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AERO MODELLER

May 2020.

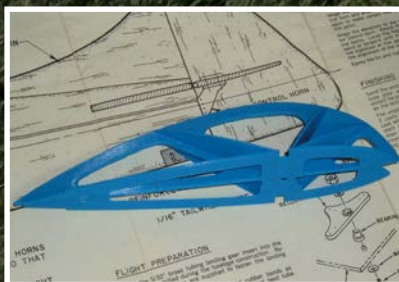
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REDFIN RACER

FF SCALE

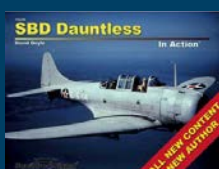
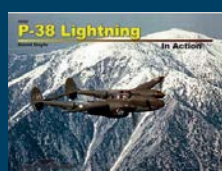


SCALE MATTERS



● 308 & HENRY J NICHOLLS ● CRAWLEY INDOOR ● RC ALFA REVIEW ● AIRCRAFT VANES ● MORE...

SQUADRON BOOKS



AIRCRAFT IN ACTION - SOFT COVER

1200	Fairey Firefly in action
1204	Early MiG Fighters in action
1224	F-84 Thunderjet In Action
10211	P-51 Mustang in Action
10216	F6F Hellcat in Action
10219	B-17 Flying Fortress in Action
10220	F4U Corsair in Action
10221	B-25 Mitchell in Action
10222	P-38 Lightning in Action
10225	TBF/TBM Avenger in Action
10227	B-29 Superfortress in Action
10228	B-24 Liberator in Action
10235	SB2C Helldiver in Action
10236	SBD Dauntless in Action
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10241	F-105 Thunderchief in Action
10242	A-26/B-26 Invader in Action
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5549	OV-1 Mohawk Walk Around
25043	Messerschmitt Bf 109G Walk Around
25056	Spitfire (Merlin) Walk Around

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65043	Messerschmitt Bf 109G Walk Around
65056	Spitfire (Merlin) Walk Around
65070	Heinkel HE 111 Walk Around

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Allan Voyce's profile
CL Autogiro.

HEARD AT THE HANGAR DOORS

UK LOCKDOWN AND CESSATION OF FLYING

There is only one topic of conversation at the moment, and it transcends the parochial items we usually run in AeroModeller: the Coronavirus Covid-19 pandemic. As I write this at the end of March 2020, I have been in lockdown at home for one week, the government has implemented social distancing, banned the meeting of more than 2 people in public places, and asked that all non-essential travel is stopped. Unless you are lucky enough to live at the edge of your own large field this effectively ends any flying, indoors or out, for the foreseeable future.

These restrictions are unprecedented in the history of model flying, the closest I can think of would be during the Foot and Mouth outbreak in 2001, or the cessation of power flying during WWII, but neither were as severe as we are currently enduring. I know this is hard on all who were looking forward to the start of the outdoor flying season, but no model flight is worth the severe illness and possible death of another or oneself.

I know that many modellers are in the at-risk older age grouping, so it is doubly important that we all get behind 'self-isolating'. This lack of social contact can be detrimental to one's mental health, so do pick up the phone, send emails or use social media to keep in contact with flying friends, particularly if they are older and living alone.

I mostly work from home and can continue writing and editing

AeroModeller. I hope the wonderful band of contributors can also keep compiling their articles. What isn't so clear is how easy it will be to print and distribute AeroModeller during the present crisis. I'm aware that the last issue was late due to sourcing of paper and an understandable slow down by printers and the post office as they keep themselves healthy.

Please bear with us as we try and keep everything going. Postal and online digital subscriptions will continue, but as W H Smiths, newsagents and model shops are closed it will not be possible to buy a copy from a shop. I encourage readers to take out a subscription (and do let fellow readers know) as this is the best way of ensuring a copy of every issue in these difficult times. The Doolittle Media Shop for subscriptions and individual copies of AeroModeller can be found at www.doolittlemedia.com or phone the office on 01525 222573

Keep healthy and see this as an opportunity to build something from that long list of models. The Doolittle Media Shop can supply a wealth of plans from new AeroModeller, Model Flyer and AMI. Do share with me at AeroModeller what you've been building (or small room indoor flying?) during these strange times.

Regards, Andrew Boddington
editor@aeromodeller.com

DREAMING SPIRES

Andrew Crisp contacted me specifically to say that the Dreaming Spires FF event scheduled for 14th June has been cancelled. When things improve they will see if it can be rescheduled for later this year.

The Dreaming Spires will wait...



INDOOR SCALE AND FF NATIONALS CANCELLED

The BMFA is advising that all events and contests scheduled to take place in the next 12 weeks (i.e. until the end of June at the time of writing) must be cancelled at this time. This includes cancellation of the Indoor RC and FF Scale Nationals at Wolverhampton, the Buckminster Swapmeet, and tragically the Free Flight Nationals on the May Bank holiday at Barkston Heath, amongst many events.

Planning for the Power Nationals in August is continuing on the assumption that it will be going ahead, but this will be kept under review. BMFA members should keep checking the Contest and Event calendar on the BMFA website for status updates on specific contests and events. www.bmfa.org

FORGE ELECTRONICS PRODUCTS

Following the death of Alan Bond (obituary March 2020) John Wills the Managing Director of Scale Warship Ltd has been in contact with me to say that he has taken over the production of the majority of Forge Electronics products including the E36 timer in its latest configuration. John Wills commercial history includes running Chiltern Models in the 1980's. John tells me:

"About 5 years ago I met Alan through my local model boat club and expressed a desire to learn the black arts of electronics. He was a very good teacher and before long I took over the production side of his Forge Electronics which allowed him to concentrate on the development side, particularly with aeroplane electronic accessories.

As you say in your obituary his death was a great shock to us all and he will be sadly missed. By this time I was able to produce all of the products except for a very few items which Alan dealt with himself.

Following his funeral and various meetings with his family they graciously allowed me to continue production of all the products under the name of Forge Electronics with the proviso that Alan was always credited with the designs etc. The Forge Electronics site (www.forge-electronics.co.uk) has details of what is available and those items which are not directly available from my own site (www.scalewarship.com) or of course Dens Models E-Zee range, can be obtained through me directly but not currently as a shop item.

I would be most happy to talk to anyone who has an interest in the F1E (and any other discipline) with the understanding that I do not have the vast knowledge of coding etc, that Alan possessed but I am more than willing to keep his designs going if I possibly can and assist anyone who has an interest in free flight control systems."

PONTEFRACT RETRO FLY-IN CANCELLED

The 9th Pontefract Single Channel & Retro Fly In, scheduled for the 13th & 14th June is now cancelled. The event is held in a public park and requires a licence from the local council who have taken the only sensible course of action, suspending all current permissions until government advice gives the all-clear.

The event organisers (who had already made a decision to cancel), hope to reschedule later in the year if possible and see all the usual suspects there. Keep safe, Shaun & Phil.



Shaun Garrity and Phil Green will undoubtedly do their best to try and reschedule the PANDAS Pontefract Single Channel & Retro Fly In for a date later in the year.



FF SCALE RULE CHANGES

FF scale flyers in the UK will be aware that the new season's rules have not been enthusiastically welcomed by all, although at present with no competitions running this is a moot point. I asked the relevant members of the BMFA STC (Scale Technical Committee), Doug Hunt STC secretary and Mike Smith Scale Outdoor FF Adviser for a statement, and this is what they have sent:

"The BMFA Scale rulebook has been updated and re-issued for 2020 with changes across all classes. Current and prospective competitors should read the new rulebook particularly if they are currently building or planning to build new models. No changes have been introduced that eliminate existing models from competition. The effect of the changes will be reviewed over the next few flying seasons. Input from the Scale community will be fed to the Scale Technical Committee via its advisers for all disciplines and any further refinements to the rules will be implemented in future updates."

Scale Technical Committee website is scale.bmfa.org



PETERBOROUGH FLYING ACES

With any luck the Peterborough Flying Aces event for silent FF at Ferry Meadows will take place as planned on 6th September, but do keep your eye on the PMFC website www.peterboroughmfc.org for the latest information. Stuart Marsden informs me that a new class for the KK Robin

has been included. Brian Lever has come across loads of KK Robin kits in Portugal which he has made available to flyers at the club, and the plan is also available on the Outerzone website. The Robin is an ideal model for the small field competition flying that takes place at Flying Aces.



The Robin was introduced by Keil Kraft in the early 1960's. Sheet fuselage sides makes this quick and simple to build.



KK Robin Flying Aces - Stuart Marsden has his Robin raring to go.



FREE FLIGHT FORUM

Martin Dilly the dynamo behind the Free Flight Forum says that Mike Fantham has agreed to replace the

late Mike Evatt as the chair of the Forum this November (assuming we can gather together and have enough speakers). If you are a FF participant developing anything interesting, whether FAI, scale, vintage or whatever, do contact him and discuss becoming a speaker.

The bound report from the last BMFA Free Flight Forum Report in November 2019 is now available containing the following presentations:

- Warps - Right way? Wrong way? What way? - Mike Woodhouse
- Moment Arm - A Novel Stability and Control Arrangement - George Seyfang
- How Big Should I Build My Next Coupe? - Alan Brocklehurst
- Scale Matters - Ivan Taylor
- Evgeny Verbitski - An Appreciation - by Mike

Fantham, Ken Faux and Peter Watson

- Do Freewheelers Drag? - Spencer Willis
- The Hammer and the Feather - Aram Schlosberg
- The Performance of Rubber Motors - John Gibbings
- Gurney Flaps - George Seyfang
- Gyros in Free Flight Scale - Ivan Taylor
- A Glass Act - Russell Peers
- A Glider for Every Occasion - Stuart Darmon
- A Love Letter to the Free Flight Community - Bernard Guest.

The UK price is £12.00 including postage; to Europe it's £15 and everywhere else £17. Sales of the Forum Reports help to defray the expenses of those representing Great Britain at Free-Flight Championships. Ideally order by credit card, alternatively cheques should be payable to 'BMFA F/F Team Support Fund' in pounds sterling, drawn on a bank with a UK branch.

Martin Dilly, 20, Links Road, West Wickham, Kent, UK BR4 0QW phone to: (44) + (0)20-8777-5533, e-mail to martindilly20@gmail.com

TETHER CAR UPDATE

Up until the implementation of the current restrictions the development of the Tether Car track at the BMFA National Centre, Buckminster was progressing well. The concrete apron, centre surface grinding, and edge trimming had been completed and it looked likely that the inaugural event would be sometime in May. This of course won't happen, and a new date will be fixed when work is complete and restrictions are lifted. To ensure superlative facilities at the new track there is still the opportunity to make a donation. Contact Sian Sargeant at the BMFA on email sian@bmfa.org

Alex Phin is one of the stalwart band pushing forward the track project, and as the man behind Redfin he is producing items which will get people on track and racing. His new Twinshaft diesel car engine was reviewed in January AeroModeller, and further components to make a car are beginning to come off the production line in the Ukraine. www.redfinengines.com



The new tether car track at Buckminster is tantalisingly close to completion but requires more funds for timing and ancillary equipment.



A pre-production tether car from Redfin takes shape. We plan to have a review of the Redfin car components in a future issue.

OLD WARDEN: MAY CANCELLATION & PRICE REDUCTION

Ken and Sheila Sheppard of ModelAir have sent this good and bad news about the Old Warden model flying events.

As the Government has implemented stronger measures, the Shuttleworth Trust has decided to cancel all public events, including air shows, to the end of June. This means that our MayFly event scheduled for 9-10 May won't take place.

From June onwards, Shuttleworth will apply a rolling cancellation one month before each event and are hoping to get back on track come July. We should therefore be able to confirm (or otherwise) the July Scale Weekend 25-26 July, around the end of June. As for September's Festival of Flight, we must wait and see.

Updates on our website www.modelair.info and Facebook page www.facebook.com/ModelAirAtOldWarden

On a brighter note, following a constructive meeting between ModelAir and Shuttleworth management when

Rebecca Dalley (General Manager) confirmed that Shuttleworth is committed to supporting model flying at Old Warden, we are pleased to announce the following revised prices for when model flying activities recommence in 2020.

All visitors to ModelAir events will be welcome to visit the Museum Collection and the Swiss Garden, which are now included in the ticket price. (There was an additional charge during 2019.) The entry prices are as follows with reductions for BMFA members:

- Adults (Spectators/Public) - £13.00 (No concessions)
- BMFA - £8.50 (with membership card)
- SVAS - £8.50 (with membership card)
- Children free

NB: Please have your valid membership card/letter ready to show at the gate.

We hope that the addition of free entry to the Museum Collection and Swiss Garden will be appreciated. Shuttleworth have pointed out that the 2020 gate prices are significantly lower than the standard everyday ticket to the Collection which is usually £21 for a combined ticket (Collection and Garden).

Camping:

- Campers can book either by phone or by completing a form downloaded from www.shuttleworth.org/camping Please ignore the prices on this website!
- To reserve your place, please email camping@shuttleworth.org or contact David or Pam Johansen 07538 485843.
- £12 per unit per night reserved in advance by phone, or £15 on the day.

Please check before travelling. Information about the ModelAir and other Shuttleworth Trust events can be found on www.shuttleworth.org/events



Up & Coming

Due to the Coronavirus Covid-19 pandemic the UK government (at the time of writing) has banned all meetings of more than 2 people and non-essential travel. Thus all events have been cancelled for the foreseeable future. At present this looks to be at least until the end of June 2020, but we will only know later in the year how long this ban will last.

Hopefully we will get to the point of rescheduling and planning new events, and when this happens, for inclusion of your event in this calendar please send an email with date and details to editor@aeromodeller.com



Full details of BMFA events can be found at:
www.bmfa.org

Off The Shelf

A r

Deluxe Materials Eze Wind



Andy Sephton has produced this smart looking rubber powered KK Gypsy finished in Eze Wind colours.

Working with the late Mike Evatt and Andy Sephton, Deluxe Materials has developed what they believe to be the ultimate model aeroplane rubber lubricant to maximise the flight performance of rubber powered models.

Eze Wind is a supreme silicone gel lubricant designed to prevent chafing and minimise friction on rubber surfaces. It will deliver tighter and safer motor winding with the highest sustained power. Eze Wind is:

- Anti-fling thus preserving model cleanliness
- Harmless to rubber
- More stable over time than traditional lubricants
- Safe on hands

Eze Wind LU03 is supplied in a 50ml tube

with 'clit loc' dispenser, it costs around £5.50. www.deluxematerials.co.uk

This and other Deluxe Materials products are distributed through a network of international distributors including:

UK: Ripmax Ltd. www2.ripmax.net
Expo Drills & Tools. www.expotools.com

North America: Horizon Hobby
1-800-338-4639
Hobbytime Distributors, 800 441 3302

Asia: Lucky Model. www.luckymodel.com
Boscomodel www.Boscomodel.com



Eze Wind rubber lubricant comes in a handy tube with clit loc nozzle to open and close the flow.

SAMS Models 1/4 Scale Pilot

SAMS Models are normally known for smaller flying scale accessories, but when Kevin Wallace built his massive 1/4 scale rubber powered Lacey M10 he commissioned Dave Banks to produce a special lightweight civilian pilot.

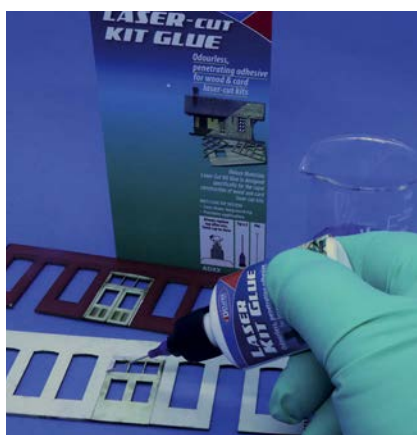
These special 1/4 scale lightweight sculpted foam pilots are now available "To Order Only" in unpainted (£25) and painted (£50) versions. Please allow time for production. Product Code: DB2. SAMS Models www.samsmodels.com



Deluxe Materials Rokat Ca gel, 3g

If you want a small pack of cyano gel glue that fits nicely into your hobby box, then this smaller packaging of Rokat Ca gel is for you. Rokat Ca Gel bonds hard plastic, wood (hard & balsa), metal, EPO foam & synthetic rubber in 5-10 secs and is packed in an easy to squeeze metal tube for long life. Can also be used with Polythene and shiny/oily plastic if cured with Deluxe Materials Tricky Stick AC17.

Rokat Ca non drip gel AD90 sells for around £3.00.



Laser Cut Kit glue comes with a spare fine applicator and a stainless steel glue pin. / The Laser Cut Kit glue flows easily, even between pre-joined pieces.

Deluxe Materials Laser Cut Kit Glue

If you want better looking models, then look no further than Deluxe Materials Laser Cut Kit Glue. It is designed specifically for the rapid construction of wood (both ply and balsa) and card laser-cut kits.

The carefully designed bottle has a twist loc cap with fine dispensing needle applicator which is easily removed for cleaning. The low viscosity formula and needle applicator ensure easy application directly onto open or pre-assembled joints typically found in Laser cut kits. Benefits are:

- Precision application
- Anti-clog in action
- Easily cleaned with water
- Safe and odourless
- Able to bond plastics & painted wood

Laser Cut Kit Glue AD 87 is supplied with two dispensing needles and stainless steel glue clearing pin that eliminates clogging, a 25ml bottle of Deluxe Materials Laser cut kit glue costs £6.50.

Retro RC Skybird II Embrio Endurance

Skybird II is a 16" wing span Embrio Endurance model, an adaption from Bruce Feaver's "Turbo Machine" by Jim Blair of Fairborn, Ohio. It was published in the NFFS Journal Sept/Oct 2019. After receiving many requests, Mark Freeland of Retro RC has put together a "short kit" which contains a redrawn plan and all sheet parts laser-cut, including 1/64" ply wheels and dihedral jigs. The builder supplies his own strip wood, landing gear wire, tissue, prop, bearing, rear peg and motor. Fuselage assembly is simplified by using a dog-bone between two main formers, which is cut out after the fuselage frame has been assembled. The prototype weighed in at 16g without rubber.

Skybird II short kit is priced at USD \$15.00.

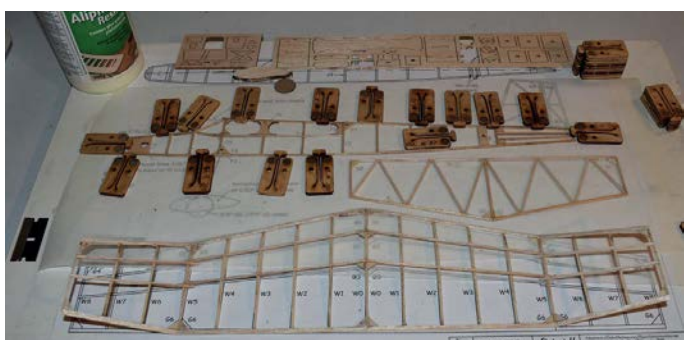
Retro RC, PO Box 193, Keego Harbor, MI 48320 USA.

email RetroRC@live.com

www.retroarc.us.com



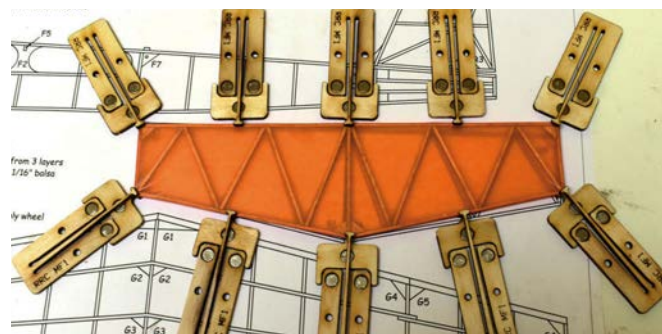
The 16" span Skybird II is nicely proportioned for indoor flying.



Skybird II is an easy build with the Retro RC short kit.



Each clamp set uses 3 magnets to hold things in place on a steel table.



The clamps hold the structure off the board while covering is drying.

Retro RC Drying Clamps (Long Fingers)

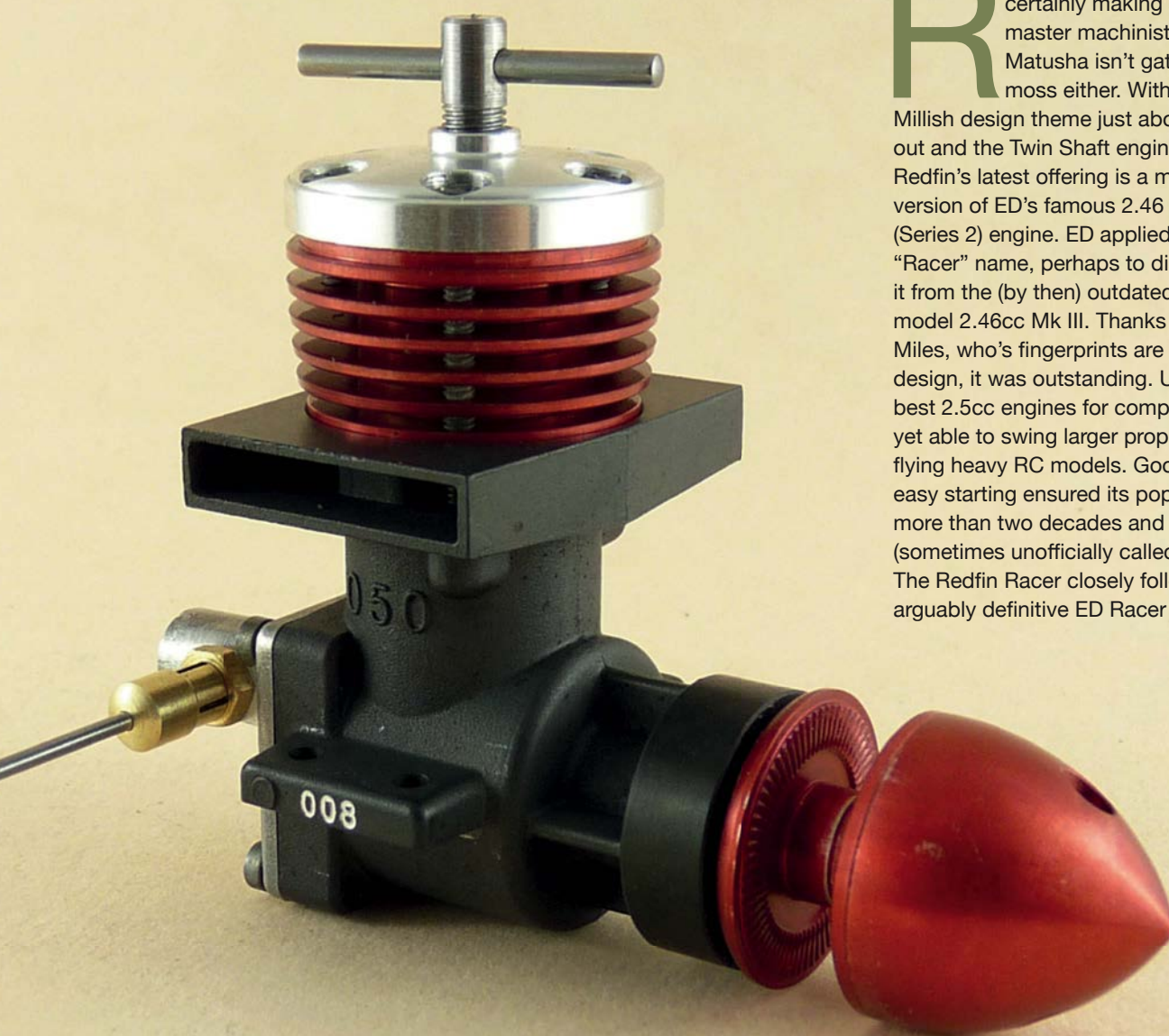
These long fingers will hold light built up structures (small rubber power model flying surfaces) 1/8" off the board so tissue can evenly shrink warp free after steaming or doping. Laser-cut from birch plywood.

They come in a pack of two, with two parts to each clamp, the support and a long sprung finger. Each clamp needs 3 off 1/4" x 0.1" magnets (i.e. 6 magnets per pack), which are sold separately in tubes of 50 or packs of 16 magnets. 16 Rare Earth Magnets available for \$5.49. A metal clad shelf to use as a building board is available from www.Ikea.com in two sizes. Search for their item numbers #002.216.81 and #602.216.78.

Retro RC Drying Clamps (Long Fingers) pack of two sets is price USD \$3.98.

