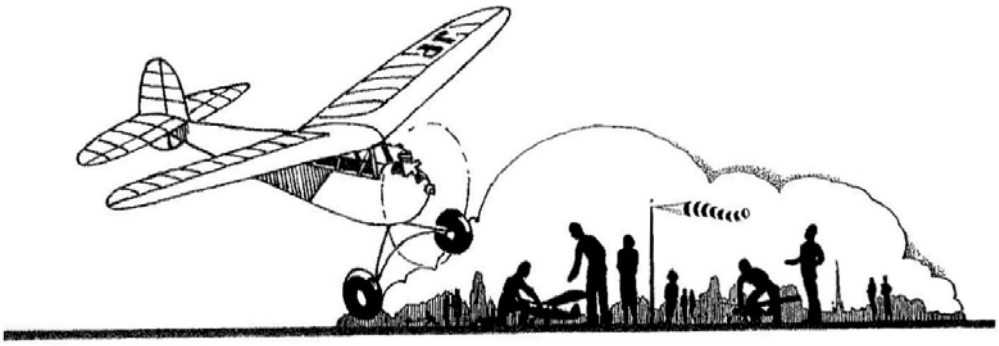


Sticks and Tissue No 145 – December 2018

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 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.

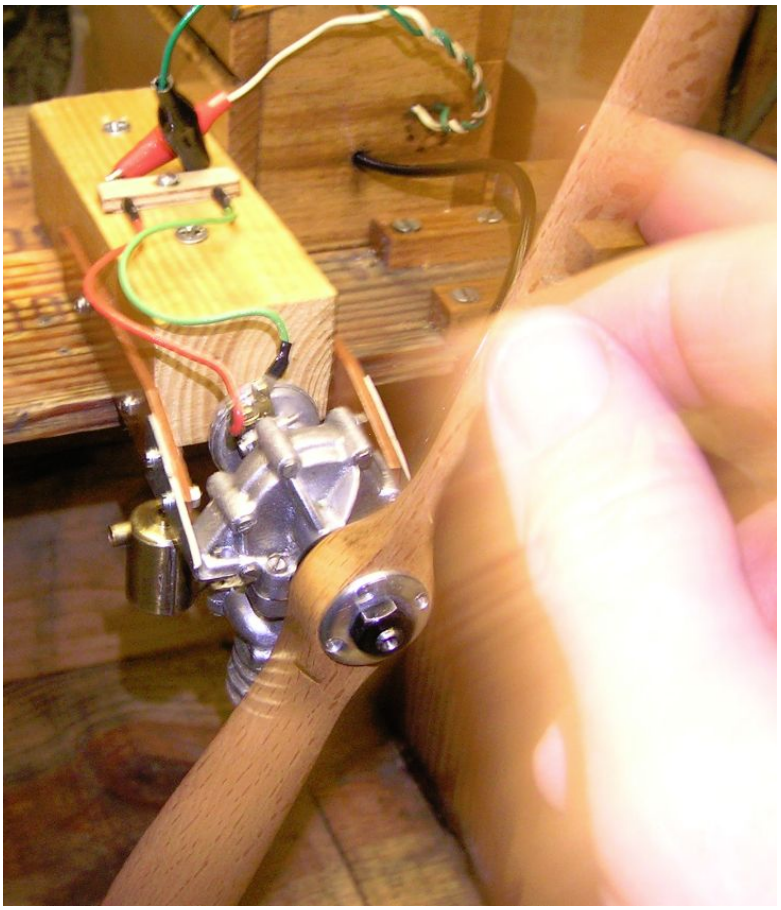
Mike Cumming's Raynes Park MAC Christmas card

Season's Greetings to all and a great year of modelling and flying for 2019. This issue although rather rushed as usual but see's the welcome return of Brian's input with engine and photos and so combined with Bill Wells, and Peter Scott engine input for those who like IC engines are in for a pleasurable time looking at photos.

