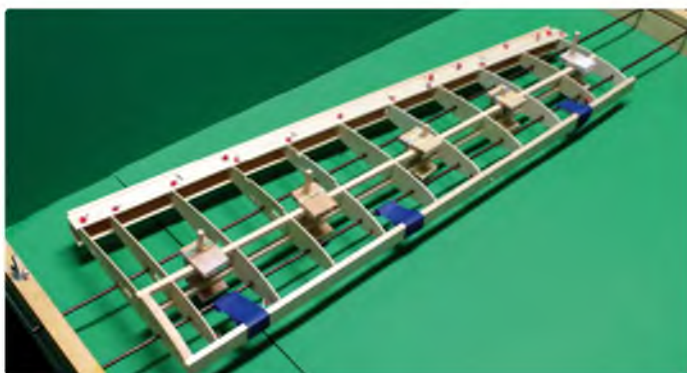
Was it worth the effort? Absolutely! The Shrike now can gain altitude in knife-edge, plus she seems just a bit faster at full chat. Yet, she's still a pussycat to land and handles the wind better than some of our larger, heavier models. Where the remaining structure remains the same I've retained pictures showing the original nose and aft fuselage. The plans, of course, have been updated to show the new structure.

The Shrike's wing top is flat, tip-to-tip, with all thickness taper in the wing bottom. That, plus the swept leading edge, combines to give sufficient dihedral effect for those low-level strafing runs, while the wide tricycle gear makes recovery on carriers easy and the fully symmetrical aerofoil lets the Shrike hold her own in air to air action (I know, dream on!)

One Valkyrie feature I reluctantly decided to omit was the 'tip tanks', to cut drag, weight, and complexity.



Those trees are a lot closer than you may think. Bill and Micki's flying field is in a region of dwarf pines



With the top spar already glued in place (and the glue dry!) the wing is flipped over and the bottom spar clamped and glued



Since my jig has a short base I had to use binder clips to hold the bottom of the shear webs against the bottom spar, whilst spring pegs worked fine for the top edges. Be sure to glue the shear webbing to the FRONT of the spars so that you have an edge to clip onto when sheeting the leading edges. Yes, some of those cloth pegs are rather colourful, having been used to hold model parts whilst painting over nearly 40 years!



Sheet the bottom LE, then flip the wing in the jig and sheet the top. Note the second layer of clothes pegs under the first – a large collection of pegs is good to have!

Wing

I built the wing on a jig (see RCMW, Dec 2013) to keep it straight and to include the jig holes that ensure that the top of the wing stays flat. Note, when I say 'flip the wing', I mean loosen the wing nuts, pull the wing/rod assembly out of the jig, flip it over, then put it back into the jig and refasten the rods.

When cutting out the ribs don't carve out the slots for the aileron servo plate in R4 and R5. Mark for it, but don't remove the wood as the wing jig rod goes right through that area. Likewise, keep track of the top of the wing – those jig holes are NOT on the rib centre-lines!

Top Tip

If the wing you're building has ribs from two different sheets of wood, make two stacks of them. Alternate the sources as you assemble the stacks, so each has a fairly even number of ribs from each stack. That'll reduce the likelihood of one heavier sheet of wood stock making one wing heavier than the other.

Draw lines on the top of the ribs (preferably where they'll later be covered by sheeting), so you don't install any ribs upside down. Lubricate the rods with hand soap, then slide one set of ribs on the rods (don't forget

W1a) and clamp the rods on the jig. Use the plans to mark rib locations on the TOP spars, then use a spar to space the ribs on the rods. Glue the top spar, LE and TE in place, keeping the ribs perpendicular to the jig bottom.

Glue the top TE 1/16" balsa sheet in place, flip the wing and glue in the bottom TE sheet and the bottom spar. Now, add the shear webbing to the FRONT of the spars (if you add it to the rear you won't have any place to clip your clothes pegs to when sheeting the leading edges). Sand any shear web overlap flush with the spar, then glue on the bottom sheeting. Use flexible balsa (long grain showing) and you won't have to moisten the sheeting to get it to curve over the ribs. When the glue has dried enough to remove your clothes pegs add the bottom centre section sheet (note that there isn't any sheeting on the servo bay bottom).

Flip the wing and add the top LE sheeting, followed by the top centre section and the servo bay sheet. Remove the wing from the jig, slit rib R1 for the dihedral brace, finish making the slots for the servo trays, then add the servo tray reinforcements, the trays and the hatch ledges/covering anchors. Repeat the whole procedure for the second wing panel but don't forget to reverse the rib order for the opposite 'handed' panel!

Got the second panel done? Great, now we join them. Sand the wing centre section so that you can fit the panels together with their tops flat on the workbench. Fit and epoxy the dihedral brace in place and glue the panels together.

Round the LE and sand the wing to shape, then add the centre TE stock (I built mine up from smaller stock and some scrap sheet balsa) and ply bolt plate. Wrap the wing with glass fibre tape and soak it with slow curing epoxy.

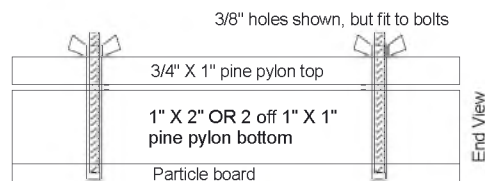
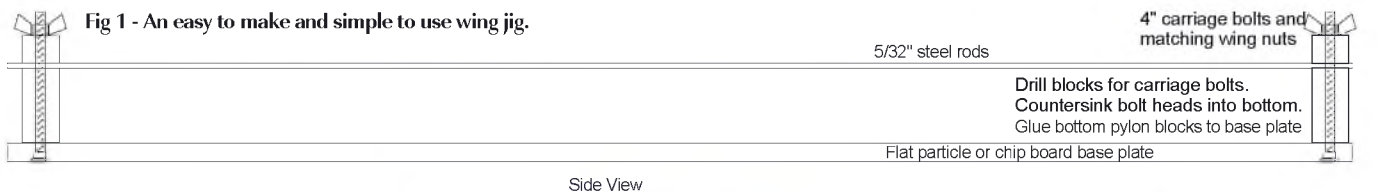


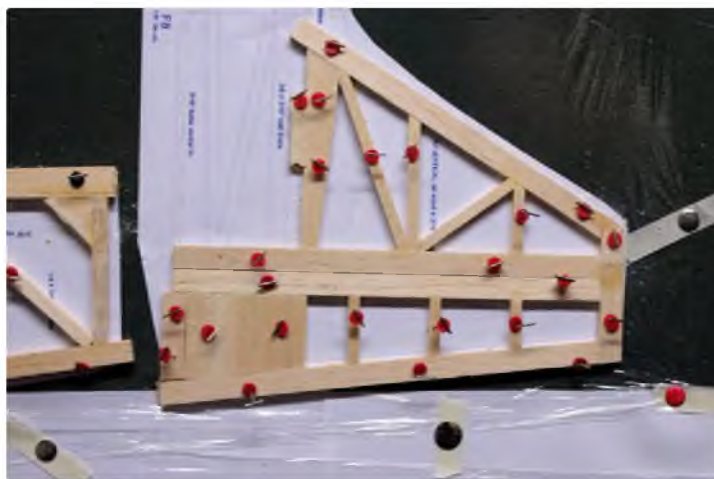
Fig 1 - An easy to make and simple to use wing jig.



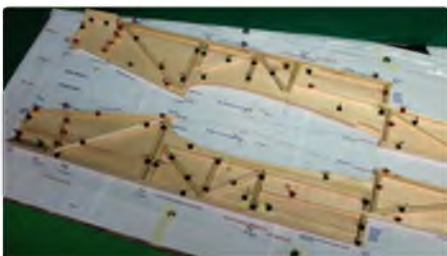
Tail Surfaces

Very simple here. Pin down the tailplane and fin trailing edges, and the rudder leading edge. Add V1, R1 and S1, then the remaining LE's and TE's, then the remaining perimeter parts. Remember to leave the rudder post long, to fit the ventral strake. Now, fill in the balsa 'ribs' and the gussets. A good sanding block with 120 to 220 grit paper makes trimming and fitting the 'ribs' quick and easy.

Block sand the fin and horizontal stab flat on the top and bottom, round off the leading edges of both. Do not round the tips or the trailing edges but do sand bevels into the leading edges of the rudder and elevators and slightly taper the trailing edges down to no thinner than 1/8". Fit the piano wire joiner to the elevators but don't glue it in place yet.



The vertical fin is just an assemblage of bits of straight strip stock glued around two shaped parts. The tailplane goes the same way. Sand flat after the glue dries, then sand a gentle taper into the elevators and rudder, plus put a 'V' leading edge on them



Make two fuselage sides at the same time, back to back, to avoid making two of the same side. All the perimeter strips, bulkhead braces and the wing saddle are glued in place, using the bulkheads as alignment tools



Wrap your spinner and your motor's intake ports with masking tape to protect them during sanding



The belly strake on my Shrike was a retro-fit, hence the sliced open, already covered fuselage. On yours it will be new and original

Fuselage

Hold the sides together over the plans and mark the bulkhead locations on their edges. Then pin them down top-to-top (or bottom-to-bottom, if you want to be different!). Glue the wing saddles, triangle stock, tailplane brace and 3/16" square outlines in place. Add the 3/16" square internal framework and lite-ply landing gear/undercarriage (LG/UC) braces in front of F4. When dry, pull both sides off the workbench, hold them together

outside-to-outside and sand the edges so both match.

Drill NF2 for motor and nose gear mounts, then mount the blind nuts for both. Remember, the nose gear goes behind the bulkhead.

Pin one side over the plans and add bulkheads NF2, F3, F4, F5 and the wing bolt block. Let the glue dry thoroughly. Add the opposite fuselage side and brace the assembly so it dries straight. Use epoxy or

aliphatic to glue in the LG/UC plates (the bottom front LG/UC plate goes under F4). Add the triangular lite-ply LG/UC braces behind F4, gluing them to the top LG/UC plate and F4.

Sheet the underside of the fuselage from NF2 to F5 (it should be flush with the bottom LG/UC plates). Mount the motor (cover the intakes with tape to keep sawdust and sandpaper grit out). Saw slots in the triangle stock and the canopy frame, and score the fuselage sides at NF2, then gently pull the nose together. Glue F1 between the fuselage and grind out as much of F1 as you need to, to get the motor installed. Now, with the motor in place, glue scrap blocks to the front of F1. Glue the TE stock to the front of F3 (it's there to establish the canopy's rear slant, to make it easier to remove).

With the fuselage firmly centred over a straight reference line sand the aft ends of the fuselage so they just fit around the rudder post, then glue the fuselage sides together at the tail end. Add F6 through F8, then sheet the top of the fuselage from F5 to F8. Flip the fuselage over, add F5, then add the hardwood underbelly strake. Please don't use balsa – it's too fragile!

Put sandwich wrap over the battery hatch opening. Pin strips of 1/8 square balsa to the inner fuselage sides (separated from the fuselage sides by the sandwich wrap), then spread thick CA on them and place the lite-ply hatch frame in place. Glue NF2A to the front of the hatch, pull the pins and check the hatch for fit.

Use scrap block to build up the canopy, then drill through NF2 and 2a for the 1/8" dowels. Remove the canopy, glue the dowels into F2a, then replace the canopy and sheet between F1 and NF2. Now, pull up your waste basket and sand the nose to shape.

If you choose to build a hatch latch assemble it separately and then inset it into the rear of the canopy.

Undercarriage

With the fuselage inverted set the main gear legs into their slots and hold them down with at least one saddle strap each. Wrap the junctions of the forward and rear struts with fine copper wire, then solder with acid-core solder. Add a small washer on each strut as inboard wheel retainers. Remove the struts, wash, sand and paint them, then add the wheels and outboard retaining washers.

Follow the package instructions for your

nose gear. Make sure the model sits either exactly horizontal or very slightly nose down. Don't let it sit nose up as that will make it

prone to ballooning and tempt it to pop off the ground before enough airspeed has been generated.



A fuselage jig is the best way to avoid building a banana

Final Assembly

Set the wing in place, level and with the tips equidistant from the tail. Drill through F3 for the wing dowel, remove the wing and glue in the dowel. Drill and tap for the wing bolts. Wrap sandwich wrap under the wing, put some masking tape on the top of the fuselage behind the wing and over F3, then glue on scrap blocks and sand the wing root fore and aft to match the fuselage contours. Let the masking tape protect the fuselage whilst you sand down the wing.

Add the horizontal, then the vertical stab. Install the fuselage servo tray and the rudder and elevator servos. Temporarily install the rudder and elevator, then fit the pushrods and their plastic tube guides. Sheet the boom bottom, add the ventral fin and round off the fuselage.

Temporarily fit the ailerons (masking tape works well). Install the aileron servos, aileron control horns and pushrods. When satisfied, remove until after covering.

Carve and sand the foam 'jet exhausts', then paint with foam safe paints. Keep the 'exhaust' holes open for cooling. After covering glue on the dummy exhaust. Carve the 'antenna' (hatch latch handle) from scrap hardwood. Drill for the hatch latch wire, rough the wire up with coarse sandpaper, paint it and CA the 'antenna' in place.

Reinstall servos and pushrods, epoxy in the battery tray and balance the model. When satisfied, epoxy bits of ply for the radio and ESC mounts (smear epoxy on the ply, let it cure and then apply hook & loop tape). Please use a hook & loop strap over the battery and don't just depend on hook & loop tape on the bottom of the battery to hold it in place.