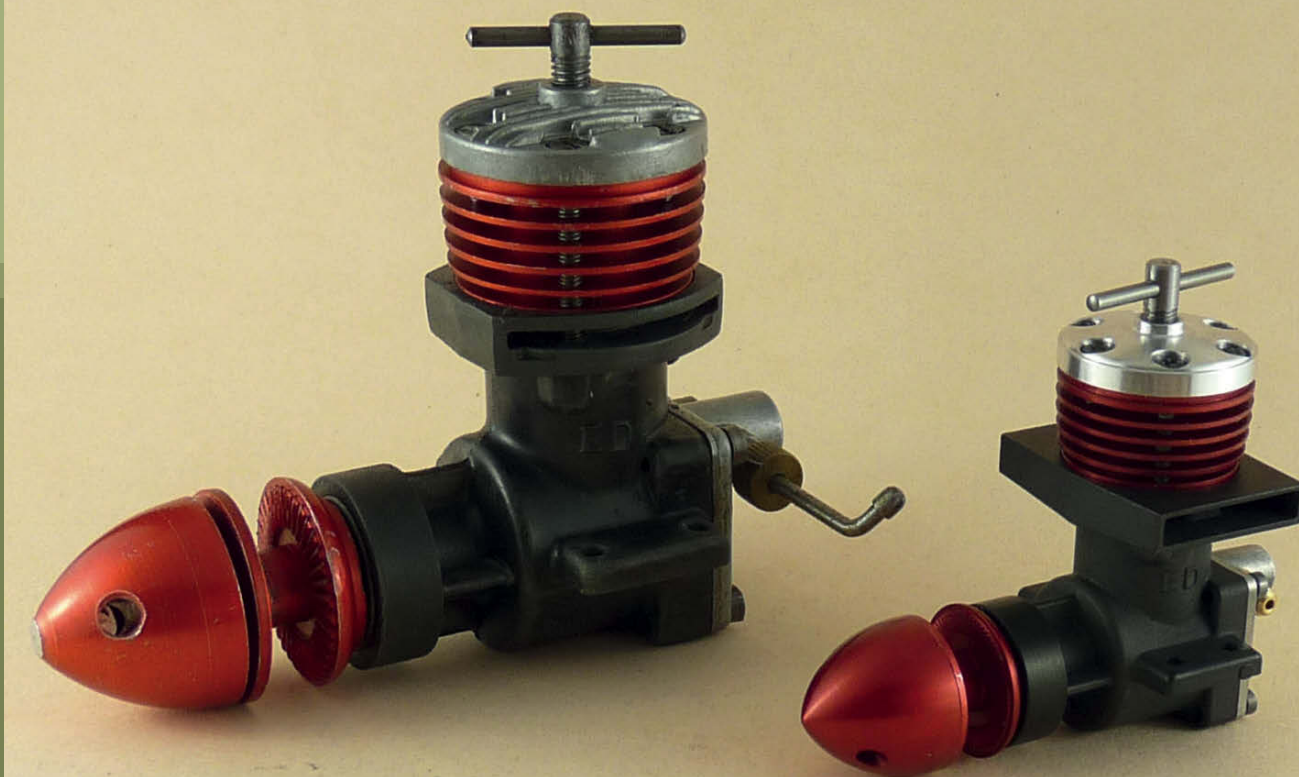
Redfin Racer

A small 0.5cc reproduction of ED's classic 2.46 Racer is put through its paces by Maris Dislers



Rolling stone Alex Phin is certainly making sure that master machinist Alexandr Matusha isn't gathering no moss either. With the original Millish design theme just about played out and the Twin Shaft engines done, Redfin's latest offering is a miniature version of ED's famous 2.46 cc Mk III (Series 2) engine. ED applied the catchier "Racer" name, perhaps to disassociate it from the (by then) outdated 1948 model 2.46cc Mk III. Thanks to Basil Miles, who's fingerprints are all over the design, it was outstanding. Up with the best 2.5cc engines for competition work, yet able to swing larger propellers when flying heavy RC models. Good value and easy starting ensured its popularity over more than two decades and six variants (sometimes unofficially called "Marks"). The Redfin Racer closely follows the arguably definitive ED Racer in its heyday

The new Redfin Racer will attract lovers of the original ED Racer, but is a very likable performer in its own right. "050" on crankcase and its overall size might confuse folk thinking in cubic inches. It's a .5cc (.030ci) engine.



The Redfin compares well as a miniature of the larger ED Racer prototype, although fins on head have not been reproduced. Scaled to 70% of the original's external dimensions. Cutting back exhaust stacks was a popular user modification, to reduce weight or fit in a slender cowling.

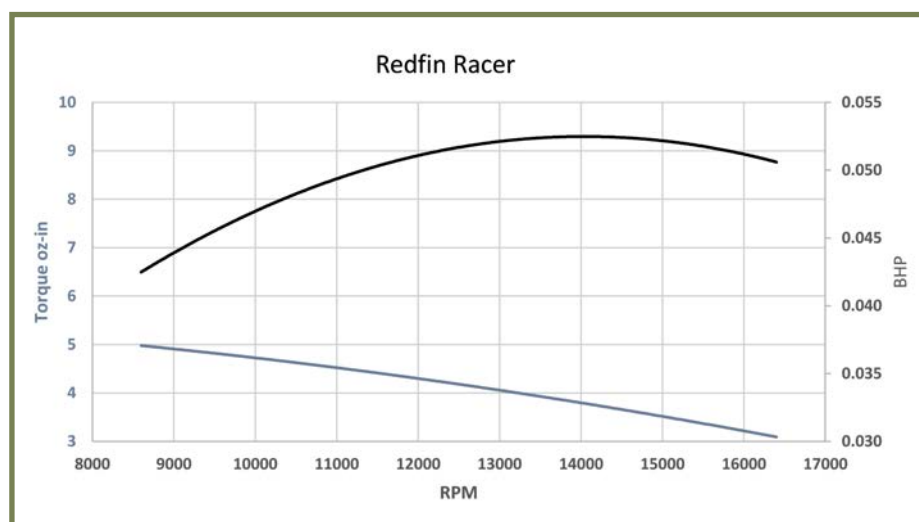
(circa 1952 to 1956) with webbed black crankcase and red anodizing. Or the ED Racer-Mark-2, if you like.

Mini Racer Roundup

The Redfin Racer is instantly recognisable and very close in external detail to the ED, although the fore-aft fins atop the cylinder head have not been reproduced. By its very nature, it is somewhat larger than typical .5cc diesels. Partly due to the rear induction disc valve layout, prominent exhaust stacks, spinner and front ball race housing, but obviously so when put alongside the .5cc mini-Racer made by Valentin Aloschin and marketed by Dave Banks. That one is shrunk down to half the original's external dimensions. The Redfin Racer seems as though designed from the inside out, emphasising sensible component dimensions. Decide on the

bore and stroke, choose cylinder porting, sturdy conrod, crankshaft to suit desired ball races and then make adjustments to fit a scaled down ED Racer exterior. Which worked out to be 70% of the

original ED. It takes a bigger shoe size than the VA/Banks and is around the same size as the Mejzlik .78cc mini-Racer, both of which are now desirable collector pieces.





The 0.5cc Redfin Racer on the left is slightly larger and probably more robust in comparison to the Mejzlik .78cc Mini-Racer on the right.

Design and Layout

Emphasis on usability might explain the inauthentic "long" .84 to 1 bore/stroke ratio and cylinder porting. The original was slightly over-square and had sawn exhaust slots over transfers, with annular bypass gap between crankcase and lower cylinder outer wall. Here, there are three upwardly inclined transfer ports fed via external bypass channels, disposed between the three exhausts, giving a measure of overlap in timing. Another departure is the crankshaft journal, which steps down in size for the front ball race. Welcome indeed for anyone who has experienced the ED's shaft being pushed back hard against the induction rotor after a "vertical landing".

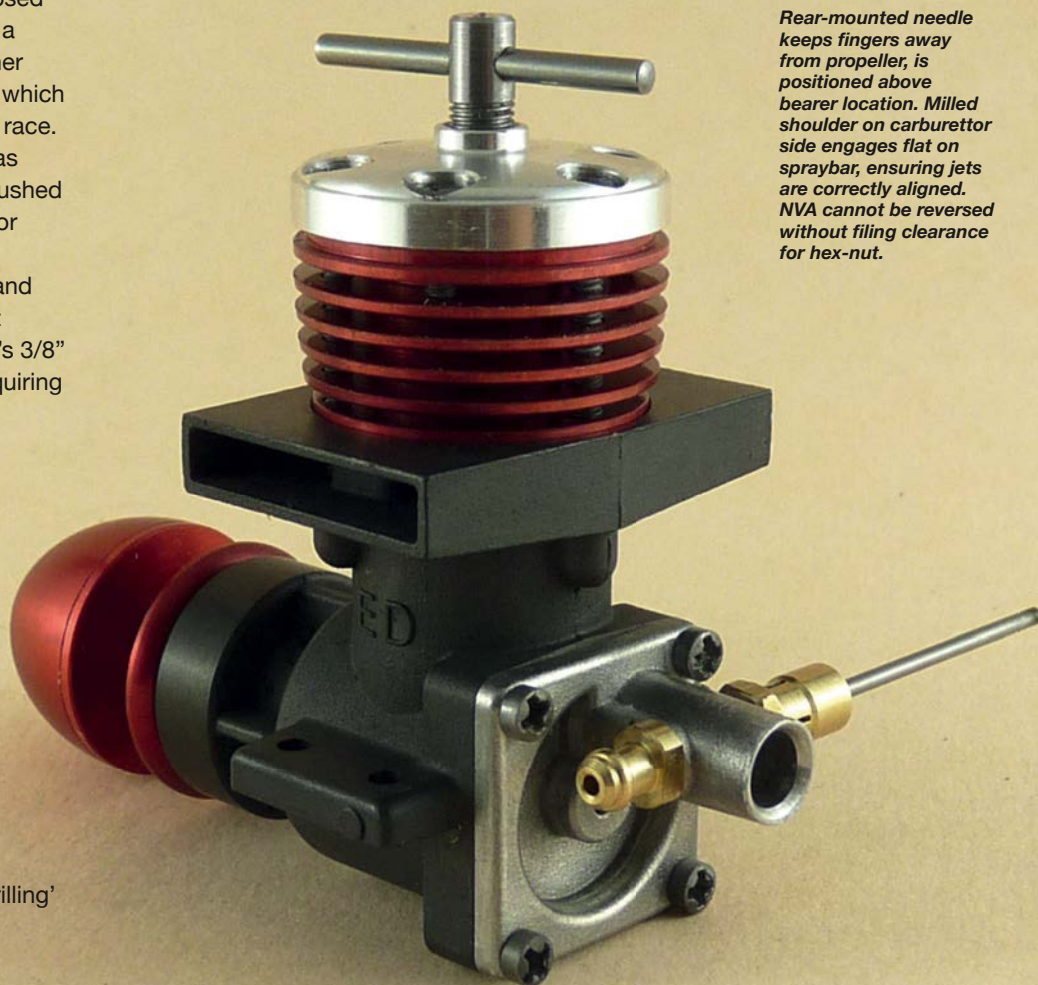
Previous reviewers Ron Warring and Peter Chinn commented somewhat negatively on the original ED Racer's 3/8" prop driver and spinner bosses, requiring propellers to be drilled out to suit. As the Redfin also has this feature, propeller choice has to suit its 7 mm (.276") bosses. Which probably rules out those having a hub with inner-ring-with-spokes design. We agree that enlarging the standard propeller hole is a chore that requires care and precision, before final balancing. A minimum 5.7 mm (.224") hub thickness can be accommodated. (We'll have a future article about 'drilling' out propeller bosses. - Editor)

Running

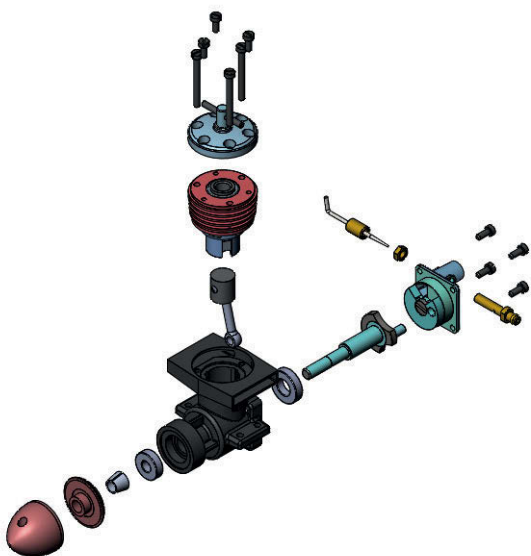
Starts are straightforward. Providing the needle is sufficiently open, choking fuel just up to the spraybar and one more choked turn primes the engine. It usually starts in one or two flicks. It's not one of those pernicky small diesels

needing a very precise prime or special starting ritual. Exhaust priming was unnecessary and isn't easy, as the two cast-in bridges supporting the exhaust stack tops obstruct direct access to the exhaust ports. They're set well back from the exhaust ports, so performance is unaffected.

The very high standard of fits and finish was immediately apparent. After only the briefest check run before despatch, piston fit was beyond reproach. The piston could be parked at top dead centre, whether the engine was hot or cold, then left for some time without losing compression seal. And not relying for that on any tightness, because the merest touch of the propeller would have



Rear-mounted needle keeps fingers away from propeller, is positioned above bearer location. Milled shoulder on carburettor side engages flat on spraybar, ensuring jets are correctly aligned. NVA cannot be reversed without filing clearance for hex-nut.



it free again with that lovely bounce that characterises a well set up bottom end.

That precision pays off with very short warm-up time to stable operating temperature. Without any need for a change to compression setting for restarting. The engine runs cool down below and cylinder temperature is quite moderate. You can squeeze the last few hundred RPM if really needed without risk of sudden sagging. Very effective heat dissipation thanks to the precision fitted cooling fins. They're shrunk onto the cylinder and should not be removed by the owner. The cylinder head can probably also be left attached "for



Needle valve assembly provides excellent fuel metering. Owner determines where to bend elbow and final length of needle extension. Or add a wheel collar to form an adjusting knob.



The true heart of the engine. Fins are permanently shrunk onto cylinder for excellent cooling. Porting design differs from original ED type – probably an improvement. Adequate metal all round might be part of this engine's stable performance.

SUPPLIERS

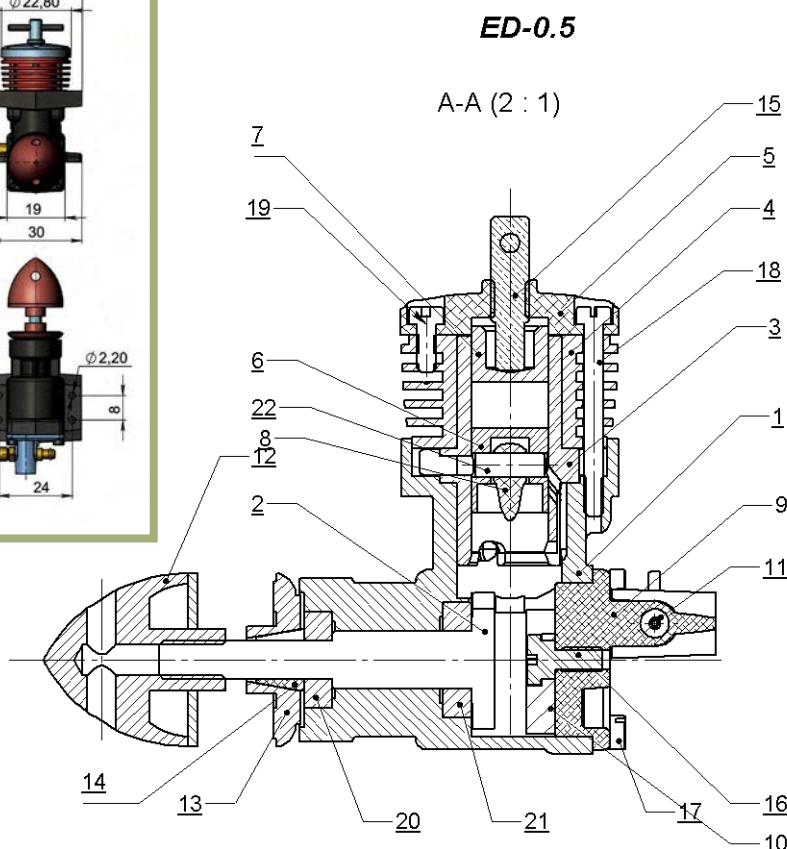
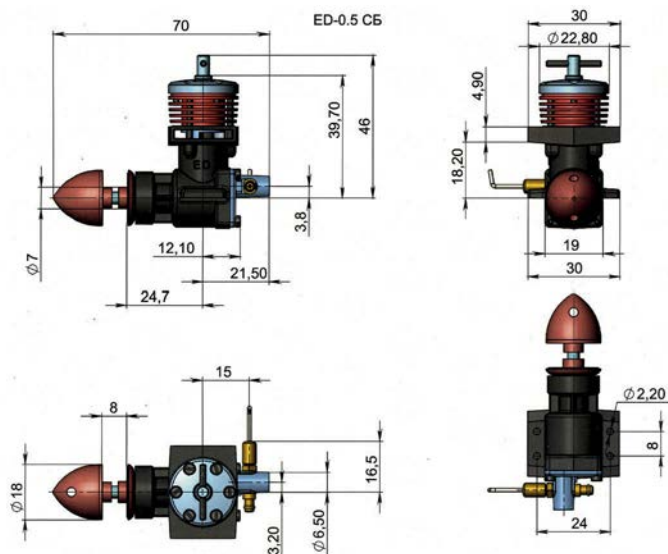
The Redfin Racer is in limited production. Currently priced at £130 is available from: www.redfinengines.com

Mr. Alex (Red) Phin
The Management Suite
Dinnington Business Centre
Outgang Lane
Dinnington
South Yorkshire
S25 3QX
Tel: 07859 275942
e-mail: alex.phin@talktalk.net

Australian customers can contact:
Ian Dixon
Perth Art Glass
311 Stock Road
O'Connor
West Australia 6163
e-mail: ian@perthartglass.com.au



Barely perceptible circular "witness marks" after extensive testing suggest the disc/rotor and back plate will not suffer undue wear in service, providing dirt is excluded. Assembly could be repositioned 90 degrees clockwise (viewed from rear) for running in reverse direction. That would point needle downwards (or upright if cylinder is inverted).



keeps”.

Our test fuel containing 30% ether, 25% castor oil, 45% kerosene, plus 1.5% diesel ignition improver, was quite satisfactory. Only a few easy runs to smooth the component surfaces were required and exhaust oil was very clean – a good sign. The exhaust stacks and good fuel economy reduce mess. The rear-mounted needle does mean longer engine bearers are needed, but it keeps fingers well away from the propeller. Fears that the long needle might vibrate and upset the mixture setting were unfounded. The Redfin ran with remarkably low vibration at all test speeds. We’d attached a wheel collet for easy adjustment, but the intention is that the owner bends an elbow at the end of the needle in their preferred position and length. The sensibly sized comp screw tommy bar was also appreciated.

Fine screw threads make compression and needle adjustment quite insensitive. Around two thirds of a turn between

full speed and tick-over compression settings. Zeroing in on mixture adjustment is not really necessary. Settings a bit richer won’t lose much speed.

Performance Analysis

The Redfin Racer is essentially a higher-speed engine and slogging away on very large propellers only puts undue load on the bearings. Decent torque down low allows it to swing a 7x4 propeller, if required. Going up the RPM scale with 7x3 or 6x4 options would have it most

comfortable and delivering nearly full power in flight. Peak power of .052 BHP comes broadly around 14,000 RPM. Much like the ED Racer and equal in specific output terms. The Redfin is delightfully perky with smaller propellers, avoiding the ED’s rapid power drop at higher speeds and starts remain quite pleasant.

We guess the carburettor choke area has been intentionally kept conservative. That gives decent suction at all under-compressed settings down to tick-over around 5,000 RPM. And it can then be

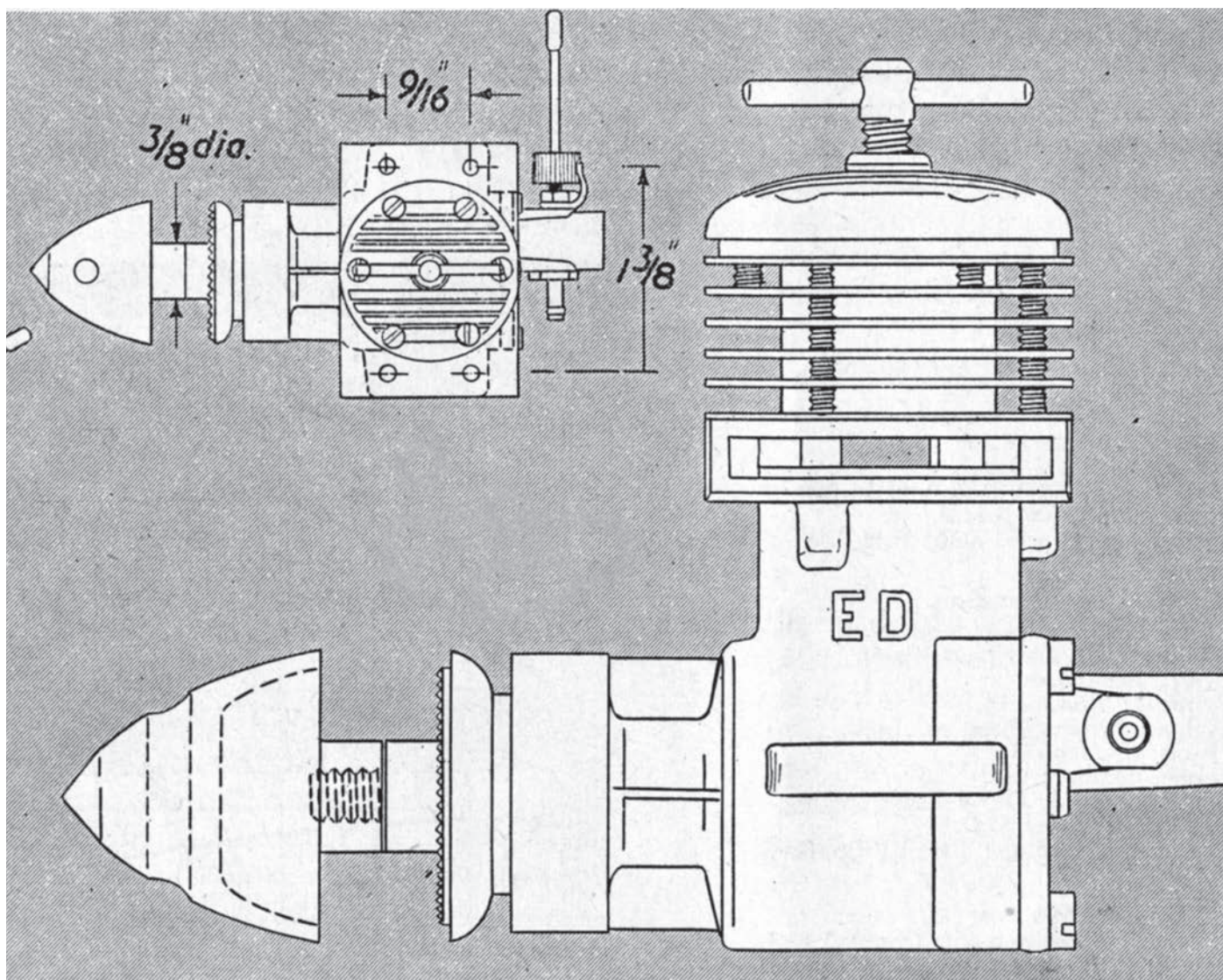
SPECIFICATION

Bore	7.96 mm (.314")
Stroke	9.48 mm (.373")
Swept Volume	0.47 cc (.029 cu. in.)
Weight	65.2 g (2.3 oz)
Height (lug face to cylinder top)	40 mm (1.57")
Length (prop mount face to carb. Rear)	46 mm (1.81")
Mounting screw pattern	24 mm x 8 mm (.094"x .315")
Intake opens	600 ABDC
Intake closes	450 ATDC
Intake duration	1650
Exhaust duration	1350
Transfer duration	1100
Effective choke area	1.2 sq. mm

PROPELLER

RPM

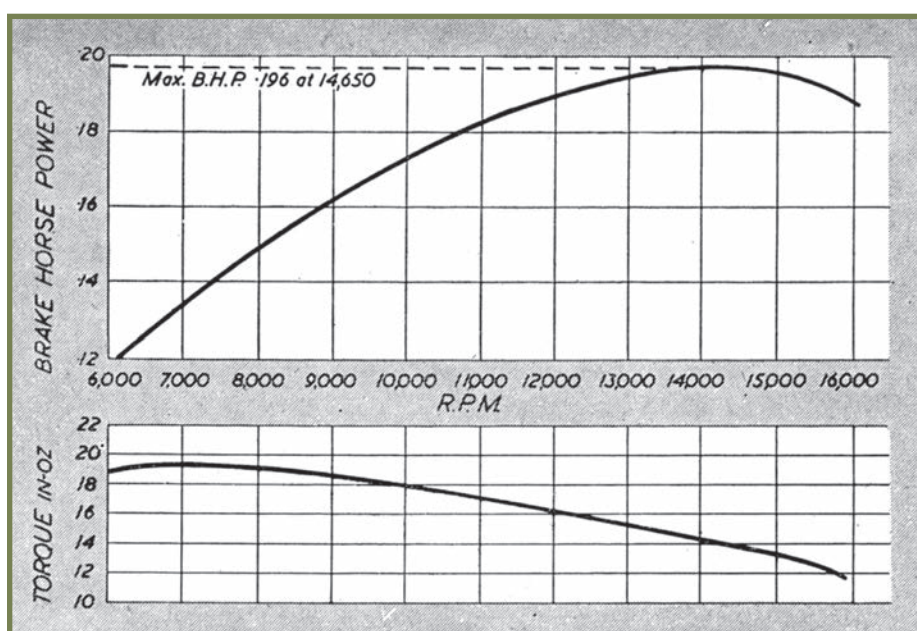
APC 5 x 3	16,400
APC 5.7 x 3	14,000
APC 6 x 3	13,500
Kavan 6 x 4	11,400
APC 7 x 3	10,500
APC 7 x 4	8,600



Ron Warring commented on the large boss and hole required of the propeller and described how to avoid the rotary disc jamming against the backplate.

adjusted for restarting without any need to alter compression or mixture. Which can pay off with repeatable low-power flight patterns in small flying spaces.