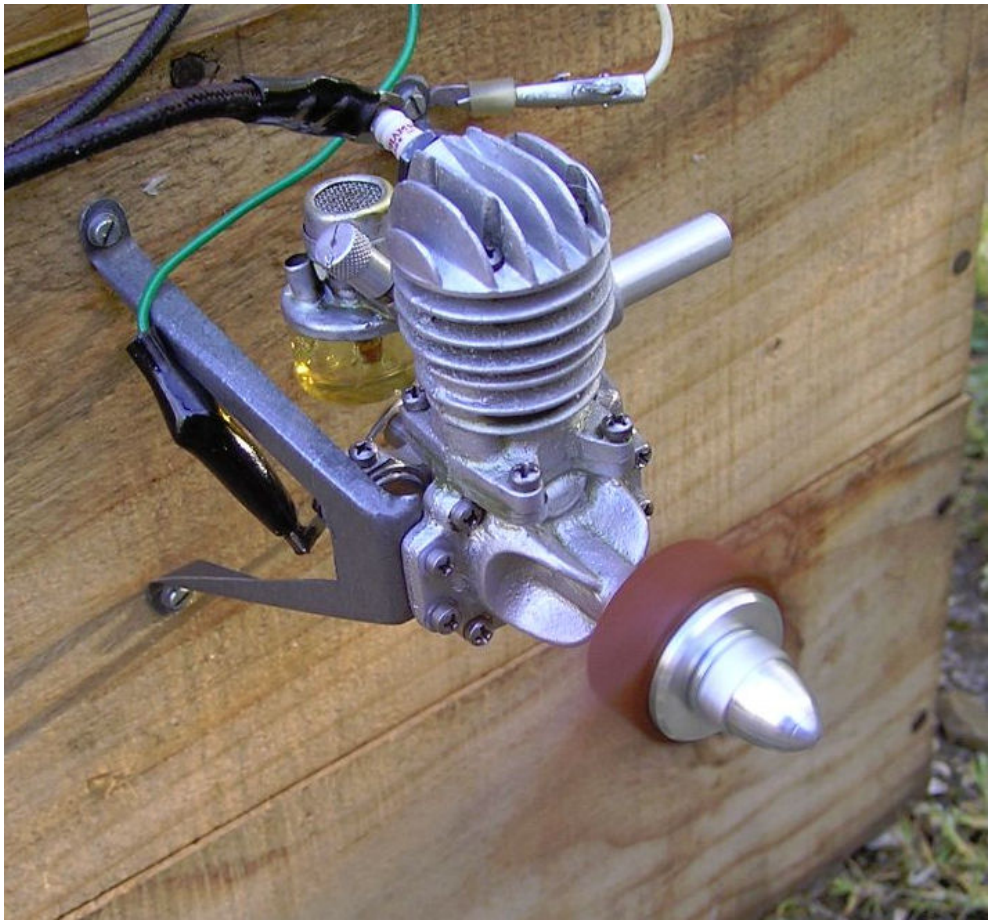
Over the last three years I have often been asked as to the whereabouts of David Kinsella, who until three years ago wrote a monthly article for S&T which abruptly stopped. I and Raynes Park MAC heard absolutely nothing from him, but now I'm pleased to say he has made contact with several members of Raynes Park MAC. *JP*.