Ready to roll out onto the runway with a full 'fuel load' (a 4S-2200 LiPo), the Shrike came out at an almost even 48 ounces. With 432 square inches of wing area (an even 3 square feet – I like to keep my maths simple!), that's a wing loading of 16 ounces per square foot.

Balance Point And Control Throws

The C of G is in my favourite spot, right under the main spar (about 3.25" aft of the LE at the fuselage side). For the initial flight, I set the controls as follows:

- Aileron: + 1/4"
- Elevator: + 7/16"
- Rudder: + 1/2"

After the third flight I increased the aileron throws to 3/8". I'm still tweaking the design so I'll probably be adding more.



To keep the horizontal tailplane in line while the glue dries both surfaces are levelled with bubble levels and braced as needed. Slow curing epoxy or aliphatic glue is best here. Once the tailplane joint is dry the vertical fin gets added



Protect the fuselage with strips of masking tape and pin or tack glue the balsa or foam exhaust blank in place. It's okay to rough shape the foam with a razor saw or very sharp knife but leave fine shaping and finishing to sandpaper. This is the original, stepped aft fuselage – see the next picture for the updated version with belly strake



Above left & right: Once the outer surfaces of the dummy exhausts are roughed out, hollow with a hand grinder and sanding bits. Don't use Warp 9 speed, lest the foam disappears! Fine sand the finished foam, then coat it with water based balsa filler and sand with very fine (400 or better) grit sandpaper or sanding sponges. Finish with foam safe paints



There's plenty of room inside Shrike's spacious fuselage. The green band (plus a large written 4) on the LiPo pack is how I tell 4S packs from my 3S (blue band) packs and 2S (red band) packs



I used the Easy Roundel kit from Traplet to make the wing roundels. All of the red, white, and blue markings were cut from Profilm/Ultracote using a Gyro-Cut, also from Traplet. The black object behind the top of the 'canopy' is the hatch-latch, masquerading as a periscope/antenna!



I did say I was comfy with the Shrike on her maiden, didn't I? Here she is at full throttle, making a low fly-by for Mick's camera



Red diamonds really show up well against the sky as the Shrike makes a pass for the camera. Shrike is very steady and stable, although she will snap and spin when those gyrations are desired



Shrike was so stable and comfortable that I was making low photo passes by the second flight

Maiden Flight

'Twas the day after Boxing Day. The winds were light and nearly down the runway. The sun was shining, the batteries (radio, motor and camera!) were charged and our fingers were getting itchy for some flying time! So, off to our club's flying site...

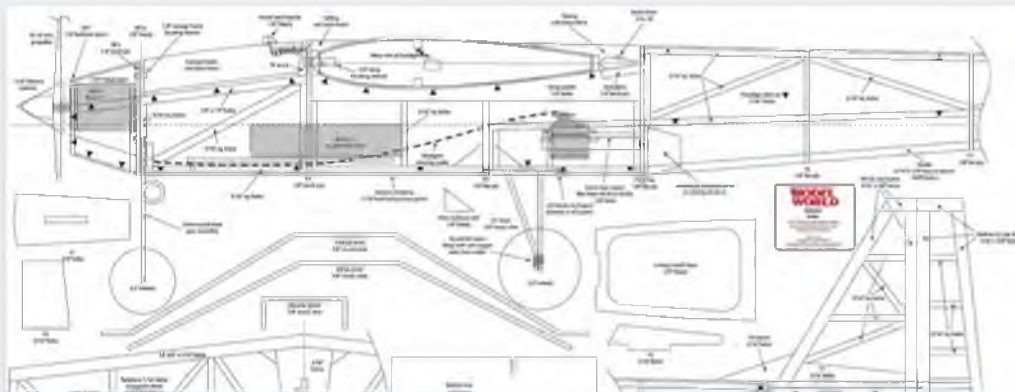
I'd like to say the first flight went right off the board but it wasn't so. The Shrike exhibited very nice ground handling and accelerated briskly but I found I had to hold in a lot of up and right aileron after getting off the ground. In fact, it wasn't until I cranked in all the up and left available on my DX9 transmitter that I was able to relax and fly the plane.

I did a quick stall check to see if the Shrike would bite when slowed down. The response was a non-event as her nose just dropped straight ahead. I did a few rolls to check the roll rate (a bit on the slow side, but nicely axial), then it was on to the photo shoot passes. The Shrike was rock steady on the landing approach, although I did find myself overshooting my target by a good fifty-ish feet.

It took a few months for the weather to break enough to get the Shrike back in the air but when I did, I pushed her and still found no bad habits. She will snap and spin if pressed, but she's so stable and comfortable I was making low (as in under 3 feet) photo passes by the second flight. No, they were NOT inverted passes – I'm not comfortable doing those with any model! **RCMW**

PLAN DETAILS

PLAN NAME:
Shrike
PLAN NUMBER:
MW3814
PLAN PRICE:
£11.99 (\$20.99)
LASER WOOD PACK:
WP3814
WOOD PACK PRICE:
£75.00 (\$97.50)



Plans and parts are subject to Postage & Packing charges at standard rates. Please note that our laser cut Wood Packs contain intricately shaped parts only, such as wing ribs and fuselage formers. No strip or sheet wood is included, although sheet wood can be ordered separately from www.trapletshop.com

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DH Chipmunk

The Galaxy Models range of traditional foam wing and built up balsa fuselage kits are now being sold by Traplet. We asked Peter Maw to write a 'no holds barred' review of a production kit

Quality of the foam and veneered components is excellent



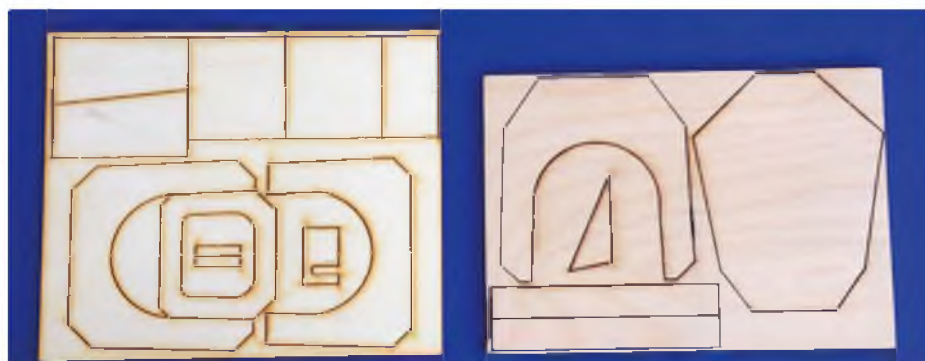
Although the build is not straightforward the resulting airframe is strong and it will make you look a good flyer in almost any flyable weather



Foam parts are nicely cut and beautifully covered in obeche veneer



Removing the core from the rear turtle decking saves weight, making it easier to achieve the correct balance point



Laser cutting is generally good. The 6 mm ply components needed to be eased out of their holders

The deHavilland Chipmunk is arguably one of the best low wing models with which to start your career in scale building and flying. Designed and built by deHavilland Canada, production of this trainer started in 1946 as a replacement for the venerable DH Tiger Moth. More than 1,000 Chipmunks were made in various formats and this sliding canopy version is probably the most iconic variation of the plane. Over 700 were built and many passed into civilian ownership.

It has a safe, semi-symmetrical, thick wing section, loads of dihedral, a lowish wing loading, big tail surfaces and acres of frontal area to keep it stable. Despite the safe design the aeroplane is fully aerobatic and it was the standard basic trainer for the RAF for 20 years. It also features a fixed undercarriage without wheel spats, which makes it ideal as a model for flying on rough fields or winter length grass.

Many of us more decrepit modellers will remember the Galaxy range of sport and semi-scale models, which were popular at flying fields around the country. Traplet have recently taken over developing and marketing the range to add to their impressive selection of woodpacks and plans. These traditional kits are designed to help take the hard work out of building your own model aeroplane and will add a new dimension to the hobby for many people who have never built their own plane. Like many kits designed before ARTFs it will last for a long time if properly cared for as Galaxy models are very strong and these days radio equipment is ultra reliable.

What's In The Box?

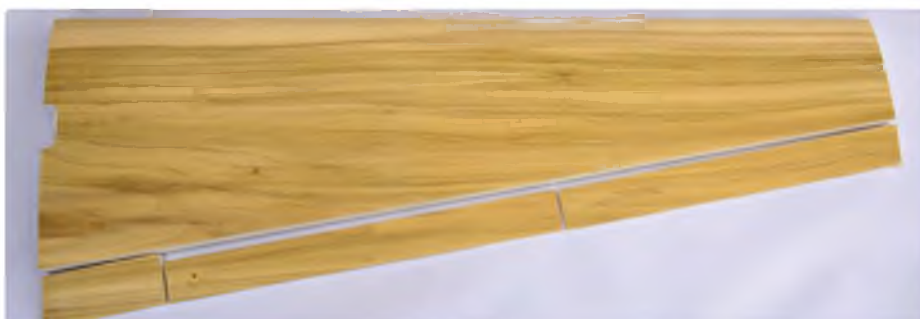
Despite the size of the box (huge) there is not much empty space. The quality of the components has improved over the years. They include very well cut foam parts, beautifully covered in obeche veneer, some ABS mouldings, a top class, huge clear canopy moulding, strip and sheet wood, a comprehensive accessory set and some pre-cut balsa and ply components. At around half



Cut outs in the foam wings ease the building process but be prepared to resize them to suit your servos or to add extra ones for flap servos



Having pre-cut routes for extension leads makes things really easy when installing the servos



Veneered foam wing parts



Plenty of accessories are supplied with the kit



Saw cut components are numbered to make identification easier

the price of an equivalent sized ARTF kit it is excellent value for money.

The extras you will need to buy are limited to a pair of 3-inch wheels, a tailwheel assembly, covering material and pushrods or snakes, depending on your preference.

The Best Of Kits, The Worst Of Kits

This kit really does suffer a split personality. It is immensely strong, slightly heavy because of that, and an excellent flyer in virtually any safe flying weather. It is rock steady, safe and predictable to fly. In fact it is the ideal low wing scale trainer.

Unfortunately, in some areas the plan and components only bear a passing resemblance to each other. There are components that are the wrong size or missing, but there is plenty of spare wood to fashion the missing bits from, so all is not lost. So if you fancy a trip down memory lane to the era of the Austin Allegro with a square steering wheel read on!

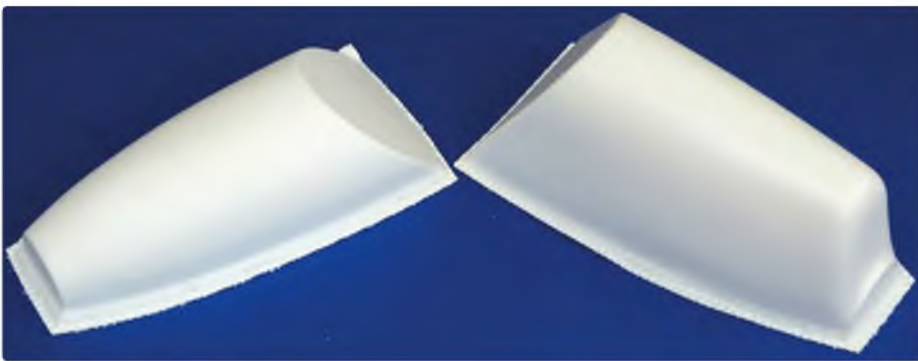
A fault with many kits and instructions from the late 20th century is that the instruction writers would either gloss over difficult bits or ignore design problems in the hope that they would go away. There are some of each of these problems in the Chipmunk kit and we will clarify how to sort them out.

Press Pause!

At this stage I think I should step in and make it clear to prospective Galaxy kit builders that Traplet are retaining the established kit manufacturer to produce the kits. Sample models have been distributed for review, but the builders have also been asked to report back with any faults so that they can be investigated and modifications made. It's early days but it is hoped that the kits will improve as time goes by. The range has been in steady production for many years now so the underlying products are well established and should result in a nice model, but you may need to do some old fashioned modelling and fettling to get there!
- KC

The difficult problem is trying to make the fuselage sides bend to the shape of the F1 former. Optimistically, the instructions say to pull the fuselage sides together with masking tape. The former is 25 mm narrower at the bottom than the top, as can be seen in the picture. Getting 6 mm balsa glued to 1.5 mm ply to bend this much will never be achieved with masking tape.