The Redfin Racer is not the most compact, lightest, most powerful or cheapest in its category. Some will be happy to admire its quality and likeness to the original. A fine addition to one's reliquary. Yet if our test engine is a fair representation (and the slightly sticky contra piston suggests it wasn't "blueprinted") Alex and Alexandr have succeeded in producing something rather more elusive. A small model diesel engine that has the ease of use and enviable manners of the best larger ones, wide operating range and decent performance for thoroughly enjoyable real-world applications. ■



The form of the power and torques curves from Ron Warring's review of the full-size ED 2.46 Racer in November 1954 make an interesting comparison with the new Redfin.



Martin Jackson uses 3D printed components for parts on his models such as this CL aerobatic model, the Top Flite Score.

3D PRINTING

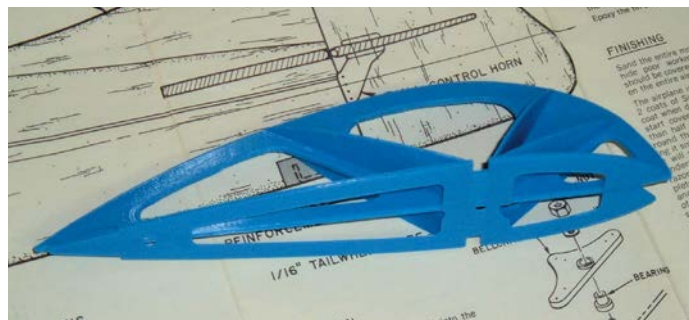
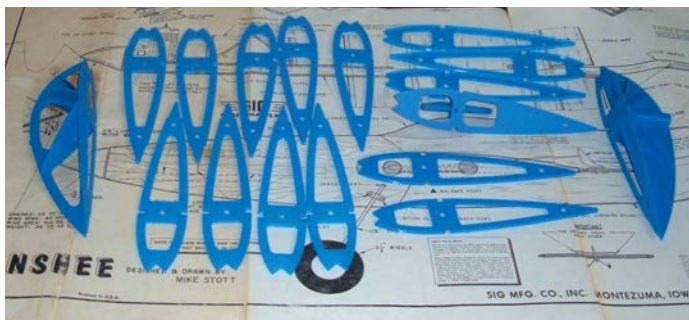
AN EXCITING, FAST AND
EFFICIENT WAY TO
PRODUCE PARTS

FOLLOWING ON FROM OUR SERIES
ON PRINTING WHOLE FF MODELS,
MARTIN JACKSON DESCRIBES HOW
HE PRODUCES COMPONENT PARTS
FOR CL MODELS.

There are many types of printing systems available today which can produce parts of varying accuracy and quality, ranging from staggeringly high technology, metal powder laser sintering system to the simplest form of plastic. In addition, there are now systems offering various strengthening additives and/or yarns and fibres such as Kevlar, and other refinements to increase the strength and the durability of the finished product. Things have progressed to the extent that major manufacturers are using "printer farms" set up in their factories to produce end user components in the manufacturing process. Likewise, the aerospace world is also heavily engaged in printed components.

One of the great advantages of this process is the savings made by the elimination of moulds and the ability to include modifications at will. The concept also allows integrated shapes that might be difficult to produce; shapes that fit forms and outlines that were previously impossible. Other advantages include: minimal material consumption with very little loss by way of waste, immediacy of production, and flexibility for modifications with "zero" costs.

So, any modern day enthusiastic dyed-in-the-wool modeller would want to consider using printed parts for all the above reasons as well as the ability to include details and lines etc. which would be difficult or impossible to make any other



Typical 3D printed components are these wing parts for the SIG Banshee. Not the simplest shapes for a novice to 3D design, but you can find prepared files online to download for 3D printing of some of these types of components.

way. Also, quite a few main structural components can be made with a great weight saving, as I shall explain later on.

For the purpose of this article I am going to refer to the process known as FDM or Fuse Deposition Method because this is still the cheapest and easiest for a home-based desk. FDM printers are available in profusion as finished products and in kit form. I am also going to discuss the means by which the 3D model to made can be generated and then prepared for printing.

A huge range of materials is now available as well and offer quite a variety of colours. There are many places on a model where a printed part can produce practical, strong and weight saving results with more detail than the average modeller might find practical to add. So on with the discussion!

The Systems

The type of system I have been using is the MakerBot Replicator 2 for 3D printing. I produce the 3D models and instructions/ data for printing by designing on a computer using Siemens Solid Edge which I also use professionally; I am lucky to have all the tools to hand.

In order to produce a printed item from scratch, it is necessary to gain a certain proficiency in 3D modelling on the screen at the level of part modelling. (There are many other functions in the programs such as assemblies, sheet metal, and analysis function). This is not difficult for simple models/components and as long as the software basics are taken on board this should present no special problem to anyone who is computer savvy or is a computer gamer. There are, like many things in life, some rules to learn, but these apply to virtually every system so the time to learn is well spent. Most function explanations are also available on YouTube as well if you are not sure why it won't work for you. With a little patience it will always work. If it doesn't it is probably

you and not the program! Working in the "part environment" is usually quite straightforward once all the bells and whistles on the interface have been mastered.

There are quite a few legally downloadable free programs which can also work well for our purposes and most of them work in pretty much the same way at this level of work. There is one program you might try called FreeCAD which should be adequate.

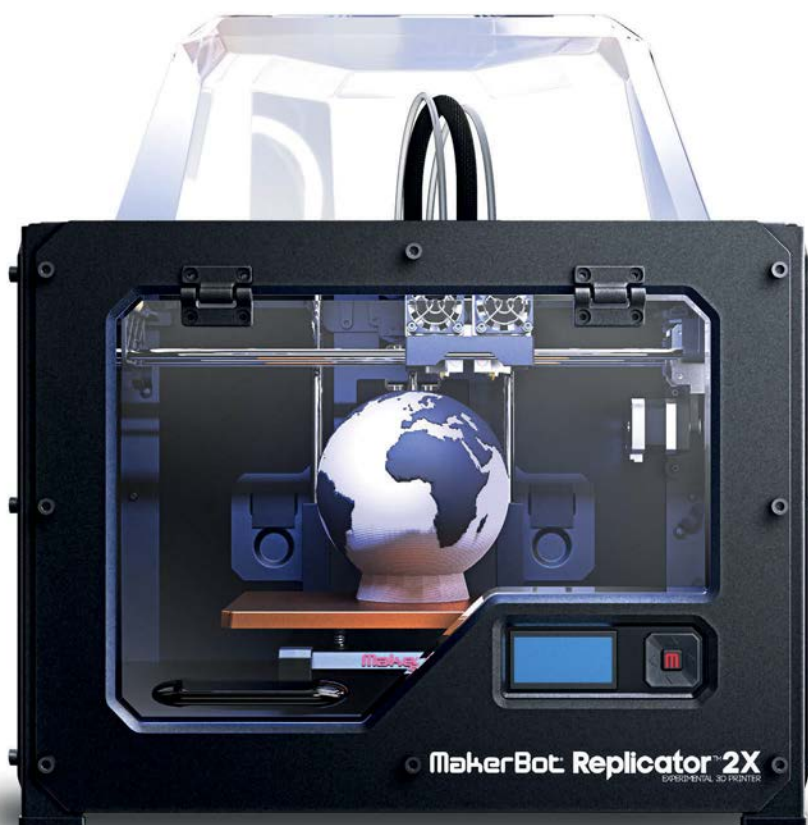
Most programs have the same basic functions and I will show a few of them later to give an idea of how to work.

Output for FDM

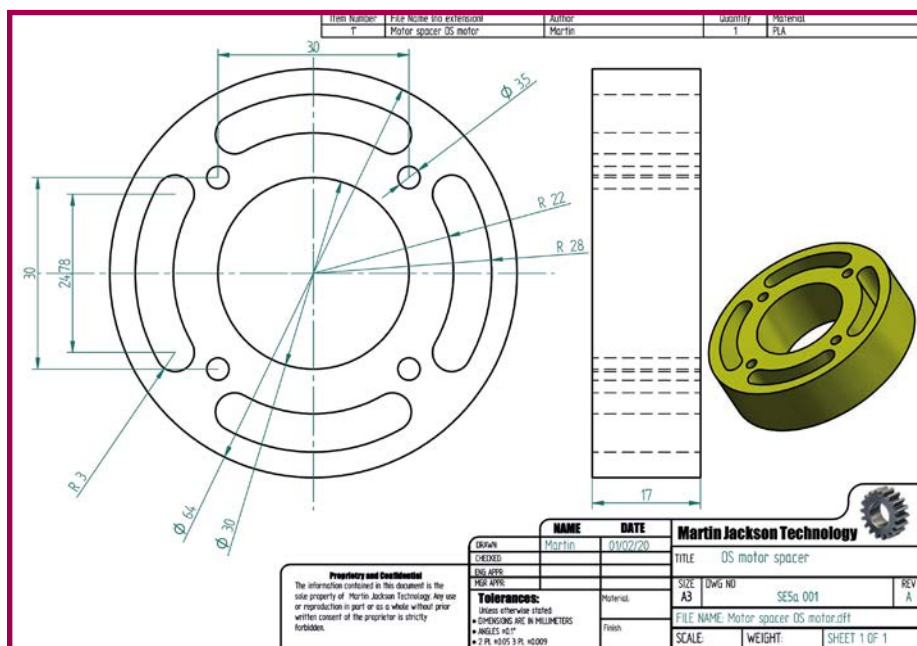
The chosen program must be able to

save a model on the screen as an STL (STereo Lithography) extension file which is the type of file the printers work on. Certainly, all the mainstream programs produce the files required. These programs include Solidworks, Autodesk Inventor, Catia, Solid Edge (already mentioned) among others.

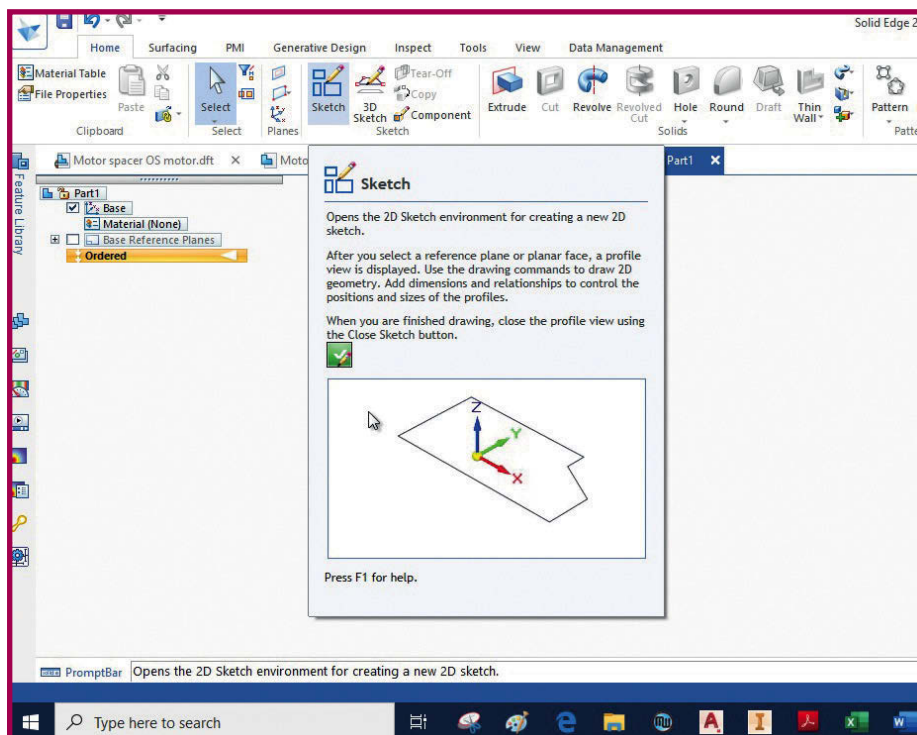
The FDM method of printing works very much like a CNC machine center in that there are 3 operational axes. The Z axis is the up and down so at the start of the print the table with its plate rises to meet the print head and then moves down layer by layer once the hot plastic fuse has been deposited for that layer. The print head moves in the X and Y axis (left to right and forward to back) over



Martin's MakerBot Replicator 2 for 3D printing is a few years old and cost around £2,000. Newer models are now available. www.MakerBot.com



This is the motor mount we're aiming to draw.



Ready to start drawing, initially in 2D.

the table depositing the hot plastic at the correct places which is controlled by the printer's computer.

In most systems the original model, which is saved as an “.stl” file is reprocessed using software supplied by the printer manufacturer to produce a file which is matched to the printer in question. In my case I use the MakerBot software for sheer convenience. In effect this software carries out several vital functions some of which are very useful to us as modellers.

The software first creates slices of about 0.1 to 0.2 millimeters thick which is about the best resolution available on these machines (and seems quite acceptable in terms of surface detail,) and then computes the wall thickness which is adjustable depending on the strength needed for the particular part. Thick areas are not filled in with solid plastic – and here is the bonus for us! – but by a honeycomb structure which makes for a very light and very strong structure.

Since the printer cannot print on air but needs a solid base, all the printing begins on the table and it is not possible to recommence the printing if it is interrupted. In designing the part one needs to consider the lay out on the base table, and to take into account that areas which are 'in the air' will need the "supports" function from the program. The supports will need to be removed when the print is finished. This is not so bad on internal area but can affect external surfaces which might need a little smoothing over.

Begin at the Beginning

Let's make a simple part and here is a drawing which we can use as an example. This is a motor mount for an OS 750 electric motor – sadly no longer in production. The part works as a spacer to bring the motor forward and as a mount – it looks quite heavy – it weighs 11 grams!

Once you have installed your software you can open it and open a “new part” field. On Solid Edge it looks like this:

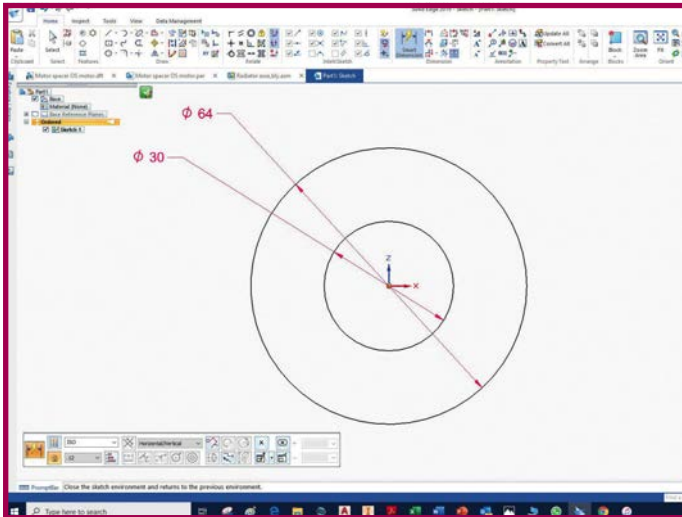
The golden rule for working in this method, much as on a drawing board, is to have a strategy in mind for the basic flow of work to avoid making the part too complex, or difficult to modify where required. If you can keep organized, then modifications are simple. For these purposes the rule is: if the sketch gets too complex then you are working too hard.

Once you have your new part page open the next step is to produce a sketch and you “extrude” from this sketch. Select therefore 2D sketch.

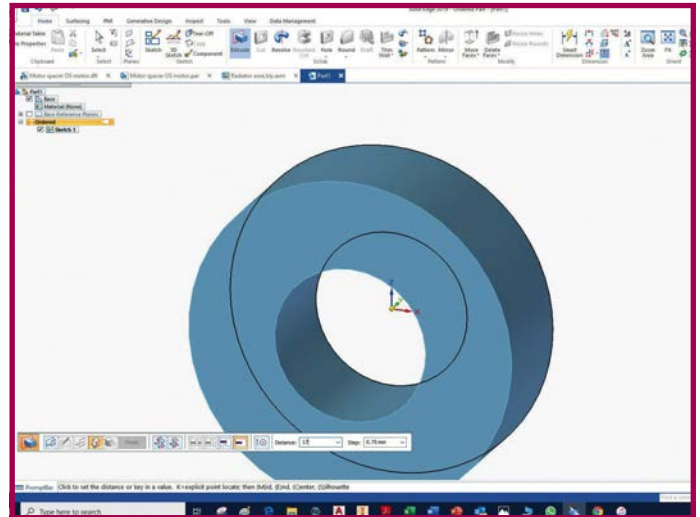
So, let's make our first part. Select a circle from the sketch tools and click on the ORIGIN and pull out a circle and then go to the dimension function and add the dimension, in this case as per the drawing.

Once you have achieved this close the sketch and then go to extrude and following the steps in the prompt bar at the bottom of the screen make the first step in the part.

20 AeroModeller 996 - May 2020



First two circles drawn.



The Extrude function in action.

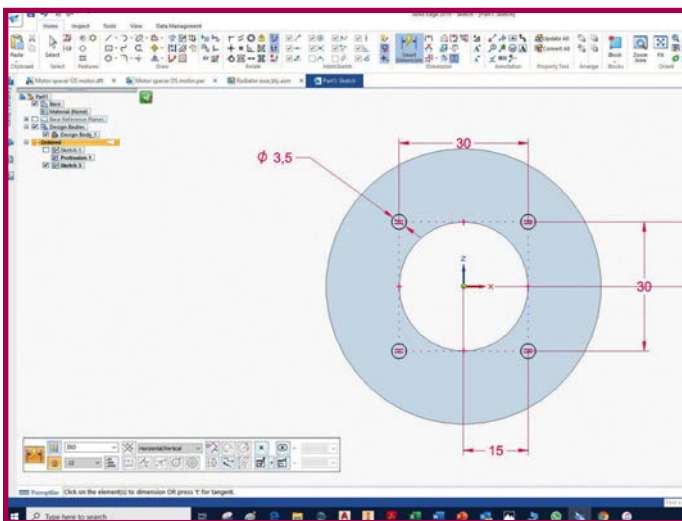
it will cut instead of extrude. In other programs cut is often a separate function. You might need to research where the function is, but it is there for sure.

Always check sketches carefully – if

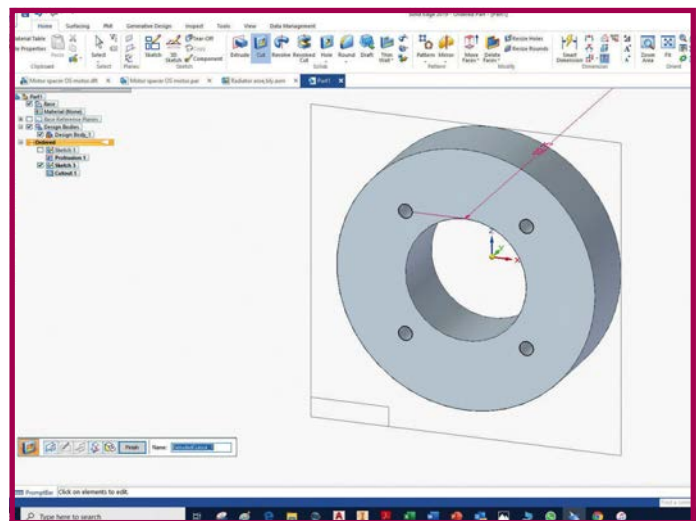
the lines overlap or don't join up then the feature probably won't work or may have problems or a strange shape! Make sure that the lines are correct and always add dimensions of course so that each sketch

you make is "fully defined".

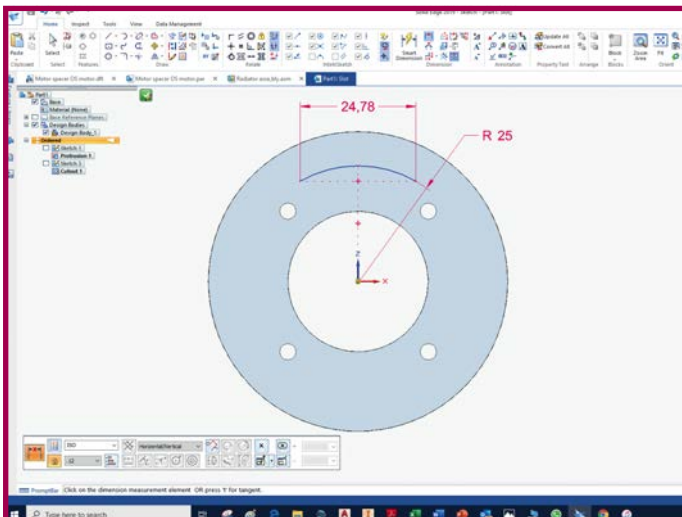
Once the part is complete it is the work of a moment to "save as" into the ".stl" format.



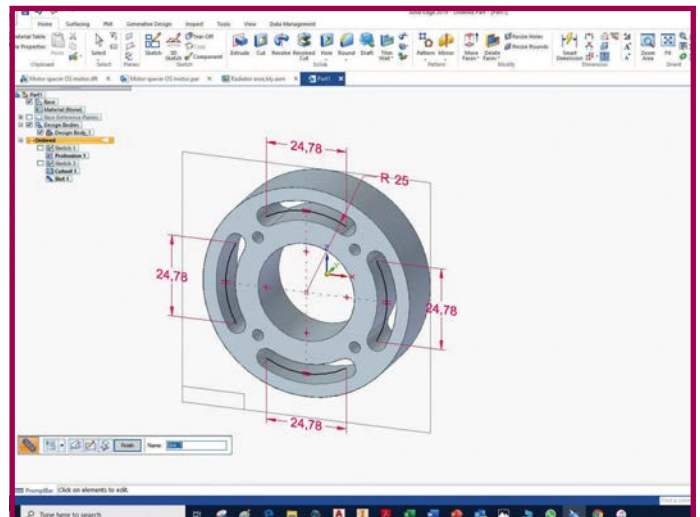
Go to Sketch and draw on the surface the hole positions.



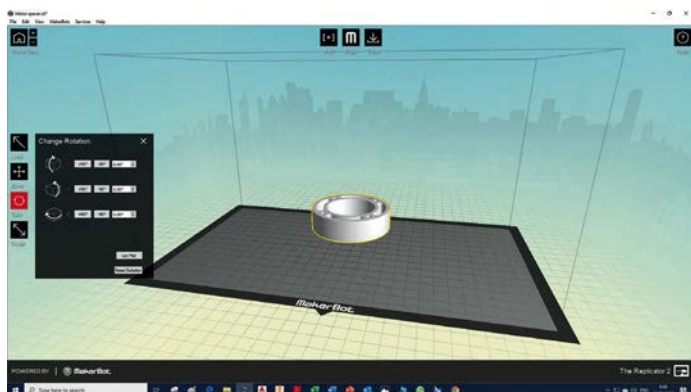
Use Cut to create the mounting holes.



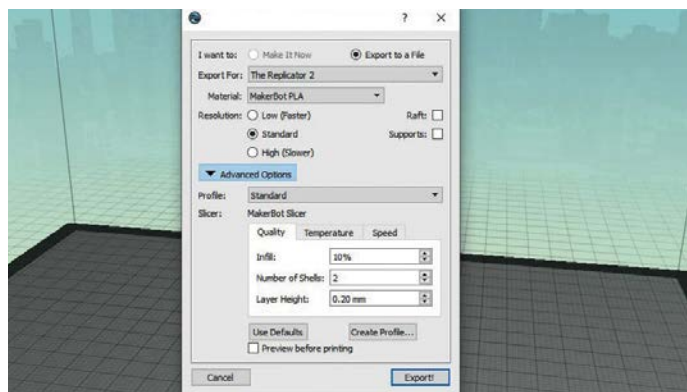
Work on the 'surface' to draw the slots.



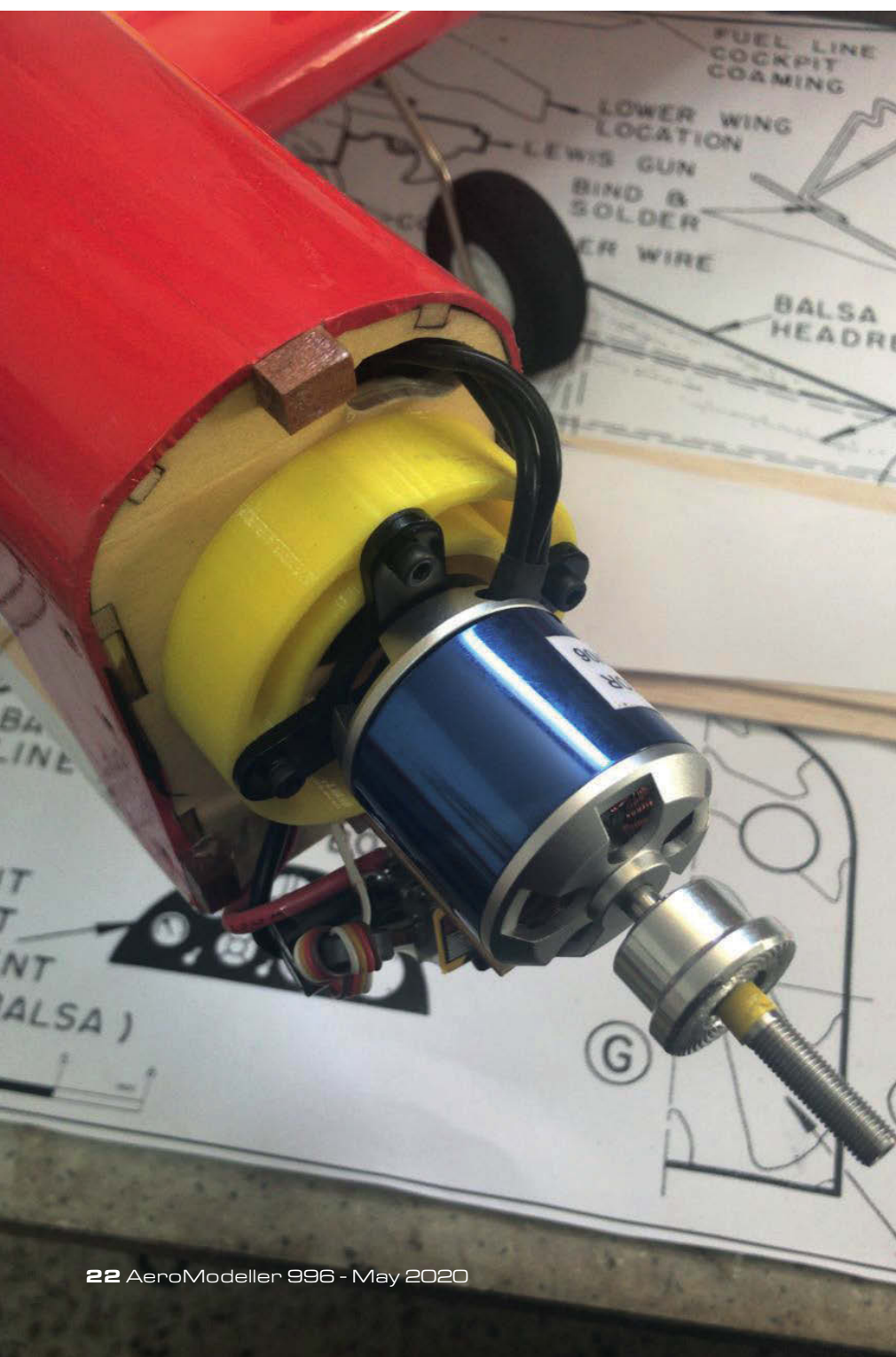
The slots are Cut through the mount.