From Peter Scott

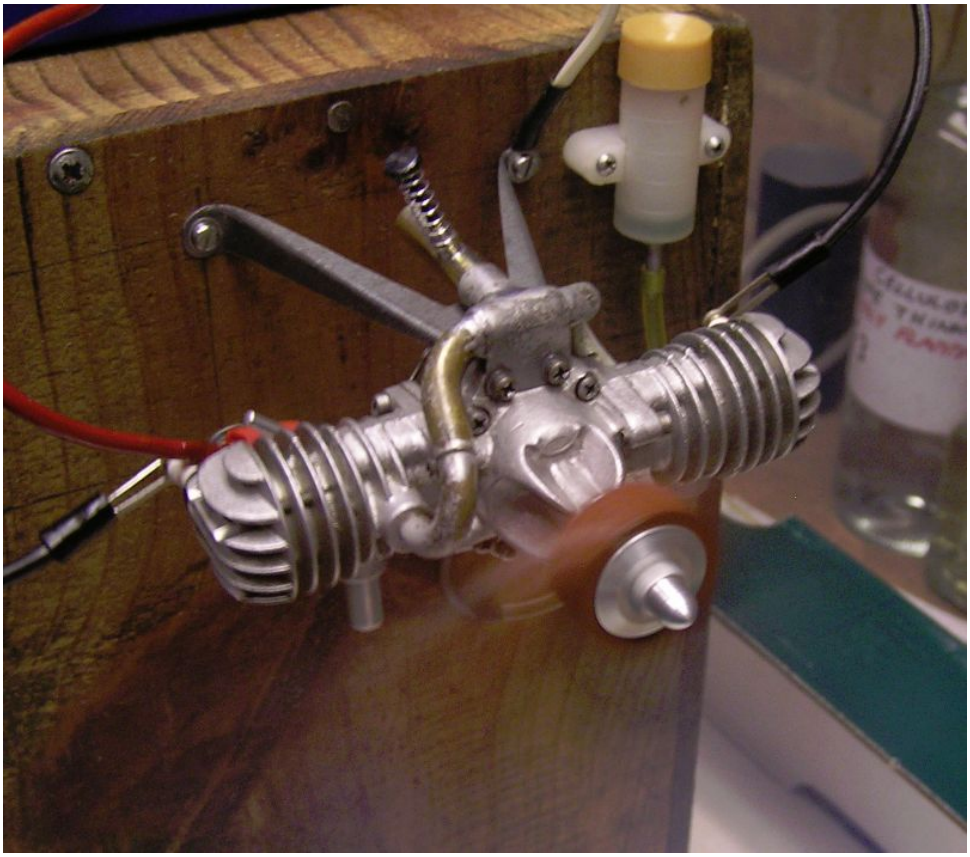
Perhaps you'll be able to use this in the Christmas edition.... (yes we all know the plural of elf is elves, but the plural of Elf is Elfs !)



Elf Corncob inverted



Run-up of Elf



Run-up of Elf twin

From Bob Pickernell

Hello James. A couple of snaps of my latest projects. The Triplane was built from the 1950 Aeromodeller plan and is based on the full size reproduction at Old Warden with a couple of structural tweaks. The top wing mounting is a little more robust than as shown on the plan. Also I have deleted the pendulum and hinged the tail surfaces to help trimming. The engine is mounted on conventional beam mounting bearers as opposed to sitting on the bottom of the cowling. I got as far as the local field for the first flight but a vindictive Jetex model went nose first under power into the top wing and broke the trailing edge. You couldn't make it up! I have made repairs and await weather and courage before I try again.

The Hogan Twanger has been loosely 'on the list' for years. It first caught my eye when I was looking for unusual Jetex subjects in the 1953 Aeromodeller Annual and I came across what was described as a Yak 25. The Twanger was on the opposite page. I got as far as scaling the drawing, which showed a DC Dart as the power. The size of the model led me to think that the combination would be a little to brisk for my taste so I back burnered the project until the design showed up as a free plan in the Aeromodeller, powered by a Modela CO2. I just happened to have a Modela gathering dust so I built the free plan version. Once again ,I made a few tweaks on the original wing and tail mounting, which struck me as rather too flimsy. Initial flights showed a bad stalling tendancy which enough lead to sink the Titanic did little to cure. Looking at the model more closely the wing incidence appeared a little excessive. Packing the wing TE up and removing the lead had the desired effect.

Raynes Park MAC Website by Alan Holmes

The Raynes Park MAC has been without a website for some time due to the loss of use of the host we were using. Having now found a suitable new host the website is up and running again. You can find the site at www.raynesparkmac.co.nf

I have added some new material and more will be added in due course. The current issue of “Sticks and Tissue” can once again be viewed there.

From Peter Michel

Since Mick Charles closed down I'm using stock stuff acquired from relatives of modellers who have recently died. How sad that is. However, at least it is being used and not thrown away. Some of it went into the model pictured here which I send as proof that real aeromodelling lives on, at least in this house! It is a Hercules Air Liner, of 48in span, which was kitted by The Model Shop, Newcastle, in 1934.

The Herc. had its first outing on a perfect afternoon on Epsom Downs last month – and it needed practically no trimming. It was soon turning in flights of around 90 seconds, albeit in buoyant air. It is a joy to behold, exhibiting that certain "presence" in flight that big rubber possess.