First of all epoxy the F1 former to the triangular fillets already glued to the fuselage doublers. Accuracy is essential here as any error will affect the thrust line and flying characteristics of the plane. It is really



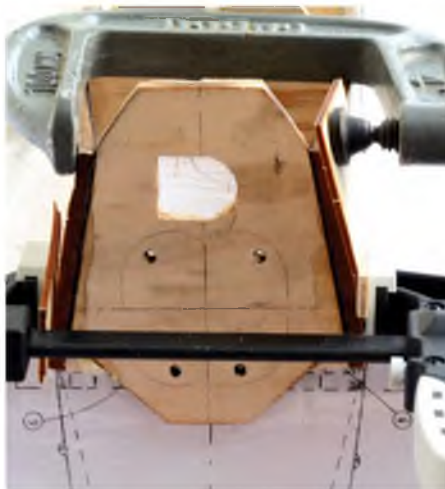
Some of the ABS vac-formed components



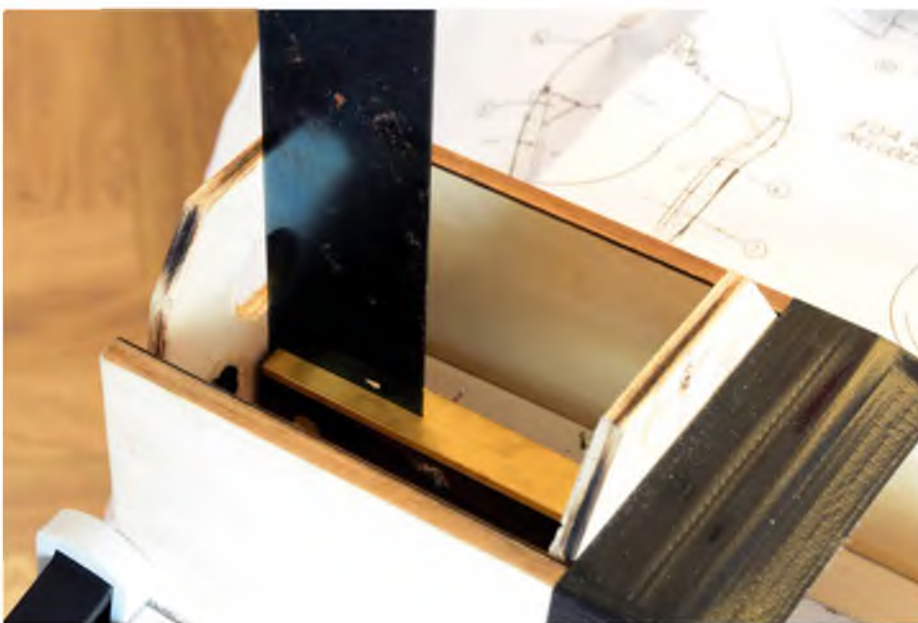
Never rely on a simple butt joint for fixing the servo rails. These cut-outs in the fuselage doublers mean that the rails have proper support



The massive amount of bend needed in the fuselage front is obvious in this picture. The F1 former should be glued to the triangular fillets before anything else is done



Heavy duty clamps are needed to bend the fuselage to shape



If the F1 former is not vertical then the thrust from the engine will be misaligned and this will badly affect the flying qualities of the plane

important to understand that although epoxy glues may be touch dry in five minutes, the glue does not fully bond and reach maximum strength for around 24 hours. So glue it, clamp it and leave it for a day otherwise you will have to re-glue the joint. Then dampen the fuselage sides and doublers, and as the wood becomes more pliable clamp it against the former – with no glue at this stage.

Leave this to dry out and you will have induced a bend into the wood, which will make it easier to glue everything together. When dry, epoxy the sides to the former and clamp to hold it all together for another 24 hours. If you were accurate with the first piece of gluing then this will be a simple operation. It will also help to make the plane last longer if glass cloth and resin is used to strengthen the whole area.

As a result of the force needed to hold the components together the fuselage sides will get pressure dents in them, even if you use spreaders on the clamp jaws. Don't worry about them; when all is dry just wet the balsa where it is dented and miraculously the wood will swell and the dents will disappear.

The One That Won't Go Away

The flap mechanism, as shown on the plan and described in the instructions, has always had impossible geometry if you try to operate it with one servo. As the flaps go down the actuating arms will spread apart. It is not possible to use just one flap actuating arm as the wing dihedral and trailing edge sweep will make the flaps want to move away from the wing. Finally, because we no longer use linear servos, when the servo output arm rotates more force will be applied to one flap than the other. This will result in asymmetric movements, which is never a desirable outcome for flaps. Optimistically the kit is supplied with a ball joiner type connector, but there are no joiners available that can cope with these problems.

There are two solutions: firstly, the flaps as designed are only one step up from ineffectual, which means the simplest solution is to build the wing without flaps. If this kit wasn't being built as a demonstrator for Traplet there is no way I would bother with making working flaps for the model. If you really want flaps then operate each of them with individual servos on a Y-lead. These can be fitted into the cut out for the central servo in the foam wings, with modification to the cut out, or alternatively servo boxes can be cut out in the underside of the wing and the flaps can rotate around a low hinge line to give more movement.

When making up your mind bear in mind that the narrow chord of the flaps (45 mm on the underside), along with the semi-symmetrical wing section, means that they add less than 5% frontal area to the plane when deployed, so they have minimal effect in slowing it down on approach and provide very little extra lift at low speed.

ABS Mouldings

The rest of the kit is relatively straightforward, although the ABS mouldings are mostly irrelevant; it is quicker to make the fuselage strake from a piece of 6 mm balsa than cut away 90% of the moulding. Half of the plastic used for moulding the cowl is thrown away, and the under fuselage moulding is also irrelevant as the instructions suggest it should be filled with balsa...

The money would be better spent on creating wing fillets and an accurate fibreglass cowl as ABS and IC engines never mix well.

As can be seen from the accompanying picture the ABS cowl needs to be substantially reinforced to make it durable if used with an IC engine and the weight added will probably be more than fitting a GRP cowl in the first place.

It was very interesting building the plane but then I enjoyed the problem solving aspects of the kit and it didn't overly worry me that it took far longer to build than I had



The ABS cowl will need strengthening if you use an IC engine

initially budgeted for. However, in this day and age the inaccuracies and the amount of correction work that is required needs to be well understood before attempting to build one of these kits. Traplet have a list of the modifications required and presumably will be making a Mark 2 version of the kit. *(It will be more of a continual, steady improvement, as per my earlier note – KC)*

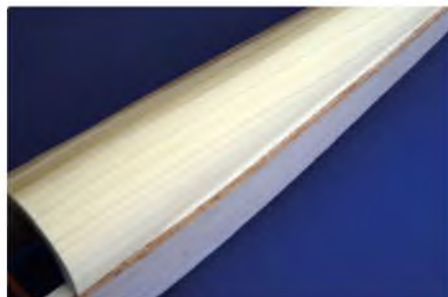
The aeroplane was covered in Profilm/ Oracover. The version shown here needs five metres of Profilm to finish (3 m white and 1 m each of red and blue).



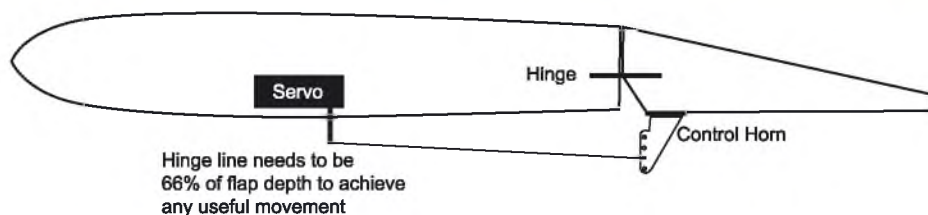
Part of the solution to making working flaps is to run each flap from a separate servo. You will need to make your own wing cut-outs



Hinge and pin all control surfaces before final covering



The top edge of the fuselage needs to be planed back to match the curve of the foam turtle deck



This arrangement allows the flaps to deploy to a more useful 45 degrees

The beautifully moulded cockpit has a complex frame. The easy way to colour the framework is to use Solartrim. To get accurate, sharp lines using paint you would have to create self-adhesive masks, which would take forever to make. It is much easier to cut the trim into 15 mm wide strips and apply it to the inside of the cockpit. That way you get guaranteed straight edges that are re-positionable if needed and it is not going to be damaged by fuel, so it will always look immaculate.

Let's Get Airborne

Fitted with an ancient ASP 80 four-stroke driving a 13" x 8" prop and weighing 7 lb 6 oz, the model balanced towards the rear of the Centre of Gravity range. To keep the cowl neat I used a 90 degree knuckle from Just Engines to attach the silencer to the engine. The silencer still doesn't quite fit the cowl but it doesn't flap about in the wind the way it would with a standard knuckle. Overall it created quite a stir at the field, looking really smart in its unusual British Airways livery.

The really good news about this plane is that it is a brilliant flyer. It tracks straight, the tail lifts quickly with no tendency to tip over and virtually no elevator is needed to get it airborne. As a result of the deep wing section it is not incredibly fast and it is rock steady.

I built an earlier version of this plane in 1991 as my first ever scale model and it quickly became my favourite model plane. It lasted for years, eventually falling to pieces because of oil seeping into the wood joints. This one looks like it will last just as long. As a low wing trainer for scale flying it is excellent. It is fully aerobatic; loops and rolls look scale, and it even does knife-edge flying – not for long and not very level, but it does it!

The rudder is effective and stall turns are neat and tidy. The spin is safe and stops as soon as control surfaces are neutralised. And the landings are a dream. There is no suggestion that it wants to drop a wing or fall out of the sky on approach. The approach can be steep or shallow, and it slows down quickly when the nose is lifted.

Even after changing the flap hinge line there is little effect on either the attitude or speed of the plane when they are deployed. So save yourself some time and don't bother with them.

Although the build of the kit is not straightforward, the resulting airframe is strong and solid and best of all it makes you look a good flyer in almost any flyable weather. And now that everyone knows it is not a simple build they will be impressed with your building skills as well! **RCMW**



Left: The fuselage opening is huge. Servos are lost in space! Doing away with the central flap servo has the advantage of allowing you to fit a sensible wing bolt holder

Right: Finish the fin and rudder before fitting them to the fuselage and tailplane



DH CHIPMUNK



The Chipmunk looks really smart in its unusual British Airways livery. One of the joys of 'building your own' is that your model will really stand out from all the ARTF clones



Taking-off for the maiden flight



As a low wing trainer for scale flying the Galaxy Chipmunk is an excellent choice



The really good news about this plane is that it is a brilliant flyer



Even without flaps the landings are a dream. Approaches can be steep or shallow, and it slows down quickly when the nose is lifted

THE MODEL WORLD

MODEL INFORMATION

NAME:	Galaxy Models Chipmunk
SUPPLIER:	Traplet Shop.com
PRICE UK:	£148.99
WEBSITE:	gb.trapletshop.com/complete-kits

MODEL SPECIFICATIONS

MODEL TYPE:	Low wing semi scale monoplane
WING SPAN:	72"
WING AREA:	774 sq in (0.48 sq m)
WING LOADING:	22 oz/sq ft (7.1 kg/sq m)
ENGINE:	ASP 80FS
PROP:	13 x 8
CONSTRUCTION:	Balsa, ply & veneered foam
WEIGHT:	7 lb 6 oz (3.28 kg) dry weight

R/C FUNCTIONS

1. Throttle
2. Rudder
3. Elevator
4. Aileron (2 servos)
5. Flaps (2 servos)

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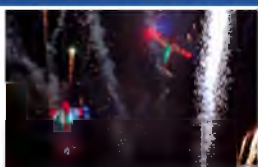
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Light Flight

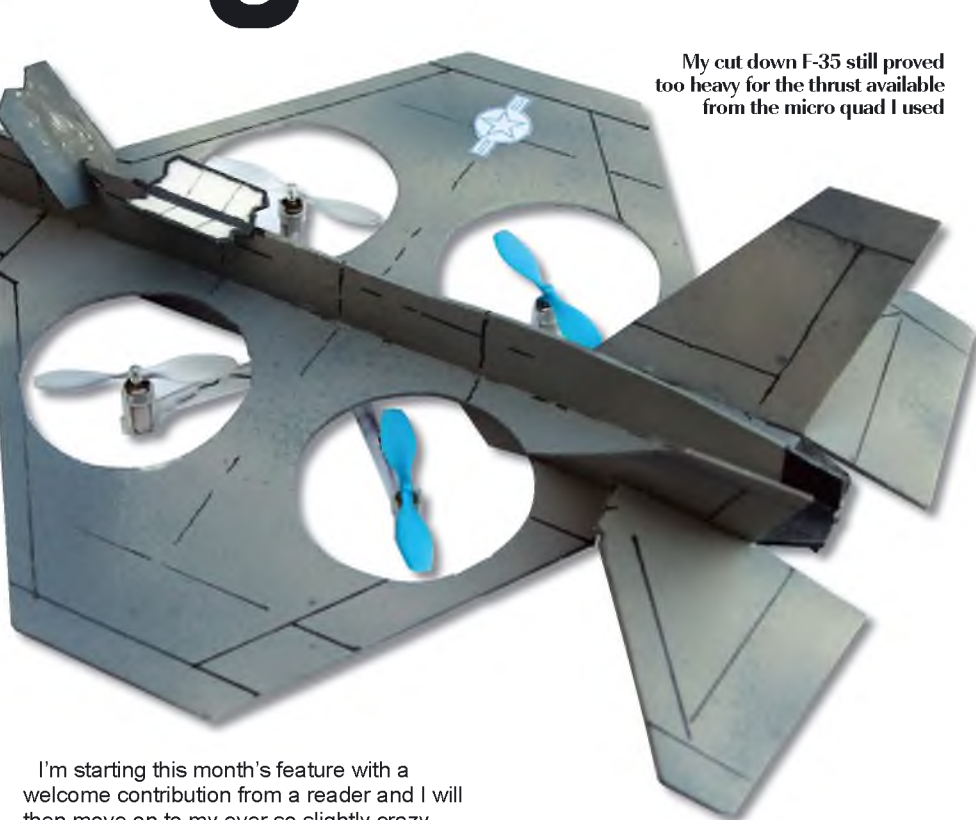
John Stennard introduces a Harrier quad-jet and builds a cargo carrying Nutball

My cut down F-35 still proved too heavy for the thrust available from the micro quad I used

Well there is a 'J' in the month and it's not January, although I did do a surprising amount of outdoor flying in January!

