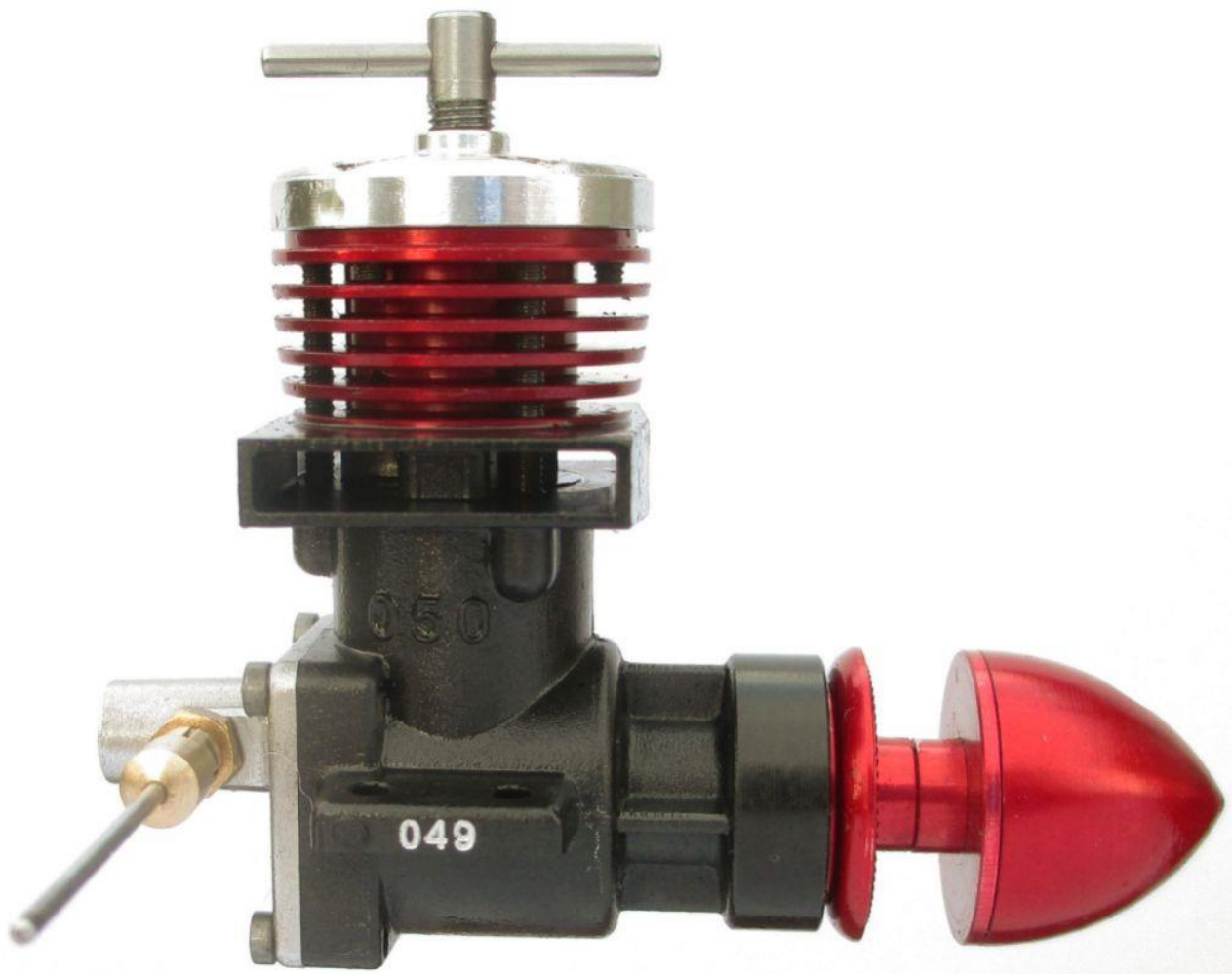


## Sticks and Tissue No 161

If you can contribute any articles, wish to make your point of view known etc please send to or phone 01202 625825 [JamesIParry@talktalk.net](mailto:JamesIParry@talktalk.net) The content does not follow any logical order or set out, it's "as I put it in and receive".

Thanks to Mark Venter back issues are available for download from <http://sticksandtissue.yolasite.com/> Writings and opinions expressed are the opinion of the writer but not necessarily the compiler/publisher of Sticks and Tissue.



*Redfin Racer from Bills Wells more in the newsletter*

## From Bob Pickernell

Hello James. I noticed that you published a copy of Pete Tribe's Deltik plan in S&T 160. Nostalgia isn't what it used to be but please find attached a computer tidied picture of one I made (a lot!) earlier, as Barry Bucknell used to say. I am guessing that much of your British readership is of a vintage to remember the gentleman. As I recall the flight pattern of this model was in the duck and cover class, definitely an adrenalin generating experience, but there again I would hope my trimming has improved a bit since I built this so it may have been more my lack of trimming experience than the model. Certainly it gave a lot of pleasure to my simple young mind. Regards to all, lets hope we get a chance to meet up some time this year.



## From Graham Crawshaw

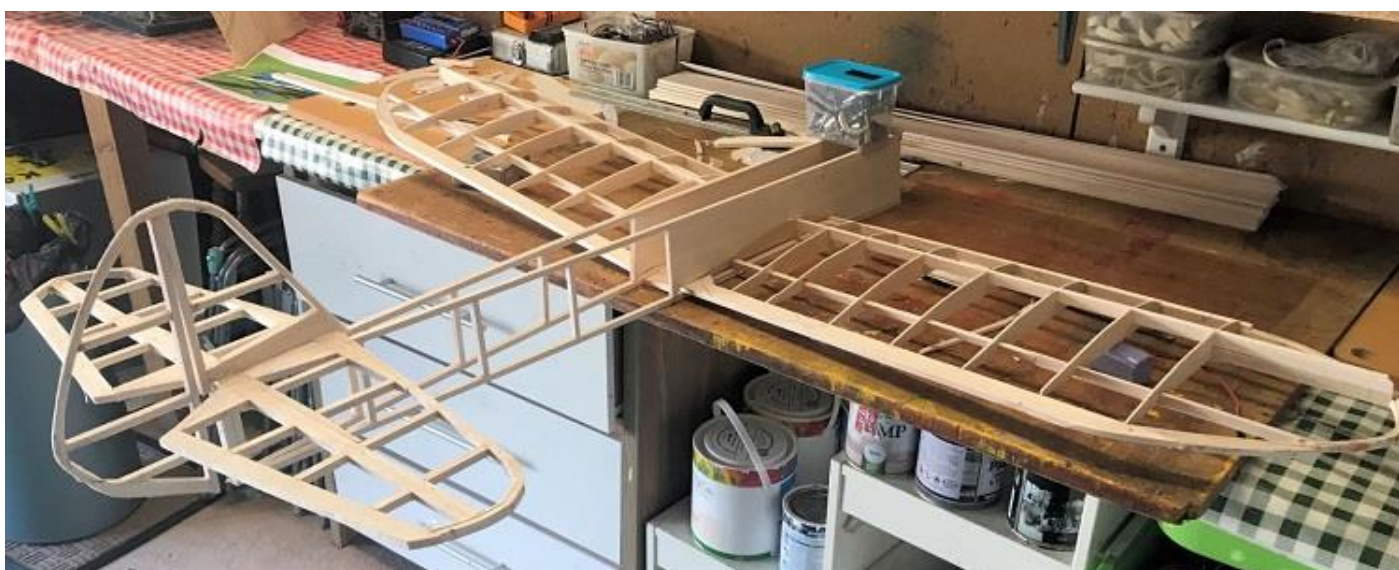
Flying Aces Sportster. Quarantine project pics of build so far





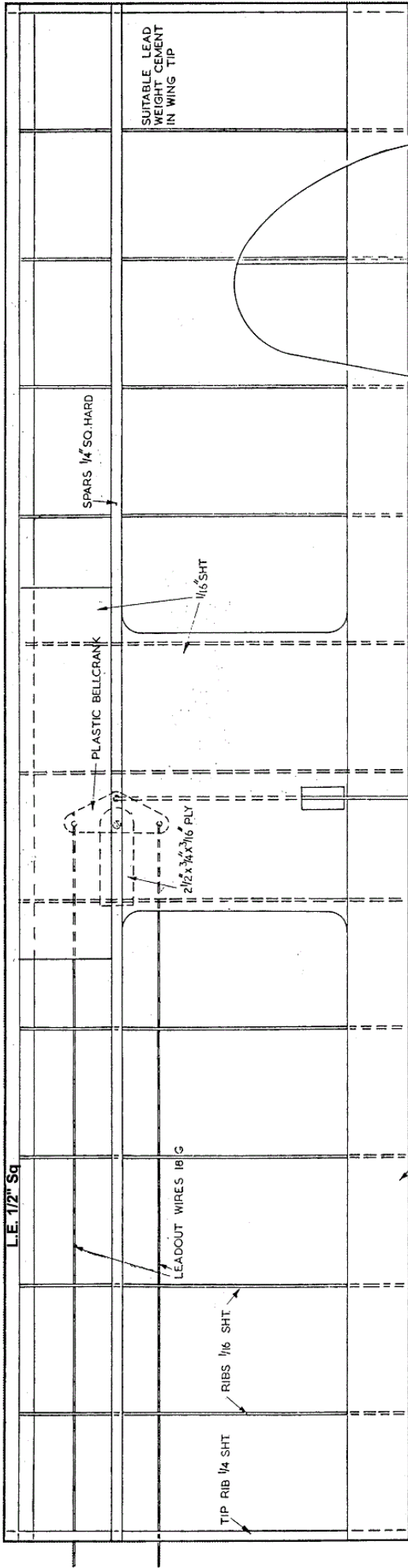


*Phot of a photo then scan of another Sportster sent by Graham*

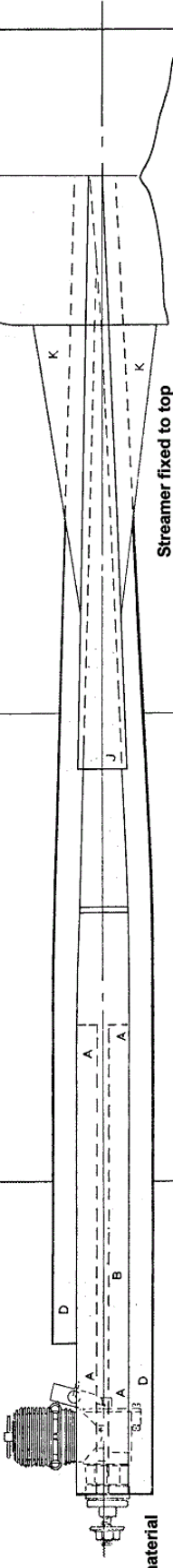








AMCO BB 3.5  
Prop 8 x 6 nylon



**Fuselage material**

- A - Engine bearers 4 off
- 2 - 9 3/4" x 3/8" Sq
- 2 - 7" x 3/8" Sq
- B - Spacers
- 1 - 3 1/2" x 1/4 x 3/8
- 1 - 4 1/2" x 1/4 x 3/8
- C - Top - 1 off
- 1 - 12" x 1 x 3/16"
- D - Crutch
- 1 - 27 x 1/2 Sq
- 1 - 24 x 1/2 Sq
- E - Side 2 off
- 2 - 1/8 sht
- F - Spacers 2 off
- 1 - 6 1/2 x 3/8 Sq
- 1 - 3 1/2 x 3/8 Sq
- G - Tank fixers 2 off
- 1 - 4 1/2" x 1 3/4 x 1/8
- 1 - 3 1/2" x 1 3/4 x 1/8
- H - Bottom nose
- 1 - 1/2 sht
- J - Bottom tail
- L - Bottom tail
- 1 - 12" x 1" Sq
- K - Fin strakes 3/16" sht



Counterbore to take bothhead

Side piece E omitted

Cut spars to clear bolt head & nut

Outline of centre 3 ribs

Mercury pressure tank

Cockpit cover optional

Rudder offset to stb'd

Rudder section

Streamer fixed to top of rudder

Slot fuselage for tailplane

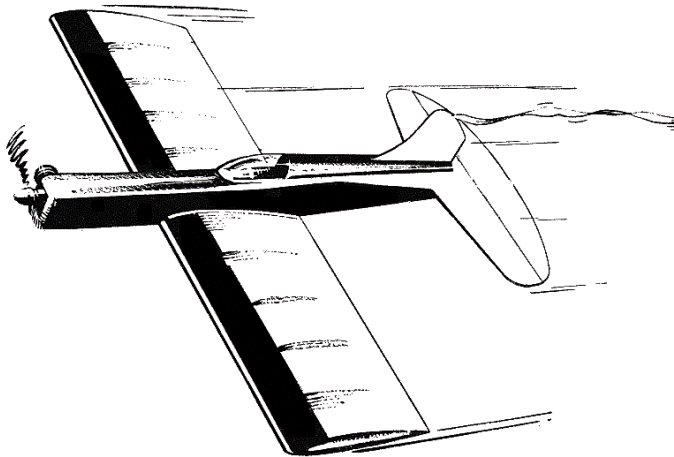
Ply horn

Bevel to clear control wire

# ker-mando

Cut & drill engine bearers A, bolt on engine, insert pieces B & cement on C grain across fuselage put in pieces G & insert tank add pieces D, E & F cement winh & tail in place & connect controls. Add H, L & J rudder & fillet & cement

## Ker-mando by K Jaques, span 36" control line combat model from Model Aircraft June 1954



Ker-Mando is one of the "Ker" series of combat models flown by the Meanwood club at many galas and demonstrations. Others are "KerUnch," "Ker-Tostrophe" and even "Ker-Loustopobia"!

The first item is the wing. Cut out enough rectangles of the appropriate thickness balsa for the wing ribs (just for now—forget that the central ones are smaller). Then stack them like playing cards and push two pins through from either side and, using the block method cut them to the outline of the tip rib, complete with notches for spars, L/E and "V" T/E. Sand

them. Break the "pack" in two and drill the lead-out holes in one set (watch that you don't split the wood). Enlarge the root holes a little. Now, take one rib with the two lead-out holes and two ribs without any, and on the edges where the sheeting touches cut down the rib size by the necessary amount of 1/16 in. Lay one of the spars on the plan, and cement the ribs on to it, in their correct positions. Then add the L/E., and top spar.

Pin one of the two T/E strips to the plan and cement the wing ribs to it. When it is set, un-pin it, and cement the other strip of the "V" T.E. to it. Pin it down to dry. Cut out the ply bellcrank—"precement" them all over, and make the bellcrank assembly complete with wires. Now this bit is tricky—unless you cheat and temporarily remove a portion of the spar. Slide the lead-out wires down their appropriate holes (working from the centre) and wedge the assembly up against the rib and the two spars—apply cement and before it sets hard check that the wires are free. Now put in the sheeting—don't glue up the push-rod. You should have one large empty Britfix tube by now so put in your outer wing tip weight. Sandpaper this part smooth, then put it aside until the fuselage is ready for it. Cut the engine bearers ("A") to shape—smear cement over them—and fix in a "B.B." or, better still, an old crankcase. Pop in the 1/4 x 3/8 piece "B."

On top put on the 3/16 sheeting "C" (grain crossways) sand this flush with the engine bearers. Put in the tank (Mercury Pressure) and the 1/8 (or probably a little thinner) pieces "G"—again grain crossways.

Next are pieces "D" but before you glue them on be sure you have cut the groove at the rear end for the push-rod, otherwise full "up" will only be around 2 or 3 deg. It would also be as well to cut the two bolt-holes to the engine at this time—don't forget—only in the long one. Put in pieces "F," the bit about the "bolt-holes" applies here, too.

Now, one of the few "shaped" pieces—the sides ("E"). Cement them on. If you use plenty of cement around the nose and tank—no exhaust oil, etc. will be able to get past into the fuselage. Put the wing on the bench. Smear cement over the centre-section for about t in. either side of where the fuselage sides will rest; give the same treatment to the leading-edge, where "A," "F" and "B" will butt up. Run the cement round A, F, G, and the fuse where the wing will touch it—and press the two together. As surplus cement oozes out, rub it back up against the joint to form a small fillet. I would like to remind you—don't glue up the push-rod. You can put on the slab of t in. sheet now (H). Use elastic to hold it.

The tail is as simple as they go. Use 1 1/2 in. wide bandage for the hinges—about 10 of them. With the ply horn a better job will result if you recess it slightly into the elevator, and use the "precement" method.