I hazard a guess that you *won't* be glad to know there's provision for single-channel RC (in a transferable unit) and with it a separate fin with a large rudder. I haven't had a chance to try the Hercules in this mode – not that I'm in favour of it to be honest, but the way things are going we may all be into RC-assist before very long.

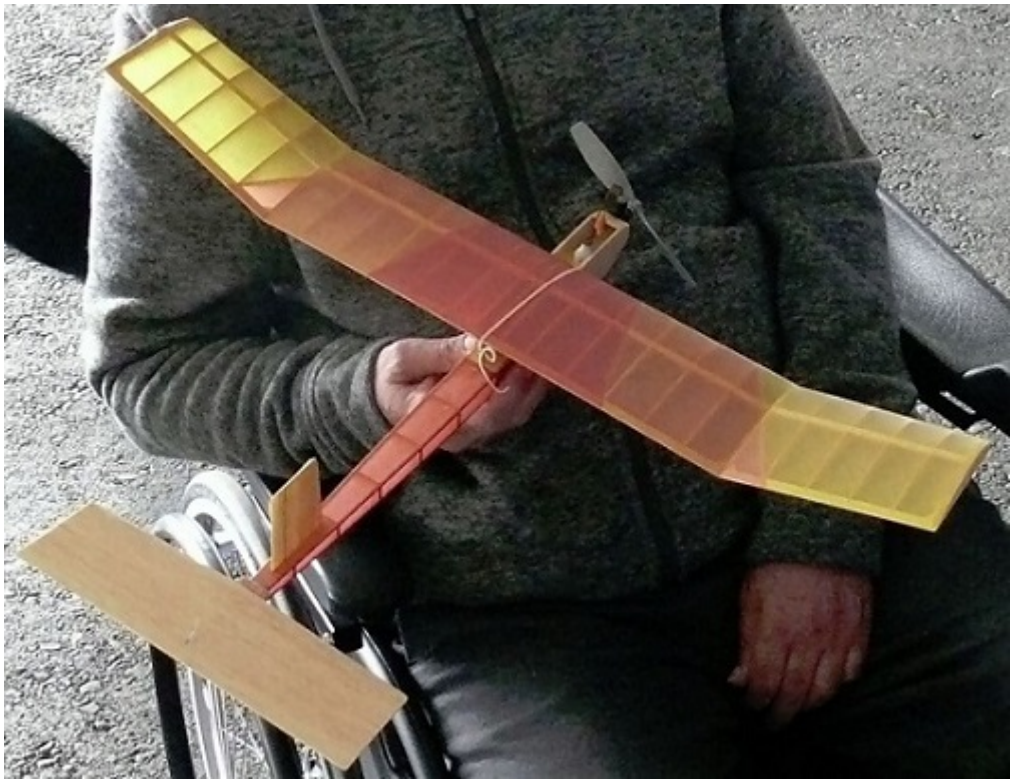
Like you, I don't now travel to distant contests, although I hope to get to the few meetings allocated to us at MW. I badly miss the companionship of the old David Baker days – gone alas, like our youth, too soon...

Many greetings from Switzerland Peter Ziegler

Rubber powered models about Olten "Gheid"

In fine autumn weather, the friends of the rubber motor model flight met on October 20, 2018 on the airfield "Gheid" in Olten for the traditional autumn meeting. In the morning it was possible to fly with all models, with the increasing wind at midday and in the afternoon only models were used, which coped with the conditions. The lightweight and filigree models remained on the ground, well protected under tables or in the lee of the clubhouse.
In the empty hangar the attendees were allowed to watch the flights of two models with impeller (of course rubber-operated). Pham Thanh is the specialist who built these RDF models: a "MiG-17" and a "Mirage III". RDF = Rubber Powered Ducted Fan.
In addition, two models equipped with JETEX drives started into the sky above the airfield. Bringed and flown by our comrade Martin Lambert from Germany.
Then models were also brought with CO2 engines, these remained due to the wind conditions in their transport containers.