Since writing the last Light Flight our indoor sessions, 28 in all, concluded on a very high note. Almost too high in some ways as the number of regular flyers often reached 30. As you can imagine with these numbers the flying slots need quite tight control and we now have a megaphone for announcements. Top spots for 'models in the air' are the Vapor slot with around 15 flying together, including me with my FPV Vapor (surprisingly exciting!) and the Airbug hovercraft, where again 15 or more regularly battle to stay in one piece.

Indoor flying provides an excellent opportunity for flying skill improvements alongside great fun. However an element of fatalism is essential as skill levels do vary – enough said!



I'm starting this month's feature with a welcome contribution from a reader and I will then move on to my ever so slightly crazy Cargo Nutball model.

Build Yourself A Sea Harrier

John Armstrong had read about my different quad-jets and decided that he would try to produce a Harrier with a 3D fuselage to enhance the scale appearance. Over to John to describe his tiny Sea Harrier:

"The Harrier has a vertical take-off and landing performance using the rotor module of a Cheerson CX12 quadcopter. These units were available on the internet for about £13 at the time of writing. Designing a Harrier with enough scale features to conjure up the essence of the original aircraft was quite

a challenge. This led to printing on a home printer, which in turn implied fitting everything onto A4 sized sheets.

The fuselage is printed on standard 80 gsm paper, with small card reinforcement components on 120 gsm card. Templates for 1 mm Depron parts are also printed on the card sheet.

In order to fit the rotor unit into a scale Harrier the fuselage has to be much larger than the jet model provided with the Cheerson. Yet, since low weight is vital for good flying duration, the prototype Harrier

weighs 4.0 grams, compared with 2.1 g for the Cheerson fuselage. This adds only about 13% to the original flying weight of 14.7 g. Paper at 80 gsm, rather than 1 mm Depron (40 gsm) was chosen for the main parts for a number of reasons.

The paper components contribute just over 1 g to the weight, so Depron might be expected to save 0.5 g. However, paper can be formed into curved surfaces far more readily than Depron, with fewer formers and a more pleasing result. More formers would mean that not all the 0.5 g weight gain could



John gives scale to his Harrier quad-jet



Some of the cut and folded paper parts for the Harrier

be realised. Paper also has the advantage that it can be printed by the hobbyist on an ink jet printer, saving the weight of paint and stickers or transfers.

The choice of materials is critical as it affects the Centre of Gravity, which must be correct to about 1 mm otherwise the aircraft will be uncontrollable."

The prototype was developed using TurboCAD and printable files are available

in two liveries, silver from HMS Hermes and blue from HMS Ark Royal. Apart from a new scalpel blade you will need the following to build this little gem: a Cheerson CX12 quad, an A5 sheet of 1 mm Depron, an A4 sheet of white 120 gsm card and 80 gsm paper, plus the free printable files and instructions. For these contact John Armstrong and tell him about your interest at: GrandEscribe@gmail.com

This sounds an interesting project and it would be great to see some photos of your own Harriers. From my experiences the weight factor with micro quad conversions is extremely critical and even a gram or two overweight has made a huge difference to the performance.



The Depron central framework



John's Harrier certainly looks the part. The Harrier memories live on!



Left: Harrier body nestling around the quad core

Nutty Lifter

I've always has a certain fascination with dropping parachutes, etc. from model aircraft and over the years I have flown many conversions and RTF models that featured a cargo bay or bomb rack type release. The ARTF STOL 500 was my last model with an internal bay but I have also regularly used my profile Flash equipped with a 'Bombs Away' rack type release. This model is also used very successfully as a glider lifter.

However, I am always considering new ideas for models with a 'lift and drop' capability and my latest, and possibly the most unusual, model was reached via my indoor Super Nutball elevon equipped model. Seeing this fly outdoors on a calm day, Edgar, a foam designer and builder extraordinaire, built a larger version, also with elevons. Edgar's size was dictated to some degree by the fact he had just one sheet of 6 mm EPP available. This provided a circle of 600 mm (23.5 in) diameter; the original Nutball is 470 mm (18.5 in) in diameter.

Edgar's model performed extremely well and I had the opportunity to both watch it and pilot it. It was clear that this simple design would be capable of lifting quite a bit of additional weight and I began to formulate an

idea for a cargo lifter based on this circular design.

If you have easy access to 6 mm EPP then of course you could build an even bigger version as the wingtips could be cut from a separate sheet. However, like Edgar, I only

had one sheet and scraps available. I was sure that Edgar's version could somehow incorporate a cargo bay and with a suitable motor it would have enough power to do a good job in the role of a 'lifter'.



Nutty Lifter on its test flights

LIGHT FLIGHT

An early decision was to make my version a rudder/elevator model, as I would not need the aerobatic performance. After considering various designs I decided that the cargo bay could become part of the structure, so additional CF strengthening would not be required. With a sloping front the bay would be reasonably aerodynamic and there seemed little point in incorporating an undercarriage. Various options were considered for the cargo bay and I finally decided on a bay that would be split into two individual bays, each having its own servo operated door.

After considering the different types of loads that might be carried the total cargo bay volume turned out to be 210 mm long, 190 mm wide, with a depth of 50 mm, split into two separate bays. The doors were hinged with plastic control surface hinges. This was the easy part as quite a bit of time was then spent experimenting with servo opening operation.

Eventually, by using an extended servo output arm, a short control horn on the doors and ATV (adjustable travel volume), I persuaded the doors to open and shut reasonably well. The operating servos were positioned at the rear and I noticed that the front edge of the doors did not always seat particularly well and I will return to this later.

By using a six channel receiver I could operate one cargo bay door using the 'gear' switch and the other using 'Aux1'. I had wondered how effective the rudder would be with the 'drag creating' cargo bay bulge but was delighted to find that the Nutty Lifter was very easy to pilot and coped well in quite brisk winds. Both the rudder and elevator provide ample control and the model could be flown surprisingly slowly. The 'bay bulge' seemed to hardly affect the flight pattern at all.

Once the test flights were completed it was time to test the lift and drop system and this was initially only partially successful. If too heavy a load was put in the bay the doors would start to open due to the weight on the doors and the front edge not seating perfectly. It might have been better if the servos for the doors had been at the front rather than the rear. The way around this seemed to be to use another servo at the front of the bays to provide a door securing action?

This first attempt was not particularly successful; I used an enlarged rotating arm coupled to the only spare channel, which was rudder. When in the central position the arm held both doors shut, then using the rudder control either the left or right bay was 'unlocked'. This required a bit of tricky finger co-ordination, as while positioning the model one had to be triggering the lock release with the rudder and operating the door opening servo. In addition, when the doors closed – or rather almost closed – the locking servo arm could foul the front edge of the door.

A bit of redesigning saw the servo repositioned so that the arm pivoted down onto the doors rather than across them. Once accurately set up it proved to be the solution and changing to a seven channel Rx allowed me to operate the door lock using the Aux 2 switch.

After some fun test flights with suitable cargo loads the best results achieved were with the special parachutes that use a cone of netting rather than shrouds. These are



A pass with one door open. A 90° opening is not required



An underside view shows the cargo bay protrusion



Another pass with both doors open



Nutty Lifter fitted with the more powerful motor climbs away easily, even with a full load



The underside with some application of colour to brighten up the sky!



Right: Once the load has been dropped the performance is quite lively

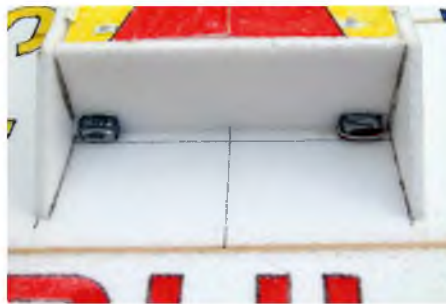
available from various sources and I bought six for £7 from Banggood. I reckon I could lift as many as ten of these, five in each bay, and maybe even more... Once you have used these you will never again have to curse twisted shroud lines and waste valuable flying time unravelling them, usually unsuccessfully!

One bit of drama was when one chute managed to catch itself around the door operating linkage and stream out behind the model. The braking effect on one side of the model was extreme and it is fortunate that EPP is so forgiving! Although the motor I had fitted was fine early in the tests, as the loads increased the climb performance decreased. So a slightly more powerful motor was fitted and the climb performance has been restored, with some spare power if required.

The weight of the final version of the Nutty Lifter is 240 g (8.5 oz), plus a 3S 850 mAh LiPo of 71 g (2.5 oz), giving a total weight of 311 g (11 oz). Each parachute weighs 19 g so a six 'chute lift adds 114 g (4 oz). As you can see, although individually light in weight a load of 10 parachutes would add 190 g (6.7 oz), increasing the model AUV by over 60%.

I have been pleased with the performance of this model and I am still somewhat amazed that it flies at all with its unorthodox design and un-aerodynamic shape. If you often fly on your own having an extra dimension to your model does make piloting more interesting.

A final reflection is that it was definitely worth the effort of the complexity of fitting the two cargo bays.



A view from the rear showing the two door servos



The more powerful motor still only needs a 3S 800 mAh LiPo pack for good performance



My first attempt at a door securing device was not successful



The second version works well, as long as you remember to activate it!



A load of bomb streamers dropping from one compartment



Nutty Lifter next to a Nutball for a size comparison



This type of non-tangle parachute is worth buying



Tail End

The Airbug hovercraft now has a rival in the form of the Chticat. This is a model widely used in France and YouTube has plenty of action videos. More info next time when mine has been fully tested. You could easily get one built in time for the next indoor season!

Information and photos are always welcome to: john@stennard.orangehome.co.uk

I am available for talk/demos on flight/ indoor R/C within my 50 mile range of Bristol and as the BMFA Western Area Education Co-ordinator, I am also happy to talk to school pupils and youth groups in the region.

RCMW

The Chticat meets the Airbugs. We are already up to six Chticats so we will be introducing a Chticat session



An Alternative Minicab

Are you interested in building a Gardan Minicab from our Feature Plan in the May issue? Phillip Kent passes on some pictures of a model in an alternative colour scheme, plus some pictures of the full size aircraft that it was based on

Maurice Thompson's Minicab, built from the RCMW plan, MW2001

The original Gardan Minicab article, written by Dave Womersley back in 1984 and reprinted last month, was mostly a black and white affair. We had no choice but to scan the original article for the few building shots that it contained, but we wanted to use colour static and flying pictures of Dave's two Minicab models where possible.

Regular contributors, Peter Maw and Phillip Kent both came up trumps when faced with this request, with Peter supplying digital pictures of the model that Dave has been flying in recent Traplet Scale competitions, while Phillip posted us several film negatives of the original model taken back in the 1980s.

Phillip's package also contained prints of a Minicab that Maurice Thompson built

using the RC Model World plan, plus some additional negatives of the full size Minicab that Maurice used as the basis for his model. This rich source of scale information was too good to pass over, so we are pleased to present Phillip's archive shots to you here in the hope that it will give you further encouragement to start building your own Minicab. **RCMW**



Full size 'Mike Romeo' seen at a PFA Rally. Those events were a goldmine for any modellers doing scale research – and they still are! Now called the Light Aircraft Association, this year's Rally will take place at Sywell over the 1-3 September



Left hand instrument panel detail



Main instrument cluster



Undercowling showing the neat twin exhausts



Starboard undercarriage leg and wheel spat, plus instrument venturi tubes



A closer look at the instrument venturi tubes



Leg fairings and spats, and pitot tube location



Rudder and tailwheel detail. Note how the elevator is locked fully up when parked



More fin and rudder details, including the tailplane to fin fairing



Wing walkway



Elevator trim tab



Aileron horn and cable, kept taut using a tumbuckle



Lower aileron detail



Upper aileron detail



Fuel filler cap and canopy hinges



The upper cowling is fixed in place using quick release Dzus fasteners



Another view of this pretty aeroplane



Let's finish with a final look at Maurice's beautiful beige Minicab. Is it still flying, we wonder?

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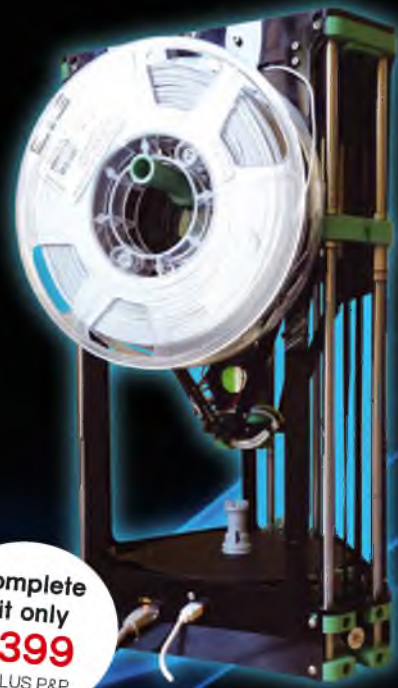
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The Strength Inside Your Model

Focussing on cyanoacrylates, in his final article John Bristow reveals what puts the Super in Glue!

Since its introduction into the modelling market, cyanoacrylate (referred to as CA or cyano) has become one of the most useful adhesives for the modeller because it sets so quickly and bonds many materials.

The History

The original cyanoacrylates (the chemical name for the glue) were discovered in 1942 in a search for materials to make clear plastic gun sights during World War II. A team of scientists stumbled upon a formulation of a product that stuck to everything with which it came into contact. This material was rejected for the application in question! Then, in 1951, Eastman Kodak researchers Harry Coover Jr. and Fred Joyner recognised the true commercial potential and rediscovered cyanoacrylates. 'Eastman 910' was born and the first cyanoacrylate adhesive was sold in 1958.