Now join up the horn with the push-rod. Smear cement over the fuselage top where the tail will come to rest put on the tail. Now before the cement sets, hold the lead-outs level and move the tail (if necessary) forward or back until the elevator is at 0 deg. (If you had to move it forward, you will



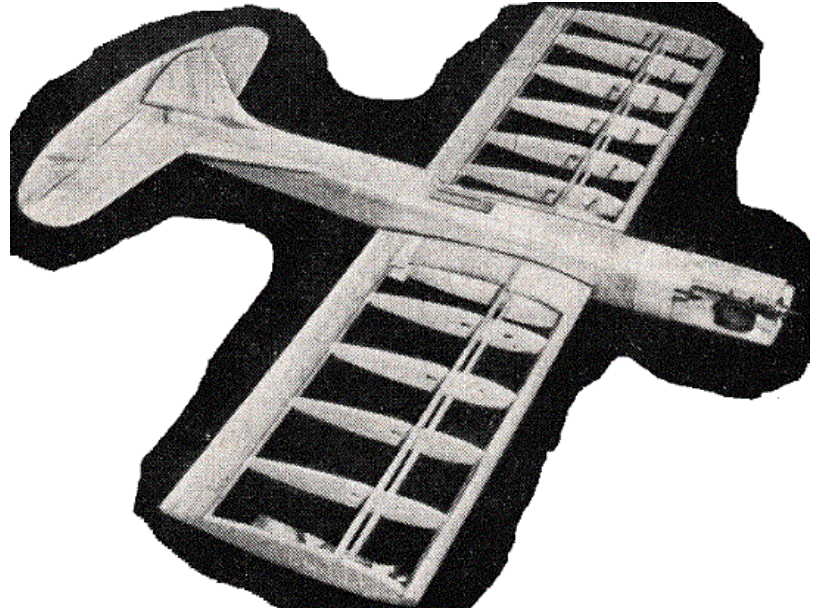
have to shorten the fuselage slightly and watch that no cement goes on to the hinges.). Pin the tail so that it cannot shift.

Piece "I" goes in now and—you've guessed— don't gum up the push-rod. Now shape up the top block (J)—it will be easier to sand it now than later and pin that on. On with the pieces "K." (They are the pieces left over when you cut the tail L. E. to shape).

The rudder : make a nice version of" Clark Y" on it, with the " bottom" flat side outside of the circle. Now put the groove in the base and make it match the top of your fuselage (J) at the point where it joins on. (Use 3/16 dowel with sandpaper wrapped around it). Then cement it firmly on to the piece "J." This has to be secure since each inverted landing uses (or should !) the rudder as an undercart ; another reason is that we use it to fasten the streamer to, and it is very annoying to have your opponent snip the extreme tip of the streamer and have the whole length come off—complete with rudder!

Right! Now for the more dusty work, so remove the engine (or crankcase) and bung up the tank vents. Round off the fuselage nose, and sand the model all over. Using plenty of cement, wrap bandage around the nose behind the tank vents. Cover the wing (I use two layers of lightweight Modelspan) using your best method. Use up to half a dozen coats of sanding sealer on the exposed woodwork—sanding between each.

Then one coat of 50/50 thinners and sanding sealer—don't sand this one. Now you can start on the colour scheme. I use yellow—I like to be able to see it again should I glance around for my "enemy."



## Jack Hiner from USA

The first Drone diesel I saw was flown by Marshal Sims on a control line model. This was in the days we flew R/C with CW and only one of us would fly at a time. Marshal would fly control line waiting his turn to fly R/C using the Drone diesel.

In 1995 I flew SAM with a 2 cc diesel. First time using diesels since 1969. A few years later I got a Drone ball bearing version. Fixed compression on these engines but would run on our modern diesel fuel Aerodyne and others. Just open the needle valve and once running lean it out. In a couple years I had four of the Drone ball bearing diesels in various condition.

But I had a problem with all 4 engines. 10 runs or less the engines would blow the black fiber head gasket. After all these diesels were made in 1948. David Owen in Australia made me up a number of soft aluminum head gaskets for the Drone Ball bearing engines and that solved the problem. Not too difficult to start unless 40 degrees F. or lower

The Drone ball bearing version has 6-32 Phillips head bolts. Since I was going to take these engines apart I changed to socket head screws. I also got new ball bearings for the four engines. New Departure ND 3LOI metric (12x28x8) unshielded. Also new crankcase gaskets from Aero Electric. I replaced the three 5-40 crankcase Phillips screws with socket head.

Aerodyne made a variable compression head for this engine and I purchased one. Worked great and got a couple more. Needed some tweaking as you needed to ream out the head for the 6-32 head bolts. Another problem is it needed a compression locking lever. Fixed that and they ran great. I would up with four of these Drone variable compression heads.

These engines were rather powerful for a 1948 diesel design. A good one would turn up 7,000 RPM with an APC 13/7 Sport Prop. But vibration level was high on these engines at that RPM. So an intake restrictor was installed to use the engine in Texaco event. Much lower RPM and lower vibration level with 14/8 prop and the restrictor. I had planned on flying the Drone diesel in SAM Limited Engine Run (LER) event. But due to vibration levels at the RPMs needed for this event have not. I have flown the Drone in SAM Texaco events. Best place in the Texaco event with the Drone was 2nd.

But then another problem came up. I had two "O" ring failures with the Aerodyne contra piston. I made a drawing of a contra piston using two "O" rings. A friend made me some of these aluminum contra pistons for two "O" rings per my drawing. I got a package of Viton O-ring # 13. But I was having a problem installing the two "O" rings. Aerodyne AI to the rescue as he installed these for me. He has a special tool for this.

Engines are running great now with these mods. Also some tweaking of the Drones by fellow SAM member Don Blackburn. An old control line speed flyer now departed. Next for the Drone ball bearing engines I would like to find an engine man who could modify the Drones to take a modern R/C carb .15 size or smaller.

A lot of help from my friends over the years on this project. It took longer than I thought it would to get the performance I expected. Two of the fellows who helped on this project are no longer with us. Don Blackburn and David Owen. Could not have done it with out their help and help from others.



***Drone with Intake Restrictor For Texaco. Two fuel tanks. One on the right in the photo for warm up. The one on the left is a Uni-flow, for smooth fuel flow.***

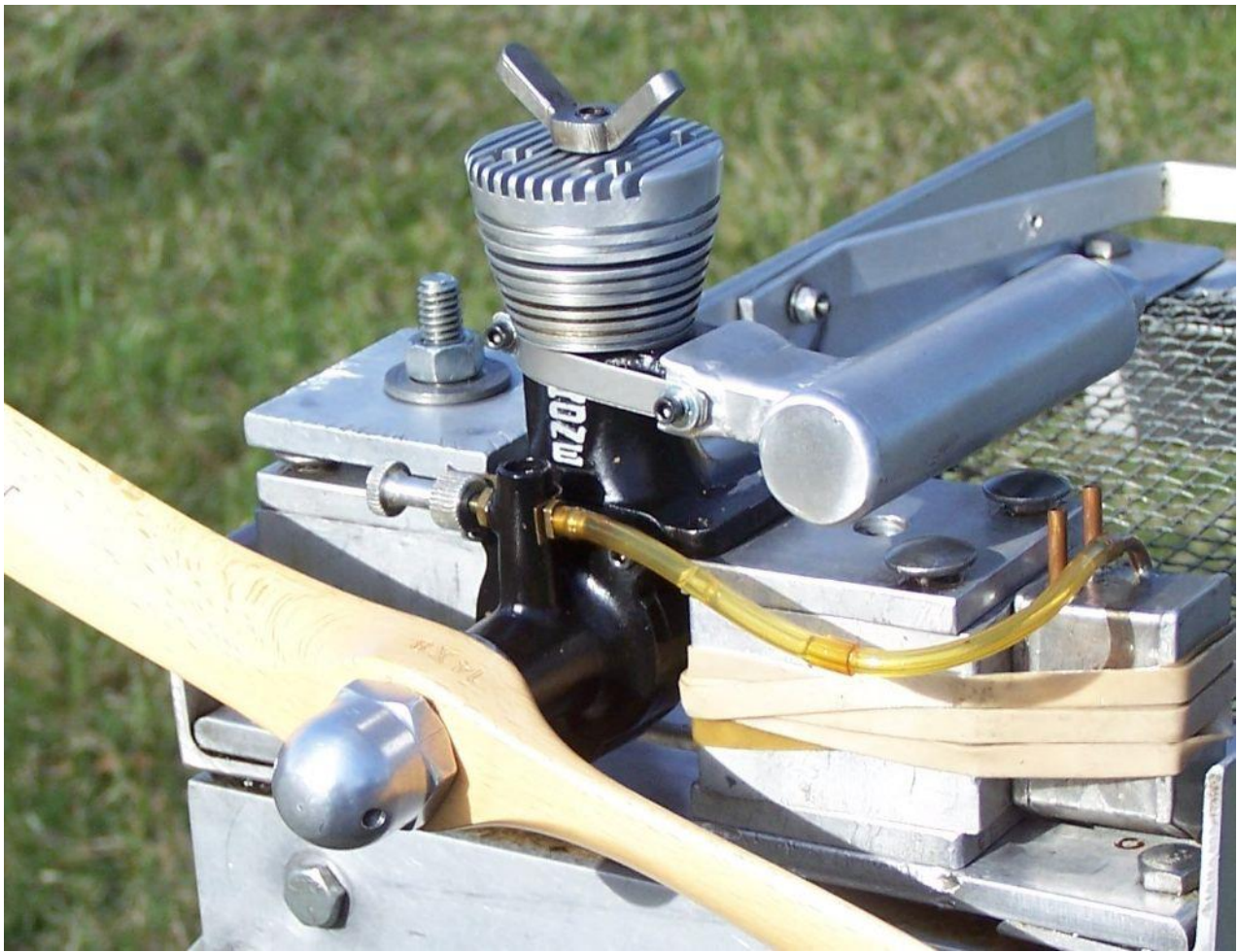




***Stock Drone BB Diesel***



***Drone BB With Aerodyne Head and Compression Locking Lever***



*Drone with Custom Muffler*

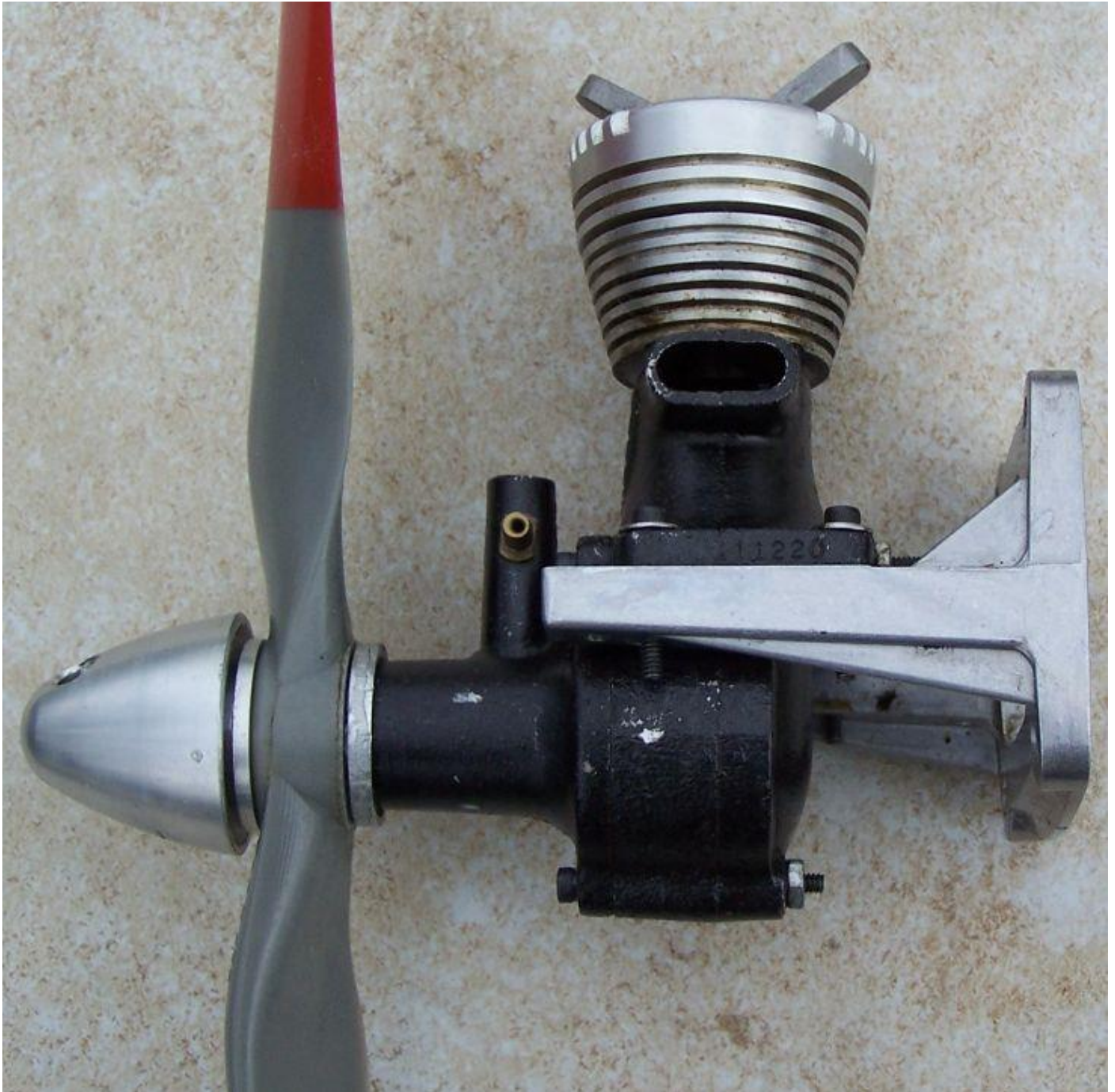


*Original Drone Box*





***Drone diesel contra pistons. Top original Aerodyne with single O ring. Bottom contra with two O rings.***



***Drone Motor Mount. The APC prop has two heavy coats of epoxy on just one blade paint to get it out of balance. With the piston on lower position when the heavy prop blade is up will reduce vibrations a little.***

## ***From Alistair Duff***

This started life as a LaHeli kit of the Cierva C30 which I repainted in RAF colours. Avro made the C30 under licence and called it the "Rota". During the war 529 squadron used them for radar calibration duties, they used to send them out over the channel and because of their low flying speed and the fact that they could loiter in a small area made them ideal for such duties, except when they ran into enemy fighters of course.

The kit had a foam fuselage which was beautifully moulded but was unfortunately rather weak in a few areas, the undercarriage mount and the engine mount being good examples of this.

I am a fairly experienced fixed wing flyer but no experience of autogyros at all, so I didn't expect it to last very long, and it didn't. On its' third attempted take off it crashed on its nose and was damaged beyond repair.

However, it was such an attractive wee model I decided to remake it in balsa ( the MK11), and beef up the areas I thought were a bit weak, so with the help of the old Aeromodeller drawings (September 1962) I drew up a plan for it and started the build. I used some bits from the original kit such as the dummy engine, which was a very nice vac formed item, the rotor assembly, the mast and its mount and the wheels, all the rest was scratch built.

After a few weeks I had a flyable model and it was then that I discovered that autogyros are not like normal planes, no, not by a long shot they aren't. After a few attempts at take off, some of which produced encouraging hops but mostly crashes we called it a day and I took it home for minor repairs. At least it proved it was a lot stronger than the original.

For the second outing I fitted a reverse direction prop and we decided to hand launch it. One of the problems with autogyros is the blade going downwind produces less lift than the blade going upwind (same as a helicopter), so in this case the model tended to roll left on takeoff, as I found out several times on the first outing. I thought by fitting a reverse direction prop, the torque produced by the engine would help counteract this, it did, it turned right, straight into a drystone dyke, despite me putting full left on the sticks. Luckily very little damage. The second flight we tried launching it a bit further away from the dyke and a bit more to the left, however it still wasn't enough, it hit the wall again. Still little damage.

Learning from this, (we've done quite a bit of learning) I changed the prop back to a normal rotation one and tried again. Success! It flew, turning to the right quite a lot, but it was flying, that is until I took my hand off the stick to put some left trim on it, and the plane started a few gyrations of its own and then the rotor struck the tail. Quite spectacular really, the aircraft appeared to explode in midair and then fell to the ground.

As an aside, my friend Bill Scott (who wishes to remain anonymous) bought an autogyro from H\*\*\*\*k\*\*g. During an early test flight the rotor managed to unscrew itself and parted company then flew on unassisted for a long time after the fuselage hit the ground ( no damage). It was hilarious.

Since then there has been many trials and tribulations with it, but also some encouraging success, so much so that I have built another one (the MK111), a more scale version with some improvements to the structure ( I hope ).

I'll continue using the first one as a trainer until I am reasonably confident I can get it up and down in one piece.



I am planning to build one twice the size with a pre-rotator on it ( as per full size) which should help with the take offs, but that is quite a long way off.