Antique model ESSO

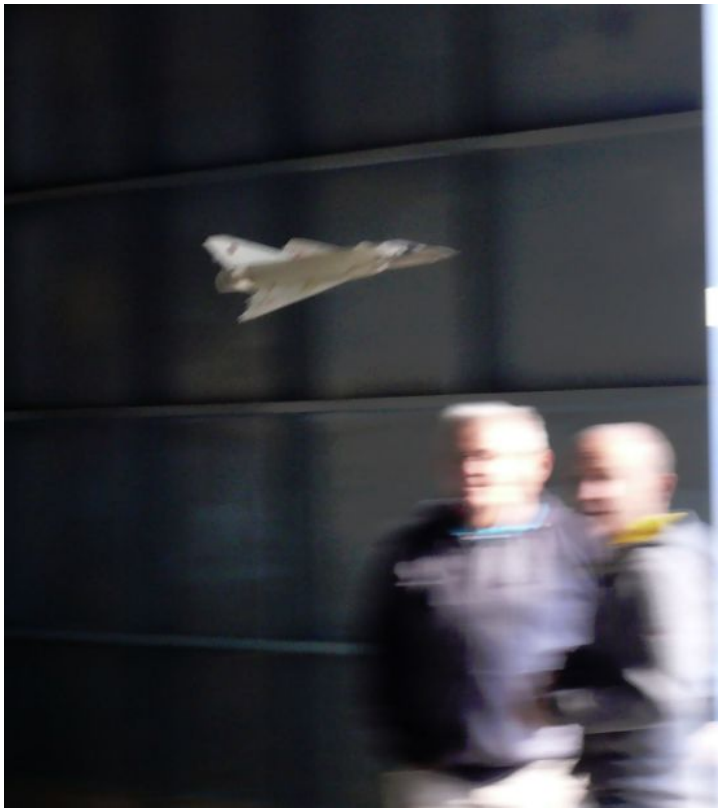


CO2-Model

Jupiter

Large Scale Model P51D Mustang

MiG-17 in flight



Mirage III in flight

Pilatus PC-6 Turbo Porter

RDF models MiG-17 and Mirage III

Start from the start table Miss Canada

Trawel Air Mystery Ship

Wanderer

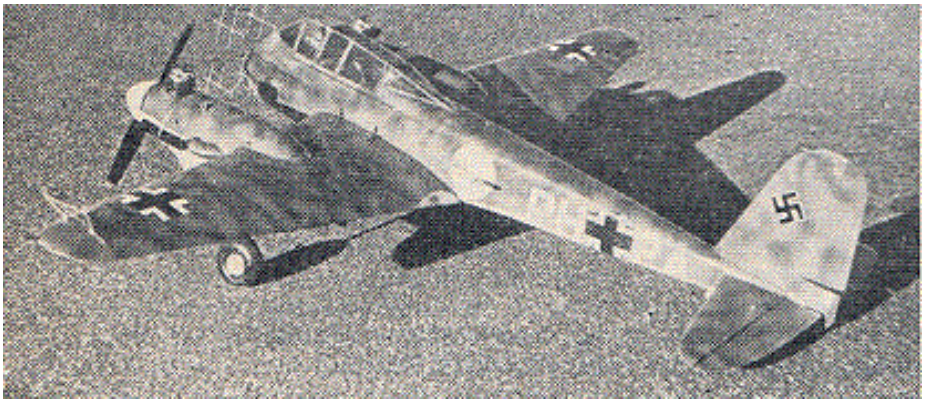
Wind protected behind the house

Wind-protected under the table

Start of my P30 model Secundus

Start of the JETEX-MiG-15

Me. 210 Superb C/L twin 44 in span for engines 2.5 cc – 3.5 cc. By J E D Mackie. From Model Aircraft September 1964



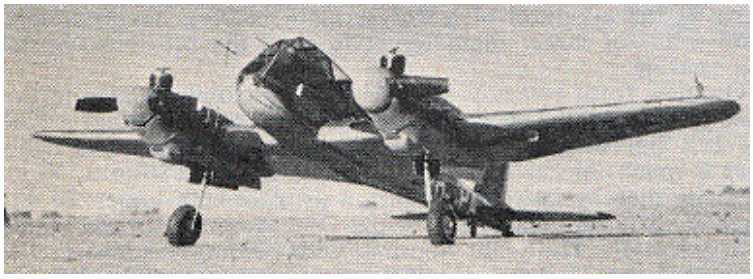
We have pleasure in presenting here the details of J. E. D. Mackie's fine model, which greatly impressed us when we saw it at the R.A.F.M.A.A, Championships. The original was profusely detailed, but the degree to which this is carried is, we feel, best left to the individual modeller. We include some of his hints on materials to use for various details, however, after the building notes.