Today there are many big chemical manufacturers and marketing companies, both in the USA, Europe and the Far East.

Why Does Cyano Work So Well?

In this section I will attempt to explain how and why cyano is so good at bonding, and how it sets so quickly.

Cyanoacrylate glue cures by a catalytic process of rapid polymerisation caused by moisture (or, more specifically, -OH groups) found in surface contaminants on wood, glass, metal etc. The equation for the setting (polymerisation) of a methyl cyano is set out above in Fig. 1.

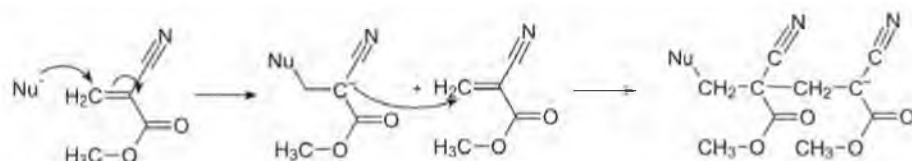


Fig. 1 - Polymerisation of a methyl cyano

In total only 5-6 cyanoacrylate monomers are commercially available and they are outlined in the structure above. The most common type of cyanoacrylate is the ethyl-2-cyanoacrylate type that is found in most products available in the market. However, for more specialist applications other cyanoacrylate monomers have been developed. The major difference between each type is in the ester group (e.g. methyl, ethyl), detailed 'R'.

The larger the size of the ester group 'R' the slower the cure speed and the lower the bond strength. The higher analogues have found special use in the medical industry as tissue adhesives.

Creating A Strong Bond

Mechanical 'hooking', described in a previous article, is one of the main ways in which these adhesives work and cyanoacrylates bond especially well because they have one of the lowest surface energies of any adhesive on the market, i.e. they 'wet' (attach to) most surfaces extremely well. Cyano bonds well to rubbers, metal, leather, balsa and hardwood, and some plastics. Trace amounts of water present at the surface of the material to be bonded trigger

the catalytic setting process.

Acidic surfaces, such as certain hardwoods or low surface energy plastics (Polypropylene) are more difficult to bond and require special grades or primers (Tricky Stick being one). The surface primers work by changing the cyano to improve wetting. Chemical treatments are also possible but are not really practical for modellers.

It is their unique chemical structure that allows them to bond in seconds and makes them excellent adhesives for modelling.

Limitations And Shelf Life

Cyanoacrylates are very brittle and are not advisable where impact resistance is required. Rubber toughened cyanoacrylates have been developed to improve this limitation. Similarly, you should not use them when bonding materials with significantly different thermal expansion coefficients, such as glass to metal. This is likely to cause catastrophic failure. An example of this would be the bonding of a metal rear view mirror to a windscreen. Applications where there is constant exposure to moisture should be avoided, as water will eventually break down the joint.

All cyanoacrylates have a shelf life and this is really dependant on the storage conditions. However, most companies provide a 12 month shelf life but this is dependent on the type and grade. To assist dealers to keep a fresh stock of a full range of types we have now made a mix box with the full range of Deluxe Material glues all in one box.

Cyanoacrylate monomers are all very low in viscosity so ranges have been developed which include inert fillers to increase the

viscosity to expand the scope of joints that can be bonded.

Bond Strength And Cure Speed

Cyanoacrylate glue should be allowed to polymerise slowly and the bond should be left to develop for at least 24 hours. Heating the bond will increase the final bond strength. This is contra to the understanding in the market – fast is not strong. The slower the cure speed, the higher the bond strength.

If the cyanoacrylate bonds too rapidly then it can trap uncured cyano material that will reduce the final bond strength.

It is very difficult to slow down the setting process of the cyanoacrylates so the best option is to obtain the most appropriate grade for your application.

Cyanoacrylate glue joints are slowly degraded at high temperatures. Typically, don't expect bonds to perform well above 180 degrees C.

Storing Cyano Glue

Cyano glue is best stored in an unopened bottle in a cool, dry room, at 5-10 degrees C and away from daylight. Every 10 degrees C increase in temperature doubles the deterioration speed, so storing unopened bottles in a refrigerator extends life. Unopened bottles can be stored in the fridge but should be allowed to return to room temperature before use.

Once opened keep cyano in a cool, dry place away from daylight. Keep the cap on the bottle or leave a purpose made micro tip on top. The glue will cure at the tip where it is in contact with moisture in the atmosphere and will thus seal the bottle ready for next time. Remember, that it is moisture, as well as heat, that shortens its life.

Finally, what not to do! Do not store your cyano bottle next to a bottle of activator. Fumes from the activator could cross contaminate and will shorten its life.



Micro tips are great for directing CA just where you want it. Leave it on when not in use and the glue will cure at the tip and will seal the bottle. Just snip off the end to use it the next time

Getting The Best From Cyano

To stop sneezing and eye irritation choose a non-fuming, low odour grade or try placing a saucer of water close to where you are working.

Here's how to apply adhesive whilst reducing tip clogging:

- Squeeze the bottle gently as you pick up the bottle
- While still holding the squeeze, apply the glue
- Return the bottle to upright and release the squeeze. This will draw air through the tip and clear it

Oval bottles are easier to squeeze and specially made micro tips help to dispense the glue where you want it. Using a metal pin to keep the tip clear may have a negative effect by curing the glue around it.

Cyano can cause blooming on clear plastics. Blooming is caused when the cyano does not fully set and the remaining glue vapourises. This vapour can then react with the moisture present on the clear plastic surface and may spoil it. You can reduce this effect in several ways:

- Warm clear plastic surfaces to 'drive off' moisture
- Use less cyano
- Use a non-blooming grade that will eliminate the problem
- Use an accelerator spray

To stop caps getting jammed use some Teflon tape round the thread on the neck. Kits of spare caps and plugs are available from some makers if you are unlucky enough to jam one.

When using cyano accelerators (kickers) use only when needed as they will tend to slightly reduce bond strength. Also, you should avoid breathing their vapour. You can remove the spray head and apply kicker with a brush.

By using cyano with white glue you can obtain the benefits of both types of glue. Use cyano to tack the parts in place and then reinforce the joint with the PVA glue. Some manufacturers make thin penetrating 'white' glue that is ideal for strengthening and toughening the joint.

For maximum bond strength don't leave glued joints open for too long and avoid repositioning as this may weaken the joint. When using thick grades apply glue to one surface and 'squash' the cyano glue into a thin layer. Add a fillet of thick grade and cure it with a quick spray of accelerator.

When opening the bottle for the first time, in case there is excess pressure inside, hold the bottle away from your face and hold the tip against a solid surface when you cut it.

Bonding foam? Due to its lightness foam often replaces balsa wood as an aeromodelling construction material. There are many types of foam on the market and they are not always easy to recognise. To be sure that foam will not melt in contact with cyano use an odourless grade on one surface of EPS, EPO or Depron foams. Bring the dry surfaces, previously treated with kicker, together for a fast bond. Normal cyano may bond other types of foam, e.g. EPP and EPO, but check on a scrap piece of the foam beforehand. See the table overleaf for guidance on one brand of glue.

Use kicker sparingly and avoid breathing in the fumes. It can also be applied more precisely using a brush



PROMOTIONAL FEATURE

Material	EPS Styrofoam	EPO Foam	EPP Foam	Carbon Fibre	Plastic Accessories
Roket Thin	No	ok	ok		
Roket Medium	No	ok	ok		
Roket Thick	No	ok	ok		
Roket Odourless					
Ca Kicker	Take care, test before, some are safe.	Take care, test before, some are safe.	Ok normally Increases bond strength.	Not required	Use surface primer
Ca Surface Primer	No	Improves surface bond	Improves surface bond	N/A	Will improve bond

Need to remove a surface mark? There are specially made CA de-bonders that will quickly dissolve away cured super-glue marks. Blooming marks can be polished away with fine plastic polish.

To fill gaps over 0.5 mm and to create strong fillets use a thick grade with a kicker to cure the glue. For larger gaps use a special filler powder and add thin CA. Cavities or lost material are easily replaced by this method.



Using kicker to fill gaps and make fillets



Gap filling using filler powder and a few drops of cyano

When bonding smooth plastics such as polycarbonate or acrylic, abrade the surfaces and use a kicker or primer to assist.

When bonding shiny or oily plastics and other tricky materials (e.g. EPP foam, polythene, silicone rubber, polypropylene, nylon) use a surface primer to coat the surfaces and allow to dry, then apply cyano. Press together and hold. You may need to clean surfaces with cigarette lighter fluid or paraffin to ensure that any mould release agent used during the manufacture of the plastic is removed before applying the primer.

When reinforcing joints try using a small piece of photographic film behind joints.

Treating Accidents

If you have glued your fingers together simply immerse the bonded area in warm water. Then, perhaps, and with the aid of a teaspoon, gently roll or peel the surfaces apart.

If necessary try a specialist CA debonder, working it into the skin, or try nail varnish remover. Afterwards, wash skin thoroughly. If accidents do occur and there is concern or doubt, please seek medical advice.

Ingested glue: It is almost impossible to swallow superglue as it solidifies instantly in the mouth and saliva will dissolve it in 24 hours. Although cyano glue is non-toxic, do not swallow the glue.

Eyelids: Consult your doctor. CA will dissolve in 1-4 days.

Burns: If a large amount of CA is spilled on skin it can burn. Wait for it to solidify, then release it and treat as for a normal burn.

Other Uses

Perhaps you didn't know, but superglue has had many interesting uses outside modelling. Medically, it was first used for heart transplants by Dr Barnard and also in the Vietnam War for sealing wounds. However, it was not approved for medical use until 1998 when a special 2 octyl grade was released.

- Other uses include:
- On ballerinas' shoes to harden points
- As a forensic tool to capture fingerprints on non-porous surfaces
- For sticking corals in aquaria
- Vets use it to stick horse skin onto damaged hooves so they can continue to race

Acknowledgements

Well, I hope you have enjoyed reading this series of articles and have found them useful. I would like to thank the Editor for asking me to write this series of articles. Do feel free to send me any great ideas or uses you have found for our products. Finally, our products are sold to dealers through our network of worldwide distributors including, specially, Ripmax Ltd who have been great and loyal customers for our brand for over 40 years. We hope that next time you are in your local model shop you will ask for Deluxe Materials products by name. If you are already using our products we say thank you for choosing us. **RCMW**

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NEAT 2016

Commonly called just NEAT, the Northeastern Electric Aircraft Technology Fair continues to bring together electric flyers from the eastern US and Canada. Bill and Micki Bowne report from the 16th consecutive event held in September last year



2016 NEAT FAIR

Adam, of the father and son team of Lee and Adam Woodworth, couldn't make NEAT 2016 due to his new job on the other side of the US. But Lee made sure to show the flag (well, banner) by towing it to open the demo shows

Originally held over two days (Friday afternoon through Sunday afternoon), NEAT now officially starts Thursday afternoon but many campers arrive at the beautiful Peaceful Valley Campground over a week earlier, flying as guests of the local Peaceful Valley R/C Fliers club, who are based on the campground.

NEAT's a great place to not only see some of the latest and most innovative electric model technology but it's also a great place to make and renew friendships, eat wonderful food (it's nicknamed 'The EAT Fair') and swap ideas.

The Silent Electric Fliers of Long Island (SEFLI) organise and run NEAT, which isn't an easy task. Electric flyers are notoriously independent but SEFLI and NEAT's prime spark plug, Tom Hunt, keeps things under control. One of the excellent ideas SEFLI uses is to invite volunteers from other clubs to help with the grunt work. A rule of thumb is that 10% of a club's members do 90% of the work, so enlisting 'outsiders' to help keeps that 10% from burning out, which keeps events like NEAT alive.

There were some glitches. Dave Baron, a well known US R/C pilot and regular noon-time demo flyer (plus a truly nice guy!) was hurt in a freak accident before the meet started. Happily, we understand that Dave is doing well and will be back to flying well before you read this report.

The weather was excellent for most of NEAT week but the announcement of incoming rain on Saturday afternoon led to a mass exodus that night. So many flyers left that the annual Night Combat/Slow Flyer event had to be cancelled due to a shortage of entrants!

As great as reading about new products can be, nothing beats being able to see and touch them, plus talk to their designers. For example, we were able to chat with Zeke of Zeke's Park Scale Models, a typical cottage model industry run by its young owner – well, he's a generation younger than I am! Zeke was unable to attend NEAT 2015 due to family health issues (now, happily over!) but he's now back at work, full bore. Despite the 'Park Scale' name, Zeke kits some larger models (all laser cut wood), including a Boeing 314 Clipper, a Hughes XF-11 and a Republic Rainbow. We've seen the latter two in flight and were very impressed! Zeke told us he has a 'secret project' underway, due to be airborne in early 2017 – a B-57 Canberra for 68 to 70 mm EDFs. Although it's the US licence built version of the English Electric Canberra, Zeke promises us it will be easily convertible to the original, EE version.

Another bit of good news came from Thayer Symes, who bought the remains of Flying Models magazine when its parent company folded. Thayer has brought FM's plans inventory back into print, donating some as NEAT prizes and hand delivering a stack of plans to folks who'd ordered them before NEAT, thus saving the purchasers' mailing charges. It's great to see that building from plans isn't dead!