*The kit version*



*MK11 under construction*



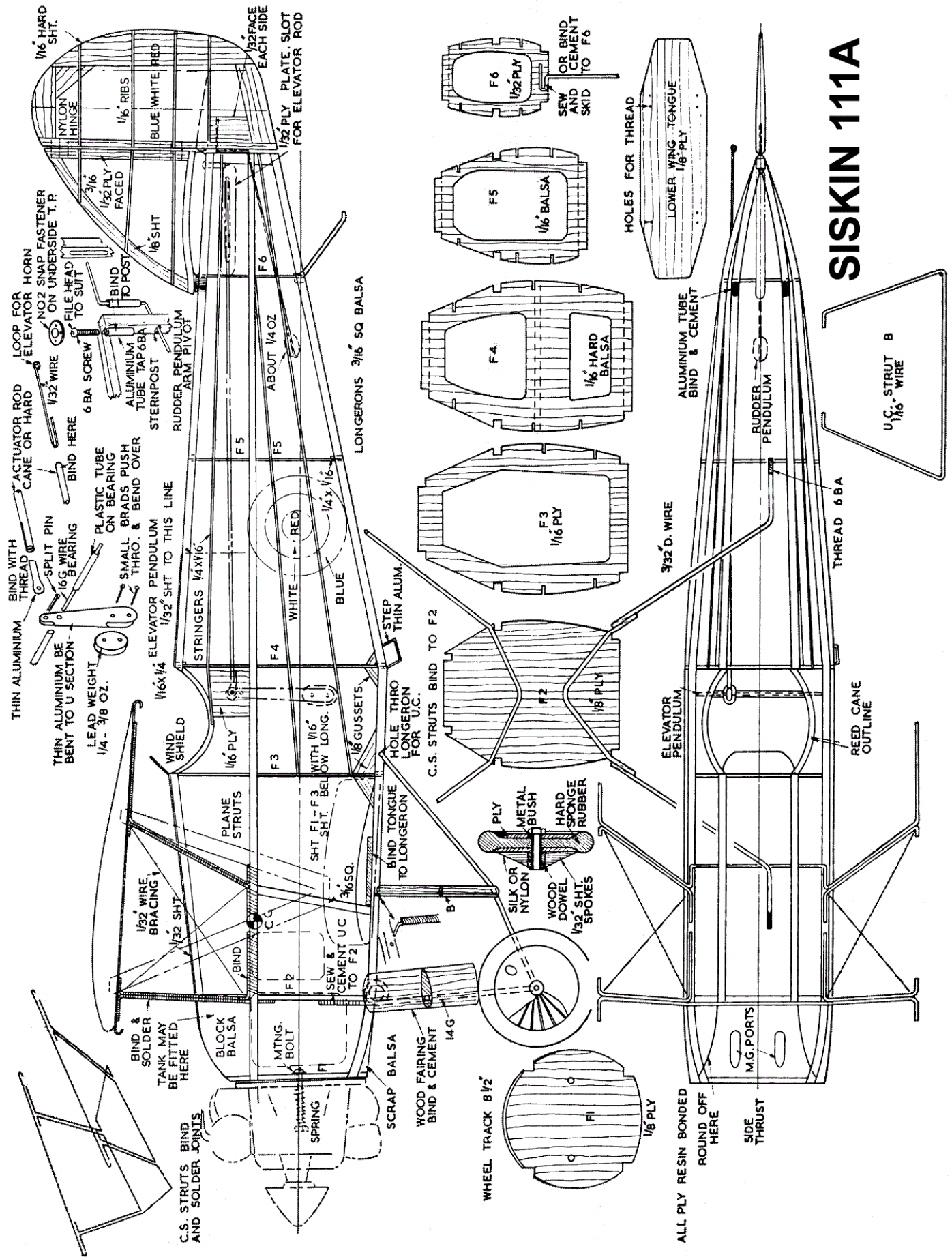


*Ready to fly*



**The MK111**

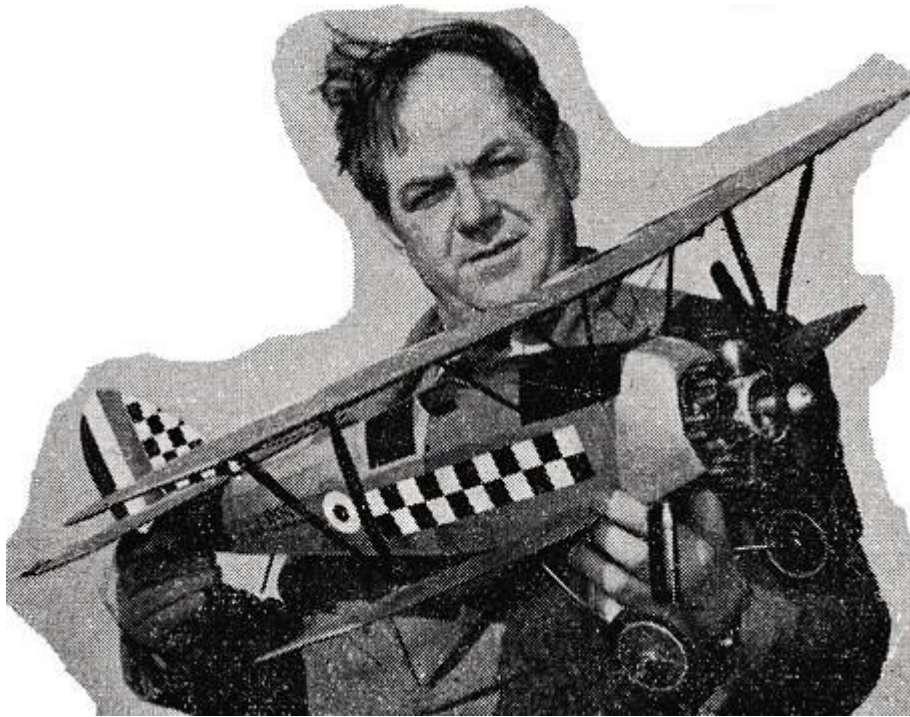




# SISKIN 111A

## Siskin 111A 36" span free flight for 1 – 1.8 cc engines by P E Norman from Model Aircraft April 1960

*P. E. Norman, who painted the original of this month's cover, gives detailed instructions on how to build your own replica of his exciting model*



The Siskin III single-seat fighter entered service with the R.A.F. in 1924, when 41 and 111 Squadrons were equipped with it. It was an aircraft with several distinctive features, and was both liked and disliked by the pilots who flew it. Of rather gawky and angular appearance it had a slab-sided fuselage with angular decking and angular tipped wings and tail, but its most distinctive feature was its large broad chord upper wing and very small and narrow chord lower wing with "V" interplane struts. The undercarriage, which had the then comparatively new oleo legs, was complicated and

drag producing, and was rather long. This, coupled with the amount that the legs extended when in flight, gave it a rather "daddy long-legs" appearance. This tall under carriage and the fact that the lower wing stalled easily made the machine rather tricky to land, and there are many old pilots still carrying a "Siskinnose," a distinctive feature brought about by that organ coming into rapid contact with the cockpit edge, or the trailing edge of the mainplane when the aircraft nosed-over on landing.

The engine, a 325 h.p. Jaguar two-row 14 cylinder air-cooled radial, appeared to be stuck onto the nose as an afterthought with a flatish cone spinner on the two bladed airscrew. An aluminium cone segment between the airscrew and front of the engine formed the only streamlining.

All machines were doped silver overall except for the front fuselage panels and the deck in front of the cockpit which were either dark green or black. The red, white and blue roundels were carried on the fuselage sides, just aft of the cockpit and on the top and bottom surfaces of the top wing only, as the lower plane was considered too narrow to carry them. The rudder carried red, white and blue vertical stripes (blue forward) and the machine sported the gay and colourful squadron markings on the fuselage sides and between the roundels on the top wing (41 squadron—a red bar, 111 squadron—a black bar). The wheel discs (canvas) were painted the flight colour, i.e. red, blue or yellow.

Squadron Markings :—

- No. 1. Two parallel red bars.
- No. 19. Blue and white cheeks.
- No. 25. Two parallel black bars.
- No. 29. Two intersecting zig-zag lines.
- No. 32. Blue band intersected obliquely with white.
- No. 43. Black and white checks.
- No. 56. Red and white checks.

An extensively modified version (the Mk. 111A) was widely used by the R.A.F. and equipped Nos. 1, 19, 25, 29, 32, 41, 66 and 111 squadrons, remaining in service until about 1932.



The final development was the Mk.111B, which had a Jaguar Major engine, enclosed in a Townend ring. It had a top speed of about 187 m.p.h. at 1,500 ft., but did not see service with the R.A.F.

My original model powered by an old 1.8 c.c. Elfin radial mounted diesel, represents the Siskin Mk.111A, as flown by the C/O of No. 43 squadron.

When correctly trimmed its flight with this power unit is very exhilarating, and this, coupled with a comparatively slow glide and strong construction, should well reward its builder with several years of flying.

Study the plans and the following notes carefully, and become fully acquainted with them before commencing construction with the

#### Fuselage and Undercarriage

Cut out fuselage formers and drill engine mount bolt-holes in former 1. Cement reinforcing strips of 1/16 x 1/4 in. balsa across formers 5 and 6 between the longeron slots at top and bottom and at centre of former 4 (this acts as pendulum stop to prevent the elevator pendulum swinging too far backwards).

Cut the four main longerons of 3/16 x 3/16 in. from 3/16 in. hard sheet—cutting them slightly longer than necessary. Gently “break” and cement the two lower longerons to the correct angle shown on the plan. Assemble the two upper longerons to formers 1, 2, 3, 4, 5 and 6, holding temporarily in position with pins and elastic bands until set.

Position the two lower longerons and cement in position, checking that the formers are in their correct positions and truly square. Cut the sternpost from 1/4in. sq. hard balsa, and having cut the ends of the longerons to length, cement firmly to the sternpost holding with spring paper clips until dry.

Bend the U/C legs from 3/32 in. dia, piano wire. To form the spring-coil in the wire at the top of each leg, leave the wire in its full 3 ft. length—hold 1/4 in. dia, steel rod vertically in the vice ; mark the leg and axle length plus about 1 in. on the wire with chalk or a piece of cotton. Slip a length of stout tubing onto the wire up to approximately this position. Hold the wire firmly against the steel rod in the vice and pull the other end of the wire tightly round the rod. Another length of tubing slipped on the other end of the wire will help this operation. Measure off the distance to the second loop and repeat the operation.

Now bend the wire between the loops to form the legs but do not bend the axle angles until the wire is fastened to former 2. Hold the formed wire in position on the back of former 2, and mark the position with a pencil line. Drill small holes at intervals through the ply and sew and glue the wire firmly in position using strong carpet thread and plenty of cement. Don't forget to place wire on the front face of former 2 for final fixing.

Allow the undercarriage wire to set firmly before bending the axle angles. The axles will be too long, but they are cut to length after the wheels are fitted. The wheels are retained either by threading the ends of the axles, or by soldering washers on the axle ends.

Bend the centre-section struts from 1/16 in. piano wire and bind and glue securely in place ; do not complete the outer parts of struts at this stage.

Add top fuselage longerons between formers 2 and 3, and 4 and 6, and bend a length of 1/8 dia, cane to form the cockpit edge, cement in position. Fit the soft block balsa between formers 1 and 2, cement, and sand to shape, then cut the M.G apertures.

Cut the 3/8 in. lengths of aluminium tubing and bind and glue firmly in position on top longerons to receive the tailplane prongs. Form the tailskid from 1/32 in. piano wire and bind and cement to bottom of former 6. Slip a length of P.V.A. tubing over the skid to give thicker scale appearance.

Cut the fuselage stringers from 1/16 x 1/4 in. balsa, and cement in position, ensuring that when finally sanded they stand proud of the formers. Cement the 1/16 in. ply plates between the top longerons and top stringers and against former 4, to take the elevator pendulum.

Cut the lower wing tongue from 1/8 in. plywood, drill small holes for thread and securely sew and cement in correct position on top of the lower longerons.

Cover the fuselage sides with light 1/16 in. sheet from former 1 to 3. Sheet all the upper fuselage to a point midway between former 4 and 5, with 1/32 in. sheet, ensuring the grain on top surfaces runs across the fuselage.

Form the rudder pendulum arm from 1/32 in piano wire and fit a short length of aluminium tube bearing. Cut a shallow groove in the rear of the sternpost, make a small hole for the pendulum arm to pass through and ensure that this hole clears the pendulum arm to allow free lateral movement. Cut and drill a small piece

of lead (about 1/4 oz. will be sufficient) and slip over the end of the pendulum wire inside the tail end of the fuselage, bend over the end of the pendulum wire for about 1/4 in. and hold the weights in position with thread binding and cement. Push the arm into correct position, line up the aluminium bearing in the sternpost slot and bind and cement thoroughly. Check that the arm swings freely.

Cut 1/2 in. length of aluminium tubing of large enough diameter to tap internally 6 B.A. Bind and cement to a short length of hard balsa, and cement thoroughly to the inside of the sternpost to form thread for 6 B.A. screw, which in turn is filed to fit the press snapper on the underside of the tailplane. This secures the tail in position and allows the tailplane incidence to be adjusted.

Fill in the underside of the fuselage between formers 1 and 2 with 3/16 in. sheet balsa, insert 1 1/4 in x 6 B.A. screws with washers into the holes in former 1, passing them through from the rear and screwing on nuts to hold them temporarily in position.

Sand the fuselage smooth and examine all joints, ensuring that there are no bumps or pieces of cement that will spoil the covered surface.

The centre section struts may now be completed by forming the bracing wires between front and rear struts and adding the top wing runners. Bind and cement thoroughly or wrap with thin fuse wire and solder, whichever you prefer.

Each oleo leg is built up from two pieces of 1/8 in. balsa. Fit carefully to each side of the U/C wire, cement in place and when dry sand to a streamline section, wrap with 1/2 in. strips of silk or nylon, and soak with cement.

Cover the fuselage with thin lightweight silk, applied damp. When dry, give two coats of clear shrinking dope and allow drying.

The rest of the undercarriage is now completed using plastic cored or thin gauge plastic tubing (between ie 1/16 in. and 3/32 in. dia.) and 1/32 in. piano wire faired with thin hard balsa glued and wrapped with silk. The cross axle is omitted to help prevent nose overs. Holes are drilled in the bottom longerons and plastic cord is passed through them from side to side to form the rear strut. The plastic cord is now bound and cemented to the bottom of the piano wire U/C struts and then pulled forward over the axles, doubled back onto itself, and securely bound with thread.

Small details such as the wind driven generator and oil pump may be made and added. The front panels, two on each side of the nose, are cut from cartridge paper and cemented in place.

### The Wheels

#### Method 1.

These may be built up from circular laminations of 1/8 in. hard balsa and 1/16 in. three-ply, sanded to section, and fitted with aluminium or brass bushes. The cone sides may be made from stiff drawing paper, cut to size and cemented in position.

#### Method 2.

Cut circular discs from a sorbo rubber kneeling mat, these may be purchased from Mence Smiths or Timothy Whites and are about 1/2 to 5/8 in. thick. Mark circles on the surface of mat with pencil compasses (using a soft pencil), then cut carefully with sharp long-bladed scissors. If you have access to an electric grindstone the section of the tyre may now be ground to shape, ensure that you have a really strong grip on the rubber disc and rotate it slowly as the grindstone will "snatch" very strongly. If no grindstone is available, trim to section carefully with the scissors then sandpaper until they are as true as possible. The tyre section is now given two or three coats of rubber solution allowing each coat to dry thoroughly. Now stain the rubber with black leather shoe stain and allow to dry.



The two hub discs for each wheel are cut from 1/8in. 3-ply or preferably 1/8 in. hardboard, drilled centrally and the edge on one side of each chamfered (this chamfer is eventually placed towards the rubber "tyre").

The spokes are represented by slats of 1/32 to. balsa, spaced evenly round a short length of 3/8in. wood dowel which is centrally drilled and cemented to the face of the disc.

When dry the "spokes" are sanded off to the circumference edge (I used 24 spokes on each wheel covered with silk and doped); the wheels are now assembled by passing a suitable size brass bush (threaded externally 2 B.A.) through the outside covered disc "tyre," and inside disc, and then screwed up tightly with a 2 BA. nut. These wheels are very effective, fairly simple to make, and are quite inexpensive.

### The Mainplane.

The top mainplane is built in one piece and is held in position on the centre section struts by elastic bands passing over the upper surface.

Make a rib section template from 1/32 in. plywood or thin card, allowing slight extra thickness at leading and trailing edges. Cut out the ribs, using the template to mark them out. Cut out the leading edge riblets using the front of the template as a marking guide. Cut all notches for leading edges and gaps in underside of trailing edges.

Make the trailing edge in one piece, ignoring the centre section cut-away at present. Cut the curved ends of the trailing edge as shown on the plan and cement. Lay the trailing edge on the plan and pin in position.

Place the ribs in position on the trailing edge out as far as the sweep forward. Trim the outer ribs from the

trailing edge to fit the tapering panels. Cement ribs to trailing edge and pin temporarily. Carefully fit leading edge into rib slots and cement. Cement the leading edge riblets and wing tips in position, allow to set. Remove the wing frame from the plan and very carefully just break the leading and trailing edges at the centre rib position.