The MakerBot software emulates the 3D printer table to allow placing of the item to be printed.



Setting the parameters to be used for the output file to the printer.



Prepare for 3D Printing

In the next step I now open the MakerBot software, which is an excellent and quite flexible program, to the section that visualises the printing table and I position the part correctly in the centre.

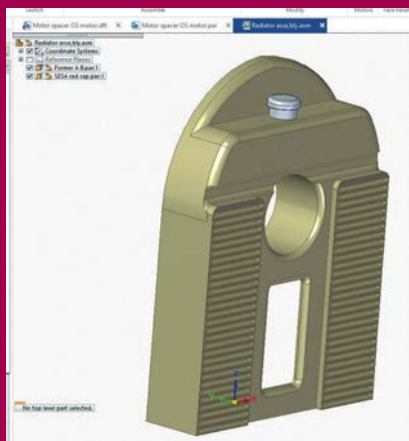
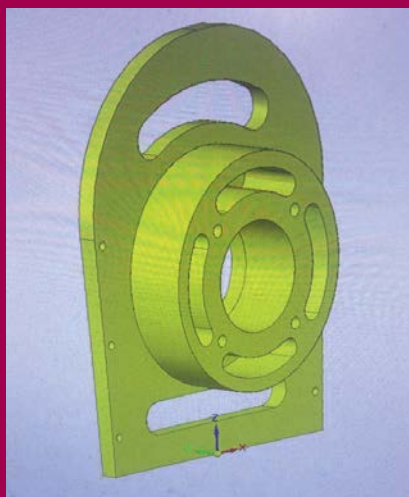
The MakerBot software emulates the actual machine and is a representation of the printing table itself. The part can be positioned conveniently and before exporting the part for printing you can choose the extras which can be both a blessing and a curse!

In order to print, the hot extruded bead needs to adhere firmly to the base plate. This plate is reversible – one side is polished and the other has a slightly textured surface. The very smooth side requires the adhesion of a special blue paper which provides a key for first layer. This side is perfect for small parts with a small to medium footprint. For larger parts you can print directly on the textured side. The issue here is that with large parts with a large footprint the plastic can distort and lift up in places from the print plate. This can damage the print head because the lifted area can interfere with the movement of the head; to prevent release of parts with a small footprint use the “raft” function. Rafts on large parts can be impossible to remove. Basically, a raft is a full extruded oversize base under the part attached lightly to the part itself.

Where parts have areas which are “in the air” i.e. unsupported, then you must tick the “supports” box for a proper production.

When designing and printing parts the

The completed motor mount used on the Top Flite Score to attach the motor to the bulkhead.



The circular motor mount design was developed to include the bulkhead for an SE5a. A separate design produced the front former with scale detail.

important thing to bear in mind is the strategy for the print which will allow for unsupported geometry, openings and other features. This strategy starts using the design program itself and goes on to the positioning of the part for the actual print. Try to visualise the entire thing before you begin. Experience is a great help and comes by trial and error. Try to get to a point where the print begins with a good footprint area and orientate the part if possible, to negate the need for supports.

Where strength is to be important bear in mind that the print can be essentially isotropic, that is in our terms, it has a lengthwise grain the longer the print, and this imparts very good strength under tension. I have produced gear wheels for small lathes which work very well because the unbroken bead follows the line of the teeth. Success!

Model Parts

For the most part, items like motor mounts are under compression. Here you

can see my own design for a conversion of the Top Flite Nobler to electric power. In this case, in order to get a good balance, I installed the ESC over the wing and needed to get some cooling air there. Here I printed air scoops which worked very well. Other items I have experimented with are a sprung undercarriage system, and I also printed wing ribs with built in cap strips, and this worked quite well but was a little heavy.

The possibilities are endless, but there are things to learn in order to succeed, particularly you will need one of the many design programs in order to produce the parts you need. The ease and speed makes this such an attractive medium and the spare parts are available literally at the touch of a button.

I hope this little treatise is of help when beginning, and I would love to hear from anyone wanting to try or having problems. Good luck and good printing.

Martin Jackson can be contacted via the editor on editor@aeromodeler.com ■



For the Nobler a motor mount was designed to allow use of the stub bearers to mount the electric motor.



Air scoops to provide cooling for the ESC in the Nobler fuselage.



Wing rib with capping strip for the Score.

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HIESBÖK – ALFA SPORT

More than just a kit review. Ann Fairless gives a beginner's view of the Alfa Sport RC model aeroplane build and what motivated her to start aeromodelling.

During June 2019 the C.A.A decided I could not continue with my Private Pilot's Licence training due to a medical condition. After 38 hours of flying, all of it fantastic, this came as a bit of a blow! So I decided that I would build a model aeroplane and fly it myself!

After seeking advice from my husband (Ian) and looking at most trainer/beginner's models available I chose the Hiesbök Alfa Sport because it looked smart, practical, gave the impression it could fly well, and the big wheels made it appear "Bush-Planeish". Alfa Sport is a high wing cabin style 42" wingspan, training / sport model of traditional wood

construction for electric power and three channel radio controls (throttle / rudder / elevator). High quality laser cut parts, a good accessories package and a price of £59.50 made the decision easier!

The UK agent for Hiesbök kits is Den Saxcoburg of Dens Model Supplies; two days after contacting Den the Hiesbök Alfa Sport was delivered. On first examination I was somewhat surprised and apprehensive of how was I supposed to make an aeroplane out of all these bits? Despite having lived in a household deeply involved in all things aviation – my husband has been building models for 50 plus years – I have never built a model so I asked for advice, this is the answer I got:

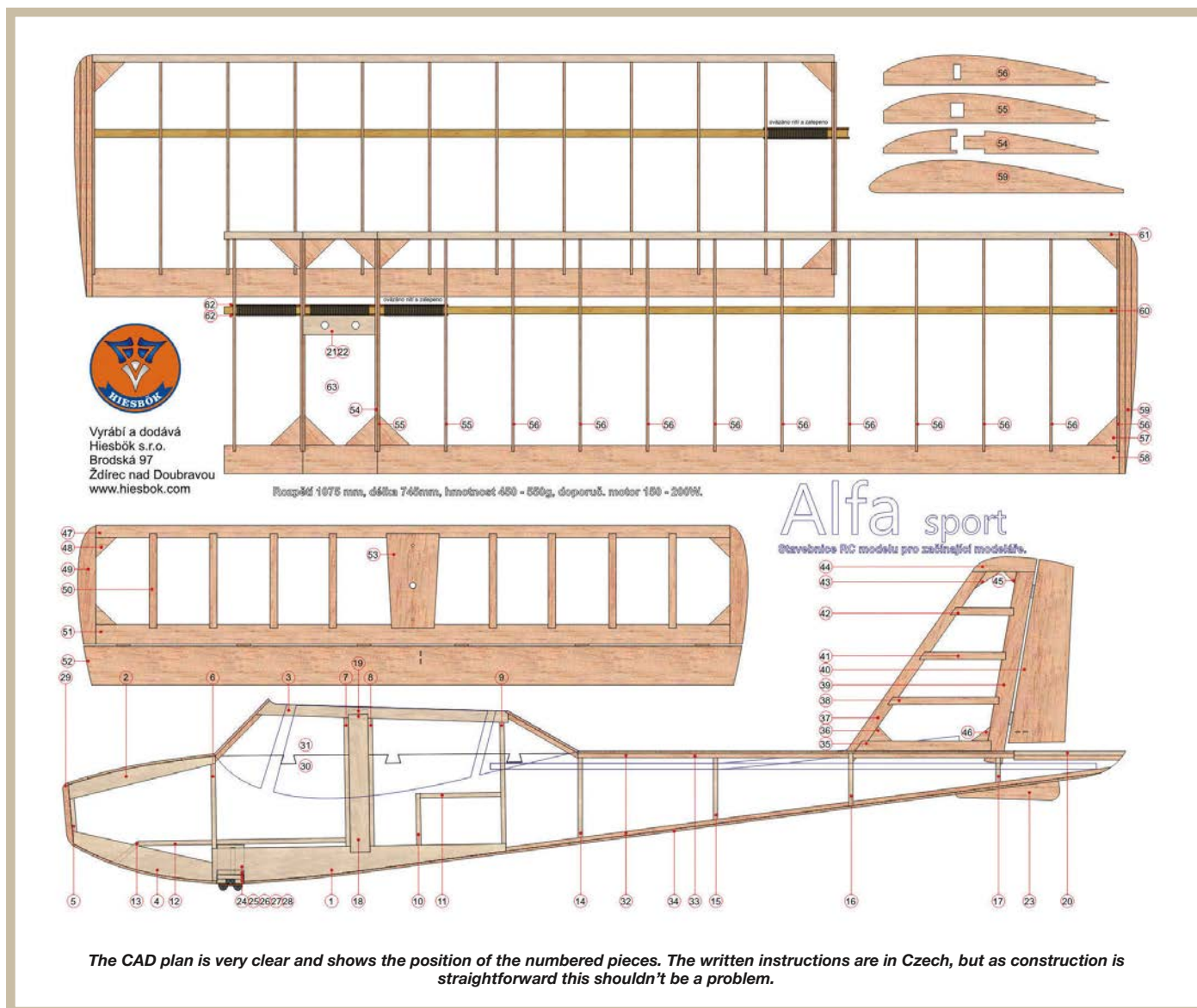
- Read and know the plan.

- Build the model in your mind.
- Familiarise yourself with all the parts and dry build it.
- Break the build into sensible groups – fuselage / wings / tailplane / Fin / undercarriage / motor / radio equipment / covering etc.
- Think things through so that each component group connects with the next.
- Only then start gluing!

On opening the box I found that all the parts were in plastic bags in component groups. Each bag had a parts sticker showing the part and its unique number, each bag is also colour coded to match the plan. The plan is very well laid out with no overlapping of component parts, and I found it easy to interpret.

Ann Fairless shares the experience of building her first flying Model – the Hiesbök Alfa Sport supplied by Dens Model Supplies in the UK.





So to the Build, the build sequence was as follows: -

- Fin/tailplane.
- Wings.
- Fuselage.
- Covering.
- RC Equipment.

Fin - Tailplane

This was started first, to give me the

confidence I would need to continue the build. After identifying the parts, these were sanded to clear the laser cutting marks, which were faint, and to ensure an accurate fit.

Rudder and elevator were sanded to the plan section / profile, and hinge positions were slotted. Hinge slotting was achieved by use of a craft knife blade, centre line set by eye; the hinges supplied fitted easily, secured with

cianoacrylate Zap Gap thin.

Wings

Happy with the way the fin and tailplane went together I started the wings, beginning with the right-wing panel first. All the parts were lightly sanded where needed to ensure an accurate fit, trailing edge rib cut outs particularly needed easing. The Leading Edge (LE) proved to be a bit fiddly, due to the LE of the wing ribs being slightly angled backwards. This is necessary to allow the profile of shaped LE to align correctly with the ribs aerofoil section. So to line everything up correctly I placed small pieces of scrap balsa to the correct height, between each rib to help lift the leading edge in to place, once happy everything lined up each rib was tacked into place using superglue and then finished off with superphatic glue.

Although not called for called for by the plan, to strengthen the rib to leading



The Alfa Sport is a laser cut kit produced by Hiesbök in the Czech Republic. Ideal as an electric sports RC model, or as a beginner's trainer with some support.



The laser cut parts are sensibly packed in labelled bags and colour coded for the different aircraft components, thus reducing the chance of confusion.



Covering the plan with thin, clear polythene/plastic ensures the glue does not stick your tailplane to the plan. Sensible use of weights and pins while the glue dries will result in a flat and robust structure.



Ann found that it helped to pack the LE strip up with scrap balsa when fitting and gluing it to the ribs.



The Trailing Edge is nicely indented by laser cutting for the rib ends. Ann decided to take a 'belt and braces' approach to strengthen the LE by adding gussets – not strictly necessary but good on a training model which will get additional knocks.



The wing centre section is constructed as a unit before the wing panels are added.

edge joint, gussets were added to each side of the ribs. The left wing was completed to same way. Next the centre section was tackled, again the parts were identified before cleaning and dry fit.

Once both wing and centre units were completely dry they were dry fitted together to check that the dihedral was correct (65mm at each wing tip). Wing assembly was achieved by fixing the centre section to the building board (weights) gluing the right wing to the centre-section, making sure the dihedral was correct and the wing panel was square to the board and allowing it to dry fully before adding the left wing. Once both side were dry the wing braces were wrapped with thread and epoxied in place as per the plan.

As this is my first model I decided not to use the supplied wing bolt method of attaching the wing to the fuselage but to use rubber band and dowels in the fuselage instead (rubber bands have more 'give' than a bolt on a hard landing.) So, to protect the wing from the rubber bands, the first wing bay next to the centre section was sheeted top and bottom with 1.5mm balsa.

A small modification was made by making small holes in each rib and a small tube was added to the wingtip in order to let air escape when covering with heat shrink film. The tubes in the wingtips were placed at the shown centre of gravity position – this makes CG checking on the flying field really easy, by simply inserting a piece of wire in each wingtip tube.

Fuselage

Once I had identified all the fuselage parts, these were lightly sanded and then dry fitted. During the dry fit, I found that the slots for the servo tray in former (part number 29) were 4mm too high, these were lowered by sanding. I added spruce strips under the servo tray (part number 28) to secure the servo retaining screws. The fuselage was built, starting with the internal nose section, this slotted together very well.

The fuselage undercarriage sub-assembly consisted of 6 plywood parts, and it was easy to follow the plan and install. I did a dry fit with the undercarriage legs which were nicely bent and it all went together without any problems. That completed the internal

nose section.

The next section was fuselage sides. During dry assembly I found trying to fit the rear fuselage formers a bit awkward, so I asked Ian for advice, he said "fit some locating strips" using some scrap balsa strip that was cut to size and glued into place, making the fuselage formers easy to fit and in correct alignment. 2.5mm balsa gussets were fitted reinforce the wing dowel locations. The sides were then in turn carefully aligned and glued to the internal section and left to set.

The nose section and attached sides were then placed over a centre line marked on the building board and held in place by metal block engineering squares, so that the fuselage was held vertical and centred over the building board centre line. The rear fuselage formers were placed next to their locating strips, and after checking that everything was aligned and symmetrical they were glued in place. Prior to sheeting the top of the fuselage the control runs were epoxied into place. The bottom sheeting was added.

Wheels

The wheels consisted of 4 large and 4 small diameter plywood parts (for the construction of 2 hubs) and 2 polystyrene tyres.

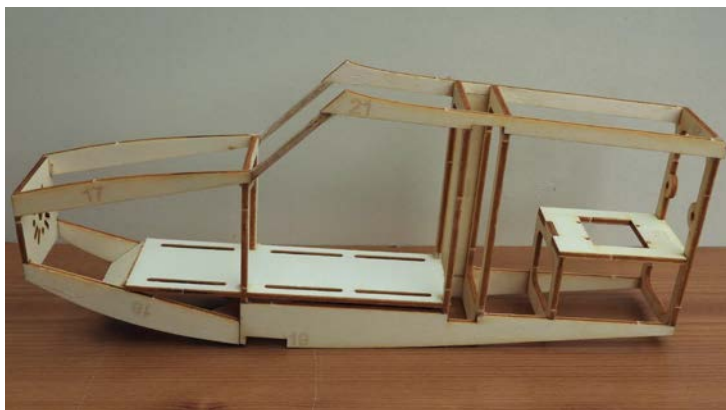
The hubs were sanded flat and the spoke edges were rounded off to enhance the look of the wheels. Building each side of the hub took 1 large and 1 small part aligned and glued together. They were finished off with sand sealer and sprayed up with primer and top coat.

The tyres were sanded smooth and any imperfections filled with Perfect Plastic Putty. Once the putty had set, the tyres were rubbed down with P600 glass paper. The tyres were then given 2 coats of Deluxe Materials Foam Armour, lightly sanding between each coat and finally they were given 2 coats of Humbrol Matt Black Enamel.

Assembly achieved by sandwiching the tyres between the wheel



The left and right wing panels are glued in place propped to the correct dihedral while the centre section is held flat on the work bench. Once the glue is dry then the dihedral brace is bound to the main wing spar.



The construction of the fuselage starts with this sub-frame for the internal nose section.



Ann added some small strips of scrap balsa to the inside of the rear fuselage to assist with the alignment of the rear formers.



It is easiest to fit the control runs (Bowden/snake outers) before completing the top and sheeting.

hubs and screwing together. Worth the effort as the wheels look really smart! (See photo.) Wheels were fitted to the preformed undercarriage legs and held in place by soldered on washers.

Covering

The tailplane, elevator, fin and rudder were covered with yellow Oracover which went on easily.

I wanted to have a red fuselage but no Oracover - this resulted in three attempts to get an acceptable finish...

First attempt - I used tissue with Deluxe Materials Eze Dope, however the tissue kept tearing and it would not stretch around the curves. After talking to Ian, I found out that I had been using the wrong grade of tissue

- it needs to have water strength for Eze Dope.

I should have used cellulose dope for this type of tissue, but I banned Ian from using this years ago due to the

horrible smell! Therefore the fuselage was cleaned and sanded back to base balsa.

Second attempt - I used Easy Cover Red iron-on covering which I "borrowed" from Ian's covering box. This seemed to go well until it cooled, when I could see all the faults and changes in colour. Ian explained that I had used too a hot an iron in some places and not enough in others, and too much pressure with the iron. I was not happy with the look of the fuselage so back to bare wood it went. Firstly I removed as much of the covering as I could, then with an old Stanley blade and cellulose thinners I removed all the adhesive and sanded the fuselage back to bare wood.

Third attempt - after talking to Ian and raiding his covering box again, I used glass cloth and finishing resin; this went on quickly and easily and give a really good finish. The final stage was to give the fuselage one coat of Wilko's spray primer, then two coats of Wilko's Red Spray Paint and 1 coat of Wilko Clear Varnish, SUCCESS!

The very last part of covering the fuselage was to add the windscreens, using waste cardboard I made templates of the windscreen and using the templates cut out some Grey Plastic Vinyl to correct shape and added these to the fuselage.

Fitting Out

The wire control runs were installed into the previously fitted outers and

servo arms put on z-bends before screwing onto servos. Instead of the supplied ply control horns I used filed down commercial plastic horns bolted to the rudder/elevator, and these were connected to the wire control runs by Du-Bro Mini E/Z connectors (making adjustment really easy).

Next the motor bolted onto the firewall, and connected to the ESC by 3mm bullet connector (suitably insulated). The battery (1300mah LiPo) connected to the ESC by Dean connectors - I'm getting good at soldering now. ESC/battery/RX all held in place inside the fuselage by Velcro - Note, balsa was given a coat of epoxy before Velcro was applied.

System checks - carried out with no propeller fitted - made sure of motor rotation and functioning of control surfaces. Rudder/Elevator aligned correctly, and low rate of 60% set up on Spektrum transmitter. Propeller fitted and power checks carried out - taking care to keep away from propeller arc. Centre of gravity set by position of battery - no ballast required. All OK - Now ready for flight!!

Test Flight

The test flight took place early one morning with very little wind (5mph), when Alfa Sport took to the air. I was incredibly nervous - going solo in a Cessna 150 was nothing compared to this!

When finished the wheels not only look good, but are lightweight.

The Alfa Sport is an all balsa 42 inch (1075 mm) wingspan RC model for electric power and rudder, elevator control, typical weight 1lb (450g). Designed for a motor in the 150W range, all parts are laser cut from premium balsa and ply, snakes and pushrods are provided as is a CAD drawn plan and decals. Note the instructions are in Czech, but this should not be a problem for the experienced aeromodeller or beginner with support. www.hiesbok.eu

UK readers can buy the Alfa Sport kit, part number HS 6, for £59.50 plus P&P from Dens Model Supplies www.densmodelsupplies.co.uk email: den@denandtheartof.co.uk or phone Den Saxcoburg on 01983 294182.



Construction of the wheels using laser cut ply hubs.

I asked Ian to do the first test flight with his years of experience. After connecting the battery and doing final centre of gravity checks - Ian checked everything twice. The pre-flight checks mirrored full size procedures and probably more thoroughly.

Ian decided for a hand launch, so with approximately 60% throttle he gently pushed her into the air. I held my breath, she flew!

She climbed away, well balanced and rock steady to about 250 feet in altitude, did some left and right circuits followed by stall checks. Power to glide transition was smooth and the glide was superb. I remember thinking I'd built her and she was flying - amazing. Ian then brought her down for some low level passes so I could take some photographs. Then he gave me the transmitter and said go fly!

I was shaking but I flew her. After about 15 minutes Ian took her for a landing which was a roller. No alterations were necessary.

After a battery change she was off again with me flying her!

I felt a great sense of pride at what I had achieved in building and flying my own aeroplane - equal to anything I've experienced in full size aviation.

In Retrospect

Although, building the Hiesbök Alfa Sport meant a steep learning curve for me personally, it

has left me with some happy and fun memories of building and covering the Alfa Sport, but seeing her take to the air left me with the most precious memory of her flying.

The Alfa Sport package, the model kit, covering, motor and RC equipment cost me no more than one hour's full-size flying, and in my eyes that represents good value for your money. The whole experience was great and one I would

recommend anyone to do, I will most certainly be building another model aeroplane. ■



After three attempts Ann got the red fuselage she wanted for the Alfa Sport. As with any new set of skills, things aren't always going to be right first time - perseverance is called for!



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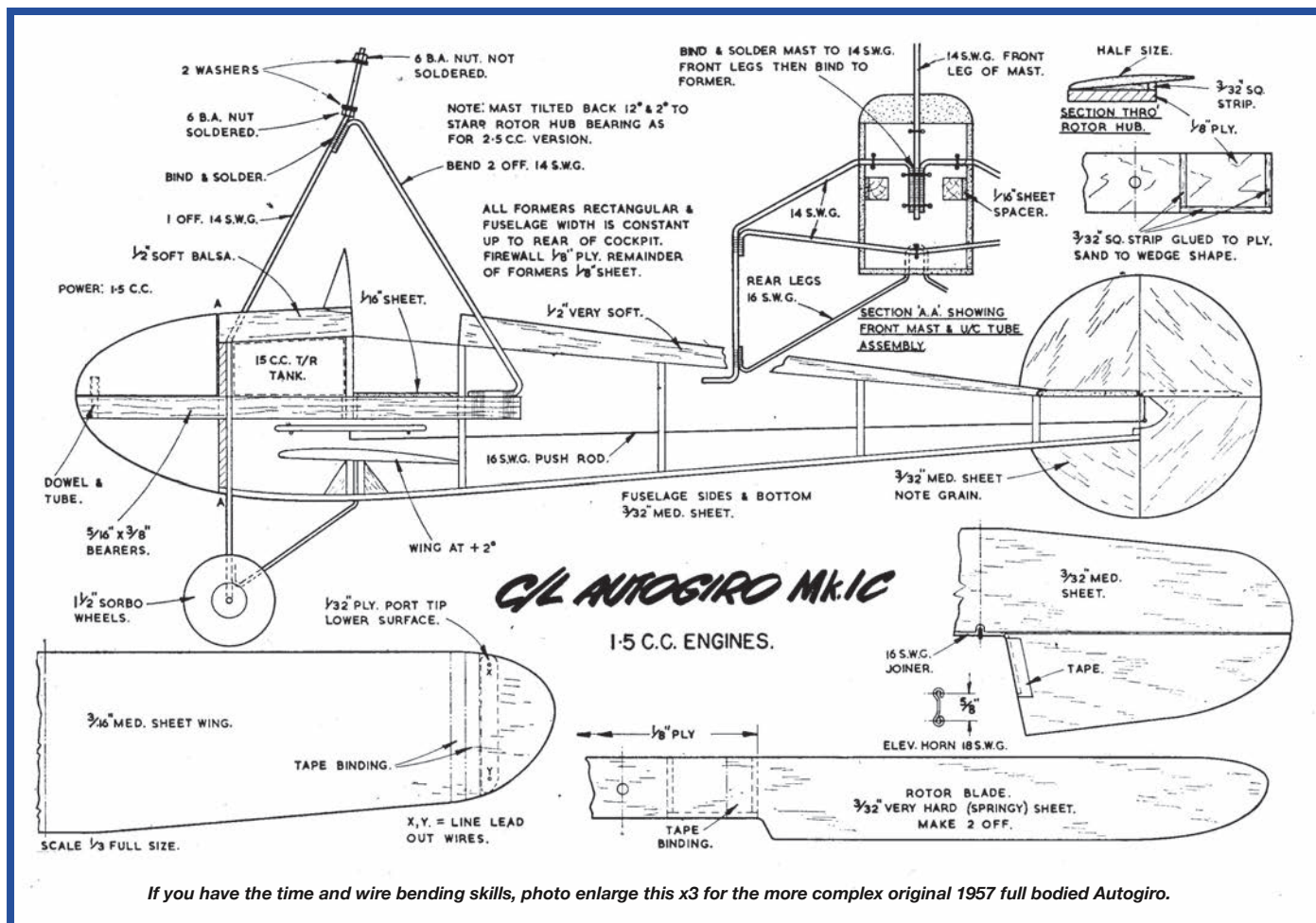
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C1

*Allan Voyce produces a simplified
version of C P G Wheldon's 1.5cc
powered CL Autogiro.*

PROFILE CL AUTOGIRO





I was given a C1 Autogiro in the late 60's, and powered it with a rather tired DC 1cc. It was a fascinating aircraft, although a little underpowered, and I flew it on 10 foot lines to maintain control. A few years ago I bought some AeroModeller annuals on the Internet, and lo and behold the first article in the 1957 book was about the C1 (1.5cc) and C2 (2.5cc) autogiros designed by C P G Wheldon. My enthusiasm was re-ignited, and I decided that I would build one again... some time. After poring over the plans occasionally over the next couple of years I decided the amount of time required to produce the fascinating wire work on the undercarriage and rotor pylon would probably cause the build to be put aside numerous times; other projects I had in the pipeline took precedence.