The Jersey Coast Sport Fliers (JCSF) has come to be a major part of NEAT, both before and during the Fair. During the Fair they provide a large part of the volunteer manpower. Before the Fair's official start, though, their big top circus tent provides the centre ring for several fun events. Wednesday was the Radian races, where UMX Micro Radians (and their equivalents) raced around pylons and performed in a duration event – all in 10 to 20 mph winds! Several models got bent but all involved had a good time.

Thursday evening, 41 pilots competed in the 'Vapor Games', flying anything that could safely fly in the tent. The tasks included navigating through a series of hanging loops, landing on a simulated carrier deck and, for the fly-off between the winners of the first two events, scoring points by a form of Skee Ball, using Vapors as the 'balls'! Some of the obstacles (and the prizes) are decidedly influenced by Monty Python, such as the Holy Hand Grenade (a safe replica, of course), which was the first place prize. Check out the YouTube video that Micki and I shot of the Vapor Games for a glimpse of the fun.

Now, let's get to the models..! **RCMW**



Above & below: John McGrath scaled up Terry Dunn's Parallax (May, 2014 Model Aviation) and extended the tail for smoother flight. John's version, spanning 42.5" and weighing 33.5 oz, boasts a fuselage of pink insulation foam and a Depron wing with carbon fibre spars





Dan Landis flew Gerald Jarvis' 47 lb Decathlon in the Friday demo. Whilst Dan is theoretically a company pilot for Tower/Hobbico he is happy to fly any model. Just put a transmitter in his hands and it will be flown most excellently!



The plan was for Gerald's Hangar 9 Citabria Decathlon to be able to fly ten minutes of acros, three times, on a single charge. Hence it has a 12S-16000 (yes - 16,000!) LiPo powering its Easy Tiger 100 motor



Above: In 2015 the father and son team of Tom and Jason McQuistan launched a large, foam Space Shuttle from a large, foam Short Skyvan. This year they flew an even larger Shuttle and Skyvan combo



The McQuistans found that they needed to release the Shuttle going into wind otherwise the Shuttle would slide back into the Skyvan's tail! Despite learning that the hard way the original Shuttle and Skyvan survived



Right: We bet NASA wished their Shuttle landed as easily as this one! The new Shuttle/Skyvan combo handled the winds much better than last year's version



Jim Lloyd's near 20 lb Balsa USA SE5a was recently repainted to match the Shuttleworth Collection's aircraft. What really caught our attention was how the model sounded. The Model Sounds Inc. sound system provides the most realistic sound we've yet heard in a WW1 model



The Battle of Britain commemorative mass flight was held in two shifts due to the number of entrants. Restricted to aircraft on active service during the Battle, anachronistic variants (i.e. Me 109Gs and late model Spits) are allowed. Here, Robert Caso's immaculate Tiger Moth (winner of the Best Military Scale award) participates in the mass flight



No, this wasn't a casualty from the Battle of Britain flight! Just another bit of NEAT silliness



Your reporter got to fly his Waco (soon to be an RCMW plan) in the noontime demos on Friday and Saturday. I've been flying R/C for over 45 years but doing it in front of a large crowd made my knees start knocking!



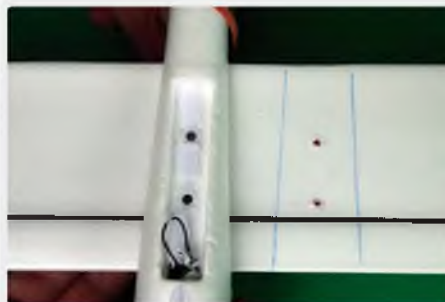
A small part of Zeke's Park Scale Models very tidy display. Park Scale produces laser cut kits for everything from quarter scale to models that use Vapor type R/C bricks. Every one we've seen flies great



The JCSF folks ran a fun event for UMX Micro Radians, which went well despite the wind. The tent in the background is where the Vapor Games were held



Another JCSF event was the Friday night mass Chinese Lantern Launch. The sight of several dozen balloons quietly climbing into the sky was very picturesque



When dedicated modellers get together, ideas get exchanged. I got this one for the UMX Micro Radian from Brian Douglas. Instead of letting the metal wing screws rip up the wing centre section in hard landings, Brian mounted the wings as per the instructions, marked the wing location with a permanent marker, then removed the wing and screws...



...Brian then wrapped a small elastic band around the aft fuselage, reinstalled the wing, and snapped the band around the forward fuselage (a heavier-than-needed elastic band is shown so it is visible in the photo - a thinner one will work). Increased model survivability during less than perfect arrivals is well worth the slight weight and drag gain



Left: For the first Vapor Games task pilots had to fly their models through hoops while avoiding the tent structure, hanging ribbons and spectator's heads

Right: Entering the Vapor Games is not easy, especially when you get ambushed with Silly String by your fellow flyers, as happened to Adam Lilley! One task in the Games is landing on a ping-pong table 'aircraft carrier', hence the Mae West. Missing the carrier and landing in the 'drink' gets your inflation toggles yanked!





Left: Devin McGrath and Alan Mostek put on spirited displays with their Legacy Aviation Turbo Bushmasters on Friday and Saturday. This is Devin's model, making a very slow show pass



Right: Alan Mostek's Turbo Bushmaster in the alternative colour scheme. Loosely based on the DHC Turbo Beaver, their lightweight structure, large control surfaces, aerodynamic tweaks, and gobs of power give them excellent 3D acrobatic performance



Above: Built from a Stevens Aero kit, Tom Carter says this Archaeopteryx flies slowly and requires a bit of caution in tight turns



This Brown B-2 (possibly an old Bridi kit) sat in Mark Senior's basement for 20 years. It now has an Astro Brushless 80 Geared, turning a 19 x 12 on a pair of 4S-5000 packs



Right: The Archaeopteryx has a 2.5 gram servo driving each wingtip evelon. The object seen a few inches below the servo is a cut out for installing the wingtip evelon pivot



Another McQuistan model. This DIY store pink foam, 4.5 lb Krier Great Lakes Special (with spruce spars) is painted with ordinary Glidden house paint. A Suppo 60 on 4S-2200 LiPos provides more than enough power for slow, scale flight – right side up or upside down!



Above: Canadian Jim Lloyd and his New Brunswick club mates stripped the covering off a Hangar 9 Spitfire, then bored holes everywhere they could. After that the 'Swiss Cheese Spit' got painted up as Doug Bader's personal craft, including a pipe for the pilot!



Sawn Craft's newest model is the 36" span Aura canard, designed for 200 watt brushless outrunners. Although the first production run was made with Depron the model is being adapted to use a suitable substitute



Left: A nifty trick Jim Lloyd put in the Spit is the NASA drooped aerofoils recessed into the tips. Although barely visible they reduce the model's tendency to tip stall

CONTACTS

JERSEY COAST SPORT FLIERS:

www.jcsporthliers.org

LEGACY AVIATION:

extremeflightrc.com/Legacy-Aviation

NEAT FAIR (SEFLI):

www.neatfair.org

PARK SCALE MODELS:

www.parkscalemodels.com

SAWN-CRAFT MODELS:

sawn-craft.com

JCSF BIG TOP VAPOR GAMES VIDEO:

youtu.be/xQPjlg1QStM

Diary Dates

A FREE service, advertise your club's event, show, fly-in, bring and fly, swapmeet, sale or whatever. Simply send in the details to: 'Diary Dates', RC Model World, Traplet Publications Ltd., Traplet House, Willow End Park, Blackmore Park Road, Malvern, WR13 6NN, UK. Or Email to RCMW@traplet.co.uk Traplet Publications Ltd. are unable to take responsibility for event cancellations. Check before you go.

INDOOR

30th May, 27th Jun '17

Waltham Chase Aeromodellers Indoor R/C Small Models Meeting at Wickham Community Centre, Mill Lane, Wickham, Hants PO17 5AL, from 7 pm to 9.30 pm. Admission: adult flyers £4, spectators and junior flyers £1. Proof of insurance required. Fixed wing models limited to 95 g (3.5 oz) including 2-cell (max) LiPo. Helicopters limited to 305 mm (12") rotor diameter. See www.wcaero.co.uk for more details. Contact: Alan Wallington, 'Wrenbeck', Bull Lane, Waltham Chase, Hants. 01489 895157

3rd Jun, 1st Jul, 7th Oct, 4th Nov, 2nd Dec '17

Indoor Flying at Furzeield, Furzeield Sports Centre, Mutton Lane, Potters Bar, Herts EN6 3BW. Times will be from 6 pm until 8 pm, flyers £9 and spectators £2. Rubber, free flight and small electric models only, wingspan will be limited to 20 inches. Enquiries to Mike Quille, 020 8500 3549, Email: mp.quille@live.co.uk

13th Jun, 12th Sep, 10th Oct, 14th Nov, 12th Dec '17

Waltham Chase Aeromodellers Indoor R/C FPV Meeting at Wickham Community Centre, Mill Lane, Wickham, Hants PO17 5AL, from 7 pm to 9.30 pm. Admission: adult flyers £4, spectators and junior flyers £1. Proof of insurance required. Model size/weight limitations apply. All models to be 25 mW 5.8 GHz or WiFi equipped. Video frequency control system will be employed. See www.wcaero.co.uk for more details. Contact: Alan Wallington, 'Wrenbeck', Bull Lane, Waltham Chase, Hants, tel. 01489 895157

14th Oct, 11th Nov, 9th Dec '17

North London MFC Indoor meeting, at Furzeield Sports Centre, Potters Bar, Hertfordshire EN6 3BW. From 6 pm until 9 pm. All up weight limited for fixed wing 225 g, 36 inch span, helicopter 400 g. BMFA insurance required. Contact Peter Elliott, Email: ianelliott56@btinternet.com

GENERAL

20th May '17

PANDAS 14th 'Free For All' Electric Fly-In, Pontefract Park, West Yorkshire. Access ONLY Junction 32, M62, Park Road turn right into WHITE GATES, and right again to site. 10 am to 4 pm. Proof of BMFA insurance essential, free flying of any electric R/C model, non 'A' certificate's can fly with supervision. Ample parking, spectators, model traders/car booters welcome. Toilet facilities. Sorry NO camping. A PANDAS member will be awarded the Eric Johnson Electric Trophy on the day. Details pandas.bmfa.org or John Thompson on 01924 515595

20th & 21st May '17

PSSA 'Fly for Fun' event, The Bwlch, Bridgend, South Wales. Meet at the 'Ice-Cream' car park for 10 am each day. Open to non-PSSA members. Proof of insurance required. For more information contact Steve Houghton on 07762 256126 or Email: Steve.houghton59@gmail.com Further information at a470soaring.blogspot.co.uk

21st May, 2nd Jul, 17th Sep '17

White Sheet Scale Fly-In's, to be held at the White Sheet Club slopes near Mere, Wiltshire. No competition, just a friendly fly-in. Further information, directions and backup dates for each date from the calendar page of the SSUK website: www.scalesoaring.co.uk or Email: c_williams30@sky.com

21st May '17

PANDAS Sixth Single Channel & Retro R/C Fly-In, at Pontefract Park, with hosts PANDAS, (Pontefract And District Aeromodellers Society), it is located in the south-west corner of junction 32 of the M62. Access is via a huge white gate 1/4 mile south towards Pontefract. Please refer to the map provided on www.pandas aero.co.uk and for sat nav the nearest postcode is WF8 4QD. Any appropriate models from the 50s, 60s and 70s are welcome. Further information on www.pandas aero.co.uk and www.singlechannel.co.uk. Any queries to Shaun AND Phil (please cc both). This will ensure you get a reply (or two!): museum@garritys.net or philg@talk21.com

27th & 28th May '17

F3A World Cup League Event. Criterium International du Hainaut Grandrieu, Belgium. Please contact Ashley Hoyland on 0114 2873432 for details

27th & 28th May '17

Vintage Fly-In at Shilton, Oxon. Camping available for limited number from Friday 26th after 2 pm. For more information on the event contact Nick Blackwell: nick@nickblackwell.co.uk

3rd June '17

Bretons MFC Swap 'n' Meet Social Evening, at the Bretons Community Hall, Rainham Road, Rainham, Essex RM13 7LP. From 7 pm till 10 pm. Emphasis is on the meet and socialising for this new event in the modellers calendar. Come along, relax and meet fellow model flyers from across the county. There will be no commission taken or booking fees. Light refreshments will be available. Tea/Coffee and BBQ (weather permitting). Entry £2. Table space for sellers is allocated on a first come basis. Contact: info@bretonsmfc.org.uk

10th & 11th Jun '17

Airborne@Summers Ponds Model Show 2017. This popular model show will be back for a 5th year at Summers Ponds Fishery and Campsite, Barns Green, near Horsham, West Sussex RH13 OPR. Airborne will once again cater for R/C helicopters and planes, as well as control line flying in the main flying area, with FPV racing in its own dedicated field. The main show will cater for model boats on the lakes, R/C cars, tanks, trains, kites with other model and hobby related stalls and kiddies rides. Show times, entry fees and further details can be found at: www.facebook.com/airborne.summersponds, www.summersponds.co.uk

10th & 11th Jun '17

Bwlchfest 2017 takes place at the Bwlch, which is situated about a 15 minute drive north of J36 Sarn Services of the M4 and between Nantymoel and Treorchy in S Wales. A casual, 'Fly for Fun', event for all types of slope glider, be they foamy, crunchie, mouldy, F3F, sport, scale, PSS etc. Each day's event will begin at 10 am with a welcome/safety chat and go on until there isn't enough light to fly by. Information on this event is available directly from myself, Email: steve.houghton59@gmail.com or, the Facebook Group page Slope Soaring in Wales, for

which an event has been set up, and also through my blog <http://a470soaring.blogspot.co.uk/>. Also see the YouTube link: <https://youtu.be/AcNMOS0i8GI>