The mainspar is cut from two pieces of 1/8 in. hard balsa with the centres trimmed to give the slight dihedral angle shown on the plans. Cut the dihedral braces from 1/32 in. plywood, and securely cement and pin to each side of the main spar. Lay the mainspar in position on the plan and carefully cut out the rib slots in the underside of the mainspar. Place the mainspar in the correct position on the wing frame and carefully push it down into the rib slots, easing the wing up slightly at the ends to form the correct dihedral angle,

Mark the position of the mainspar on each rib with a cut from a sharp knife or razor blade, then remove the spar and carefully cut slots in each rib deep enough for the spar to drop down into position.

Place the spar in position and cement each interlocking joint. Carefully press the spar down into the riblets, blocking up the wing frame at the ends to form the dihedral. Trim the ends of the spar to fit the wing tips. Ensure that the spar is truly seated in position with the bottom surface flush with the bottom edges of the ribs, and allow to set thoroughly. Cut, fit and cement the secondary mainspar as described for the mainspar. Cut away the trailing edge at the centre section and build up with 1/8 in. sheet as shown on the plan. When set check the wing frame for any possible warps. Sand the leading edge to the correct section and shape under and upper surfaces of the TE. to give a knife-edge. Sand the wing frame carefully all over. Cut four aluminium or sheet tin pieces for the interplane strut fittings and make small slots with a knife blade in the ribs at the correct position, having previously wrapped the ribs at these points with narrow strips of silk well cemented. Insert the fittings through the ribs, bend the ends over with pliers and cement.

Cover the wing with thin dampened silk, covering the underside first. When dry, give two coats of clear dope, pinning the wing down to prevent warping. Reinforce the under surface of the wing in the region of the centre interplane struts with 1 in. wide nylon ribbon tape dampened and doped in position with thick dope. The lower mainplanes are constructed in a similar manner.

Make the lower wing boxes on the tongues —using 1/32 in. 3-ply for top and bottom surfaces and 1/8in. hard balsa for the box edges. Cement, pin, and bind with strong thin thread and check that

they are a good tight fit on their tongues. Place the wings in position on top of the boxes, which are fitted in place on the tongues, and carefully mark the box positions on the wing root ribs.

Cut the wing root rib away to fit tightly and correctly over the boxes. Check the dihedral angle and incidence and when correct cement and pin securely in position over the boxes. Allow to dry and then remove from the tongue and add the small hook for the retainer rubber bands on the lower surface. Cover with silk as for upper wings.

#### Tailplane and Elevator

The tailplane ribs are each cut in one piece, the spar gap being cut away later. Pin down the trailing edge and tips and cement the ribs in position, holding them with pins. Insert the leading edge and add the reed tips. Before removing from the plan cut away each rib, to allow the full depth spars to be cemented in position. On one side of each spar cement a 1/32 in. ply facing to increase the strength.

When dry remove the completed frames and sandpaper smooth. Place the tail temporarily in position on the fuselage and mark the positions of the tubes for the piano wire prongs, and the position of the tail incidence adjustment screw, on the rear of the fuselage.

Bend the piano wire prong-piece and cement and bind it in position on the leading edge. Cut a gap in the underside of the tailplane to receive the female half of a dress snapper, and sew and cement it securely in place. See that the tail fits correctly in position, and then cut the elevator portion free from the tail.

Make the elevator horn from 1/32 in. piano wire and bind and cement it in position on the spar. Cover the completed tail and elevator with thin silk and apply two coats of dope. Hinge the elevator to the tail with short strips of 3/8in. wide nylon ribbon, and make sure that the elevator moves freely.

#### Fin and Rudder

Make the complete frame as for the tail, using the same method of mainspar construction. When dry, check that the fin fits the upper surface of the tail correctly and if necessary trim carefully until it does. Separate the rudder portion from the fin, slightly round off the leading edge of the rudder to allow close fit and side

movement. Cut a slot in the leading edge of the rudder to engage with the pendulum rod projecting from the rear end of the fuselage. Cement thin sheet balsa on each side of the projection to secure the wire.

Cover the fin and rudder with silk and use nylon hinges, as for the elevators. When the dope is dry, cement the fin firmly and correctly lined up, both vertically and longitudinally, on the upper surface of the tailplane.

Check that the completed unit fits squarely in position on the fuselage and that the incidence angle is adjustable, and rudder and elevator movement still free. All the tailplane components should be kept as light as possible.

The airframe is now complete and it is as well to assemble it completely to see that the wings and tail seat true, and to get the general feel of the model. You may balance it by passing an elastic band round the centre of the top wing and suspending the model from a hook. Plasticine or lead or some other suitable weight may be attached to the front bulkhead until the model balances roughly at the correct position. This will indicate how much the fuel tank, engine mount, propeller, and dummy engine should weigh. If you have the engine and propeller already available, this may be temporarily attached, thus giving a little better idea of the remaining weight for mount, dummy engine, etc.

#### Engine Mount

The engine mount, tank, and dummy engine are attached as a complete unit to the fuselage by my usual practice of passing two bolts through the front bulkhead and then through the mount, held by strong springs and locknuts on the screws. This method is quite rigid enough and the tension of the springs may be adjusted by the locknuts. The method permits full thrust line adjustment by inserting packing (afterwards built in) on the field during flying. The whole unit is easily detachable should the need arise, for replacement, etc. I normally use fibre for the mount but good resin



bonded 3-ply will serve just as well provided it is thoroughly doped or fuel proofed against oil seepage. Plywood is not quite as strong as the fibre of course.

Cut the mounting bulkhead to the same shape as former 1 and drill holes to correspond. If you are using a radial mount engine, this may be bolted direct to the bulkhead, countersinking this on the back to allow the nuts to be flush with the rear surface. The fuel tank may be held to the bulkhead with a thin gauge aluminium strap screwed to the bulkhead.

If the engine is to be beam mounted, engine supports may be cut from hardwood, securely screwed from the back of the bulkhead, and then drilled to take the engine holding down bolts.

### The Dummy Engine

The Siskin had a 14-cylinder double row air cooled engine. The two banks of seven cylinders were, of course, staggered to each other so that your dummy engine will consist of 13 cylinders and the one diesel engine cylinder. The crankcase of the engine may be made by wrapping a piece of thin aluminium into a cone shape of correct diameter. It is riveted or bolted with small 8 B.A. nuts and bolts, filed off to length. The appropriate gaps for the diesel cylinder, air intake, etc., are now cut so that the truncated cone fits easily. The positions of the centre of the base of each dummy cylinder may now be marked out evenly and holes for 10 or 8 B.A. fixing bolts drilled.

### The Cylinders

Cut a 14 in. length of 1 in. x 1 in. medium balsa and shape this into a true circular rod. Finish off with several grades of sandpaper till smooth and the final diameter is  $\frac{3}{4}$  in. Cut the rod into lengths as shown on the drawing and carefully shape one end of each piece to conform to the curve and angle of the dummy crankcase. Wrap each cylinder with a layer of gummed strip paper, finishing off neatly at top and bottom. When all are finished bore a central hole large enough for an 8 or 10 B.A. bolt to pass through from top to bottom. The cylinders should now be "soaked" thoroughly in a jar containing dope, then removed and allowed to dry.

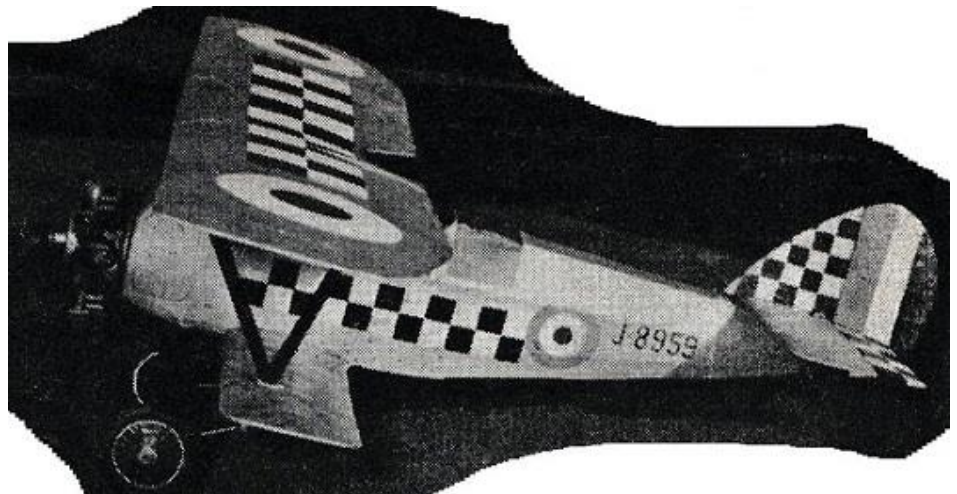
They are held to the crankcase by means of 8 or 10 B.A. bolts passing right through each cylinder, and then secured with a locknut and well cemented. The rocker arm housings are cut from scraps of hard balsa and cemented to the head of each cylinder, two being required per cylinder. The completed engine should be doped black or dark grey, except the rocker housings which should be aluminium. Super detail such as rocker push rods, etc., may be made from pins, but on a practical flying model, these are really unnecessary as they would soon be "lost" during heavy landings, which will be inevitable.

### Glide Testing and Flying

With 1.5 to 1.9 c.c. engines I recommend a 10 x 6 or 11 x 6 Truflex propeller which has had the blades cut down in width closer to true scale shape.

With this type of scale aircraft it is much better and safer to use a large slow revving propeller as it will help stability and give a more scaly flight.

With the model completely assembled and using only one  $\frac{1}{4}$  in. or  $\frac{3}{16}$  in. elastic band on each attachment point, i.e. over the wings and holding the two lower



wings together, test glide, preferably over longish grass and if possible down an incline. With pendulum controlled models it is advisable to run forward with the machine, having one hand under the front of the fuselage and the other gripping the base of the rudder and fuselage rear post.

Launch horizontally and not too fast and observe the glide characteristics. If the model tends to climb, the positive angle on tail must be increased (packing under the leading edge). If there is a

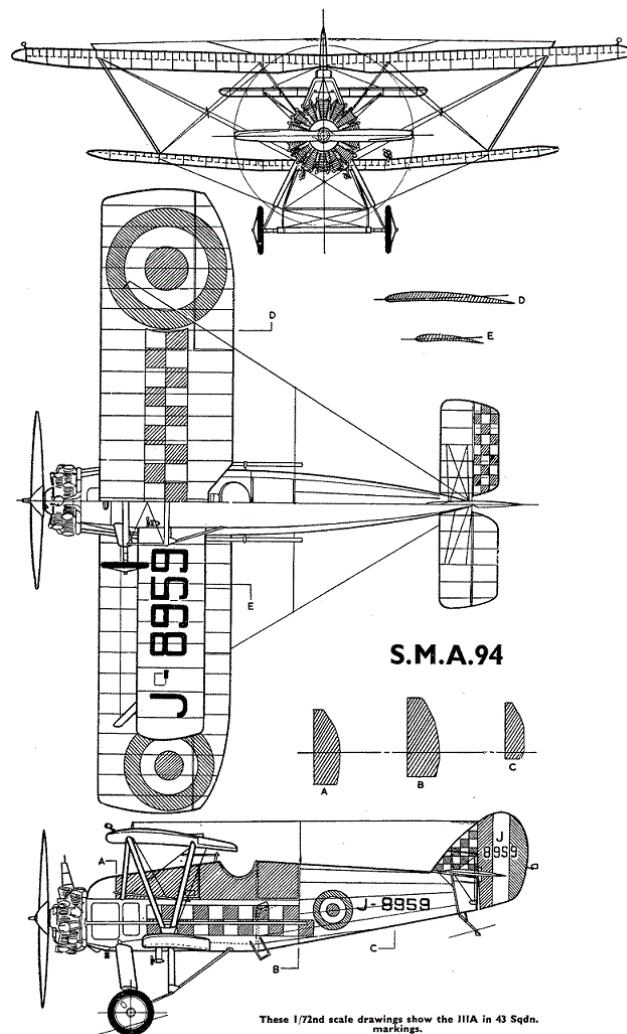
turning tendency to left or right check wings for alignment and warps. If warped twist the wing gently to coax the warp out. The fin may be warped over slightly too, for if this is not true longitudinally, it will have to be removed and recemented.

The glide trim may need a considerable amount of patience. Do not change the cg. position drastically. When the glide is satisfactory (and not until) a power flight may be tried. Do not run the engine too fast, launch model as for gliding tests, and observe results. With the engine running slowly the model should fly straight or very, very slightly to the right.

Remember that with increased engine revs the model will tend to turn more to the left. The amount of left turn can be taken care of by inserting a temporary packing behind the engine mount to give side thrust. Only use 1/32 in. at a time. Do not let model turn sharply to the right as a gyroscopic turn and crash will result. Control too much climb or lack of climb under power by placing thin packing pieces at the top or bottom of the mount.

When correctly trimmed the model will climb away almost dead straight but with left wing slightly down and hold climb to about 200 ft., when it will gently bank to the left and continue a large circular flight pattern. The glide is fairly slow and may be slightly to the right, which is just as well, as the model reaches a good height in a very short time.

*(Please note this is sheet one of a two sheet plan, sheet two was not included in the magazine but I felt there was enough, given the designer, to be of interest).*



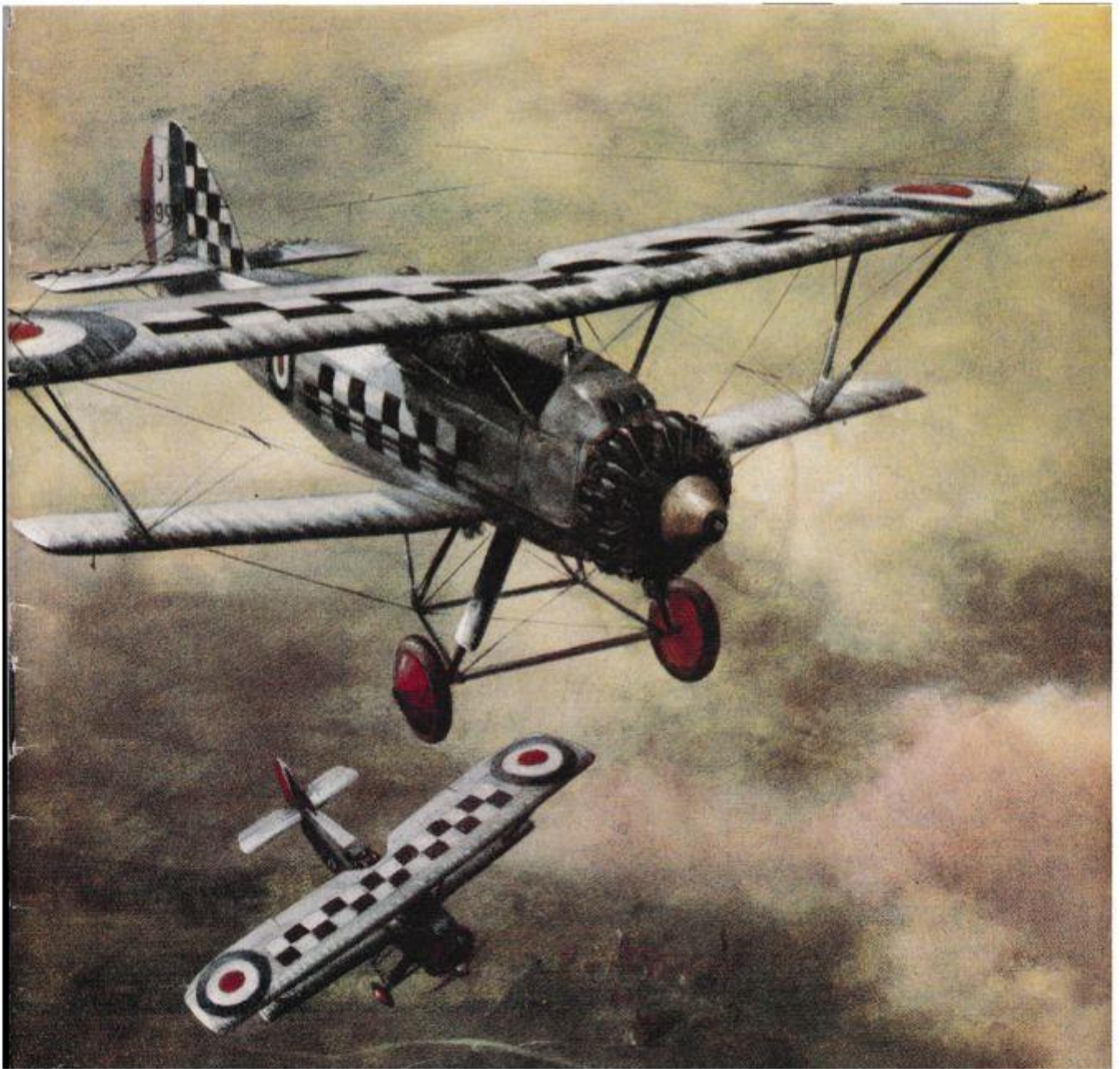


Special **VINTAGE ISSUE**

APRIL 1960

**1'6**

# **MODEL** *aircraft*



## From George Stringwell

### Model colour schemes and decor using tissue and dope

This is intended as a follow-on from the piece on tissue over mylar/doculam covering in the last S&T. But first of all, a clarification of something in that piece. When using WBPU or Eze Dope I said "stick down the edges of the tissue panel with Pritt or similar then water spray". This technique WILL work but it is much easier to apply the tissue panel wet and then brush the WBPU through it working outwards from the centre. All the examples shown use tissue over mylar or doculam, but the same techniques work equally well on just tissue finishes of course – with the sole exception of butt joining decorative panels which, without the mylar, can only normally be done where there is a convenient structural member such as a spar or fuselage cross brace. I will confess here and now that my attachment to this form of decor is as a result of my complete lack of talent in the area of paint finishes. I do own a very nice air brush but apart from a trio of simple camouflage schemes such as the Rob Bulk Spitfire II and the Sopwith Triplane below have never got to grips with it and any painting beyond simple rattle can spraying of cowlings etc. is something I no longer attempt.