After flying radio control only for many years, I was looking round my workshop during the week to decide which planes

to take out to the field that week-end, and hidden behind a row of wings stacked against a wall were 3 control line models. After a bit of digging through boxes for the control lines, dusting off a couple of planes and bolting engines to them, I was set for getting back into "direct control".

Once the shaky circuits had been controlled into something resembling level flight, and a few wing overs and loops had been accomplished, while wiping down the planes and admiring them for their simplicity, a thought manifested itself. Why not build an autogiro with profile fuselage? The plans were pulled out the next day, tracing paper put over them, and the "new" fuselage drawn up and construction started on what had now become a simple to build aircraft.

Construction

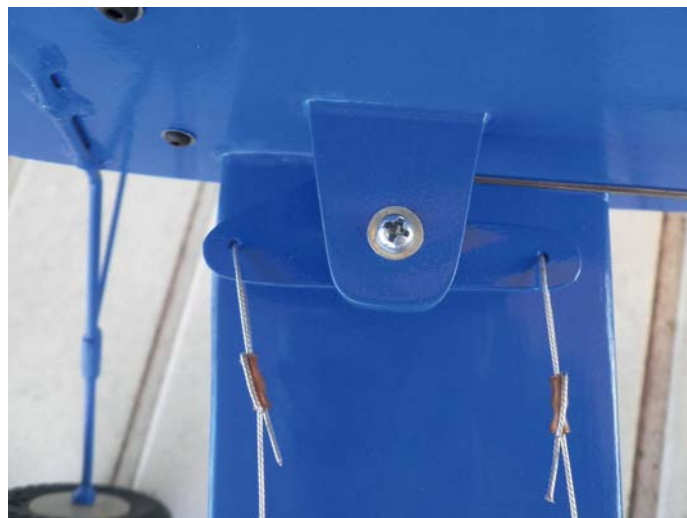
Cut out the fuselage parts and the centre portion of the wing. Sand the wing to the

aerofoil section, and make sure it slides through the hole in the fuselage. Drill the holes for the rotor shaft and binding in the rotor tower and make up the rotor shaft from 14 SWG spring/piano wire, noting the 2 degree offset to the right. Test the shaft for fit, as a little material will have to be filed or carefully cut in the tower where the mast passes through to allow for the bend in the wire. Don't bind the shaft to the tower yet.

Glue the tower and lower engine bearer in the cut-outs in the fuselage, and add the balsa pieces that fit at the base of the tower and above the top engine bearer. The 1.5mm ply doublers are fitted next. The easiest way to get all the holes to line up when fitting the doublers is simply don't cut them out yet. Glue one doubler in place, then once it's dry, drill a hole in the doubler at the bellcrank and wing position, and carefully cut out the pieces with a fretsaw including the gap for the engine using the cut-outs in the fuselage as a guide. Test



The bellcrank mount with safety dowels can be seen just behind the tank



The bellcrank is mounted below the tank.

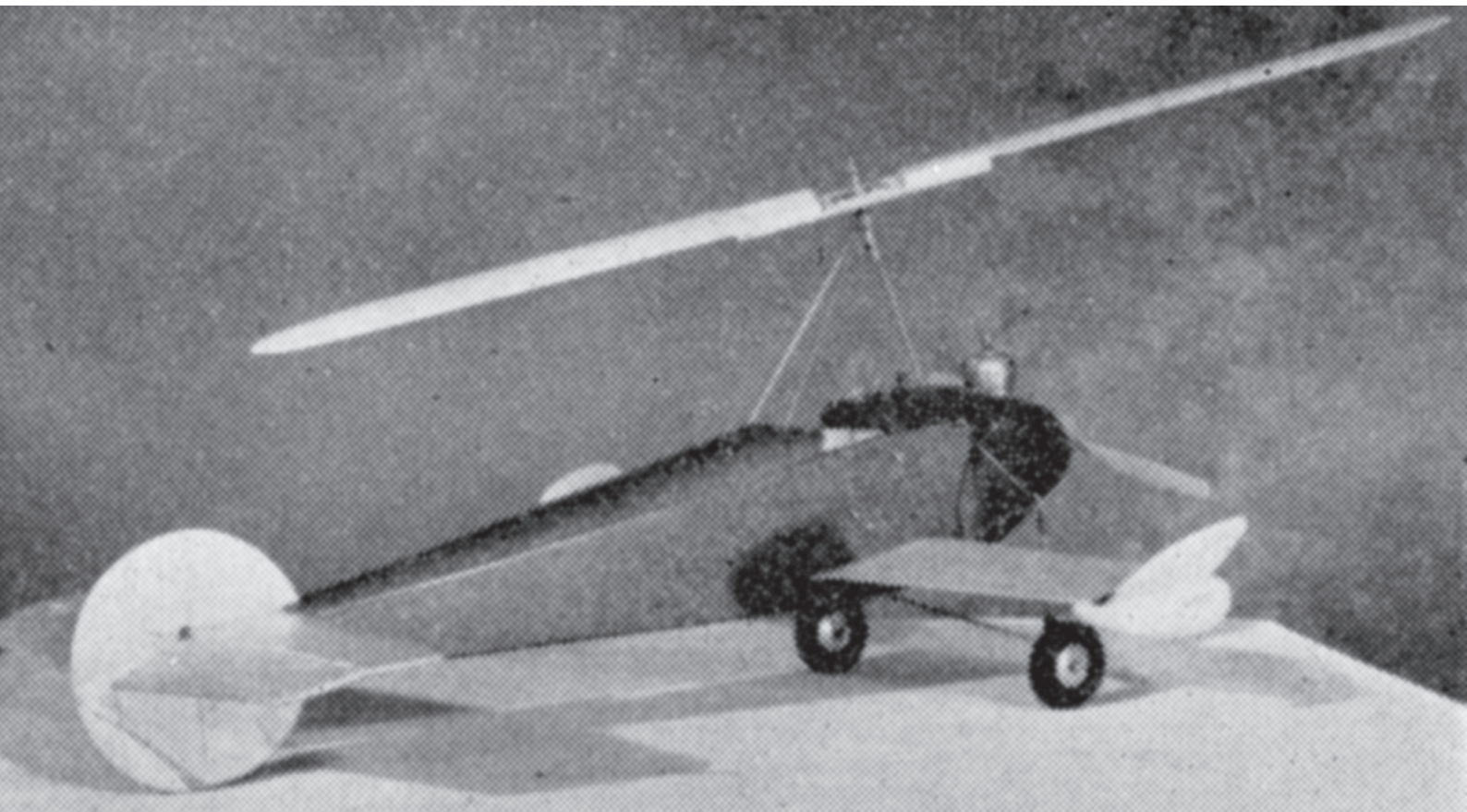
fit the wing and bellcrank mount, then add the other doubler, cut out the holes and test fit parts again. Drill the 8mm hole and the 1.5mm binding holes for the undercarriage.

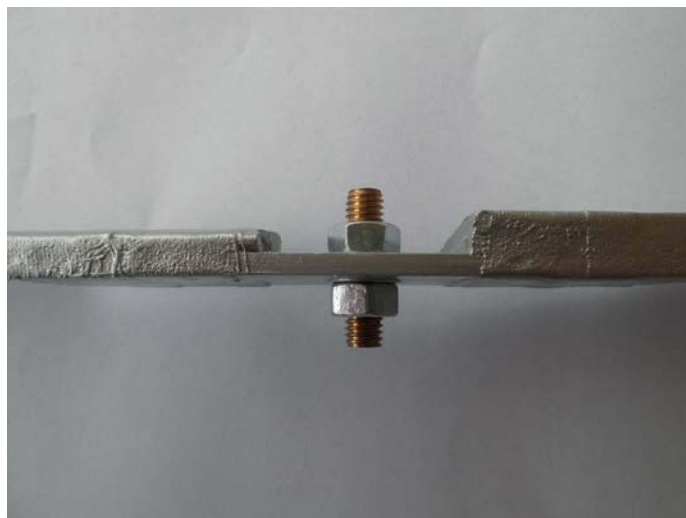
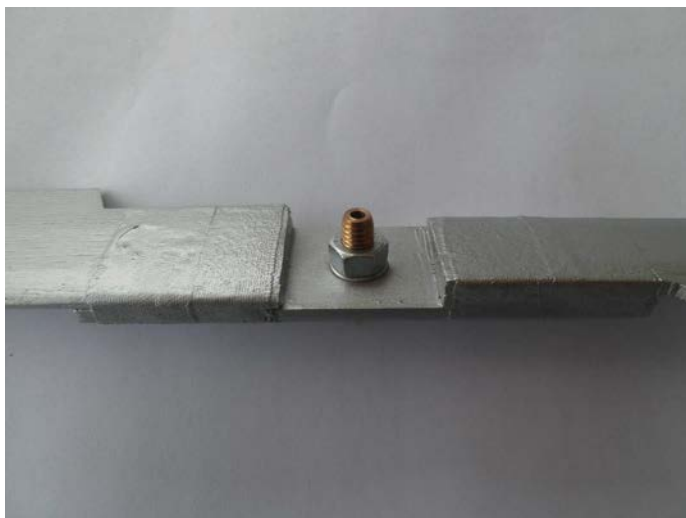
The upswept wing tips are cut slightly oversize, as it is easier to sand just the tip join to get a good fit, instead of sanding the wing and tips at half the angle each. Make up a cardboard or

balsa template at 55 degrees, and by placing the template under the wing tip on the edge of your building board, the angle can be sanded using the edge of the board as a guide. Place the tip against the end of the wing, draw the wing section on it & sand the tip to this profile. Glue 1 tip to the wing, and add the cloth tape for strength. The wing can now be glued to the fuselage, and

the other tip added. Glue the bellcrank mount in, noting the 2 dowels that are for security instead of just relying on the glue to take all the forces.

Add the tailplane next, but do not attach the elevator yet. Dope only the tailplane and elevator, then use cloth or sewn hinges to attach the elevator to the tailplane. The reason for this is because the elevator joiner passes





Alternative bronze rotor bearing made using a lathe to ensure the shaft hole is central.

through the fin, and if the whole plane is doped after adding the hinges, they become too stiff to operate freely. The fin is added next, noting the offset. Add the plywood tailskid, and fill in between the skid and the fin with scrap balsa. Fit and bind the rotor mast to the tower. Slide the undercarriage through the 8mm hole from the front of the fuselage, and bind it to the fuselage. Make sure the undercarriage is centralised in the 8mm hole, then place a piece of masking or sticky tape over one side of the hole, making sure it fits snugly around the wire and against the fuselage. Fill the hole with liquid epoxy.

Rotor Blades

Sand the rotor blades to the aerofoil section, noting that both blades are the same, NOT one left and one right! Glue the 2.5mm square pieces to the plywood rotor hub, and sand them to a triangular shape as shown. Glue the rotor blades to the hub, and strengthen where shown with cloth tape. The rotor hub can either be made as shown, or if you have a lathe, a piece of brass can be machined with a 6mm outer thread and a hole for the shaft. It is then simply assembled to the hub using 6 mm nuts with a washer under each nut.

Finishing and Assembly

Give the rest of the aircraft and rotor blades 3 or 4 coats of dope, except the tailplane which is already doped. Spray cans are an easy way to add colour to a model without adding too much weight

or stiffening up the elevator hinges. Fuel proof the model.

Fit a commercial elevator horn that has a hole approximately 12mm from the elevator. Make a Z bend at one end of the 16 SWG pushrod, and fit it to the bellcrank from the top. Bolt the bellcrank to the mount, make sure it is at neutral, mark the pushrod where it must go through the hole in the elevator horn with the elevator level. Make a Z bend at this point. Remove the bellcrank, fit the pushrod to the elevator & re-fit the

bellcrank. Check for free movement of the elevator.

The lead-outs can be made from 20 SWG spring wire or commercially available flexible lead-outs.

Balancing the Rotor

After dopping and painting, the rotor blades can be balanced by clamping a piece of 14SWG wire to the workbench (horizontal to the floor), placing the rotor on it, and adding additional paint to the lighter blade. Let the paint dry before

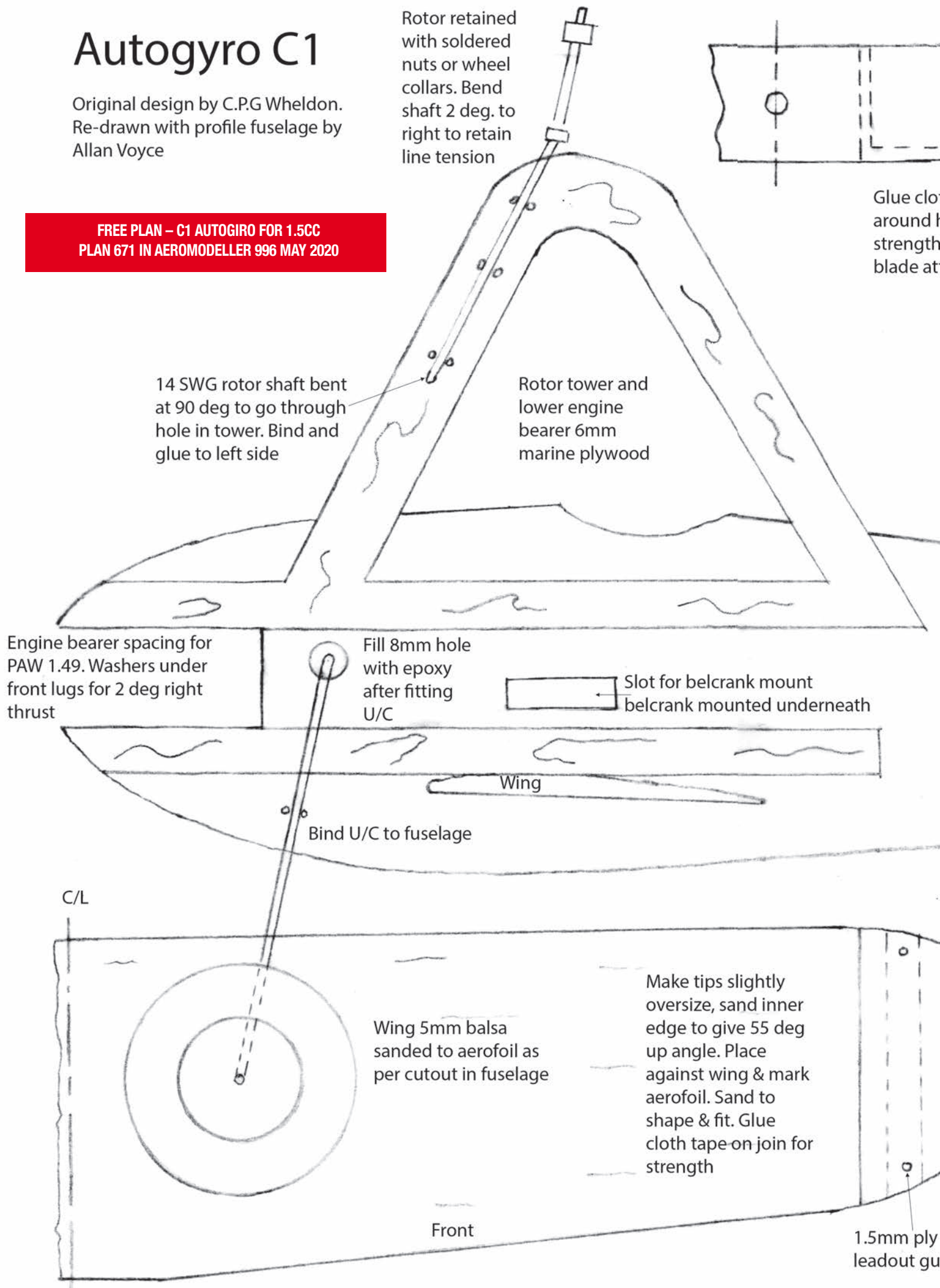


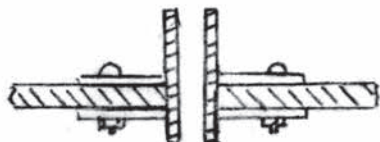
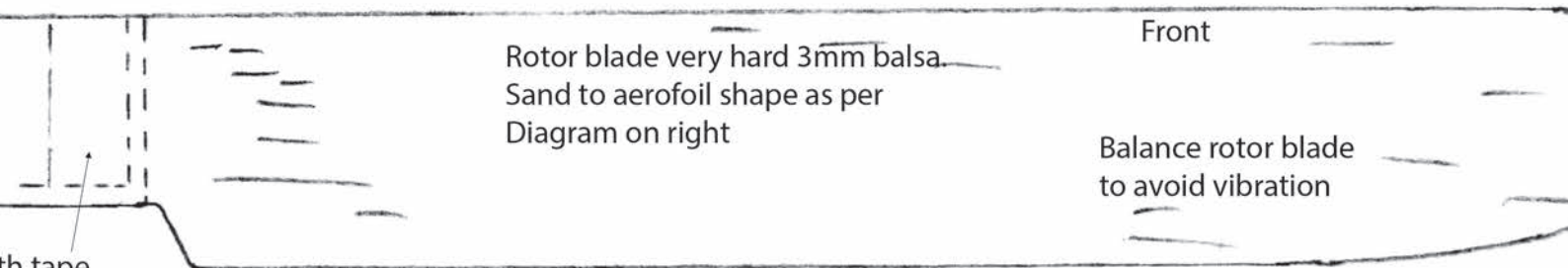
The lead outs run through the up swept tip reinforced with 1.5mm ply. Allan also added small tube guides.

Autogyro C1

Original design by C.P.G Wheldon.
Re-drawn with profile fuselage by
Allan Voyce

FREE PLAN - C1 AUTOGIRO FOR 1.5CC
PLAN 671 IN AEROMODELLER 996 MAY 2020

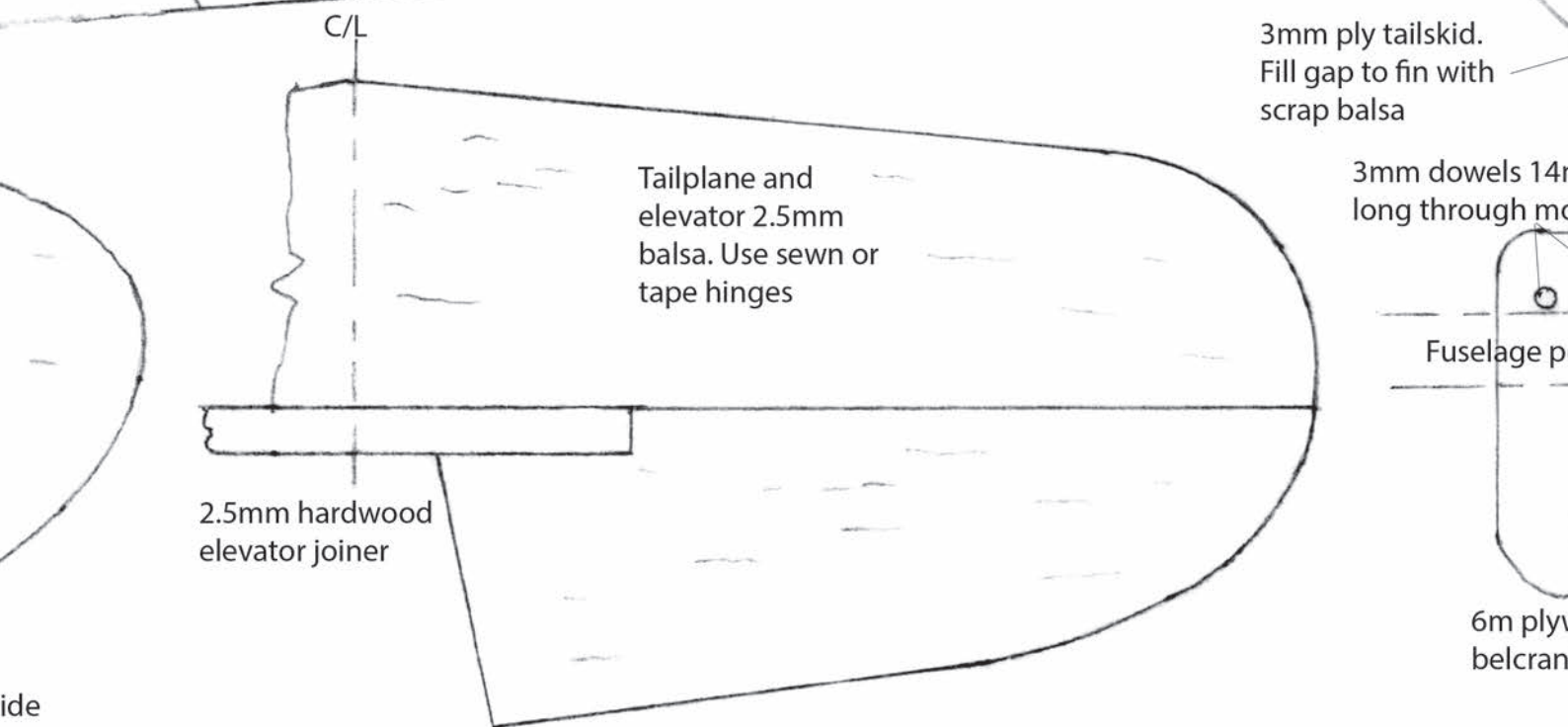
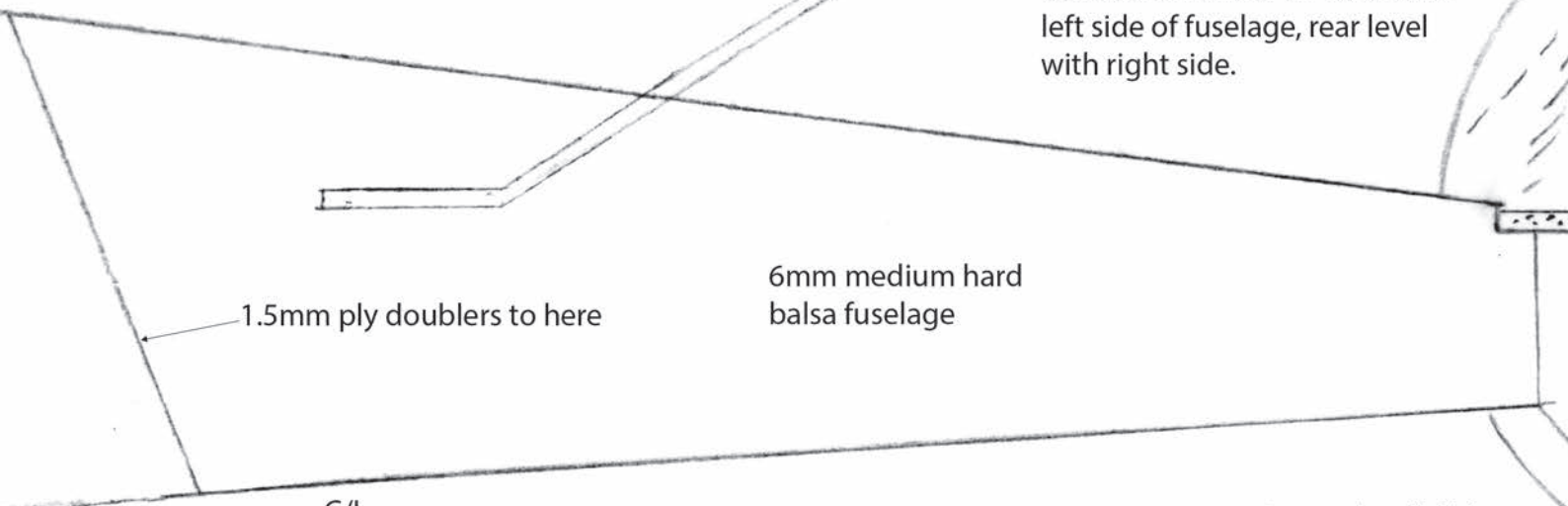




Rotor hub detail using brass sheet bolted to
hub & brass tube soldered in. Tube should spin
freely on shaft with as little play as possible. A
washer is placed on shaft above & below tube
when rotor is fitted

Undercarriage
14SWG spring wire

Fin 2.5mm balsa. Note grain
direction. Front of fin level with
left side of fuselage, rear level
with right side.



each check, as the paint gets lighter as the solvent evaporates.