11th Jun '17

F3A. 3rd BMFA GBR Team Selection Event. Ashbourne, Derbyshire. FAI 'P' and 'F' schedules. Also GBR/CAA League competition, all schedules. See gbrcaa.org then forum 'Competition News' for details and 'Competition Entry Form' for fees and payment. Team Selection competitors have priority entry if competition is over subscribed. Visitors welcome, please contact Contest Director, Brian Hoare 07962 358470 for details

11th Jun '17

SAM 35 Vintage R/C and Control Line Fly-In at Middle Wallop Army Airfield, Hampshire. All are welcome but please note that there will no free flight and that only 2.4 GHz is permitted. No BMFA Certs are needed, but current membership of the BMFA is mandatory, so please have your Membership Cards with you. There may be 'Tomboy' duration competitions, if there is enough support. Control-line activities will include the 'Bee Bug Bash' and other events, plus sport flying. The Gate opens at 9.30 am. Army Museum entry charge £6 per person, plus £5 per person for SAM 35 (excepting wives, partners and children). Enquiries to David Lovegrove, Tel. 01491 200558, Email: david.lovegrove11@btinternet.com or visit www.sam35.org/events for details

16th to 18th Jun '17

Weston Park International Model Air show, organised by Wrekin MFC, at Weston Park, Weston Under-lizard (M54 Junction 3 and 8 Miles off M6 Junction 12). Helifast RC helicopter flight line all weekend, with commentary by Dave Bishop (D.B. Sound) and Nik Johnson. A host of top pilots and fantastic trade support over with 100 traders. Full size display all 3 days inc. the Swift Display Team. Show also includes Quad Racing and Quad Fair, Off Road Buggy Racing, Model Boats and other family attractions. On site camping available, with Night Show spectacular Friday and Saturday night, with evening entertainment. For more information contact Steve Bishop 01952 587298, Mobile 07758 895068, Email: stevenbishop@blueyonder.co.uk. Trade Enquiries Peter Whitehead 01952 684169. Show website: www.westonparkmodelairshow.co.uk

23rd to 25th Jun '17

UK F3A World Cup League Event. Near Ashford, Kent. International entry. Visitors welcome. Food and essential facilities on site. See www.gbrcaa.org/ World Cup or contact Contest Director Matt Hoyland on 07739 840498 or Ashley Hoyland on 0114 2873432 for more details

24th & 25th Jun '17

Wings and Wheels Model Spectacular, North Weald Airfield, Essex CM16 6AR. Only 2 miles from Junction 7 M11 motorway. 9.30 am – 5.30 pm. Enormous R/C Model Show with model air displays all day with commentary from Nik Johnson, Bring and Buy for modellers, Boat Pool and indoor display, masses of traders, R/C tanks, trucks, hovercraft, Daleks and lots more! On site licensed bar and catering. Weekend camping available. All enquiries: www.wingsnwheels.net, Email: admin@wingsnwheels.net, Tel: 01242 604126

1st Jul '17

GBR/CAA F3A League competition. Skelbrooke. All schedules. See gbrcaa.org then forum 'Competition News' for details and 'Competition Entry Form' for fees and payment. Visitors welcome but please contact Contest Director, Ashley Hoyland on 0114 2873432 for details

1st & 2nd Jul '17

PSSA 'Fly for Fun' event with the Lley MAC, Nr Abersoch, North Wales. Meet at the Londis car park in Llanbedrog for 10 am each day. Open to non-PSSA members. Proof of insurance required. For more information contact Phil Cooke on 07772 224719 or Email: webmaster@pssaonline.co.uk

1st & 2nd Jul '17

Woodspring 2017, at Woodspring Wings model airfield Claverham Drove Yatton, North Somerset. Signposted from the M5 J20 and BS216TZ will get you close. 10 am to 5 pm both days. Our 25th Anniversary show and we are working on some very special attractions this year in addition to our normal full flying programme from top teams and pilots. More traders than ever and a chance to eat and drink in the wonderful Somerset countryside. Camping available for the weekend. Watch Facebook and our website, www.woodspringshow.co.uk for updates

7th to 9th Jul '17

F3A World Cup League Event. Bordeaux, France. Please contact Ashley Hoyland on 0114 2873432 for details

9th Jul '17

Triplet War of the Roses flying scale competition, Round 2, hosted by the Wirral Radio Control Flying Society, at Arrove Country Park, Woodchurch CH49 5LW. Flying only scale competition for fixed wing aircraft sponsored by RC Model World. Pilots of models weighing over 7 kg need a 'B' certificate to fly. For more information contact Peter Maw: petermaw@outlook.com

9th Jul '17

North Somerset Modellers Society Model Show, at the Helicopter Museum, Weston Heliport, Locking Moor Road, Weston-Super-Mare, North Somerset BS24 8PP. From 10 am to 5.30 pm. See Museum website for admission charges. Free parking, restaurant. Raffle for a Helicopter Flight (not on the day). For more information please contact: John Annegarn on 01934 417742 or john.annegarn@sky.com

16th Jul '17

GBR/CAA F3A League competition. Grimsby. All schedules. See gbrcaa.org then forum 'Competition News' for details and 'Competition Entry Form' for fees and payment. Visitors welcome but please contact Contest Director, Dave Tofton on 07809 490847 for details

23rd Jul '17

F3A 4th BMFA GBR Team Selection Event. Mansfield. FAI 'P' and 'F' schedules. Also GBR/CAA League competition, all schedules. See gbrcaa.org then forum 'Competition News' for details and 'Competition Entry Form' for fees and payment. Team Selection competitors have priority entry if competition is over subscribed. Visitors welcome but please contact Contest Director, Brian Hoare on 07962 358470 for details

30th Jul '17

GBR/CAA F3A League competition. Warboys. All schedules. See gbrcaa.org then forum 'Competition News' for details and 'Competition Entry Form' for fees and payment. Visitors welcome but please contact Contest Director, Clive Whitwood on 01487 832195 for details

5th & 6th Aug '17

GBR/CAA Championships. BMFA National Flying Centre. All schedules. See gbrcaa.org then forum 'Competition News' for details and 'Competition Entry Form' for fees and payment. Visitors welcome but please contact GBR/CAA Competition Secretary Adrian Harrison on 07976 244004 for details

6th Aug '17

Skelmersdale MAC Annual Fly-In. Low key Scale event and all are welcome. Proof of insurance required. Location is just off J4 of M58, South Exit (WN8 9TH). For more details contact: Andrew Bowman on 01942 716522, or Email: Andrew.bowman23@gmail.com

18th to 20th Aug '17

Festival of Flight at Ragley Hall, run by the Wrekin MFC. New dates confirmed, the show will include many famous international flyers from the UK and Europe, as well as Richard Goodwin with his full size Pitts Special, plus the Glider FX team. There will be the Helifest model helicopter competition and display, Quad First Person View Racing, a large Boating Regatta on the eight acre lake and Model Car Racing. Saturday evening will feature a laser, fireworks and light show! A large trade participation is anticipated, as well as a swap meet. Admission prices: Adults £14.00, children £7.00, family £30.00, camping £65.00 pre paid, £70.00 on gate. For more details contact: Steve Bishop, tel: 01952 587298, mobile 07758 895068. Trade enquiries call Peter on 01952 684169. www.festivalofflight.uk/

19th & 20th Aug '17

PSSA 'Fly for Fun' event, The Great Orme, Llandudno, North Wales. Meet at the 'Tank Track' car park for 10 am each day. Open to non-PSSA members. Proof of insurance required. For more information contact Phil Cooke on 07772 224719 or Email: webmaster@pssaonline.co.uk

26th to 28th Aug '17

F3A at the BMFA British National Championships. RAF Barkston Heath. Entries through BMFA.

2nd & 3rd Sep '17

F3A Triple Crown. Invitational team competition: England, Ireland, Scotland. Venue: Heswall, Deeside. Visitors welcome but please contact Competition Director Brian Hoare on 07962 358470 for details

9th Sep '17

GBR/CAA F3A League competition. Beaulieu. All schedules. See gbrcaa.org then forum 'Competition News' for details and 'Competition Entry Form' for fees and payment. Visitors welcome but please contact Contest Director Ian Mould on 07774 473745 for details

16th Sep '17

GBR/CAA F3A League competition. Skelbrooke. All schedules. See gbrcaa.org then forum 'Competition News' for details and 'Competition Entry Form' for fees and payment. Visitors welcome but please contact Contest Director Ashley Hoyland on 0114 2873432 for details

22nd to 24th Sep '17

Lley Model Aero Club Bring and Fly, at Penyberrth, Pwllheli LL53 7HG. Come and join us at our annual event, this year being our 30th anniversary flying on the beautiful Lley Peninsula, North West Wales. We have on-site refreshments, camping and caravanning, including static caravan hire at site adjacent to us. There is also a cafe and bar on-site serving food and drink day and night. For more info contact, Email: secretary@lleynmac.org.uk or Frank Pilling on 07867 361905

1st Oct '17

GBR/CAA F3A League competition. Sculthorpe. All schedules. See gbrcaa.org then forum 'Competition News' for details and 'Competition Entry Form' for fees and payment. Visitors welcome but please contact Contest Director Peter Jenkins on 07725 314950 before travelling

7th Oct '17

GBR/CAA F3A League competition. Baldock. All schedules. See gbrcaa.org then forum 'Competition News' for details and 'Competition Entry Form' for fees and payment. Visitors welcome but please contact Contest Director Steve Edwards on 07920 006217 for details

7th & 8th Oct '17

PSSA 'Fly for Fun' event, The Great Orme, Llandudno, North Wales. Meet at the 'Tank Track' car park for 10 am each day. Open to non-PSSA members. Proof of insurance required. For more information contact Phil Cooke on 07772 224719 or Email: webmaster@pssaonline.co.uk

8th Oct '17

SAM 35 Vintage R/C and Control Line Fly-In at Middle Wallop Army Airfield, Hampshire. All are welcome but please note that there will no free flight and that only 2.4 GHz is permitted. No BMFA Certs are needed, but current membership of the BMFA is mandatory, so please have your Membership Cards with you. There may be 'Tomboy' duration competitions, if there is enough support. Control-line activities will include the 'Bee Bug Bash' and other events, plus sport flying. The Gate will open at 9.30 am. Army Museum entry charge £6 per person, plus £5 per person for SAM 35 (excepting wives, partners and children). Enquiries to David Lovegrove, Tel. 01491 200558, Email: david.lovegrove11@btinternet.com or visit www.sam35.org/events for details

14th Oct '17

Tone Valley Autumn Model & Hobbies Show, at West Monkton Village Hall, Monkton Heathfield, Nr Taunton TA2 8NE. 10 am to 4 pm. Refreshments available. All types of models and hobbies displayed, trade stands and a table top sale. £2 entrance fee, under 14's free with a paying adult. Enquires and entry forms please contact (club sec) on Eddy Grant 01823 283077

5th Nov '17

Retford Model Flying Club Winter Swapmeet, at Babworth Road Sports & Social Club, Babworth Road, Retford, Notts DN22 7NJ. Table set up from 9.30 am (Small table £4, booked in advance. £5 on the day. Large table £6, booked in advance. £7 on the day), doors open 10 am – 12 pm, Admission £3. Hot sandwiches, tea, coffee, available from 10 am. For further information and bookings contact, Chris on 07966 764803, Gerald on 07941 867130, or Email: secretary.rmfc@sky.com Website: www.rmfc.org.uk

14th Nov '17

Southend Radio Flying Club Table Top Sale. The Ecko Club, Thornford Gardens, Southend on Sea SS2 6PU. Start time 8 pm to 10 pm. Tables set up from 7.30 pm, Entry £2, Tables £4 (includes entry), please book tables in advance. Refreshments available from the bar. Further information from, Les Baynham, Events Organiser, Southend Radio Flying Club, Email: flyles@hotmail.co.uk or contact Les or Den on 07729 421939 or 01702 295988

18th to 28th Nov '17

F3A World Championship. Argentina. See www.f3argentina.com.ar/. If you need more details please contact Ashley Hoyland on 0114 2873432

The Sport Channel

Sad news this month as Gray reports on two model shop closures, but brightens things up with a Keil Kraft restoration project

“They’re closing up the shop, the one that’s down the street...” (Joelle, poet)



The first of two sad disappearances from the UK modelling landscape. Bryan Atkinson's 'Oxford Model Centre' has closed for the last time. A true 'old school' model shop and the setting for many priceless tales



Also closing due to retirement is Jan and Rose Korda's 'Swindon Model Centre', which has served the hobby for over forty years

This Month's Wise Words

One consequence of writing a feature about our hobby like this over so many years is inevitably marking the passing of its characters and institutions. No one can deny that the model trade has changed almost beyond recognition during the past couple of decades.

With the hobby evolving rapidly and the consumer habits of aeromodellers and model flyers irreversibly transformed by choice of online shopping outlets, the traditional local model shop is now playing a less prominent role for a majority of hobbyists and, in particular, newcomers.

Many of us have such places to thank for our entire modelling careers and, in some cases, have grown up with them. Perhaps it could be just a couple of generations now that regard 'old school' model shops as rare, precious outposts of a time when the approach to the hobby inextricably linked the act of flying model aeroplanes to the acquisition of an expanding body of knowledge and skills, something we seemed to take for granted at the time.