And as for masking to produce trim lines and complex colour schemes – forget it, my erstwhile efforts have always been blighted by paint creep, tape pulling off paint and any number of other botch-ups. So, when I discovered that I did have a passable talent for producing fairly complex colour schemes and "wing art" using tissue and dope, it was a great relief to be able to produce colourful models which didn't cause my mates to wince!

I am quite pleased to be writing this piece at the moment, it gives me something to do – here in rural France, thanks to that blasted virus, we are effectively under house arrest, enforced by the law. There are only five permitted reasons for being away from home, the only one bearing any remote possibility of relating to model flying is the one permitting taking exercise - but only alone, and only within 1 kilometre of home. Illustrative of the fact that things are being taken seriously is that cycling is completely banned now - and cycling is something between a national obsession



and a religion in France. You have to carry a signed and dated "Attestation" with you giving all your details with one of the five permitted reasons ticked (typical of French bureaucracy only ONE reason can be ticked - if you are, for example, going out for essential food shopping AND for health reasons, eg to visit the pharmacy, you need two separate forms). The Gendarmes are out in force stopping people and checking the forms, even in our sleepy little rural locality, and the penalty for either not having a form or being caught "out of area" is a fine of up to 350 euros, big enough to be no joke. So, no model flying, or anything else. We have only been under this "lock down" for a week as I write this, but the inevitable feeling is that it is going to last for a long time, and I already have "cabin fever" and lack of flying withdrawal symptoms - but fortunately not the virus so far!



However, enough of that, let's begin at the beginning which is:

### Designing your colour scheme

We need to consider the shape of the model first of all, some models suit simple schemes better than complex ones, some look best with just a couple of colors, some respond to complex multi colour schemes. There are also a few "rules" regarding which colours look good together and which don't – e.g. red and blue only look good if separated by a neutral – white or black – trim line.

We also need to be aware of the effect of the proposed scheme on the "perceived" shape of the model, i.e. the visual impression it gives. So, for example, chordwise stripes visually lower the aspect ratio of a wing whilst spanwise ones visually increase it. Similarly, on a fuselage bands of colour around it will tend to make it look more stumpy whilst longitudinal stripes will make it seem longer and skinnier. As an example, chordwise stripes might not be a good idea on a model which already has a low aspect ratio wing – but the effect can be changed by applying them at an angle.

You can work out the basic colour scheme in a number of ways, the one I use, and find easiest and most effective, is to work on a rough reduced three view of the model with coloured pencils. Sometimes the very first try ticks all the boxes, but more often it takes a few attempts to get the

effect I am looking for. Once satisfied that you have a basic scheme which looks right, then you need to work in any graphics. These days there are many sources of letters, numbers and custom graphics mostly cnc cut from adhesive vinyl, but my own preference is to stick to those which I can cut myself from tissue. Letters and numbers are easily sourced from the PC and printer, then used to cut card templates from that good old standby the cereal packet and then use these to cut out the tissue letters. It is worth mentioning at this point that a steel ruler and an ample supply of No. 10A or No. 11 Swann Morton scalpal blades are an essential requirements, frequent blade changes are absolutely necessary and a proper cutting mat also helps a lot.

The Internet is a great source of abstract or semi-abstract graphics which can be executed in tissue, often these can be cut directly from the images produced on the PC printer, for some it is easier to produce card templates.

### Applying the basic colour scheme

Assuming that we are working over either mylar or doculam there are two basic techniques that I tend to use depending upon the complexity of the scheme. Sometimes I will cover the whole wing, tail or fuselage with a base tissue of, usually, white or yellow, or occasionally orange as described in the article last month. After giving this base tissue two or three coats of dope, the trim panels are applied wet, again using the same technique of brushing through them with thinners as previously described, and after drying doped as required. Unless the colour trim is a simple matter of straight pinstriping or areas of colour such as leading edge panels or plain bands of colour which can be cut using a steel straight edge, I usually cut card templates which are then used to cut more complex panels. Here is a typical simple three colour scheme on a double size Widgeon. Points to note are that the red and blue are always separated by a yellow area and also that the tip stripes stop short of the trailing edge. Leaving this margin for stripes and panels is a useful trick and looks much better than if they had carried on right to the edge.





An important trick which really sharpens up any color scheme is to use a ruling pen to outline colour panels and lettering. This is easy working carefully with a flexible plastic ruler or french curve or, for complex shapes, draw around the card template which was used to cut the tissue panel. The ink used is waterproof and as I only build electric powered models, the finish is never subjected to fuel residue which probably would smear the ink lines. However, do be sure that you have added as many coats of dope as required before doing the ink lining, as dope will also smear most inks.

Another useful tool is the fine tipped water colour artists pens which are sold in a wide range of colours. Here the technique is to copy the graphic onto the tissue in pencil before applying the covering. This is easily done by printing the design full size from the internet or wherever and the tracing the outlines onto the tissue. After covering and doping is complete the outline can be inked in and then coloured in with the pens, quite simple to do requiring no artistic talent, just a steady hand and care. The stylised hummingbird below is done this way.



The model, of course, as you might expect, is a Paul Plecan Hummingbird. The basic scheme is panels of red, yellow and green tissue over a white base.



Again, note that the panels stop short of the leading edge and trailing edge.

You don't have to create a complicated colour scheme for it to look good; in fact some models, especially those of simple outline, respond best to two colour schemes, or at most two colours with a small amount of a third used as accent. As for example on my Airknocker:



Even simpler is just one base colour with black or white trim, as on my little electric Lulu II soarer;





Here the effect is created by the progressively reducing width of the black trim bands rather than by using colour, once again particularly suited to the simple outline of the model.

Complicated colour schemes can work well though on some models. I pushed the boat out on my electric R/C version of George Wools' pretty "La Paloma" rubber model using pretty much every available colour of Esaki tissue for the upper surface scheme – not difficult with all straight lines, time consuming but enjoyable!



By way of a contrast the underside is a plain black and white scheme with a little red trim. These two aerobatic models also have bright multi coloured schemes on top, but both are plain black underneath, a trick which can be a great aid to orientation when flying:





I like whenever possible, to incorporate an image appropriate to the model in the wing decor, and a great source of these is the internet of course. Most are ones that can be executed in tissue, but sometimes either ruling pen or (as in the Hummingbird shown above) water colour pens are used. Here are a few examples



No prizes for guessing this is on a Keil Kraft Bandit! Whilst this, of course, is on an electric version of John Bowmer's lovely little "Swanee" low winger.





More sinister is this one – yes, it is on my Eric Clutton designed "Sharkface"!





This one is from the Internet too, but is traced onto the tissue and inked in with a ruling pen after doping, and it is appropriate to my electric conversion of the Halifax "Spartan"



Sometimes the internet isn't needed, as on my Smeed "Flipper" – this simple is easy freehand!



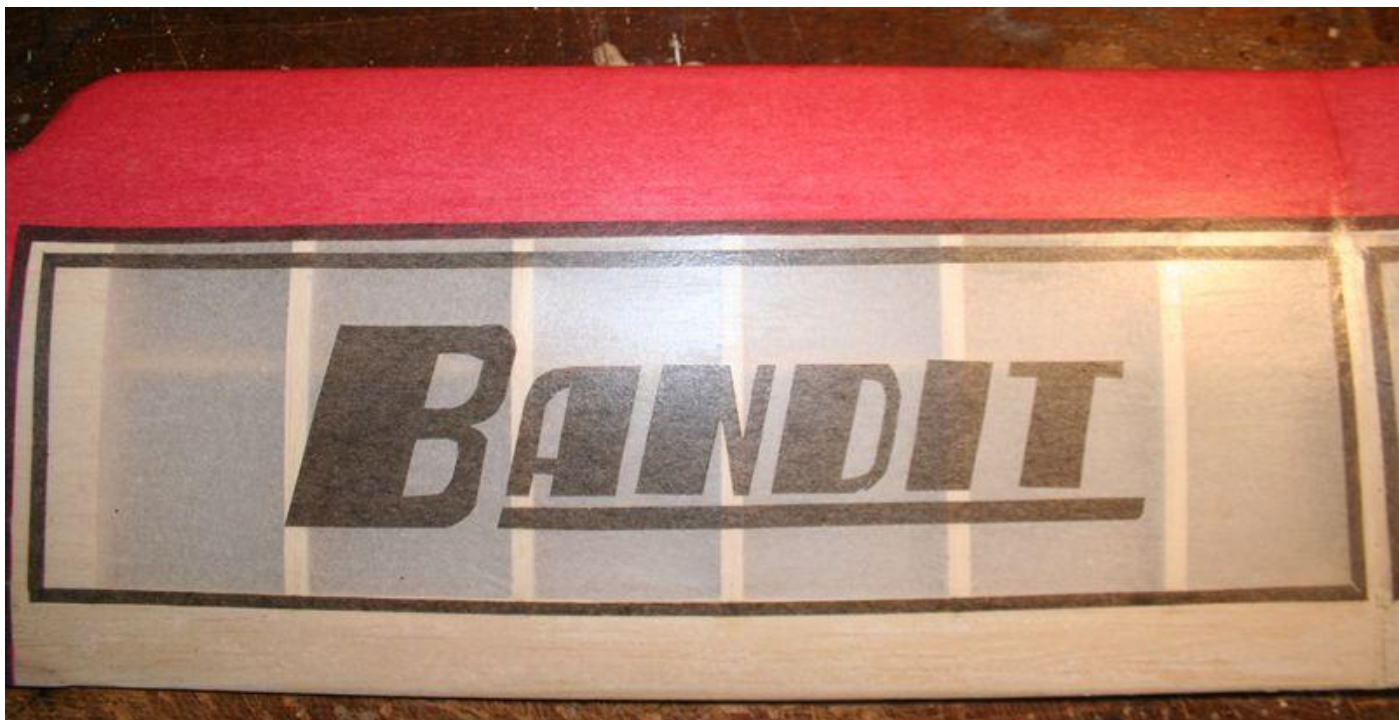




This is on another electric R/C converted rubber design, the Frog "Witch II":



When it comes to lettering, with the fonts available on any PC the world is your oyster. However, it is nice to use the "house style" on a kit design, the distinctive Keil Kraft logo is easily lifted from an old Aeromodeller advert, and it isn't then hard to create the name of the model using the same font, as on the Bandit:



On the other hand it is very easy to use squared paper to create the required lettering in easy to cut more or less straight lines.

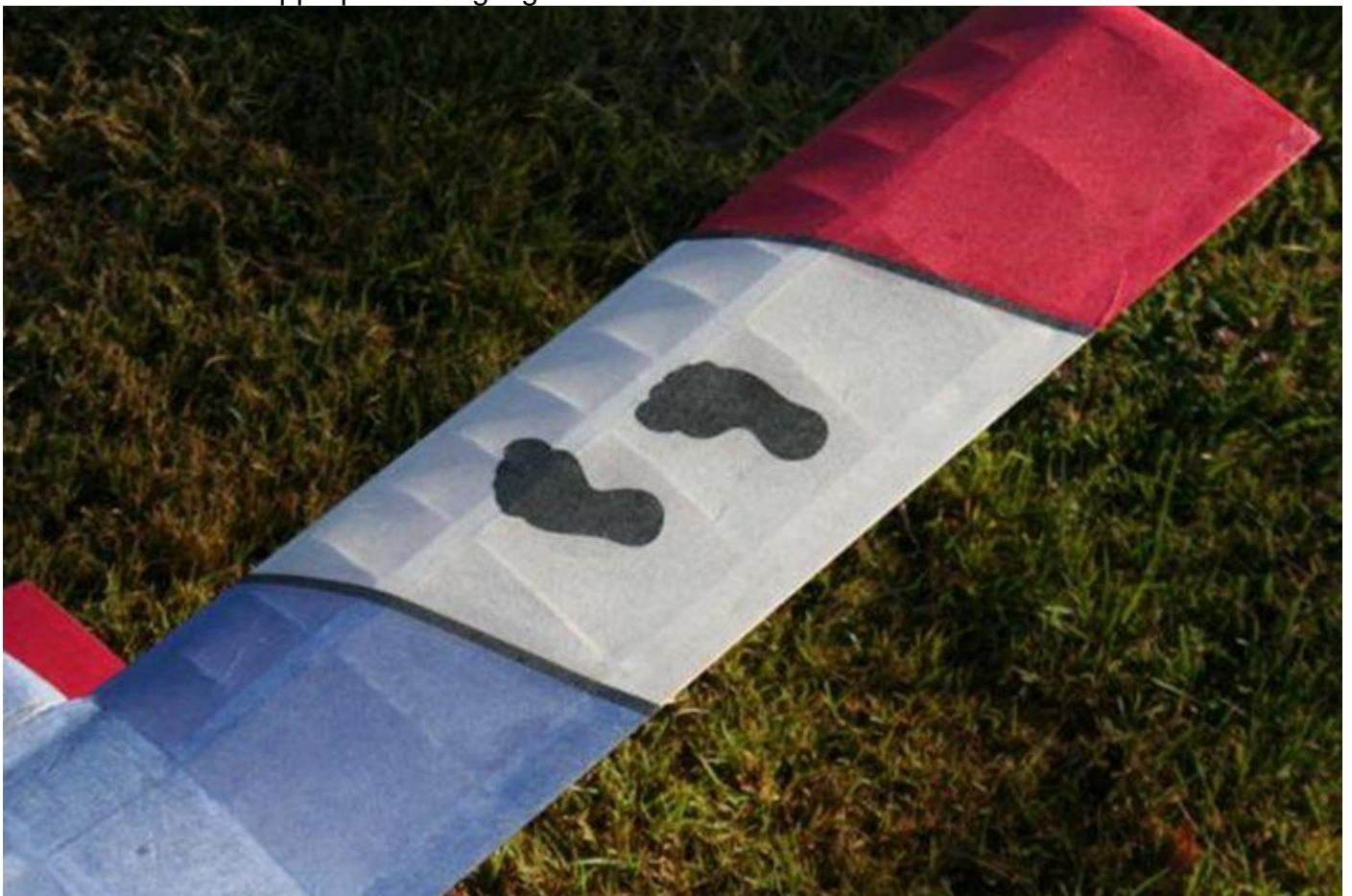


You can really let yourself go with tissue – this is the bottom of the float on my RET electric version of Peter Holland's strange little "Size 9" floatplane:





Which also has an appropriate wing logo:



It is not very often I build more than one of a design, but the little lightweight aerobat, the "Square Dancer" is an exception, I always like to have a couple as they are so versatile and great fun, but given that the mortality rate of aerobatic models can be quite high, the current pair are the seventh and eighth I have built over the last 20 years.



The colour schemes used have also evolved, the red and blue pair are from some years ago when they still used Speed 400 brushed motors, whilst the other picture is of the current, brushless powered pair.