Flying

The Autogiro should balance 20 to 25mm in front of the rotor shaft. If it balances at or behind the shaft, it will be too unstable to fly. The model cannot be hand launched, as the rotor needs to get up to speed before taking off. Fly on 30ft (9 metre) lines. Start the engine with the model downwind, and have your helper spin the rotor (Anti-clockwise is the right direction!), then release the model. Once the rotor has got up to speed, the Autogiro will lift off. Be careful if the wind is a bit brisk, as the Autogiro will leap off the ground, and you need to correct it quickly. If there is a bit of wind, you can get the Autogiro to hover by slowly applying up elevator as it comes into the wind. When the engine stops, the Autogiro has virtually no glide, so as it slows down at about shoulder height, apply full up elevator and it will come down vertically for a soft landing.

In the original AeroModeller annual article, C P G Wheldon stated: "Contrary to popular opinion, the Autogiro layout is quite stable, and is no more difficult to fly



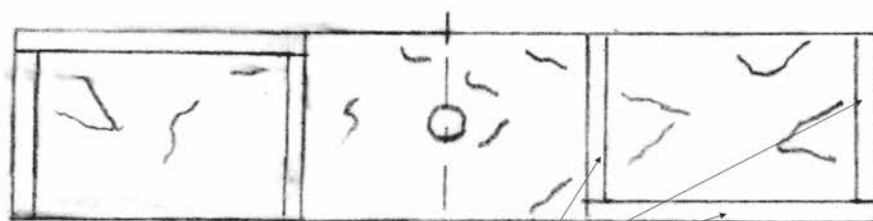
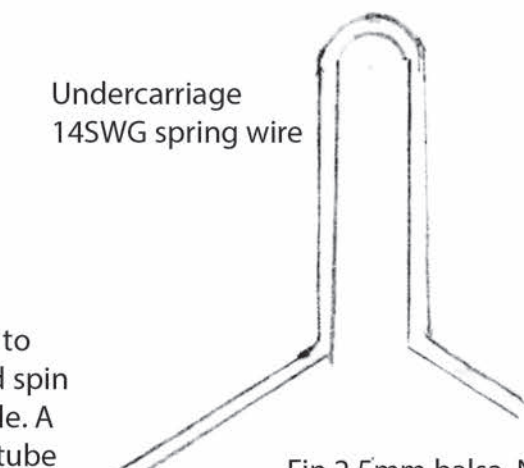
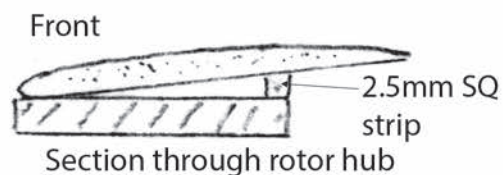
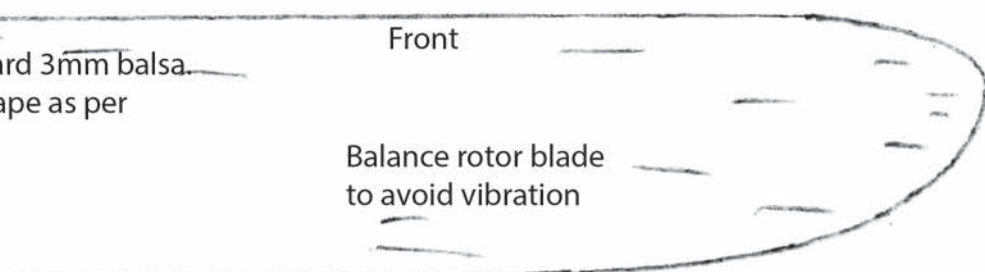
Completed C1 Autogiro ready to fly powered by PAW 149.

control-line than any other type of model. The rotors, revolving anti-clockwise, appear to counteract any tendency for the models to "come in" on the lines. This peculiarity works in our favour as the higher a model flies the less line tension one normally gets, but, with Autogiro, the higher one gets the more rapid become the revolutions of the rotors and so the tighter the tendency to pull out. Both models will almost free-flight round the circle high up.

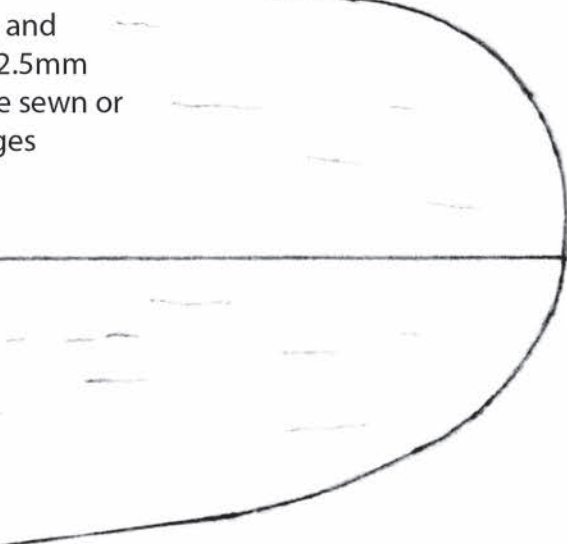
The ultimate example of the Autogiro's capabilities lies in its ability to hover. Both models will do this. The manoeuvre is carried out in the small version by juggling with the forward speed of the model—by applying up elevator (gently) just as it is coming into wind—and balancing this against the wind speed." Why not give one a go?

Editor's note. Both spellings of Autogiro/Autogyro are in common usage and both were used in the original article. ■



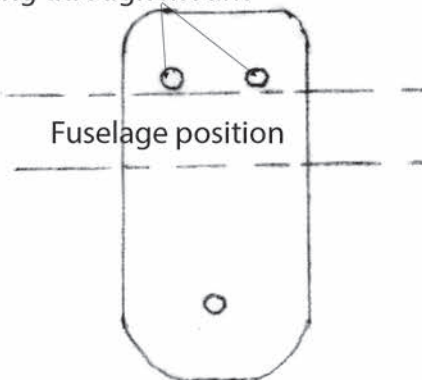


6mm medium hard balsa fuselage



3mm ply tailskid. Fill gap to fin with scrap balsa

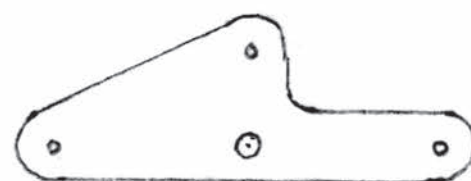
3mm dowels 14mm long through mount



6m plywood belcrank mount

Use a commercial elevator horn with the 16 SWG pushrod in a hole approx 12mm from the elevator

Belcrank 1.5mm aluminium





Free Flight Scale

SCALE MATTERS

Bill Dennis on his and others' FF scale builds



Max Holste Broussard

Avid readers may remember the recent photo of a rubber-powered N.A. T28 Trojan by Mike Kelly. This model was notable for the complex but perfectly-executed tissue finish with not a join or overlap to be seen. I have always found this to be one of the most difficult skills

to master (and never have).

Mike has now sent photos of his latest – a MH-1521 Broussard designed by Mike Nassise. At 22" it is smaller than it looks and weighs 24g empty. It is covered with blue, white and yellow Esaki that has been chalked on the inside surface to give more depth of

colour.

The box fuselage was modified slightly with formers on the top and bottom of the frame to better capture the rounded top corners and belly of the original aircraft. Mike added many details to the model, including air intake screens, door hardware, hinges and mass balances



This is Mike Kelly's splendid Max Holste Broussard for rubber power. A fine example of colour tissue work with nary an overlap to be seen.

for the control surfaces, miscellaneous antennae, and an articulated tailwheel that assumes the appropriate extension for ground and flight attitudes.

Fortunately most of the details were fairly lightweight - not including the tailwheel assembly the 50+ fiddly bits added less than a gram to the overall airframe weight, which is quite remarkable.

Best flight time so far has been 61 seconds using 2 x 22" loops 3/32" rubber wound to about 1100 turns. If you want to see Mike's initial trimming

session, do a YouTube search for Mike Kelly Broussard.

Dewoitine

This is Pete Fardell's latest - a neat little Dewoitine D500. It is 26" span, doubled up from the Fillon Peanut plan. It looks very flyable but the main point of interest is the silver finish. Pete has eschewed the usual sprayed paint and experimented with rub 'n' buff. This gives excellent results on things like cowlings but I have never heard of it being used

like this.

Pete has now flown the model outdoors and it goes very well indeed, albeit in a straight line. Again, search YouTube for Dewoitine D500 trimming flight. However the Rub'n'Buff is - well - rubbing off.

Jack Foster's Chrislea Super Ace

This is now almost ready for testing. I used 10 micron clear mylar stuck on with Balsaloc and lightweight Modelspan doped on. Despite using 'non-shrinking' dope (is there such a thing?) I was disconcerted that some elliptical warping had crept in. The tissue is applied wet so for the second wing I let it dry - and shrink - before re-wetting and doping it down, but it still curled.

The cartridge paper rear decking worked really well, despite my misgivings. Less successful were Jack's wing tips, shaped from some very open white foam and sealed with PVA. Even though further covered with tissue, some stray dope spoiled them and at some stage they will have to come off, to be replaced by balsa. However, cutting them off will probably result in the end rib pulling in, and repairing the covering will not be easy, especially with the mylar and tissue.

The blue and silver were sprayed in



Mike's previous model the T28 Trojan was also a masterclass in tissue covering.



Pete Fardell's indoor rubber Dewoitine is a very attractive and unusual subject, finished with silver rub 'n buff. A brave experiment but unlikely to catch on!



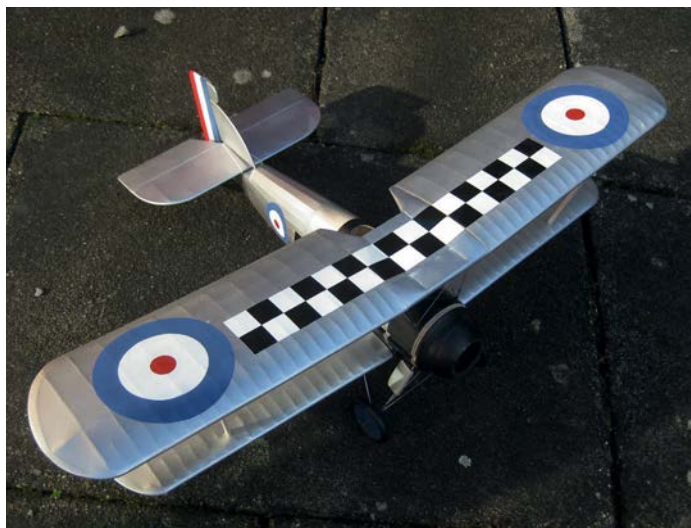
The Chrislea is a very big and light model, suited to those nice calm summer evenings that are on their way.



The Chrislea cockpit was apparently an unusual place, with counter-intuitive controls. Terry Thomas will no doubt cope well.



The engine compartment is cavernous but needs to be kept light; keep fretting that plywood!



The Gamecock just needs an engine before testing can begin. The final step will be to sew cylinders to the sink plunger. This model has turned out half the weight of PE Norman's original.

cellulose, together with a sheet of decal film for the registration and stripes. The plan includes templates for the glazing and they fitted remarkably well. One of the welcome cross-overs from the electric RC scene is the availability of very lightweight wheels, which add a scant few grams, rather than ounces.

The final weight is 16.5 oz which equates to my favoured 7oz per sq ft loading. Unfortunately, because the nose is long and the rear end mostly air, I shall need to add some tail ballast, which always goes against the grain. If you build one of these, try to lighten the front.

Once the model was together it was clear that the proportions are a little odd, with a big wing and a small tail on the end of a short moment arm, but I know it flies. As long as the Mills 75 is able to drag the large bulk through the air, it should be a nice sedate model. If it struggles, an Amco 87 fits the same holes and has more power.

Gamecock

This one is also now almost ready for tests. Because of its shape, I covered the fuselage with polyester tissue; one piece over top and sides, and the bottom. This is possible because it shrinks so readily under assault from a hot air gun; it's fun to watch the bagginess disappear. After doping, it was double covered with Modelspan. For the wings I used a material called, I believe Silkspar, which I picked up at the Nationals. It resembles heavy Esaki tissue but has a shiny side and seems to have embedded fibres. I gave it a good soaking in water and stuck it on with thick dope. It did not shrink too much and seems very tough.

I sprayed the model silver at the same time as the Chrislea and did the markings with enamel and much Tamiya masking tape. I had thought that with the sink plunger and engine hanging off the

front the CG would be too far forward, but it was just right. I had planned to use a Taifun Hobby 1cc on a radial mount but I ran into problems of accessibility and getting the dummy engine on and off. Then I realised that, at well under 16oz (like the Chrislea it was standing next to) a Mills 75 might be enough to fly it. We shall see.

Barracuda

This is an unusual model for me – no struts, no UC, and one wing. The designer, Phil McAvoy, referred in his 1971 article to his '50 foot rule' whereby the important thing is what it looks like when 50 feet away! There's a lot to be said for that approach and it results in a model that can be built in a week.

I decided to build the Barracuda because it will be an interesting shape in the air and is part of my push to wrap as many airframes around my too-many engines as I can. I thought it would make a change in the Aeromodeller/Model Aircraft Flying Only event at the May Nationals (now cancelled).

Construction is about as simple as can be, without a single piece of bent wire. I enlarged it by the permitted 10% because I thought it could take it. It is one of those models that benefits by having all the parts cut out in advance, making assembly very quick indeed. The wing took two hours, the tail thirty minutes and after three days I had the basic model done. And the basic model is about all there is!

I thought about inverting the engine



Despite appearances, your columnist's Barracuda is nearly finished. It just needs covering and a canopy. Detailing may run to an exhaust and a spinner.



The 32" span Barracuda for FF or single channel appeared in AeroModeller March 1971. Plan RC1095 is available from Sarik Hobbies www.sarikhobbies.com

and putting it inside a proper cowling but figured that would double the build time, so I left it as it was. No problems occurred; most parts fit and if you use nice light wood, it is a very enjoyable build.

Mr McAvoy converted his model to the single channel RC of the day, in which guise it weighed a pound. With the original wing area of a square foot, even I can do the sums. I like my outdoor models to be around 7oz/sq ft maximum and this translates to a target of 10oz flying weight. What you see here is 6.9oz so it should be feasible. The nice thick Clark Y section will also help

May Nationals Cancelled

Editor's Note. When Bill Dennis wrote this article there was no indication that the whole of the May FF Nationals would be cancelled. I have updated this section.

The successful Flying Only and Kit Scale events that have run for about twelve years at the May Nationals,

and which have attracted many new participants, had already been cancelled by the Scale Technical Committee. Bill thought that most of the people who would have entered would still be there, so there was to be unofficial scale fly-

ins on Saturday and Sunday; no formal contests but the trophy for AeroModeller/Model Aircraft designs was to be awarded. Now the FF Nationals has been cancelled, this will hopefully happen later in the year. ■



This is Mike Smith's DH4, ready for trimming. It has a very high level of detail, and engine cooling should be no problem. The model represents a museum example in the USA with a number of non-standard features.



“WING TIPS”

DICK TWOMEY’S AUTOBIOGRAPHY

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Denmark: DKR 85 plus DKR 30 P&P

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It is with some trepidation that I pick up a book by a full-size pilot on their flying life; often they have a wealth of stories and anecdotes to tell but the writing style can make reading difficult. No such problem here for Captain Richard ‘Dick’ Twomey’s autobiography “Wing Tips” as it is both interesting and well written.

Dick Twomey will be well known to many older readers for a collection of model designs from the late 1940’s and early 50’s, most of which were published in AeroModeller. The Cobra glider, Rebel power model,

Jetex powered Firecrest, and of course Leprechaun FAI glider were diverse designs linked by the fact that they incorporated innovative yet successful features. Take the 46” span Cobra which was published by C S Rushbrooke in May 1949 AeroModeller. This design became a British Record Holder for small hand launched gliders in 1947. On one fabulous day, Dick and his friends had cycled to Sutton Bank on the North Yorkshire Moors and, by launching from the top of the cliff, clocked an HL flight of 5mins. 46secs. He couldn’t believe that he had beaten the previous record of the Ivory Gull of

The record breaking Cobra was published in May 1949 AeroModeller and, along with designs like the Rebel and Firecrest, helped launch the full size flying career of Dick Twomey. Its innovative ‘curvohedral’ wings were many years before Boeing, Airbus et al!



"And the winner is ...the little guy holding the cup!"

the famed RFL (Bob) Gosling - by 11 seconds! What is clear from this book is that Dick's careful thinking and implementation of changes, so apparent in his early designs, is mirrored in his adult life.

What many readers won't be so aware of is Dick's working life beyond his youthful aeromodelling exploits. Dick is approaching 90 years old and like most men of his generation, on leaving education he entered National Service. With his obvious interest in aviation he opted for the RAF and wanted to be a pilot - at this he almost failed at the first hurdle. At school he had majored in the classics and did not take Physics which was virtually a prerequisite to be a pilot, thus when his interviewers found this out they said a quick "No thank-you." It was as he walked to the door that he started telling them about his aeromodelling; the designs he had published, competition success and British Record. This was enough to get him through the interview - it is nice to think that AeroModeller had a small part in the start of Dick's flying career!

After RAF training on Percival Prentices and Harvards Dick received his wings and flew both Gloster Meteor and DH Vampire jets. As you can imagine, flying was not without its incidents; these are charmingly recounted

while making me think that Dick must have some luck on his side.

After National Service Dick studied Economics at University College Dublin, before returning to Wales to live with his family and find work. Fortunately he had kept up his flying as a student and was able to get a job flying with Cardiff based Cambrian Airways in 1954. The bulk of the book is made up of Dick's career in the growth years of post-war commercial flying, at first in Cambrian which was then taken over by BEA (British European Airways) before finally becoming BA. Dick's active mind is apparent from his career decisions as he not only kept flying for the 31 years at BA and its predecessors, but became involved with both aircraft, organisational and management improvements. Stories from his time there, including setting up new UK shuttle air routes based on sound economic reasoning, are told in an engaging way. It was only when Dick reached 55 years old (then the obligatory BA flying retirement age) that he left his long-term employer. Many would decide to take things easy for the rest of their working life, but not Dick!

The next section of the book details how he used his experience of flying with BA into Berlin to gather financial backing and start his own airline company 'Berlin European'. This was in

1986 when the city of Berlin was still divided and the only way for civilians to get in and out of the allied sectors was by special air corridors over East Germany. Having read this book my admiration for Dick's tenacity has grown; he describes this time as "Swimming with Sharks" because of the competition on the Berlin routes from the big airlines like Pan Am, Air France and Lufthansa once they saw what he was doing. It is almost heart-breaking to read how the airline weathered the financial storms only to be undone by the end of the Cold War and reunification of Germany in 1990.

Other jobs with local airlines saw him eventually end up in Mauritius. Even with his full-size flying and working life behind him, Dick is still active in aviation

and he describes his 'retirement' work to encourage the youth of Mauritius to be air minded.

At the end of the book, Dick surmises that for all his lifetime of commercial aviation work, founding new routes and airlines, and flying out of strange places, people will simply look at his gravestone and maybe think: "Oh yes, Dick's the one who designed the Leprechaun"! Dick says he will settle for that. Finally, in an email exchange with Dick from his home in Mauritius this has been borne out by one Danish aeromodeller ordering 20 copies of his book as he is into Leprechauns!

I have no hesitation in recommending 'Wing Tips' as an excellent read for anyone with even the slightest interest in aeromodelling and aviation. ■



Dick will undoubtedly always be linked with his Leprechaun glider which was published in 1950 AeroModeller.

HENRY J NICHOLLS

PART 2: 308 AND ALL THAT

Stuart Marsden tells the story of HJN and 308 Holloway Road. With help from Henry's wife Maureen Nicholls and the family.

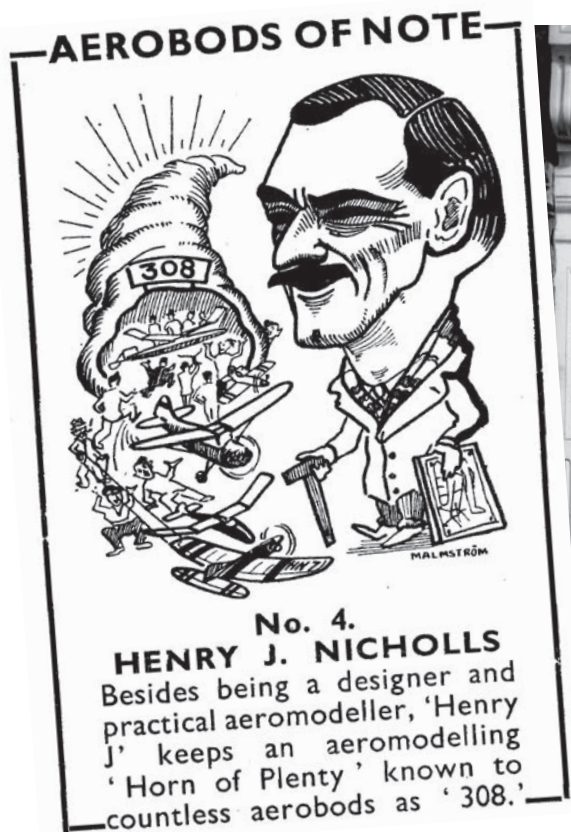
Returning to Blighty From Flensburg

Mopping up after the Second World War and then returning to London must have been a memorable time. The internal stomach churning, mixed with excitement, I can only liken to, "A FREE FLIGHT, FLY AWAY". Most of us aeromodeller's have at some time or another flown a free flight model and witnessed a truly sensational flight, only to experience a daunting fear of loss, as your model picks up a thermal and eventually becomes OOS (out of sight), this mixture of emotions is uncommon, however those who have witnessed this, will know exactly what I mean. I use this analogy for good reason which will become clear as this story unravels.

How would Major Nicholls harness all his interests and his recently acquired experiences within the war years to form his future? Many men would have to deal with these

Henry J at an Old Warden vintage event in the 90's with Marlin and Monitor designs kitted by Mercury Models. The Marlin was designed by Dennis Allen, the Monitor by HJN himself.





A Ray Malmström cartoon of HJN from July 1952 Model Aircraft magazine.

issues, but not many men would end up creating an Aeromodelling Mecca.

Directly after the war Henry joined a mining business and was sent to Germany to sort out many of the collapsing tunnels. In this role Henry's degree in Metallurgy came into great use, he finally concluded the Germans had used the wrong metal within the tunnels' construction. This role certainly gave him some hard-earned finance, enabling him a good start with setting up 308.

Acquiring 308 Holloway Road

Henry's surviving second son Richard has been most helpful in pulling some of

these stories together, as has Maureen, Henry's surviving second wife.

Well, post-war aeromodelling was in its heyday and Henry J. identified the commercial opportunity, but although it would be time consuming he could see no reason why he would have to give up his interests in music, gardening or fishing; after all, setting up a model shop was work!

Like much of London there were many bombed out buildings and 308 was no exception. 1946, decision made, this would become an aeromodelling shop, which over its lifetime would help shape our wonderful hobby and sport.

Henry also received help from a neighbour across the road from his home in Ludlow Gardens, Hampstead Gardens suburb, a Henry Solomons. Having heard Henry J was going to start a model shop, Mr Solomons, offered him a loan of the rest of the money needed. Henry Solomons was a sleeping partner for 3 years and came up with the proposal that Henry J didn't need him anymore and suggested he paid him back, making Henry J. sole proprietor. As a foot note to this encounter, Mr Solomons went onto open a chain of Green Grocers and made himself into a millionaire.

Stock was assembled and trade began



A 1994 photo of, from left, Bill Good and wife, Henry and Maureen Nicholls, Joyce and Walt Good during a stateside visit.



In September 1998 the AMA organised a Celebration of the Pioneers of Aeromodelling and honoured both HJN and Walt Good. Henry J and Maureen Nicholls were seated opposite Ron Moulton and Peter, Ron's brother.

EXTRACT FROM MODEL AIRCRAFT MAGAZINE, OCTOBER 1951 VISIT TO MERCURY MODELS.



WHEN a company starts in a very modest way and then in a few short years reaches the top of its field with a world-wide reputation you look with interest for the man behind the business. Nor are you disappointed in the case of Mercury Models, for here is H. J. Nicholls, or "Henry J" to his trade and model flying friends, as the man behind the organisation.

H. J. Nicholls Ltd. started in 1946 just at the time CL flying was being introduced in this country, and it is no surprise to find "Henry J" extremely interested in this new field, both as a modeller and from the business point of view. The firm, in fact, made a speciality of CL components, and also pioneered plastic CL accessories, handles, bellcranks and control horns, etc. This was followed by a kit—the Magnette—which was one of the first successful commercial CL designs.