In the UK we've just heard of two iconic and much loved shops that have just closed for the last time following the retirement of their owners.

Bryan Atkinson's 'Oxford Model Centre' gave long service down in St Clement's, just outside the city centre in Oxford. The shop's small size, its vast amount of stock and Bryan's spirited and enthusiastic service gave the place a cramped cosiness, something like a corner shop.

Bryan's all-rounder modelling heritage came from his parents, Mick and Doreen, who in their time ran the Wallingford branch of the family business, another magical place of fond memory.

Bryan's shop adapted through the decades to encompass every development in the hobby and his customer base would make pilgrimages from literally all over the country. Although back in the day, I worked at 'the competition' in the centre of Oxford, all of us at our shop had a lot of respect for Bryan's business, as we all realised what it represented.

Soon after this news came through, we heard that one of the great British modelling couples, Jan and Rose Korda, have closed their famous 'Swindon Model Centre' for the last time.

Jan and Rose opened the business in the centre of Swindon in 1973 to cater for model clubs in Wiltshire, but such was their reputation that their clientele came from much further afield.

The Swindon Model Centre was another relatively small shop, packed with every kind of model kit and accessory, with many unique and hard to get items that 'traditional' modellers just loved. But the stock always included what was new and included RTFs, drones and the like.

Jan and Rose always looked after new starters in modelling, giving them a sound and practical grounding in learning to fly and directing them to suitable clubs for tuition. I managed to visit Jan and Rose just the once,

little realising that the shop would only be around for a short while longer.

When we first featured the Swindon Model Centre here we received mails from a succession of modellers declaring that they owed their involvement with the hobby to the start they got from Jan and Rose. I've no doubt that regular and newer customers of the shop will be genuinely sad to see it go, and myself and my club mates would add our voices to that.

I would like to pass on my very best wishes to Bryan and to Jan and Rose for their retirements and to thank them sincerely for everything that they've contributed to our hobby during their careers.

As these two national treasures leave the scene the question for many of us is, 'Where now?' We'd love to hear from any SC readers who are lucky enough to enjoy local model shops that still cultivate a traditional approach and customer service, and which are your favourite model shops now.

Restoration Drama

As this edition was being assembled, I managed to meet up with Simon Rogers, from Warwickshire, who's given the column some fine material recently.

Simon was relishing the prospect of not having to build and prepare any more competition models for a while, having had an intensive spell leading up to the BMFA Indoor Free Flight Nationals, held in Walsall in April.

He told me that he was looking forward to resuming several sidelined projects, all for single channel R/C, his current area of interest. He explained:

"I'm rebuilding a Keil Kraft 'Gyron'. The model was built and flown successfully in the late sixties, then the model was totally dismantled to fit it back in to its original box and stored until I got it last year.

It's all back together now and just needs a really good sanding, which is the hard part because it was never covered with tissue - just painted with enamel directly onto the bare wood. Yuck!"

Dave Platt's little all-sheet .049 powered sport/aerobatic design for KK was another kit I longed for as a beginner, but never acquired. Apparently, no full size plans exist for the Gyron, due to its construction and extensive prefabbing. If anyone's interested though, I can supply dimensioned drawings and reference material. Send me an email.

I do sympathise with Simon for the task ahead of him. Many are the times I've had to strip back a paint finish on a model that was not first covered in tissue. I still wonder how such a basic stage got skipped!

I can honestly say that about 95% of all the restorations I've undertaken, both for fun and profit, have been enjoyable and rewarding to do. Renovating a model that was already nicely built in the first place and extending its flying career affords a special level of satisfaction to my way of thinking.

Having said that, some 'resto' jobs can rapidly descend into misery and drudgery when a model's dark secrets are initially revealed. A typical case from my model shop days would be the immaculately finished, second hand 100" thermal glider with the glass fuselage that for some reason weighed nearly 3½ pounds! When we delved inside we discovered that the fuselage had previously sustained some major damage from the nose to wing trailing edge. The previous owner had jiggled everything back into place, lined the whole compartment with chopped glass fibre mat, poured in what looked like a pint of resin and sloshed it around - instant wing loading in a can!

I inherited a few such rebuilds myself over the years. On one occasion I liked the model so much that I tried, over many hours, to



Simon Rogers' unusual and ambitious restoration project – a de-constructed Keil Kraft 'Gyron' stored stripped down into component form since the 1960s! The paint job was applied to bare wood without tissue covering. Good luck, Simon!



Simon Rogers with his rubber Kit Scale entry at the Indoor Scale Nats; a 48" span Comet Curtiss Robin. Big and light is increasingly the way to go. From the same range as your author's Taylorcraft and Aeronca. We have downloadable plans for all three, so drop us a line

actually grind away a similar concrete like layer of resin to lighten the airframe - and burned out my Dremel in the process! To paraphrase a current advertising slogan: 'When the fun stops - STOP!'

One restoration that still gives me nightmares dates back to my bespoke building days. A customer asked me to finish off a half built vintage model he'd had for a long time.

Of course, I agreed. But I wasn't prepared for what he brought. Whether or not it was his own construction or an acquisition, I never discovered, but it was loosely based on an APS 'Goliath', a well respected post war, giant cabin design for R/C experiments.

The resemblance ended there though. The built up wings had been replaced by foam, fitted with ailerons and veneered with mahogany (once a trendy material) and joined as a one piece unit. Whatever original

fuselage structure existed was completely sheeted in 1/16" ply. Only the tail surfaces had any built up structure.

My troubles began when I saw that the wing and fuselage had been primed with pale pink emulsion paint on its bare wood. It was grotesquely heavy. But, I was given the task of covering/finishing the airframe, plus making up a huge wire undercarriage, as well as scratch building a pair of spats (non-original, but a whim of the client) and making a fancy, polished aluminium cowling.

I should have turned it down there and then but that wouldn't have paid my bills. It took two weeks with an orbital sander to deal with the encrusted pink emulsion, creating clouds of ominous dust. The wire work for the U/C was akin to blacksmithing and making the moulds for the unnecessary GF spats, and then the actual mouldings, was just horrible. Likewise, the metalwork for the cowling.

Finally, I wrapped the airframe in film, the lightest covering I had to give it fighting chance, and added a convincing civil registration.

The engine supplied was a brand new .91 glow, which when installed looked pathetically small. But I'd had enough and was relieved when he came to collect his pride and joy.

When he saw it, he exclaimed, "Well, isn't that the best model you've ever worked on?" I politely took his cheque and waved him goodbye. I was comforted in a small way that this monstrosity would at least never get off the ground with so little power.

Bizarrely, I heard subsequently that this model actually made it into the air and flew quite sedately for some years. I still shudder to think of it though, even now. If you have restoration horror stories, we'd love to hear them.



Latest from Mike White is his 'Adrenalina' flying wing, 70" span, great aerobatic potential. See the plans in print here at RCMW soon



Mike's Adrenalina makes its test flight in primer coat (we've all done it!)

EF from the IOM

From a story of a modeller who got so much wrong, to someone who consistently gets it so right.

It's always a pleasure to hear from Mike White in the Isle of Man. His output of innovative electric models has given the Traplet plans range some outstanding subjects.

Mike wrote recently:

"My latest design is the 'Adrenalina'. It is 70 inch span, with a foam core/obechi slightly swept forward wing with a CF rod wing joiner. The fuselage is built up from 2 mm lite ply, which Mal at Traplet produced as a prototype laser cut set, which clicked together extremely well.

Weight RTF is 3.25 lbs. Controls are A/E/R/M. The motor is an Aerostar 3542 turning a 13 x 8 folder from a 4S, 60C, 2200 mAh LiPo. Power loading is 140 watts/lb and it produces a very lively performance indeed. Nicely aerobatic too.

Another motor that I am considering is an E-Max BL2820/07, which will give a power loading in excess of 150watts/lb. Plans are almost ready to send to the magazine.

I am also waiting to fly another similar model but this one is for the slope and is 110 inch span."

Thanks for the details Mike. Another class job, we look forward to seeing the Adrenalina in print.

Contributions, please to The Sport Channel, c/o the Traplet Publications address. All email correspondence to:

gray_rcmag@hotmail.com **RCMW**

THIS MONTH WE FEATURE WORLD CLASS DESIGNER BRIAN TAYLOR



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Scale: 1:6.4
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Scale: 1:9
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Scale: 1:7.35
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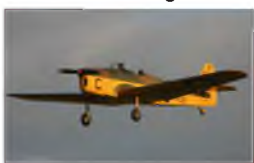
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Next Issue

**DON'T MISS
OUR JULY
2017 ISSUE!**

Opterra 2M



With nose and belly mounts for an FPV or GoPro style action camera the E-flite Opterra 2M flying wing gives plenty of options for viewing the area around your favourite flying sites. A belly view from an early test flight with our review model is shown here. The Bind-N-Fly version we have tested comes with a Spektrum AS3X flight stabilisation receiver that irons out the worse effects of wind and turbulence, and which helps smooth out your video footage.

Barry Vaught reports from the annual jet-together in Lakeland, Florida, USA, which signals the start of the US R/C airshow season. This annual event is always full of new surprises, while generating camaraderie amongst some of the happiest group of international jet aeroplane enthusiasts in the universe – at least that's what Barry says! The excitement kept building for months beforehand as pilots posted photographs on social media of some of the jets they were preparing for Florida Jets 2017.

Florida Jets



JULY 2017 ISSUE ON SALE THURSDAY 15TH JUNE

Roban Bell 212



Apologies to everyone who was eagerly awaiting the first part of Martin Briggs' review of Roban's highly detailed Bell 212 based on a set of 800-size helicopter mechanics. This feature has reluctantly been put on hold but will now start in the July issue of RC Model World.

PLUS...

More features, columns and reviews from across the complete spectrum of the R/C model-flying hobby

*All contents are subject to change without notice

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TANK BUSTER!

FMS 1500MM A-10 Thunderbolt II WARTHOG

The Fairchild Republic A-10 Thunderbolt II is a single-seat, twin turbofan engine, straight wing jet aircraft developed by Fairchild-Republic for the United States Air Force (USAF). Commonly referred to by its nicknames Warthog or Hog, its official name comes from the Republic P-47 Thunderbolt, a World War II fighter that was effective at attacking ground targets.



FMS is proud to bring to you this new and highly detailed Twin ducted fan version of the A-10. Incorporating many of the new and advanced construction and assembly features such as the optimized screw based assembly, ball links and a heavy duty wing spar and latest multi-connect technology. The "Hog" will assembly quickly. In addition the A-10 uses our newest locked-rotor mode E-retract system coupled with our refined and oriented CNC-processed metal landing gear set for resisting those not-too-perfect landings. The power system utilizes our new and improved twin 70mm 12-blade EDF V2, KV1850 inner-running motor system provides tremendous power and speed when coupled with a 6S battery.

This highly detailed A-10 has to be seen to fully appreciate the detail FMS has undertaken. From all-around rivets and panel lines, detachable bomb and missile sets and pilot figure, the A-10 is an absolute must have for any pilot.

FEATURES:

- Powerful twin inner running motors with the latest 70mm EDF
- High-quality Predator 70A ESC
- Super high scale detail throughout
- Scaled CNC-processed metal landing gear set
- Detachable bomb and missile set
- Detailed Pilot figure
- Panel lines and rivets for enhanced scale realism
- The latest high-brightness LED's
- Locked-rotor mode E-retract with over current protection
- Multi-connector for one-step installation
- Metal digital servos for excellent controlling capacity
- Bearings in wheel hub for better performance
- Button Type canopy hatch
- Large battery compartment
- Pre-installed, ball link style control horns for more throw.

SPECS:

Wingspan: 1500mm/59.1 in
Length: 1368mm/53.9 in
Flying Weight: 4100g
Power System: Brushless 2860-KV1850 x 2
Speed Control: 70A
CG (centre of gravity) 80-85mm (From Leading Edge)
Propeller: 70mm 12 blade x 2
Servos: 17g x 4 and 9g x 5

REQUIRED TO COMPLETE:

Please Note: This is sold in ARTF format and requires Radio System, 6S 22.2V 5000mAh LiPo, Charger and AA batteries.



FMS 1500MM A-10 WARTHOG TWIN 70MM EDF ARTF w/o TX/RX/BATT Part No. FS0228

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Ripmax

A-CF002PRO
SSP: £219.99

WOT^{Mk2} 4 Pro

BY CHRIS FOSS

Enlarged Control Surfaces

Lightweight Structure

Built-up Tailplane

Irvine .39
Included!

Milled out
Undercarriage

The Wot4 is established as a versatile and capable sports model but there is a limit to what it is capable of without sacrificing durability and versatility. So to get the most from the Wot4 design we have made this new 'Pro' version for pilots who want an uncompromised version of this classic. The ailerons, rudder and elevators have been increased in size for even better control authority. We have also analysed the structure and removed weight wherever we can, this includes a built-up fin and tailplane, lightened wing, lightened fuselage and even lightening holes in the undercarriage!

To complement this new model, we are including a special edition Irvine .39 in the box as the perfect match of power to weight to make the best Wot4 yet!



IRVINE

Limited Edition .39
Included in the Box!

Made In England

Specification:

Wingspan: 1334mm (52.6")
Length: 1185mm (46.5")
Weight: 1940g (4.39lbs)
Radio: 4-5 Channel (Required)
Servos: Quartz 5 x QZ302 (Recommended)
I/C Engine: Irvine .39 (Included)

A Chris Foss Design



Ripmax

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