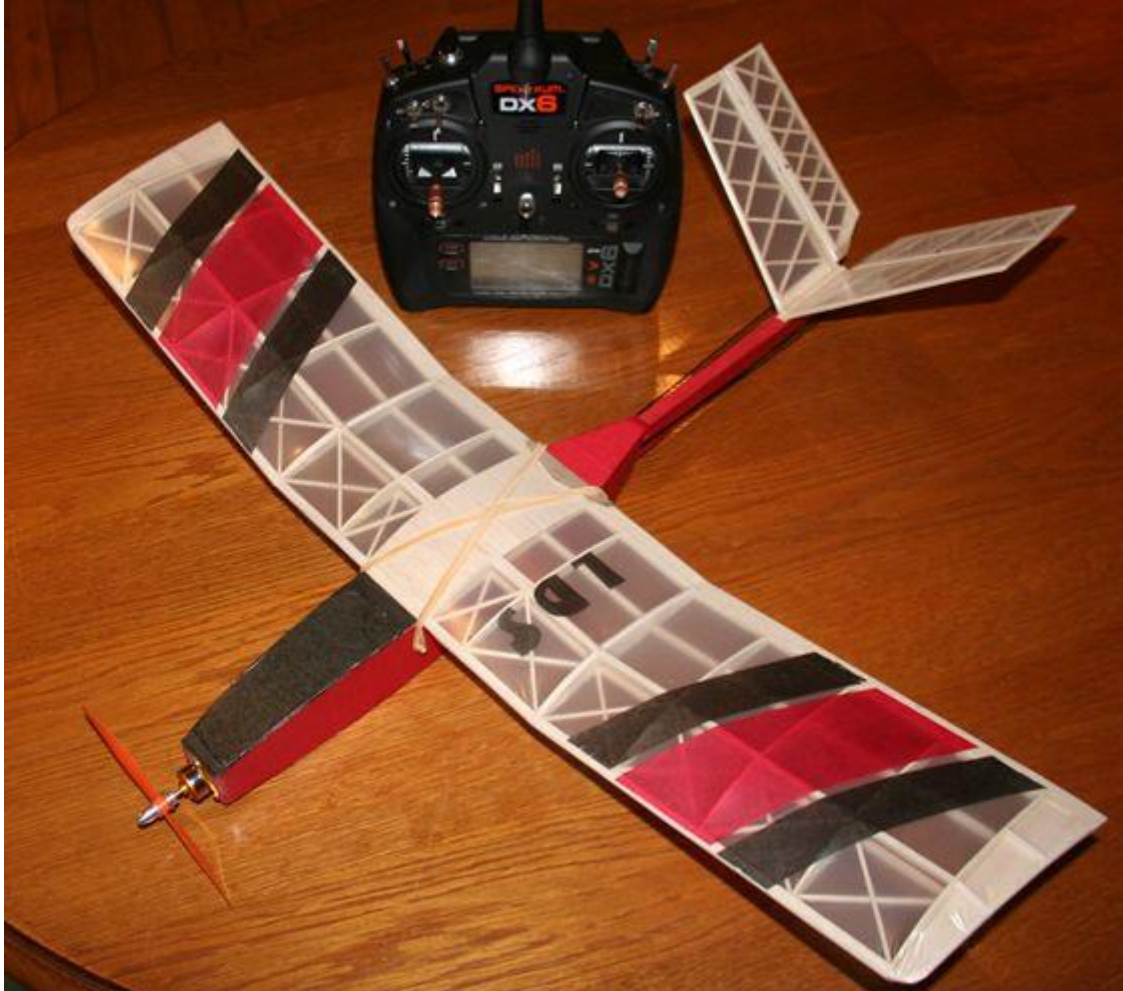
I think probably my favourite tissue colour scheme of all the ones I have done over the years is the one on my electric R/C conversion of the APS "Rubberdub", the basic 2 colour plus black just seems to suit this little 5 ounce R/AMT/throttle model to a "T".





I mentioned at the beginning of this the frustrations of the restrictions which are currently in force in an attempt to control the spread of the awful coronavirus. Well, here in France the President announced yesterday (13/04/2020) that the "lock down", already in force for 3 weeks, will continue for four more until the 11th of May at least. Little did I guess when, on the 7th March, I was enjoying an afternoon of flying in very pleasant conditions that it would be my last outing to the field for a long time. I am lucky enough to fly on a delightful private site just ten minutes from home, beautifully maintained by the owner, Pierre-Yves and his son Vincent for our small mixed French/English group of modellers. It is an ideal situation, no club politics, no hassle, just good friends enjoying our flying. We had been lucky with the weather in January, February and early March and by the 7th I had already recorded 79 flights with 14 different models in 13 outings this year. Of course, being retired helps, I no longer feel the need to battle against unpleasant conditions and am able to decide to go out whenever ideal conditions present themselves. I am so much luckier than most people struggling, here and in the UK, with the current situation in living in a very rural area of delightful countryside and in having a decent sized (3000 sq. Metres) garden which would permit the flying of a good number of the lighter weight models – if only it wasn't surrounded by and dotted with TREES! So in an effort to occupy myself during this extended period of unwelcome but very necessary "house arrest" I set about designing and building a little model which I hoped, by dint of being very agile yet stable and easy to fly, would be able to operate in the confines of the garden. The result, just completed, you will see in the photo, is 25 inches span and weighs 126 grammes ready to fly, power is a 30 watt motor running on a 2S 320 lipo and with a wing loading of 5.6 ounces per square foot and an undercambered wing should have a decent low speed performance yet, with 90 watts per pound at full throttle, still have enough performance to climb out of trouble above the trees if things get too hairy. Covering is doculam, but with just a limited amount of tissue trim doped on. Of course, Sod's Law has struck in that, since the model was finished, we have had three days of uncharacteristic wind, nothing so

strong as to deter flying on the normal site, but certainly too much for me to get enthusiastic about sorting out a new untrimmed model amongst all the garden hazards! So here is the, as yet unflown "Lock Down Special".



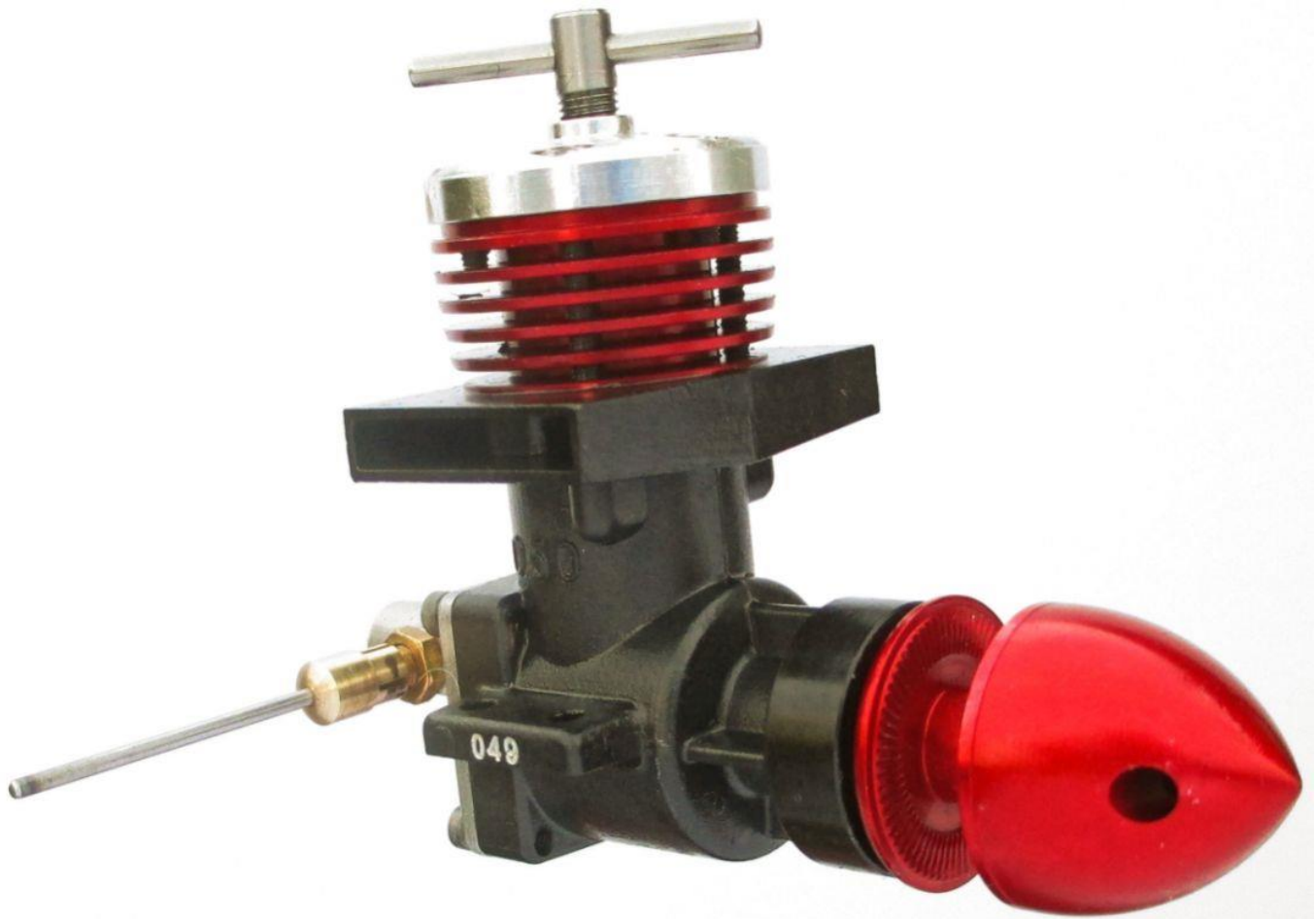
I hope that all S&T readers are coping well in these difficult times and wish everyone "bonne sante et bon courage" and a safe eventual return to model flying and more normal life.

## Redfin Racer From Bill Wells

The Redfin Racer is another little Gem from Alex Phin. In due course there will be an engine test report in Aeromodeller. In the meantime here is what it looks like. At £130 + postage it isn't cheap but it looks and runs OK. This .5cc engine looks a bit like an ED Racer but it is not a miniaturise replica. It weighs 2.3 ozs and care needs to be taken not to flood it! More pictures in a future edition perhaps!

The engine is prone to flooding because fuel seems to take its time getting from the rear rotary valve to the top of the piston. This is why Alex Phin recommends an exhaust prime. Without a syringe and needle the exhaust stacks makes a sensible prime very difficult. I found one suck in from the rear valve plus two or three flicks if no joy repeat and again until the engine runs. It is NOT the engine to have four suck ins then flick because three flicks down the line it will suddenly flood! In a model it may be an advantage use the engine on its side then surplus fuel would just fall through the lower exhaust stack! This would certainly simplify an exhaust prime.



































*Following is excellent especially if you like slope soaring JP*

<https://www.youtube.com/watch?v=sHoPs0DysL4>

## **From John Mellor - Lola**

I promised you a shot of my “naked” Lola before I cover it so here it is. Not quite finished as I need to add the rudder, elevators, wing fairing and also a pilot of some sort and cockpit.

Lola is built from a Derek Foxwell Kit ( Old School Model Aeroplane Factory ) from Vic Smeed’s last design. I bought the kit some 5 or 6 years ago and honestly forgot I had it although it sat only a few feet behind me in my office. When, some 3 or 4 weeks ago at the start of the Corona Virus, I was looking for something to build without going to a model shop and had looked through loads of kits in various mags and also laser cut parts kits I suddenly realized I had this Lola around. I dug it out and it looked quite pretty and was a complete kit just requiring a little modification for Electric power rather than Mills .75 shown on the plan and fitting of 2 servos for rudder / elevator. The kit was indeed complete except for covering materials so I took it down to my outside building room and got started.

I have built several Vic Smeed designs and they all look pretty good and fly similarly. Usually I “beef them up a little” so I can do limited aerobatics – in particular I like to use spruce spars but in this case I didn’t want to get the car out so I have built it exactly out of the box. I do feel that age has blunted my building skills a little and it has certainly slowed me down so it has taken me a best part of a month to get to this stage and I’m not especially proud of the build quality. I did however use every item in the box!!



I did lose a bit of interest half way through but then you, James, alerted me to a special Sticks and Tissue featuring Lola and I googled it and got an interesting article with some great flying shots of both Free Flight and R/C versions which rekindled my interest and has really enabled me to push on with it.

The power will be via an E-max 2805 motor with an 18 amp speed controller and I will use an 850 2S Lipo – this is a power train I have used several times before in similarly sized models. Covering will be Litespan for the fuz and a heavyweight tissue for the flying surfaces courtesy of Mike Woodhouse at Free Flight Supplies. Hopefully I will be able to send you a picture of the completed machine although whether we will be able to flight test it by then looks debatable.



## **Tony Thorn by deceased Brian Beacham**

In these terrible times of pandemic and consequentially restrictions to our daily lives and horror of all those affected and indeed the great sorrow of those who have succumbed one does not know how things could get worse, well that was answered when I received a phone call informing me that my lifelong friend Tony had passed away a day or two before on 9 April.

Tony and myself go back to when we were 13 when life was fun we spent most of our time making model aeroplanes also playing with cars and motorcycles.

Tony's Mum and Dad had a Farm at Holt Pound near Farnham when long before we were able to get a driving license we all learnt to drive on the tractor and if you can drive one of those in a farm environment then a car or motorbike is really a piece of cake. The farm was a refuge of sorts whereby to coin a modern term, sleepovers, were common for us lads and of course in this post war time food was rationed but here it was overwhelming and our eyes bulged as much as our bellies. If I remember correctly there were eight of us, lads and lasses, who used to go to model meetings, cars and motorcycle events yes it was a good time during the late 40's and 50's to build and fly.

Aeromodelling, whilst always there, gave way in part to motorbikes and cars with the Isle of Man TT races being a highlight but also mixing with Mike Hawthorn at his car works in Farnham and going to and competing in races. Sadly Sterling Moss passed away this week and we were at his

last race in '62 when he crashed out. Great sadness when on the hill at nearby Farnborough we were nearly cut short by the DH110 crash the aeroplane and shedded bits passing just over our heads at our then age the trauma of what we were covered in never fully took hold.

But generally oh wonderful times we young lads and lasses all enjoyed and now reflect on.

Tony was a prolific model builder and of all of us he was the one who came up with beautifully constructed airframes which flew as well as they looked. It was uncanny what he could do and we the rest could admire only not compete with his very high standards. In the last few decades we would meet up at flying



venues in particular Middle Wallop and it was a source delight to see Tony's beautiful models take to the air in a display of free flight perfection. The closing of another chapter, so very sad.





The two photos above taken by Brian at Middle Wallop 2015



*This model was given to Brian by Tony and has now been recovered*





*At Port Meadow*



*At Totton launching his Valkyrie*





*Launching Sunnavind at Middle Wallop*

## Louie Scribner

James - once again, thanks for the S&T news, I distribute it to the folks in my club on this side of the pond. Your builders do an excellent job and produce some beautiful models. We certainly have time to read it since most of us are under a stay-at-home order.

The weather is not quite ready for our twice-weekly flying sessions here, but I hope that we will soon be able to get out to fly, maintaining some distance between pilot and spotter.

Now is the time to get out that awful box of sticks you had been hiding on the shelf and build that plane!



## From David Hill Bus 1.1 repro

Following the article in the April Issue, I can add a few comments. I bought a Bus 1.1 diesel repro several years ago from a group of Czech modellers at a swapmeet. It was in new condition and almost identical to the 2.5 mentioned in the article (photos attached below). It is an easy starting engine but sensitive to position of the fuel tank, which must be at least level with the needle valve and not below. Weight is 84g and the following performance was obtained on Sport Mix:

Graupner Super 8x4 - 9000rpm

Kavan Nylon 9x6 - 6,700rpm

Ideal prop size for free flight probably 8x4 to 9x4.

Jiri Kalina's book on model aero engines (Modelarske motory) gives plenty of information on Bus engines, so they must have been a significant producer in at least their home market. The book is in Czech so I am unable to read it, but there are plenty of photos and names that I do know so can glean some further information. Diesel engines were produced in a range of sizes from 0.12cc to 2.5cc in various formats. Some were radial mounted and others beam mounted. There is also reference to Bus-Frog and Bus-Albon (as in Alan Allbon) engines and further comments about the ED Racer. Whether these were legitimate collaborations or not, I don't know. I am happy to provide a photocopy of the text if anyone has the ability to translate it.







## Geoff Reynolds

And for the link to the video. I'd say it's the music which puts you to sleep, not the content, which I found riveting. No, seriously, I did.

I've attached a picture of my Tomboy 3 which I did a couple of years ago now. It has some film of some sort on the wings (leftovers from a deceased clubmate) and I'd never used that before. Most of the rest is Mylar, with tissue stuck on with watered down varnish. Flew beautifully, although a little exuberantly skywards first time, but after trimming/motor adjustment, is great for 8-10 minutes flights.

I did the project after being gifted the Mills .75 by someone who said I could have it if I'd build a model and fly it. Hence the Tomboy, which I thought the most attractive of the vintage FFers to turn into 2 channel R/C.