This venture into manufacture meant that the original retail business was now overloaded and so a new, separate company was formed in June, 1948, to take over all the kit and accessory productions. The name chosen was Mercury Model Aircraft Supplies, with the same directors

as H. J. Nicholls Ltd., later joined by Col. R. L. Yates.

Mercury Models at first specialised in CL models of all types to meet the then expanding needs in this field. The original Magnette, which was actually kitted by Halfax Models for H. J. Nicholls Ltd., was taken over and then followed in rapid succession the Super-Bipe, the Speedwagon range and the Marlin and Marlin Mite, designed by Dennis Allan. The Super-Bipe and the Speedwagon series were particularly interesting for they were American kit models, manufactured in this country under licence from designer Harold de Bolt. A logical move in view of the fact that America had so much start on this country in CL flying but one which no other British manufacturer thought to take. The thousands of Bipes and Speedwagons sold proved the point.

The original CL range wound up with the Monitor and Musketeer, both designed by H. J. Nicholls, and followed up with Junior versions for the smaller motors.

In the meantime the accessory field had not been neglected again mainly confined to CL. The one outstanding accessory was the Ajustalyne handle, which has sold over 15,000 to date, whilst the range also

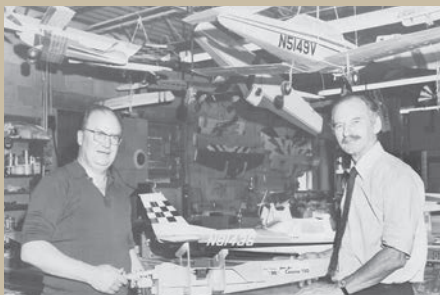
included a number of original items in the way of trimstrip transfers, tanks, and so on. Another item of outstanding success was fuels, started in 1948. Business in this line grew so much, in fact, that it has recently become a separate subsidiary company—Model Fuels and Finishes—situated at Croydon. To the range of fuels for diesel, spark and glow ignition motors has been added a whole range of dopes and finishes by Cellon.

1948 saw Mercury produce their first free flight kit—the Mallard, designed by H.J.N. Numerous contest successes have established the Mallard as one of the best free flight power designs in the country. Glider fans were catered for by the Gilli Chopper and Norseman, designed by Phil Guilmant and the Norseman, to A-2 specification, has gained a place in both the 1950 and 1951 Nordic teams—proof again of Mercury's policy to produce contest standard kits which at the same time are well within the scope of the average modeller. After all, Mercury is almost completely staffed with practical modellers, down even to the office and accounts personnel. Ronnie Moulton, Johnny Nunn and Dennis Allan are three top-liners who were originally with the concern, with Ron Young and Bill Morley now carrying on the tradition, not to mention Henry J. himself.

The method of kit production adopted, which has been found to produce a very accurate kit, is that rough working drawings are prepared by Ron Young, who modifies them structurally as he builds the first prototype. This prototype is then flight tested and any modifications required made on the working drawings. The final drawings are then made and traced, together with full



Henry J discusses a new design with Ron Young.



Ron Moulton (left) remained friends with Henry J having briefly worked for him before joining AeroModeller.



HJN meeting up with his old collaborator and friend Bill Morley. Bill was a designer of CL models and one of the instigators of Merco Engines with Ron Checksfield. See next month's AeroModeller for more on Bill.

drawings of all printed sheets. Any tricky parts will have been fully ironed out by now and any additional constructional or trimming notes can be included. Die lines are taken off the finished tracings and checked by H.J.N, and at least one other person, as well as by Ron Young. When passed, the plans go off for printing.

Whenever there has appeared the need for a particular type of model, Mercury has always been ready to take a chance on producing it. Two beginners' models—a glider and a simple rubber job—were introduced in the middle of the range. Magpies have sold over 22,000 already, with the Maybug doing its best to catch up. However, unlike most other manufacturers, Mercury believes first in careful packing and adjusting each run to meet the market demand, rather than mass production. In other words, although the packing staff could handle some 1,000 Magpie kits a day, a normal run for this particular kit would be 2,000 in relatively small batches, interposed with similar batches of the other kits.

Mercury do other things to surprise the trade, too. During the past two years or so everyone in the trade has been convinced that the expensive kit just would not take on—and have largely left it alone. Notwithstanding, Mercury went ahead with their 66 shilling Monocoupe flying scale which, they are happy to confirm, is the most outstanding model in their range.

Another contradiction of popular trade opinion was the Mercury Midge CL speed kit, designed by Cyril Shaw. Nobody seriously thought that a small CL speed model would have any sales appeal—and whilst they were dismissing it Mercury went ahead and produced and sold 6,000 of the type!

There is hardly a corner of the model aircraft trade into which Mercury Models or H. J. Nicholls Ltd., have not probed and explored. H. J. Nicholls Ltd., pioneered hire purchase in model aircraft retailing in 1948, and instituted a complete engine repair service. The latter subsequently had to be closed down since it did not pay. Mercury Models were the first to introduce RC units to the modellers in this country...

to flourish, after all this was the hey day for aeromodelling with the introduction in the late 1940's of diesel engines and CL flying. I hope some of those early customers read this and get in touch, although I expect many will have passed on into the blue skies. None the less, if anyone can recall the very earliest days of 308, I would really like to hear from them.

From Over the Pond

As trade flourished Henry was still haunted by that first free flight fly away on Parliament Hill. Wouldn't it be amazing to be able to control the flight of your model remotely from the ground? When exploring the development of radio-control in the UK he contacted some of the American pioneers of RC. Two names, Maynard Hill and Walt Good, have a great bearing on what was to follow, and the pages of this publication could be filled many times over with a complete history, for the purpose of this article I will keep it brief.

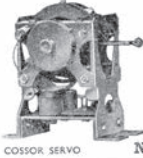
Maynard Hill, like HJN, was also a metallurgist, and worked at John Hopkins University Applied Physics Lab. He convinced his employers that he should study his own interest in Aeromodelling, as things turned out he became a pioneer in unmanned aircraft or UAV's as we call them today. His career and life ended at the age of 85 just after the first 1,882 mile across the Atlantic Ocean flight for a radio-controlled model aircraft.

Walt Good is an aeromodelling legend and I expect more of you have heard of him. In 1937 with his brother Bill they developed the first radio-controlled aircraft which flew successfully. Walt won aeromodelling contests from the age of 10 enjoying all areas of our sport and hobby. The American equivalent of the BMFA/SAME, the AMA, has showered Walt Good with many honours which are so deserved. At this point it's worth mentioning, the AMA have put together a great film of about half an hour. Both Bill and Walt are interviewed with their complete history. Walt built a model called Guff and with this brother Bill's electronic help made their own radio-controlled system, the model was modified with a new fuselage to take all the gear and renamed RC Gull or Guff RC. Make a search for Walt and Bill

2. MERCURY-COSSOR RADIO-CONTROL UNIT

Exclusively incorporating the HUNT Receiver Circuit.

The most advanced commercial unit yet produced, giving elevator, rudder and engine control through a single R/F channel. The amazing Cossor Clockwork Servo Unit included in the outfit is far more dependable than rubber, yet the whole receiving portion with batteries weighs within 26 ozs. Transmitter is equipped with telescopic aerial, and is completely self-contained and portable.

Produced after years of experiment, I believe this to be the most versatile and reliable R. Control system ever produced for modellers.
H.J.N.

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- PRE-SET TRANSMITTER DIAL CONTROL IN USE THROUGHOUT EACH FLIGHT.
- NO LICENCE REQUIRED.

Advert for the Mercury-Cossor Radio-Control Unit.

Good AMA Pioneer on YouTube and you should find this easily.

During the war, you may recall Henry had used the Proximity Fuse ordnance to help bring down many V1 rockets, so it was an amazing coincidence for Henry to discover that his new friend Walt Good was instrumental in the development of the Proximity Fuse. Henry and Walt were to remain friends throughout the rest of their lives.

Henry J Nicholls brought Radio Controlled flight to our shores, fortunately for us, he knew both of these American pioneers. Much later on, Henry J was honoured by the AMA along with Walt for their lifetime achievements.

The introduction of a UK manufactured RC system was not without its problems. Having developed the successful prototype radio-control unit soon after the war, Henry contracted out the production of the system to Cossor the local audio radio factory. Cossor contributed an ingenious clockwork actuator to the set-up and it was sold as the Mercury-Cossor Radio Control Unit. Unfortunately, Cossor were unable to manufacture the radio to the required quality and HJN found that customers were returning the systems to the shop as faulty. After a protracted legal battle, HJN won compensation from Cossor, but the momentum behind his RC system was lost.

Exhibitions and Displays

Henry made himself known to everyone in the industry, if they didn't know him already! Eddie Keil one of many names you would recognise, both members of the Northern Heights Club, Henry became Competition Secretary. Having



In 1948 HJN was broadcast by the BBC talking about CL flying. This photo from AeroModeller shows 'Dicky' Laidlaw-Dickson on the left.

been made the Public Relations Officer of the SMAE (British Model Flying Association as we know it today) in 1947, as far as I can work out, in 1948 he created a position for himself in the as Technical Secretary, ultimately becoming a Fellow in 1958 as well as eventual international recognition by CIAM and the FIA.

Mercury Models was begun as the design manufacturing company of the overall business and a range of models was produced for all areas of our hobby: free flight, control line and then Radio Control.

You can imagine this diverse activity, encompassing all the areas of

Special reward for aeromodeller

A CHATTERIS aeromodeller had his efforts rewarded on Monday when he met the Duke of York and received a bronze medal in recognition of 65 years interest and promoting the Society of Model Aeronautical Engineers.

Henry Nicholls, of Doddington Road, was among about 200 guests at the Royal Aero Club's annual presentation at the Lansdowne Club, Berkeley Square, London.

His interest in aeromodels grew from when as a young boy he flew his first paper kite. Since



■ Henry Nicholls - received a bronze medal and has been president of the Fédération Aéronautique Internationale based in France.

He has already received a diploma and later a bronze medal from the FAI, and on Monday received his latest thankyou.

In 1990 the Royal Aero Club recognised Henry's contribution to aeromodelling by presenting him with their Bronze Medal.

aeromodelling, gave Henry and 308 Holloway Road the very best chance of success.

Any opportunity to promote our hobby and the business was taken; exhibitions and displays all over the country. Henry took most of the photographs, designed some of the models and took the best designers and flyers of the day under his wing. The characteristic thing about all of this is the sheer enjoyment Henry took from his work; he loved taking photographs, indeed one of the rooms upstairs was his photography studio. Above all he loved communicating with people, I have very fond memories of our chats when I met him in later

life. Although he was so powerful, he was also unassuming and was as comfortable listening as he was talking.

Dennis Allen and the AM Diesel

In the early days Dennis Allen, who was already a splendid engineer and model enthusiast, went to work for Henry, initially repairing clients' engines. Now the Dennis Allen story has been written by others and searches of old magazines and the internet will tell you plenty; he was also an extraordinary man but here is not the time to detour.

I have spoken with Richard Nicholls and we are certain that AM, as in the AM 1cc engine, stands for Allen Mercury, a true amalgamation of talent. I have a 1, 1.5, and 2.5 AM diesels and don't fly control line, however I still run these engines up and I am in pure heaven, with the sound and smell.

Henry fully engaged with every part of his business and our hobby, even in his last years he was handing out the prizes at the Peterborough Cabbage Patch Nationals for Control Line flying.

Maureen joins the Business

In 1973 Maureen joined the business as bookkeeper and became a key member of the team, organising stock and arranging it to be sent all over the world. Maureen has described to me the lay out of the multi storey building, with the cellar holding some stock, the ground floor being sales. The first floor had her office and Henry



HJN scrutineering models at the 1949 Wakefield competition.



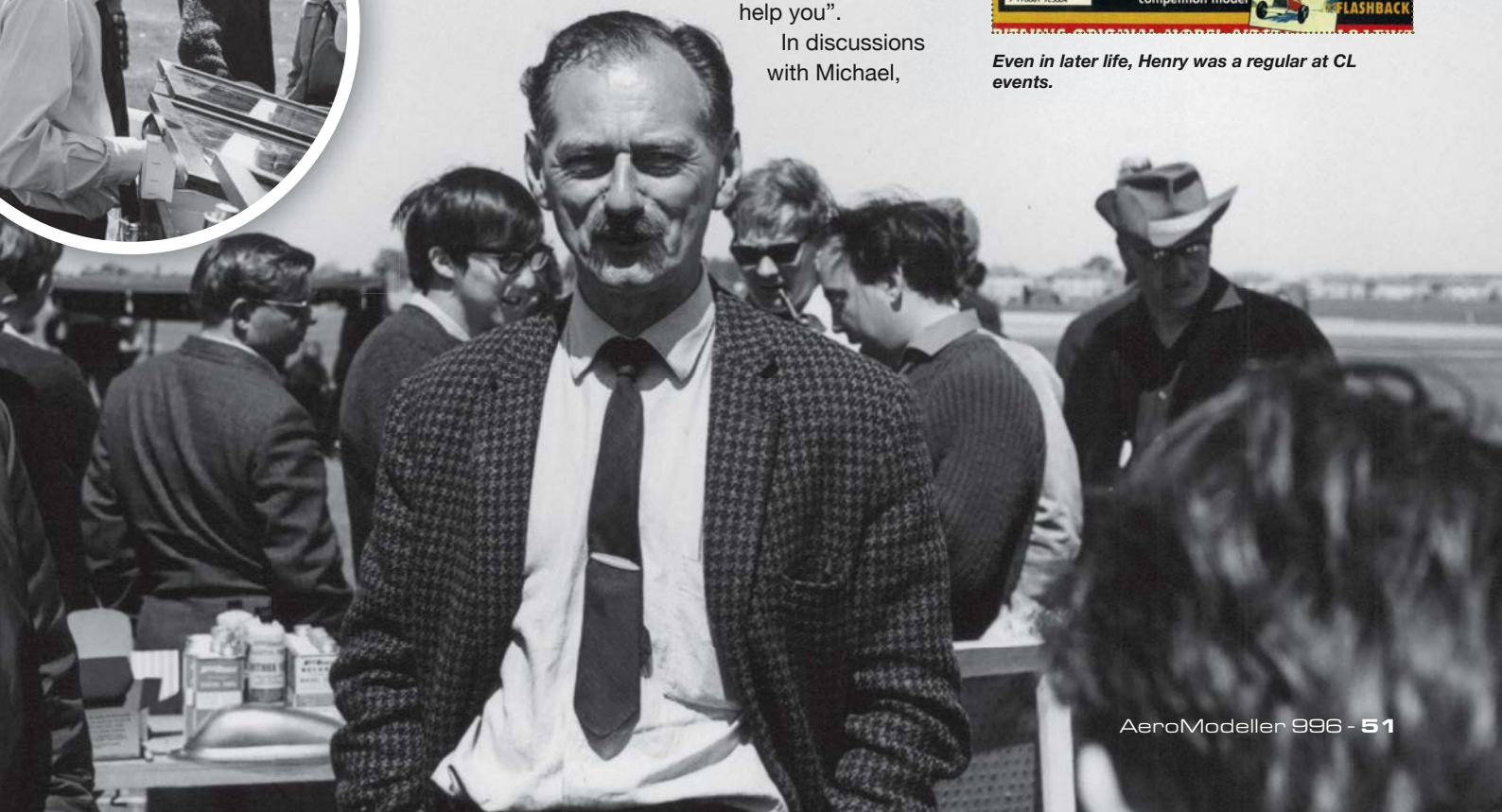
The first FAI RC World Champs in 1960. From left, Bob Dunham of the US team, HJN, a representative of the Lady magazine(!), and Walt Good US Team Manager.

The 308 Mini came into to service in a serious way in 1978 when Maureen had to rush Michael to hospital with Leukaemia, an example of the frantic nature of running a business, they all just got on with it. Thankfully Michael survives today, an expert in 3D printing having

In discussions
with Michael.



Richard Nicholls and Henry took the 308 'show' on the road to events like the British Nationals in the 1960's.

[illegible]

AN ARGUS SPECIALIST PUBLICATION

SEPTEMBER 1992

AERO

MODELLER

PUZZLE

C/L aerobatic
trainer for
.35-.40cu in motors

DIESEL ENGINES

Their operation
explained

DEMENTED

moth
Indoor fun
flyer for small
rooms

A photograph of two men standing outdoors in a grassy field. The man on the left is wearing a white shirt, a dark tie, and a white hat. The man on the right is wearing a white polo shirt and light-colored trousers. They are both smiling and holding a large, blue and white model airplane. The airplane has 'TORREDOON' written on its side and a small logo on the fuselage.

**FULL-SIZE
PLAN!**

A photograph of a model airplane on a launch rail. The airplane is white with a black nose and a black tail. It has a black propeller and a black engine. The launch rail is black and has a white track. The background is a solid color.

PONGO

A perfect first
competition model

TORQUE METERS

How to design and
make your
own

**AERO
MODELLER**

A small photograph of a model airplane in flight. The airplane is white with a black nose and a black tail. It has a black propeller and a black engine. The background is a solid color.

**50
YEAR
FLASHBACK**

A barcode with the number '09' above it and '9 780017 52004' below it.

Even in later life, Henry was a regular at CL events



The Mercury flying kit range was finally distributed by Keil Kraft before ceasing production.

Maureen and Richard Nicholls, we think Julian's full name is Julian de Camillis, I hope the spelling is correct and hope he is still alive, my efforts to trace him have come to nought. If Julian is still alive or anyone of his family or friends could tell me more, I would be most grateful. I understand Julian carefully stored and catalogued all the products from Mercury Models and was a significant member of the team.

308 adds 306 and Potters Bar Branch

At sometime in the nineteen eighties 306

was added to 308. I visited before and after this event; I remember the long walk from the tube station each time. I spent my college days 1970 to 75 in Surrey, only leaving Farnham and Guildford in 1978 - for this last 3 years I was on the staff. It was at this time I bought my first radio control set, a Sanwa FM6, up until then I was purely free flight. In 1979 I started my Pottery business in Cambridgeshire and my subsequent visits to 308 were in the early eighties onwards. I can't and the family cannot, accurately remember when 306 was brought into the business.

There was also a branch created in Potters Bar which was run by Richard Nicholls brother in law John Cox. After trading for a few years John died and the branch was closed.

Richard took full charge on Henry's retirement at the end of the eighties, and Henry moved to Chatteris in Cambridgeshire. Richard took the business forward with Mercury being the Distributors for ZAP. Michael well remembers putting together radio-controlled cars in great numbers around Christmas time. He remembers this time so well, he remarked that he didn't care if

Vintage Day at Old Warden saw a line up of many of the old guard. HJN is second from left at back. Your editor can quickly recognise Norman Butcher and Ron Moulton back right, Howard Boys and Doug McHard front right. I'm sure somebody out there can name more!



HENRY J. NICHOLLS AND SON LTD.

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607-4272 607-2961

Customers of HJN in the late 70's would have received their goods in a branded carrier like this.

he never put one together again! You can imagine the Christmas rush.

In 1996 Richard saw a future in Electronic games, much as his father saw in aeromodeling which was the equivalent of its day. As we now know electronic games linked with internet access has dominated recreational interest for children and adults alike.

Moving into a New Century

1996 was the fiftieth year of 308, landmarked with this new direction. Much was made of the new bubble of interest in Electronic Games, however everyone wanted to get in on the act

and in 2002 the shop was sold to Richard Harris. The shop sold model aircraft much as before and traded until 2018, when 308 as we know it came to an end.

Whirlwind Romance

In 1991 Henry invited Maureen and Michael up to Chatteris for the weekend. Quite by chance, Michael couldn't make it due to other commitments and Maureen went on her own. Maureen described to me her whirlwind romance with Henry, that neither expected after so many years working alongside each other. After a few visits, Henry declared,

"I only see one solution Maureen and that's for us to marry".

Thus, for the last nine years of his life, Henry had the comfort and support of Maureen, before he died at the age of 90 in May 2000.

If you can add to the HJN and 308 story, do get in touch via the Editor. editor@aeromodeller.com In the next issue Bill Stock will look back at the life of HJN collaborator Bill Morley. ■

THE TRADITION OF "308"



Modelers from all over the World find their way to "308" and we are very proud of our 'Visitors' Book which contains the names of hundreds of the World's leading enthusiasts and competitors, including those of many visiting Teams attending F.A.I. World Championships in the U.K.

Now that we have added "306" to "308" thus doubling our sales area we can give the same service to marine and R/C car modellers as we have for more than thirty years given aero-modellers. During that time we have gained a reputation that is unequalled anywhere for carrying the most comprehensive stocks including many hard-to-find items. Even visitors from places like the United States where modellers are well served always say that ours is about the best stocked shop they have seen anywhere.



Overseas visitors are always specially welcomed at "308" and we are organised to accept any travellers' cheques and all convertible currencies. We frequently get organised visits by parties of modellers from Continental Clubs who find our prices so competitive as compared with those in Europe that a day visit to London is well worth while.

The photographs on this back cover give some idea of our new layout which combines "306" with "308". But only a personal visit can really convey the full story of how our expansion has improved our facilities.

Our aim for the past thirty years has been to give the best service of which we are capable and our sincere hope that we shall continue to succeed.



The back cover of the eighth edition of the 308 catalogue after the addition of 306.

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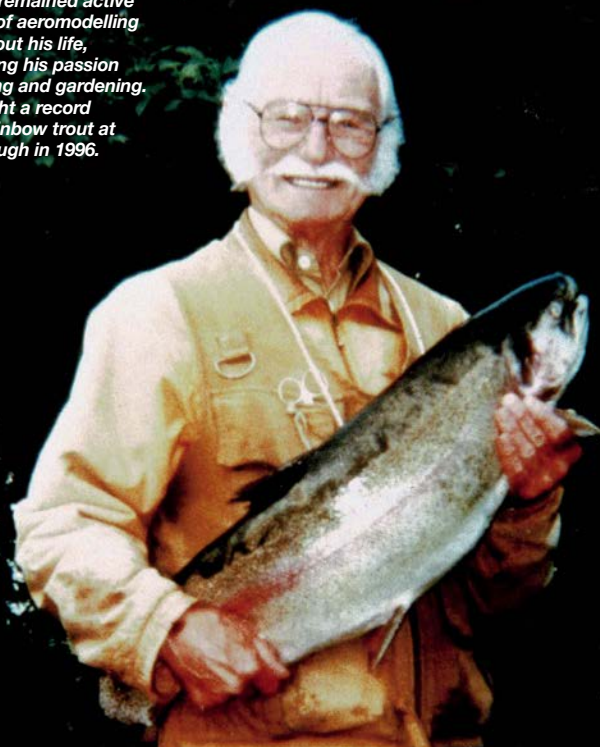
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STOP PRESS! RESIDENT EVIL

The Big Game - Out This Weekend!

In 1996, the 50th anniversary year of 308, Richard recognised the growth of gaming as an important business stream, and celebrated this in the local press.

Henry J remained active outside of aeromodeling throughout his life, continuing his passion for fishing and gardening. He caught a record >18lb rainbow trout at Narborough in 1996.



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This offer is available to both new and existing subscribers. If you are an existing subscriber, we will extend your subscription for a further 2 years, so do RENEW TODAY while stocks last.

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This 11-piece kit is ideal for soldering, brazing, hot air shrinking and hot knife applications. The hot knife is particularly useful for cutting, sealing and modelling. The soldering tool is cordless, safe and simple to use.

Specifications:

- Cordless, safe and simple with electronic instant ignition system
- Anti-flaring and meets the most stringent safety standards
- Soldering temperature up to 500 C (930 F); Flame welding and brazing up to 1300C (2370 F)

- Hot air shrinking temperature up to 500 C (930 F); Hot knife for cutting, sealing and modelling
- Height-227mm, width -27mm, grip diameter-25mm, dry weight-175g.
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weather planes!

IN THESE DIFFICULT TIMES WITH MODEL FLYING CURTAILED, HOW ABOUT SOMETHING DIFFERENT? NIGEL EATON SHARES HIS LOVE OF PRODUCING WEATHER VANES ON A BUDGET IN THE APPROXIMATE SHAPE OF WELL-KNOWN AEROPLANES.

should point out that finding appropriately sized bits of wood in a massive shed is a quite exciting thing, OMG that's the fuselage right there!! OK it's full of nails and forming part of the roof structure of my father-in-law's workshop but it's still totally fair game,

it's what he would have wanted!!! Sadly no longer with us, I spend much of my summers in his massive lean-to shed in Brittany hoping to avoid the washing up.

Here's how it goes...

Having spotted a wonderful French

weather vane in the local area with 3 props, I realised I'd found an activity I might enjoy more than cliff walks around the Breton coast with bored children, so immediately I searched 4 engined planes on the internet and found the Bristol Britannia. (Fairly ashamed of this one



The Hercules C130 circles round for a parachute drop..!



"The start of it all, Nigel Eaton's 'folk art' Bristol Britannia weather vane."



The Short Sunderland begins to look the part as Nigel learns which order to paint the roundels...

now but still "flying" well.)

Scaling up some pics found online I quickly realised that I was going to need some long, wide planks. The main idea at this time was to produce something grander than the neighbours' efforts. Happily, father-in-law has some handy gear; a planer, araldite and a vast selection of sand/glass papers, this is all you need to form a "folk art" Bristol Britannia, it turns out.

Having been disappointed by the look of the BB once at the end of a 12' pole I decided to get serious, so next up a "Lanc". Brother-in-law should be impressed, it's going to be massive, he loves planes, forever talking about Duxford and the uncle who was a wing commander. The Avro Lancaster lines are so great and it meant a chance to form

that elegant fuselage. All this has fulfilled a chance to own big planes; I do love the idea of flying RC models but could never have afforded it when I wanted it most, and anyway where do I fly them in Crystal Palace?