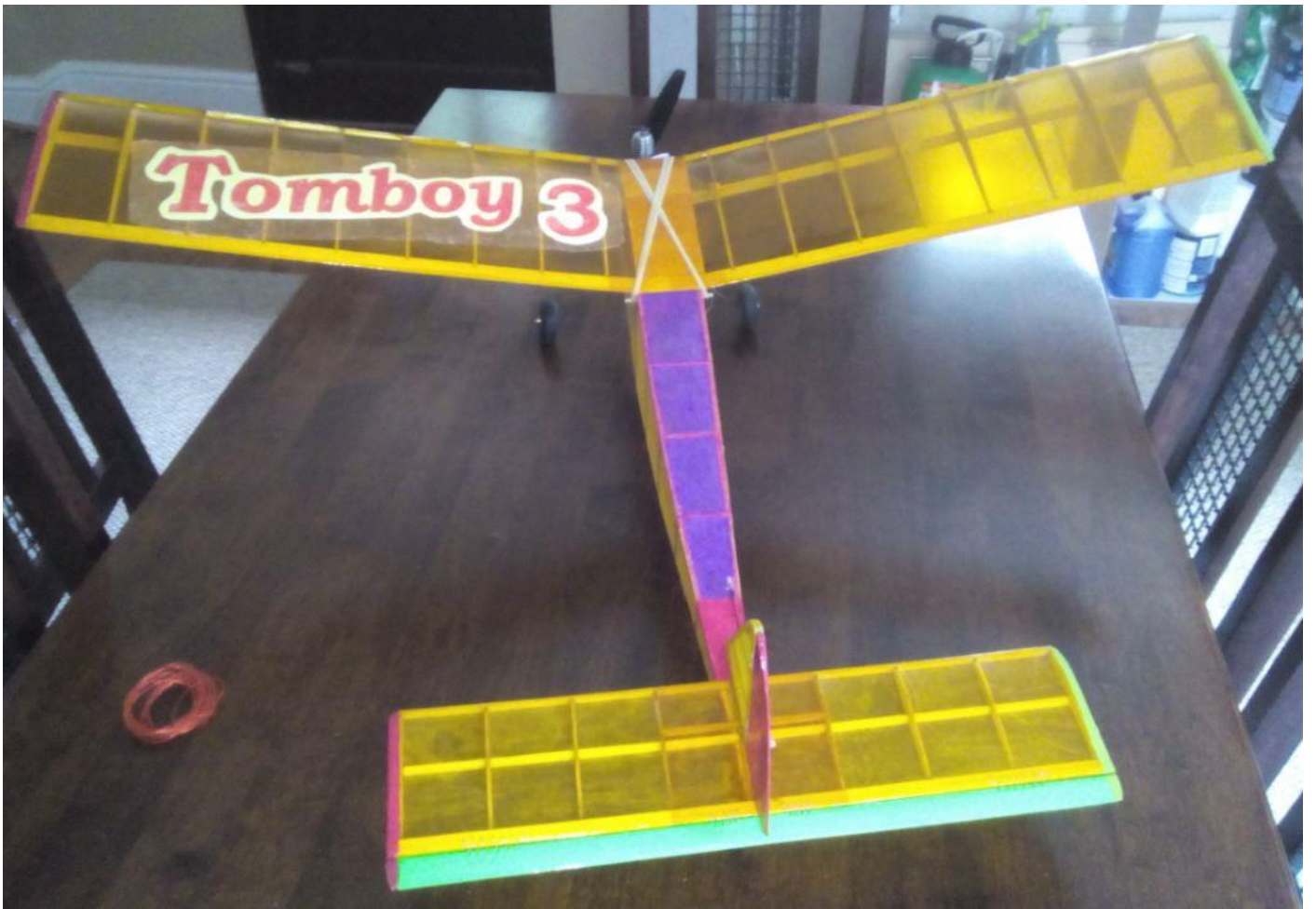
The motor came with all the paperwork showing it had been overhauled by Ripmax the year before I was born. The donor said it hadn't turned a prop since, other than to test the settings shown in the report. It fired and ran after three to five flicks and has been easy to start ever since. Motor runs about 1.5 - 2 minutes on the original acorn tank.

Great to get back to basics after being a buy it and fly it ARTF foamie man.

*If you wonder what video then here's the link* [https://www.youtube.com/watch?v=T2dx5MGD4\\_c&t=396s](https://www.youtube.com/watch?v=T2dx5MGD4_c&t=396s)













## From Martin Briggs

I thought I would send you a couple of photo's of my most recent build. Not vintage but certainly a classic, a Dave Hughes designed Soarcerer. I built it from a plan that was originally presented in Radio Modeller around 1970, using a parts pack from I-Gull to make it a bit easier. Ian's CNC parts packs are really accurate, cleanly cut and offer good value at their quite modest cost. I didn't build the fuselage as the plan advised because I felt there would be little chance of getting it straight. Gluing the formers to one side and adding the 1 piece bottom sheet all while trying to hold it straight – I couldn't see that succeeding. Using more conventional methods created a perfectly accurate fuselage with ease and little swearing. Otherwise I built it as per plan, with the addition of ailerons, details of which were presented by Dave in a later issue of RM. Although I did change the aileron control to 2 outboard servos, rather than the single one in the centre section. I used a total of 4 Hitec HS81 MG servos, a new antenna-less Spektrum 4 ch Rx and a 4 cell AA square battery pack right in the nose but still needed to add 4 oz's of lead up front to get the C of G in the advised position. However, my total weight with film covering came out exactly the same as that quoted for the original model. I was lucky enough to finish it just before lock-down and able to get 2 good flights from the north facing slope (the best one in my opinion) of the Malvern Hills. All went well, apart from it needing quite a bit of down trim to achieve straight and level flight, which could have been difficult if I hadn't elected to have someone to launch for me. All of the usual aerobatics were easily executed, if planned well. For a model of this weight there's not a great deal of energy retention and aero's are easiest from a shallow dive. When all this ghastly Corona Virus business is out of the way I'll try it again but jack up the leading edge of the tailplane a little to reduce the need for that down trim, which may make it slightly more agile. Though I won't worry if it doesn't because as is, it's a sweet flier and certainly a keeper.





## From Christian Moes & Earl Turner - Indoor Control Line - Part Deux!

In Sticks & Tissue #159, we provided an overview of our latest indoor control line experiments in Sault Ste. Marie, Canada - using small outrunners and the Hubin C/L flight manager/timer.

Our first experiments with indoor control line actually date back to 2011, with a lightweight Depron foam version of Ray Malmstrom's "Mercurian Mite". This model was powered by an 8mm Parkzone brushed gearmotor and a "Vapor" type sub-micro R/C module for throttle control only. Elevator control was via conventional c/l bellcrank, etc. - two lines. We flew this model with the pit crew holding the transmitter, and verbal instructions from the pilot.



In more recent years, we have flown this hybrid setup with the Tx (on a neck strap) held by the pilot in one hand and the control line handle in the other. Both systems work well - but the R/C link to the model seems like cheating somehow...

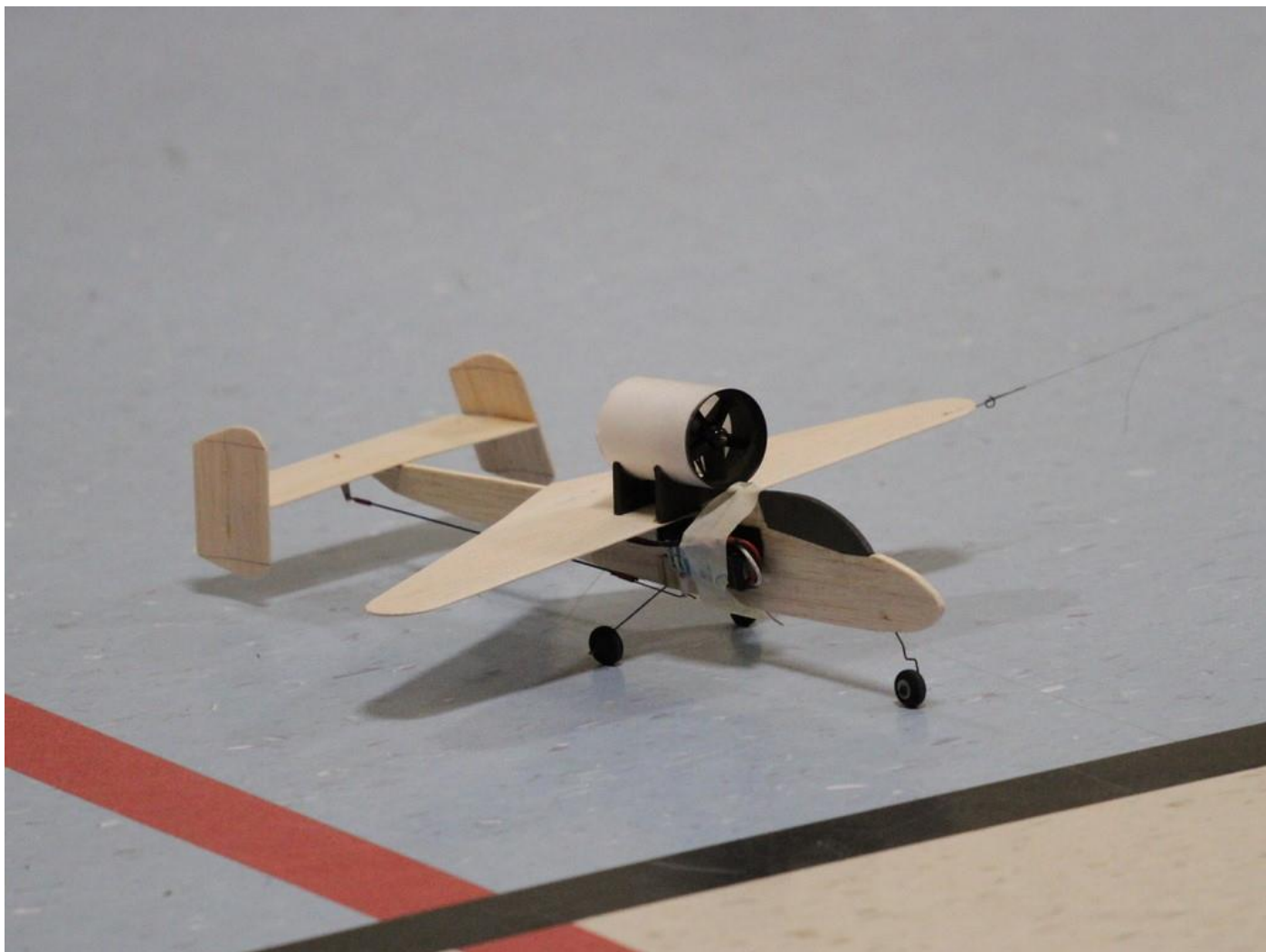
Our second model in those earlier years was a lightweight version of the venerable "Phantom Mite".



These were "proper" control line models - using BSD motor timers and no R/C link. We build three of them in total, and it was quite exciting to fly two models together, with the pilots in close quarters on 6.7 metre (22 ft) lines. Great fun!

Fast forward to 2019 (eight years later) and a different (smaller) gym. The "Phantom Mites" were airborne again - this time flying RTP (round the pole) using a single line and sub-micro R/C to control throttle and elevator. Although this gym was smaller, we were able to use the same line length (6.7 metres), as the pylon is stationary (unlike a human pilot) enabling limited clearance with the walls (30 - 40 mm). It was a very simple and successful setup. Several models were tried, including the two "Mites" together again. The school zone speed limit was challenged by my balsa/foam EDF powered profile "Heinkel He-162" at 74 kph!





This past season, we were back at the (slightly) larger gym again, and revisited "proper" control line flying - no R/C - with the pilot holding a handle at the centre of the circle. Our EPP foam version of another Ray Malmstrom classic, the "Brezzi Biplane", was particularly successful - and capable of "modest" aerobatics, limited by the ceiling height!



These newer models use the Hubin C/L flight manager/timer to control the motor.

A slow flying model is necessary to fly on such short lines, otherwise dizziness becomes a factor. For faster models, enter: Earl's crazy radio controlled control line robot arm! Building on the previous concepts, he put "2 and 2 together" and figured out a way to fly existing control line models without modifications on short lines - and without getting dizzy.

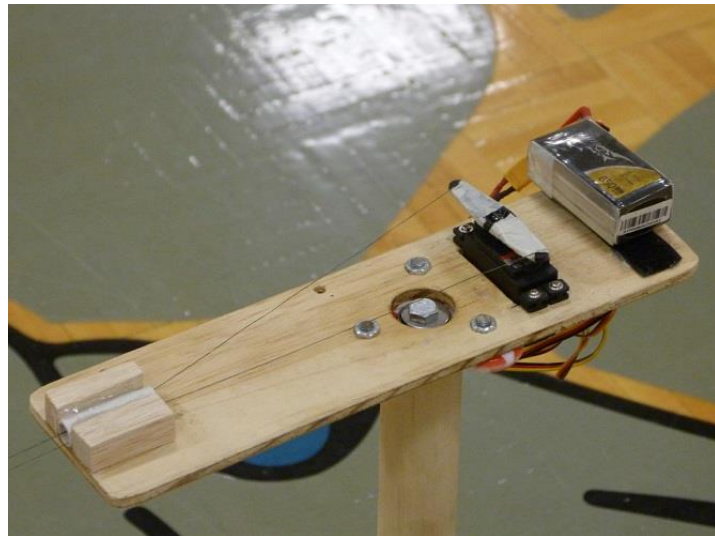
The unit consists of a weighted base (a brake disk) with a short pole, to the top of which is fastened a ball-bearing (from a fidget-spinner). A plywood arm contains a receiver, battery and servo, connected to the elevator channel.

Works like a charm. Looking forward to trying it again with some outdoor models once the weather permits. Although it doesn't replace the fun of actual control line flying, it could be considered an ability device for those who are unable to participate in the sport or have a tendency to get dizzy and fall down.

The balance of the photos show Earl's foamboard "Midwing Special" control line model in action at both the school gym (on short lines) and indoor soccer field on longer lines.

Although the concept may seem a bit ridiculous, a YouTube subscriber recently commented regarding R/C RTP: "Nothing's new is it? I've just 're-invented' my own version in the back garden during the Corona lock-down, maybe we can do some indoors next winter, brilliant fun."











**“Some of those former control line fans are real die-hards!”**

"till next time, stay home, stay safe, and BUILD MODELS!

All photos by Peter Smith.

Links:

YouTube Channel: <https://www.youtube.com/user/FarValley>

Soo Modellers website: <http://soomodellers.ca/>

### **From Roy Williams member of DMFG**

Hi James, I hope this mail finds you in good health and your family too. J T suggested I send you some copy for the next S and T to help fill the 'lockdown' times. Here Goes.

The Matador was built from an original Mercury kit, I collected kits for some time during the 70s/80s. When I moved from the midlands to Bournemouth in 1992 I decided to dispose of my collection, only keeping a couple of my favourites, so decided to build the Matador. It was start in the mid 90s and finished in 2020!

I built it as a F/F model powered by an ED 1.46 (which I still have). Before construction was complete the model was packed away to survive another house move to Winchester. The move was due to ill health

which meant I could no longer chase a F/F model. So I set about converting the Matador to radio control and learning to fly r/c, a roll take on by John Taylor so thank you John for extending my flying career. A new fin was made enlarging the rudder area, the tailplane was modified incorporating an elevator and fixed to the fuselage. Servos installed in the cabin area and connected to the rudder and elevator with old fashioned 1/4" square hard balsa push rods with wire ends and adjustable clevises. I also decided to go electric and so installed a brushless outrunner and a battery compartment.

At this point disaster struck. A shelf in my shed collapsed and smashed the wings, once again I lost interest in the model and put it to one side. J T came to the rescue and offered to build a new pair of wings, which he did and covered ready for me to dope. All that was left to do was install the radio , finish the upper cowling and cover the fuselage.

With the model once again sitting on the work bench along came covid-19! J T is on the 'phone saying he has nothing to do and offered to finish the 'Mat' and on the Monday before lockdown I delivered it to him, we exchanged pleasantries on his drive and I returned home.

The first thing John did was to strengthen the under carriage, he has seen my dodgy landings! He completed the cowling, covered the fus. with heavy weight Modelspan and two coats of E ze dope. The speed controller is immediately behind the motor, the receiver is under upper cowl. the battery is a 2200 MaH 2S Lipo and sits on the cabin floor, accessed from the front cowling. The CG turned out to be just a 1/4" out and easily adjusted with lead.

John's figures : Weight 28 1/2 OZS. Wing loading 13 1/2 oz per sq ft. Motor produces 128 watts with APC 8"x 3.6" prop. Similar power to the ED 1.46.

Photos courtesy of John. I think nicely finished and trimmed. Can't wait to see it fly!











### **From Mervyn Tilbury**

Below photos of my latest model , it is an enlarged version of Laurie Ellis's free flight " Javelin " . This model plan was published in March 1955 issue of aeromodeller and my model was built from a enlarged plan ( one and a half times original size ) printed by Derick. Scott . ( approx. 50 inches span )  
The model is electric powered with elevon and throttle controls and the final colour scheme was derived from the Test Pilot School example at Boscomb Down , now a museum aircraft . Looking forward to the first flight but unfortunately not Cockerbarrow in July . Regards. Mervyn













I thought as I was sending you some photos of my latest aircraft I should include my electric powered “ Super Scorpion “ which was completed in early 2019 and test flown very successfully but slightly damaged on landing . I repaired it prior to starting the Javelin. I may fly it later from my garden as it can be hand launched with ease . I have been flying my Sleeker as it is nice and small and I can land it back into the garden . Best Regards. Mervyn





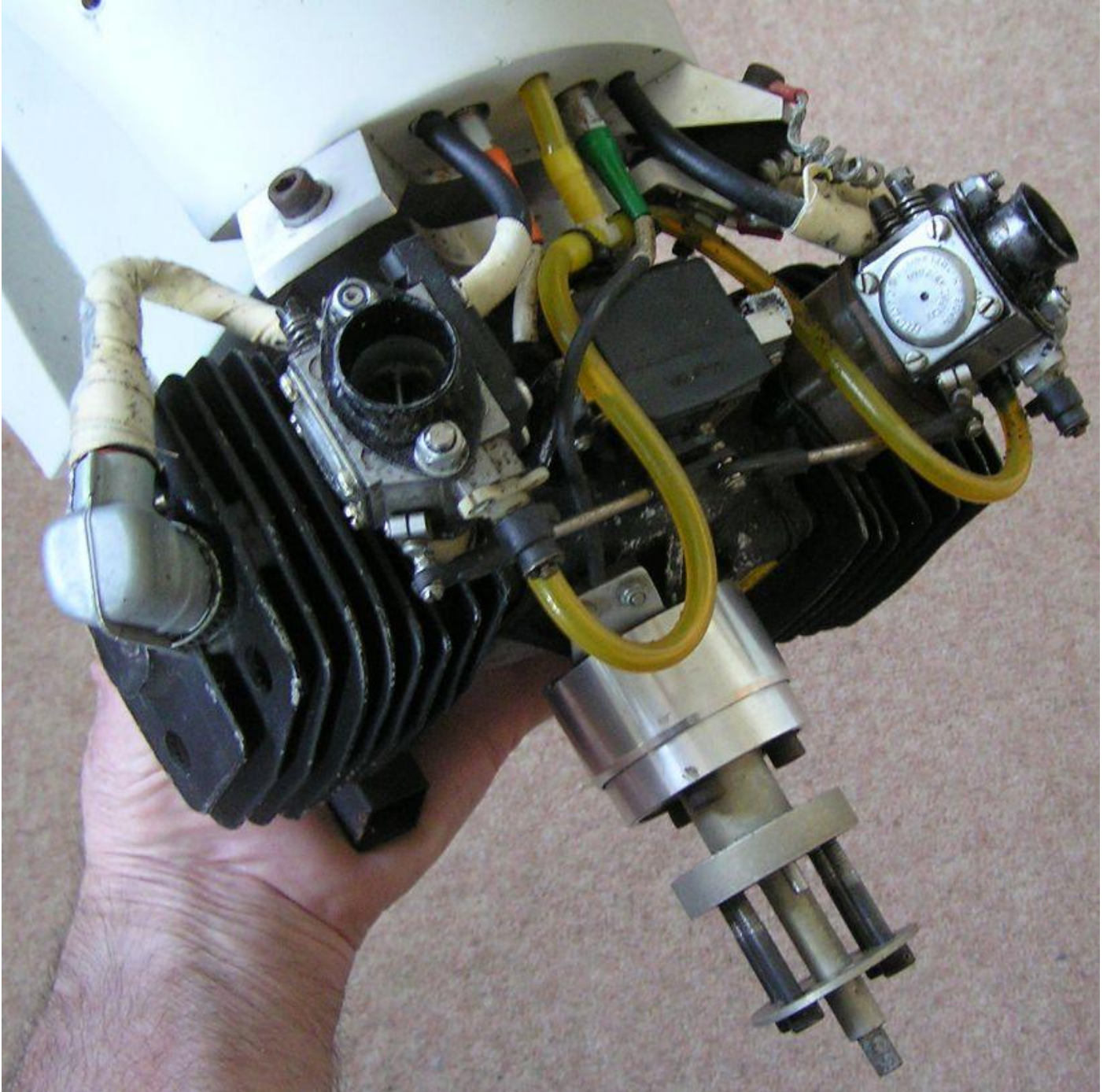




## From Peter Scott regarding his April Fool in last issue

You will have course spotted that "I.T. Twin" is an anagram of Nitwit ! I don't suppose it'll fool many people though.... However the contact email address works, so we'll see.

See attached for the actual size, almost heavier than I can lift in one hand. Suitable for a glider tug or somesuch in the LMA, with a 20" prop.

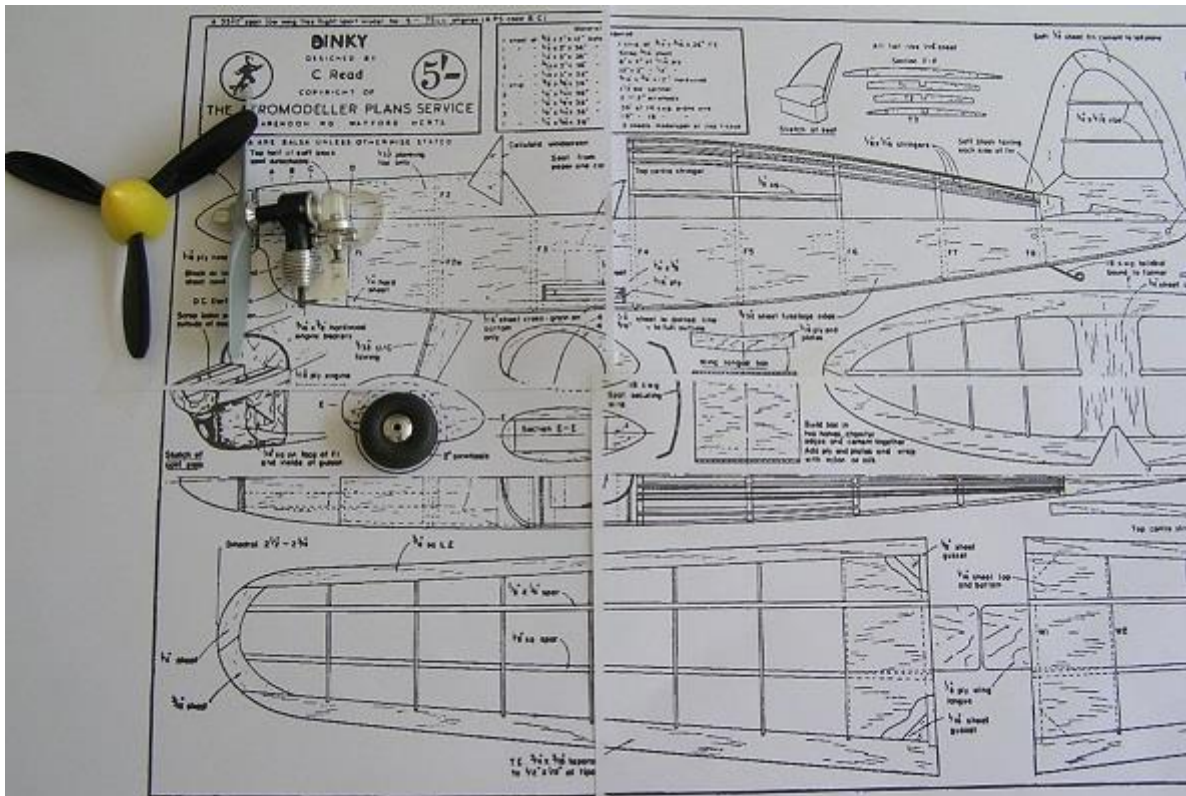
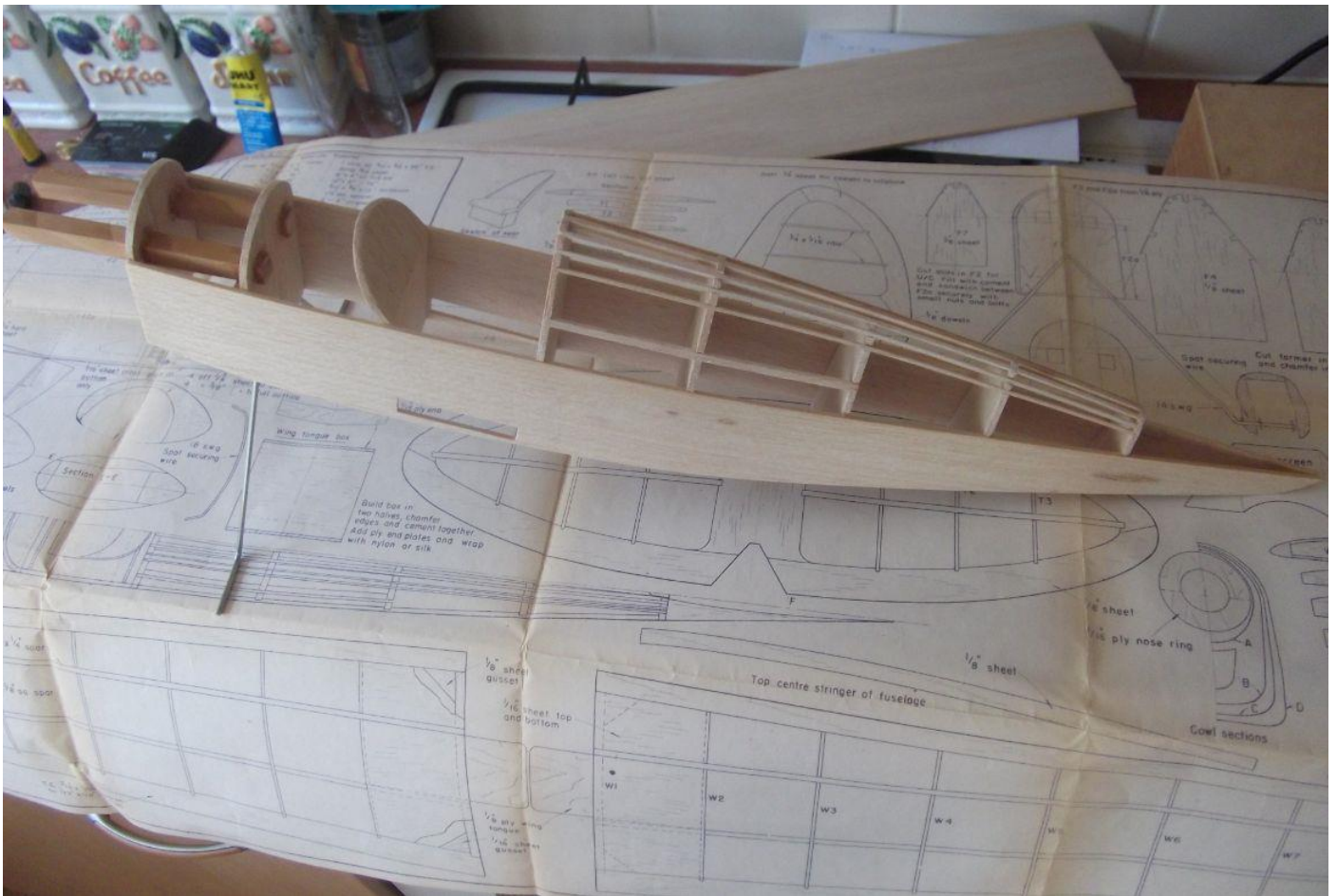


Hope you brought a smile to your readers' faces.

I don't think you've ever featured an A.P.S. "Pinky" (A/M Jan 1962) as a featured article ?

My brother has just started his second one, after a gap of about 50 years. I thought I might use some self-isolation to build a 2/3 size version, ("Dinky", of course), for a Mills .25, I'll keep you posted.







## From Ross King

Every Winter I say; “must get on and build a couple of new models for the summer.

Well ,turns out I actually had time to do that ,thanks to shall we say “recent world events”.

The thing is,till we can convince the Authorities Model flying is actually an essential activity ,who knows when this pair will finally feel the wind beneath their wings for the first time? Till then it’s photos in the front garden and back to storage in my shed for these beasties!

The bigger one is a Midi Slow From 86 by Dave Clarkson,republished March 2018 Aeromodeller,the smaller one a Mini Peacemaker by Ian peacock .

Its more of a cartoon scale version,but the tatty old free Plan looked so cute just had to build it!

Engines are a P.A.W. 19 and 09 respectively;cleaned up with a lick of cellulose thinners and a spit of metal polish.

The tanks are my first attempt at uniflow ,one with overflow vent one without.

Covering is Easycover seconds.Works great! Shrinks well ,sticks well .They may call it ‘seconds’but I couldn’t fault it.Not at £9.95 for 5 meters, what’s not to like?

I have sealed the seams with fuelproofer .....just in case!

Canopys are black stick on Fablon from Haskins craft shop.

As to the choice of colour ,well the thing is I just love to see a bright yellow control line job climbing and looping against a blue summer sky.

Oh yes a cooperative diesel, tight lines and the whiff of ether is where I get my kicks ,so there you go!

Hope to see some of you chaps out there ....eventually ,stay safe .

Ross King .Poole.

Photos Ruby King







Thank you! From Jon of Microaces (Received 7 April 2020)

Firstly I'd like to say an enormous thank you to everyone who has continued to place orders over the last few weeks. It is an absolute life line, helping us maintain Microaces through these incredibly tricky times. We hope you are all safe, well and staying that way.

Temporary disruption to fulfillment

Unfortunately there has been a slight disruption in satisfying orders as I personally had to isolate for 14 days due to COVID-19 symptoms. All better now thankfully, due to the dedication, love and kindness of my wife (a brilliant nurse) and daughter (a brilliant person) who looked after me when I most needed them.

I am back in the Factory from today and warming up the machines to get making more kits and shipping out orders that have been placed!

Component News:

Motors are on their way this week from our manufacturers in China.

The AIO receiver manufacturer is currently testing the failed units we returned and working out what is required to solve the reported issue and increase reliability.

More news on that and anything else, as it comes in.

Development News:

You'll be pleased to know that the time in isolation wasn't wasted. I managed to advance a number of projects and there will be more exciting news in the very near future.

Stay Safe:

I know everyone is saying it, but I'm going to repeat it anyway: PLEASE STAY SAFE. If you have ordered a kit from us, when you receive it: wipe the unopened parcel down with anti-viral wipes or a bleach solution and then wash your hands. If you can, also leave the package, once wiped, for 48hrs before touching again.

Here's to those days ahead, when we can feel the warmth of the sun on our faces as we watch our models fly once more!

Jon  
Microaces Ltd

**Received 17 April 2020 from Jon**

Progress

Lots of kits going out today. Wow, it takes a while to get back up to speed when stocks have been depleted, so apologies for the delay if you've put an order in and have been waiting a little longer than expected. You should be in possession of your new kit very soon.

Electronics: The Good News

We are still without electronics, but that is soon to change. New motor stock is arriving on 21st April, we have electronics for the Airco DH2 kit arriving in 8-10 days and good progress has been made with the all-in-one (AIO) receiver that is recommended for all other Microaces kits. I spoke with the manufacturers yesterday; here's the good news....

The factory, who are based in China, have identified the probable cause of the fault found in some receivers, after examining the units we have returned. And fortunately it seems it could be an easy fix; The issue seems to have been caused by the tool used for injection moulding the servo casing.

The tool was created in 2012 and looks like it has worn to the extent that some casings produced from it can cause excessive mechanical friction to the enclosed servo mechanism, creating the conditions for servo failure.

The casing tool is either being replaced or repaired to overcome the issue. The factory expects to ramp up production in 2-3 weeks time. So we will soon have stock. Woo-hoo!

Advice for receiving parcels:

I know everyone is saying it, but I'm going to repeat it anyway: PLEASE STAY SAFE. If you have ordered a kit from us, when you receive it: wipe the unopened parcel down with anti-viral wipes or a bleach solution and then wash your hands. If you can, also leave the package, once wiped, for 48hrs before touching again.

More news coming soon!

Jon

Microaces Ltd

## **Notice from Belair**

We have excess stock of some items and would like to give them free to model builders working in the health and emergency services, as a very small token our appreciation for their selfless work, especially at the moment. Please include our email - [sales@belairkits.com](mailto:sales@belairkits.com) and ask them to contact us. I do not require proof of their occupation, as I am sure that no low life would take advantage of this offer. We do have limited stock, so will stop the offer when it runs out. Leon.

Dear Fellow Aeromodeller,

COVID-19 is the biggest challenge we have ever faced, but we pray everything will recover from this massive disruption and return to normal!

Our online store is open although some countries may be subject to delays on delivery such as Italy, Belgium, Spain and the USA.

From the Cole family and all at Belair Kits to all of our friends, customers and suppliers around the world, to those preparing for the gathering storm and to those who are already in it, stay safe and strong and take care of yourselves. We will be trying to do the same, and look forward to meeting up with you again in happier times at a model show.

Keep well.

With best regards,

Leon Cole