Next up a short Sunderland, yay, love them, heavy looking and 4 motors, I want one! Having decided I'm an expert by this point and enjoying the fact that if you don't worry about details then the planes form up pretty fast. I start testing my paint skills. I feel it's important to point out that Folk Art relies upon the ability to make something with virtually none of the necessary materials, but still produce an aesthetic object. Problems arise with access to unlimited materials - one finds that one gets a little more fussy and before you know it you're in

model making territory, this wasn't the idea. So another chance to work out how to paint roundels, nope got that wrong again, next time will get it right. (do the outside first then work inwards, you all know that). My first plane making season is over.

Next Wave

The following Easter, the Boeing B17G beckons, I add the G to impress the brother-in-law some more. By now I'd been thinking about using masking tape, the need to make the paint job crisper and easier. Happier with this one, learning about filler from PVA mixed with sawdust to create smoother junctions between wings and fuselage.

The B17 proves to be a lovely scale, big and fun to paint in its olive drab.



The Sunderland installed on its pole. Not only does it look good but it tells you the wind direction!



The Being B17G. These models may be 'stand-off-scale' but there is no denying they have character and each type is easily identified.



The Junkers JU52 had the right outline, but wasn't right without the corrugations.



The Brisfit is not true scale but has bags of character.



The Fairchild C-82 will be familiar to anyone who has seen the beginning of the Flight of the Phoenix.



Nigel's latest weather vane is single engined for a change; the Bleriot XI.

Desperate for invasion stripes on this one, who cares where they go, I don't really, they are fun to paint. Dad has this one, it's just hung up in his hall and doing

a great job of hiding a damp patch on his ceiling. It's not his way really, having worked as a fitter and turner on secret military stuff his attitude would be "Why

spend 2 days making something when you can spend 2 years on it?". Having this debilitating need for ultra-accuracy, (that lives depended on in a crisis) he now makes Hurdy-Gurdies, the most complex instrument ever. Pretty sure that I'm never heading down this path, these planes form up quickly as do the built-in cupboards I make in my real job. Fast gratification; get the paint and decals on, on the pole, look up and admire, job done.

The Hercules C130J - I just made this for the fun of painting the prop tips and masking the cockpit windows. I got to this built in 2 days, not bad. Junkers JU52, I started this in the hope of being able to solve the fuselage corrugations, I never did, so I gave it away. Mum orders the Lysander, absolute nightmare getting the wings to "feel" right, blimey it's ugly, but the wheel cowlings proved fun now I'd brought my little belt sander over from the UK. A



The black finished SOE Lysander looks brooding in contrast to the clean lined Flybe Dash 8 Q400.





Typical of Nigel's frugal approach to construction are these wheel spokes made from the wire cork cages from Breton cider bottles.



Naomi helps out with a coat of paint on the Bleriot.



And this is Nigel in his "day job" playing the keyed/stringed instrument that is the Hurdy Gurdy.

metal armature holds everything just right and out of sight.

The Flybe Dash8 Q400 - Having regretted not making those beautiful, curved and very purposeful looking prop blades for the C130, here was another opportunity and the graphics always appealed too. The greatest challenge so far, the Bristol F2B, well it has the grooviest and most rugged shape of all the WWI fighters I think, the chunky looking engine cowl with the prop shaft exiting the block at the bottom is charming. I couldn't wait to drill that hole.

Construct a Film Star

Fairchild C-82 boxcar - Well it was a cold day and having watched "Teach yourself how to pull apart a Fairchild" on the film "Flight of the Phoenix" in all that heat, yes, it had to be next. Tricky graphics but Naomi still happy to paint "Arabco" on the side and "The Phoenix" too. Yes I know, I know, please don't write in; the backstory to this one is that after they'd had a few beers they flew back to the wreckage and fixed everything up properly.

Parts required... pinched wood, (in my case from skips and notorious fly-tipping sites around Crystal Palace), 8mm stainless bar (for the top of the pole) felt pen plastic body, (to line the pole hole in the plane) bakelite light fittings (prop nose cones) exterior wood glue, sawdust, old mains cable (copper rigging/radio lines), plastic washers (for non-stick prop movement), I make wood props now, using the belt sander.

Things to do... zinc/aluminium

undercoat, oil-based topcoats and always balance the props, they look so good if they can turn slowly in the weediest breeze. I obviously favour multi-prop for their wow factor. Having said that, the bi-plane has worked well and is my favourite, it looked particularly impressive after the rigging lines went on, now sadly falling to bits and in need of a refurb after 5 years. (That Ikea wardrobe I used for the wings lasted longer than I thought.) I've never "bought" wood, that's not the idea at all.

Future Projects

What's next... something with contra-rotating props or an Osprey! A Predator drone (maybe a bad vibe?) Well definitely one of these anyway, definitely... hold on... What about a P38 Lightning or a Water Bomber! Maybe a DH Mosquito (love them), perhaps a B29, wow! A Helicopter? Some giant Westland number? or a Chinook? Yes! (do they work as weathervanes? Please write in and advise.)

Nigel Eaton is a professional Hurdy Gurdy player, cupboard/furniture maker (www.nigeleaton.co.uk), film extra, multi-engined plane nut (but only if they can be made and painted within 2 days, tops) and now AeroModeller journalist! You may have seen Nigel playing Hurdy Gurdy with the Page & Plant band, Loreena McKennitt, Blowzabella, and his own trio called Firestarters of Leiden. Appearances on film soundtracks include Aliens 2, Robin Hood and others mentioned on his IMDb page www.imdb.com ■



The Bleriot XI finished and ready to cross the channel from Brittany!

THE 45TH SEBMFA CRAWLEY FF INDOOR MEETING

A SPRIGHTLY DAVE BISHOP COVERS THE POPULAR "MUST GO TO" ANNUAL EVENT ON 16TH FEBRUARY AT THE K2 LEISURE CENTRE

For many years in February I have driven to see and taken part in the Indoor Flying event at the K2 Leisure Centre at Crawley in Sussex. This year was the 45th

time that the Crawley Model Aircraft Club has staged it on behalf of the (SEBMFA) South East Area of the BMFA. The flying area there is approximately 35m x 35m x 9m height unobstructed, or equivalent to 8

badminton courts.

Previously I had received an email from our AeroModeller editor Andrew, requesting a report on the event "as I was already going". I said I would be delighted



..... The spirit of model flying at Crawley.
..... Three generations of the Pearce family with their Butterflies.
..... From the left, Graham (Grandad), Joey 8 years old and his father Paul.



The welcoming team at the door of the K2 Flying area, (L-R) Bob Hart, Robert Richardson, Alex Cameron, Stuart Willis and John Tatar.



From John Whatmore comes his CAD scratch designed "Ghost Ship". We hope to feature this as a Free Plan in a future AeroModeller.



Ken Taylor never changes and did well in the competitions throughout the day.



Poppette was a free plan from AeroModeller way back (with modifications) built by Bob Tickernell.

as long as readers would politely accept my occasional "faux pas". As a Press Card holder and newspaper reporter, it is sometimes very difficult to get all of the people's names correctly especially the "workers or organisers" who are usually very thin on the ground and too busy to give required information. Most show events nowadays have the officials wearing readable name tags which help a lot for correct reporting.

One of the things that is a big positive about the K2 Centre is the huge no-pay ticket car park and a decently priced café. This year's event coincided with the hurricane Ciara hitting the UK and although the sun shone weakly at the 8am start of the day, things (weather wise) were about to dilapidate very quickly; upon making the return journey back home that evening, a much different story.

Entrance and Programme

It is always nice to be greeted at the door at the Crawley indoor flying event by a welcoming team of people wishing to make you at home once again. This year at the cash depot, were Bob Hart, Robert Richardson, Alex Cameron, Stuart Willis

and John Tatar who willingly took my £5 spectators fee and gave me the programme for the day. The cost for flyers was £15 which included entrance to all competitions. Children were allowed in for free.

The programme was listed as running from 11 am till 5.30 pm, which was unchanged from last year, for both competition and fun flying. The competitions were; Catapult glider with a max span of 12 inches, Hand Launch Glider, EZB, Living Room Stick, Gyminnie Cricket. Open Scale, Peanut Scale and Legal Eagle, plus mass launches for the Butterfly and Hanger Rat. The competitions and flying slots were carefully apportioned through the day, ending with; 16.45 - Hanger Rat and Butterfly Mass Launches, 17.00 - Funfly, 17.30 - Raffle draw and finally at 17.45, Prize giving.

Chat Place

One of the many things that I love about this annual "catch-up with the goss" event that attracts many well-known visitors is the way that all of the flying is continuous from start to finish. For the flyers information, there is an announcement on the PA system each time the programme changes. There is

always a super raffle at Crawley Indoor that attracts one to buy some tickets - many items there are from the "boss man" Alex Cameron which he has told us in the past, came from Peter, his late father's stock.

Judging

The scale judges this year were the top class experts Don Coe along with James Gordon covering the Open Scale and with no Peter Royall attending (he is very busy as a carer for his wife Sue) his replacement was Tim Chaird who was doing the judging of the Peanut scale. Way back Don Coe devised a totally different set of very fair rules for scale judging at this event in which the number of wings and engines get a higher K factor, if they are multiple and so on. These rules were in action once again for this year's K2 event.

Around the Perimeter

Each year at the K2 indoor Crawley "job" armed with my two cameras and digital recorder, I always start at the door and traverse anticlockwise around the perimeter of the large hall and do my best to speak to and record for accuracy, everyone and take pictures as well. This year there was

Indoor Free Flight



Tim Chaird and his model Cougar.



Open and Peanut Scale judges, (L-R) Tim Chaird, Don Coe and James Gordon.



Nick Peppiatt and his German Sablatnig 1917 WW1 fighter tri-seaplane at 1/20th scale. The model came 1st in Open Scale.



Welcome back to the K2 was Divs Masters with his Atomic Workshop electric powered scratch-built WW1 Fokker D7 of the Jasta 27 Squadron. He is a professional model maker and his company built the 18 foot wingspan model of a B17 which was blown up at Bimsbrook in the film Memphis Belle.



Mike Hadland with 4 months of building in his Stampe SV4B - 1/20th rubber powered with 1200 turns. Covered in Martin Dilly supplied tissue, the model came 3rd in Open Scale.



Professional model maker Peter Boys and his 1/25th scale 1937 Waco (Weaver Aircraft Company) that took 3 months to build. He worked at Shepperton for 40 years and was involved in the film Batman and Gotham City. Also, he completed modelling work for the architect Norman Foster.



A very nicely built Peanut Scale Czechoslovakian Zlin 50L that took 3 months to build by carpenter "Scoot". The model is painted in "Czechoslovakian Red" colour.



A Polish designed F1N kit at 24" wingspan (foam wing and wooden spar) by Dutch visitor Hans Staartjes who was there with pal Mark Benns 1st in the HLG competition.

no Flight Hook trading and Alex Mackintosh told me that John Hook saw what the awful weather forecast was and decided not to take the long trek there and back. Regular visitors Chris and Jane Foss were there again who never seem to age, as neither does Tim Mountain. Doctor Mike Sun the brilliant scientist and modeller, was another popular person with everyone. And to sum up once again I must say a huge well done to everyone who work hard to make the K2 Indoor flying day at Crawley a "must go to event".

Good News

I cornered the top Crawley club man Alex Cameron at the end of the day for his views on how it all went. He said "despite the weather the attendance was very good and he gave credit to the BMFA South East Area committee and to members of the Crawley Model Aircraft Club for organising the contest." He went on "a good thing about the meeting is that it is split between fun flying and competition."

The top Man of the BMFA South East Area is Stuart Willis who, amongst many other things, does the finance. Talking about the day's flying he said "there has been a very well attended event and there were more people today than expected. The flyers were top quality and financially they had almost broken even." Stuart said to your scribe that "there is no reason why the event at the K2 shouldn't take place next year." To my question as to why there were no junior flyers present he said "the BMFA needs to get more youngsters





A fun model slabsider from John Slate of the Polish RWD6 with a single loop of rubber and 1,200 turns.



All of the winners with their awards at the end of the day. (L-R) Jack Darby, Nick Peppiatt, Ken Taylor, Alex Cameron, Gerard Moore, Martin Dilly, Terry Adams, David Goodwin, Rob Funnell and Stuart Willis.

involved with new clubs".

Prizes and Raffle

At the end of the day Stuart Willis conducted the prize giving with Martin Dilly who presented the award winners plaques printed as always by the ex-reprographics professional Keith Wright. Alex Cameron dished out the very nice engraved glasses that went with the plaques with a massed picture taken of all off the winners. The excellent raffle was good fun and it was noticed that some "winners" gifted their tickets to the young 8 years old Joey Pearce who was there with

his father Paul and Grandad – Graham; all of them flying Butterflies.

And Finally...

May I add a huge vote of thanks to the organising team, the flyers and visitors who helped with this report, especially Alex Cameron of Crawley MAC and Stuart Willis.

See you there next year - please?

All the best - Dave Bishop of DB Sound. If any readers of AeroModeller want to have a copy of photos, please send a request email to; davedbsound@gmail.com ■



Ian Pearce and his scratch built Legal Eagle that came 2nd in that competition. Used 4 strands rubber and covered in Jap tissue.



Terry Adams is ever smiling, always winning and this year's K2's SEBMFA Indoor Champion. Terry has won the Last One Down model event 4 times.

RESULTS:

Legal Eagle

1 Terry Adams	2:47 + 2:40 = 5:27
2 Ian Pearce	2:36 + 2:40 = 5:16
3 David Goodwin	1:39 + 1:47 = 3:26
4 Kim Jones	1:42 + 1:43 = 3:25

Open Scale

1 Nick Peppiatt	Sablatnig SF4
2 Alisdair Clark	Fairey Rotodyne
3 Mike Hadland	Stampe SV-4

Peanut Scale

1 Nick Peppiatt	Nesmith Cougar
2 Mike Hadland	Bucker Jungman
3 Gerard Moore	Helio Stallion
4 Robert Horton	Nesmith Cougar

HLG

1 Mark Bennis	38.6 + 36.3 = 74.9
2 Alex Cameron	26.6 + 26.2 = 52.8
3 David Goodwin	23.8 + 23.7 = 47.5
4 Ken Taylor	20.7 + 19.6 = 40.3

Catapult Glider

1 Terry Adams	32.6 + 30.7 = 63.3
2 Alex Cameron	29.6 + 28.2 = 57.8
3 David Goodwin	29.6 + 26.8 = 56.4
4 Mark Bennis	26.6 + 25.5 = 52.1

Living Room Stick

1 Nick Peppiatt	5:29 + 5:20 = 10:49
2 Terry Adams	4:17 + 4:24 = 8:41

EZB

1 Gerard Moore	9:12 + 9:35 = 18:47
2 Ian Pearce	9:17 + 8:50 = 18:07
3 Paul Eisner	8:32 + 8:25 = 16:57
4 Rob Funnell	7:30 + 7:35 = 15:05

Gymninnie Cricket

1 David Goodwin	4:38 + 4:43 = 9:21
2 Ken Taylor	3:31 + 3:32 = 7:03
3 Jack Darby	1:35 + 1:37 = 3:12
4 Gareth Jones	0:18 + 0:17 = 0:35

SEBMFA Indoor Champion

Terry Adams

Hangar Rat Mass Launch

Last down and winner was Nick Peppiatt.

Butterfly Mass Launch

Last down and winner was Rob Funnell.



Here is Anthony Druce from Henfield with his Swedish Andreason SE a Peck Polymer kit model.

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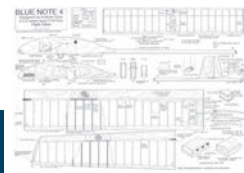
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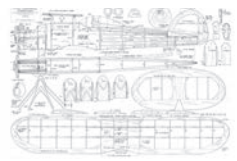
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Tail End Charlie

Another pot pourri of aeromodelling miscellany...

Indoors

Most of us in the Northern Hemisphere are coming to the end of the indoor season, but Christophe Cramois, ace peanut and pistachio wire wheel builder, tells me that there will be another of the excellent indoor meetings at Hangar à Dirigeables d'Ecausseville, 50310 Ecausseville, Normandy, France on Sunday 17th May from 9am until 6pm local time. Damien Bellamy is the contact for the event if you want more information. He can be found on Facebook. Free entry all welcome.

The site includes a small but highly rated museum as well as the historic airship hangar and the indoor flying event. As it's on the Cherbourg peninsula it's an easy journey for many UK based indoor flyers.

Outdoors

Bill Olive tells me that my proposal for a multi event CL fun competition has already been successfully introduced down under by the Cowra MAC. They run two classes, "Plank" which is for all sheet models with exposed control systems and "Super Plank" which is very similar but for models with a built up structure and specifically with a tailplane and elevator layout, so precluding combat wings. Engines of up to 25 size are permitted in both

classes.

The rules are brief and clear with those covering both classes fitting easily on to an A4 sheet of paper. You can download the full set from www.cowramac.asn.au plank_2018

Equally, scoring is dead simple; in each class, the pilot who successfully completes all the manoeuvres in the fastest time is the winner.

They fly the event at their annual "Oily Hand Day" in August which judging by the video gets a great turnout. They also have their free flight scramble which is very much an old school "chuck and run" event! This year's event will be held on 28th, 29th and 30th August.

If you want to visit, they are based in the central west area of New South Wales, Australia and fly about 25 km out of Cowra town.

More precisely, their field is near Canowindra Rd. on a property called "Milroy". They say that "the picturesque 30 acre site is quite flat with some medium sized gum trees scattered around the edges. Hopefully these are not the plane-eating type but time will tell. We have a small shed with water and other necessary facilities and a shade cloth sun shelter."

The Cowra Model Aircraft Club

was formed in 1984 by a group of local model plane enthusiasts and continues with about 20 members who fly all types of model aircraft. Naturally they are affiliated with the Model Aircraft Association of Australia (MAAA) though Miniature Aero Sports NSW (MAS).

Look for them on YouTube, they are clearly an inventive bunch, one of their videos even included rubber powered submerging (and re-emerging!) submarines, a surprise for Australia but ideal for my club this winter!

ED Mk2

Using the wonders of the Internet and mobile phones I've just bought an ED Mk2 (F426/7) from New Zealand. By no means immaculate, indeed a bit messed about, but this was reflected in the price, it seems like a good runner. It's missing the exhaust stacks, spinner and tank and the mounting lugs are damaged like many of them. However, I think I may have the correct spinner and a tank somewhere; I can do without the exhaust stacks and the lugs are still intact enough to mount an engine of this power in a vintage radio assist model. I also have what I think is a Comp Special (G609/7).

Bandsaw Blunder

I recently saw a small bandsaw

for sale locally and bought it unseen except for a couple of photographs. The seller explained that it was in perfect condition except that he had fitted a cheap blade when the original had worn out so it didn't cut too well. When I picked it up it was the middle of winter and a storm was raging so I gave it a cursory once over, popped it in the boot of the car and took it home.

It wasn't until I went to try it a few days later that I really looked at it. It certainly would not have cut well – the blade was fitted "inside out" so it was trying to cut on the backside of the teeth. Ten minutes refitting it and adjusting it had it working like new! I know "anyone can make a mistake" but the instructions are on the outside of the case with a big arrow showing the cutting direction complete with a picture clearly showing the teeth! I suppose I should be thankful that he wasn't using the smooth edge of the blade!

Finally, don't forget to let me have your comments, complaints, anecdotes and reminiscences either direct to me at chrisottewell@anworld.com or via the editorial offices using the usual address. ■

By Chris Ottewell



1 & 2: The Normandy WWI Airship hangar makes an interesting visit at any time. 3: My recently acquired ED 'Penny Slot' Mk2. 4: The bandsaw with very clear illustrated instructions!

AeroDetail series

Making a scale model?

Finding the detail needed to finish a scale model can be difficult and getting full size images is not always practical. Our range of detail photo collections provides extensive close ups of a wide range of popular aircraft all on CD in J-peg format



Whitman Tailwind CD106

Two examples shown of this U.S. homebuilt lightplane, with boxy shape ideal for modellers. Complete close-up detail. (62 images)

Westland Lysander CD105

The Shuttleworth Museum's airworthy example shown in both camouflage and Special Operations black finishes. Full close-up detail. (62 images)

Waco Ymf-5 CD104

Beautiful and graceful spatted undercarriage biplane of the 1930s 'golden aviation era'. Example photographed is an accurate-in-every-detail modern replica. (130 images)

Vickers Supermarine Walrus CD103

The famous 'Shagbag' biplane seaplane, used during WW2 as an air-sea rescue craft and fleet gunnery spotter. (80 images)

Tipsy Belfair CD102

Highly attractive Belgian low wing light aircraft from the era of simple, open cockpit private flying. Machine offers scale modellers pleasant lines and simple shape. (35 images)

Thulin Tummelisa CD101

Swedish 1919-era fighter trainer that served the Swedish air arm for many years. Example depicted is a faithful reproduction. (55 images)

Supermarine Spitfire MK.XVI CD100

Last of the Merlin-engined Spitfires. This collection depicts the cut-down fuselage, bubble cockpit canopy later version. (116 images)

Supermarine Spitfire MK.IX CD99

The most numerous version of the classic Spitfire that turned the tables on the Luftwaffe's Focke Wulf Fw 190. (90 images)

Supermarine Spitfire MK XIV CD98

2nd of the Griffon-engined Spits (Mk.XII was

first), the bigger engine forced a change of the classic Spitfire shape. (58 images)

Supermarine Spitfire MK Vc CD97

Shuttleworth Museum's airworthy example presented in it's latest form with classic rounded wingtip planform. (160 plus images)

Supermarine Seafire Mk17 CD96

The Seafire 17 was no navalised Spit. A true ground-up naval fighter. (64 images)

Stinson 105 CD95

Light, private aircraft of the 1940-50s era, with lots of character. (75 images)

Steen Skybolt CD94

Attractive U.S. aerobatic biplane, presented in full detail. (89 images)

Sopwith Triplane CD93

The last example of the 'Tripehound' is the one built (in 1980!) from original Sopwith drawings by Northern Aero Works and given sequential manufacturer's number by Sir Thomas Sopwith himself in recognition of the outstanding workmanship. Extensive detail. (120 images)

Sopwith Pup CD92

The charismatic Sopwith Scout (to give its correct designation) is a great scale modellers' favourite. Example depicted is the one preserved and regularly flown at the Shuttleworth Collection, Old Warden. (50 images)

S.E.5A CD91

Shuttleworth Museum's airworthy example presented in full detail. (100 plus images)

Ryan Pt-22 CD90

US military primary trainer aircraft that served with both US Army and Navy, thus providing ab-initio flight training for the majority of US airmen of the WW2 period. A highly attractive aircraft. 90 images of the preserved, airworthy aircraft, hangared at the Shuttleworth Collection, Old Warden.

Republic P-47D CD89

Bubble-canopy version of the much loved 'Jug', photographed in fine detail. (105 images)

Polikarpov Po-2 CD88

The world's most numerous produced aircraft of all time, the PO-2 was a great maid-of-all-work used by both military and civil groups in the old Soviet Union and its satellite states. Example depicted is pristine, and now in storage at Old Warden. (170 images)

Polikarpov I-15 CD87

The ultra agile Russian biplane fighter aircraft that saw widespread service prior to and in the early years of WW2 and during the Spanish civil war. Example illustrated is a superbly restored machine. (100 images)

Pitts S.1 CD86

Homebuilt example by Bob Millinchip, as seen at 2002 PFA Rally. Complete detail study. (36 images)

Piper Tomahawk CD85

Cranfield Flying School example of this civil ab-initio trainer aircraft. (54 images)

Piper Super Cub CD84

The later, 'cleaned-up' version of the famous Piper J-3, with more elegant engine cowl. Two examples shown. (80 images)

Piper L-4 Grasshopper CD83

Military version of the famous Piper J-3 Cub used during WW2 and close reconnaissance and spotter aircraft and for many other tasks. (80 images)

Percival Provost CD82

Airworthy, preserved example of the RAF piston engined basic trainer used in the 1950s. Full detail. (30 images)

Percival Mew Gull CD81

Famous 1930s racing and record setting aircraft that will forever be linked with the achievements of British aviator Alex Henshaw. (35 images)

North American T28 CD80

The advanced trainer aircraft that served in many air arms worldwide and also became a counter-insurgency ground attack aircraft. Examples illustrated are from France, where the type served for many years as the 'Fenec'. (100 plus images)

North American P51D Mustang CD79

The definitive bubble canopy Merlin Mustang. In detail, showing several restored examples. This is the Fantasy of Flight Museum's overpolished example, but the close-up detail is all there. (102 images)

North American P51B/C CD78

First of the Rolls Royce Merlin engined Mustangs, this collection depicts the Fantasy of Flight Museum's restored example, with overly polished plain metal surfaces. Much detail. (102 images) Also, 41 images of The Fighter Collection's P-51C in bare metal restoration, showing much surface and internal airframe detail. A real bumper bundle! (over 140 images)

North American B25 Mitchell CD77

Fantasy of Flight Museum's example. Photographed soon after superb restoration. Full nose to tail detail. (74 images)

North American AT6 Harvard CD76

AT-6, SNJ, Texan, Harvard – call it what you will. 55,000 were built – this example is in U.S. Army colours, with comprehensive close-up detail, nose to tail. (76 images)

North American A36 Invader CD75

The ground attack variant of the Allison engined P-51A. Photos, in detail, of the world's only airworthy example. (69 images)

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French WW2 fighter that fought in the Battle of France, 1940. Swiss restored example (92 images)

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