Fuselage

The model is of basically simple construction the fuselage being built up from 1/4in. sheet sides and bottom and 3/8 in sheet top decking, rounded to oval the section-shown. First laminate the nose from 1/2in. and 1/8 in sheet, this has to be hollowed out later or may be pre-hollowed, "bread &and butter "fashion. Cement the 1/4in. sheet sides to the nose unit and fit former F1.When this assembly is set, the remaining formers can be added, followed by the fuselage top (pre-slotted for fin) and bottom, the latter.as far as F2 only. Bind and cement the tailwheel assembly to its block which, in turn, should be very securely cemented in place, as it comes in for a lot of stress with " circuits and bumps."

Wing

The ribs are made by the sandwich method shown on the plan. Build the wing flat on the plan, first having cut the mainspar slots right through to the bottom edges of Wl-W4, so as to be able to position the mainspar from underneath when the assembly is lifted from the board. . After cementing the mainspar in place these slots are filled in again. The lower surface of the wing is now sheeted except for around the engines bearers and the fuselage position (between ribs W1). Now fit the bearers and nacelle formers, make and fit the throttle controls, leadouts and throttle pushrods. Sheet the top surface of the wing. Build and cement the undercarriage legs to the bearers before building up the nacelles. Slot the fuselage sides to take the mainspar, cut away L.E. and T.E. of wing between ribs W1 and fit wing to fuselage.



The empennage parts are now made, tissue covered, hinged and fixed into position. Note offset of rudder.

Finishing

The rest of the model should now be tissue covered, and then sprayed with filler (suitably masking the cabin window panels). Sand down and repeat the filler coat if desired. The under surfaces are light grey and the upper surfaces a dark grey with green mottled effect. The original model had fuel-proofer mixed with the colour-dope. Transfer letters were motorcycle registration transfers.

Flying

The operation of the throttle control via the third line requires careful adjustment to ensure that the spring is not strong enough to slacken the flying lines and yet not so weak as to allow the line to drag and close the throttle accidentally. (Operation is pull to close, release to open.)

Arrange tanks so that the outboard engine cuts first. The throttle may then be used for controlling the landing on inboard engine only.

Detail tips

Brake-pipe line from plastic-sleeved wire. Paint in "creep" marks. Use 6 B.A. nuts instead of usual washer to retain wheel. Rear fuselage aerial is from 22 S.W.G. wire and front aerials from 18 S.W.G. with 22 S.W.G. - blades soldered on and bent sideways. These are removable for starting motors (otherwise they get

in the way of one's fingers !) and slip into brass tubes in the nose. Seats are from postcard. Chutes from block covered with silk and coloured buff. Straps from white tape with metal or paper clips as fasteners. Control column is built up from 14 S.W.G. wire with 16 S.W.G. horn type handles bound with fusewire and soldered to look like finger grips. Paint matt black. Rudder pedals are from 18 g. tubing, pins and card -don't forget to offset the rudder pedals to tie up with the offset rudder! Instrument panel has strip of celluloid sandwiched between the two layers of 1.5 mm. ply. This is fitted in curved position, so allowance will have to be made when marking instruments so they coincide with the holes in the ply. Calibrations in white on black, please! Build guns from brass tubing and scrap balsa ammo. boxes from card and block or built up from card with strip belts using pin ends for 7.2 mm. shells and gramophone needle ends for 20mm shells.

(I quite like the look of this model and would, if not wanting as C/L, I suspect make a good 3 channel electric R/C project apart from reducing the fuselage wood sizes from 1/4 inch to 1/8 inch and increase former dimensions accordingly and built up tailplane? I guess there may already be such a plan for this aircraft? JP)

From Ronald in Belgium

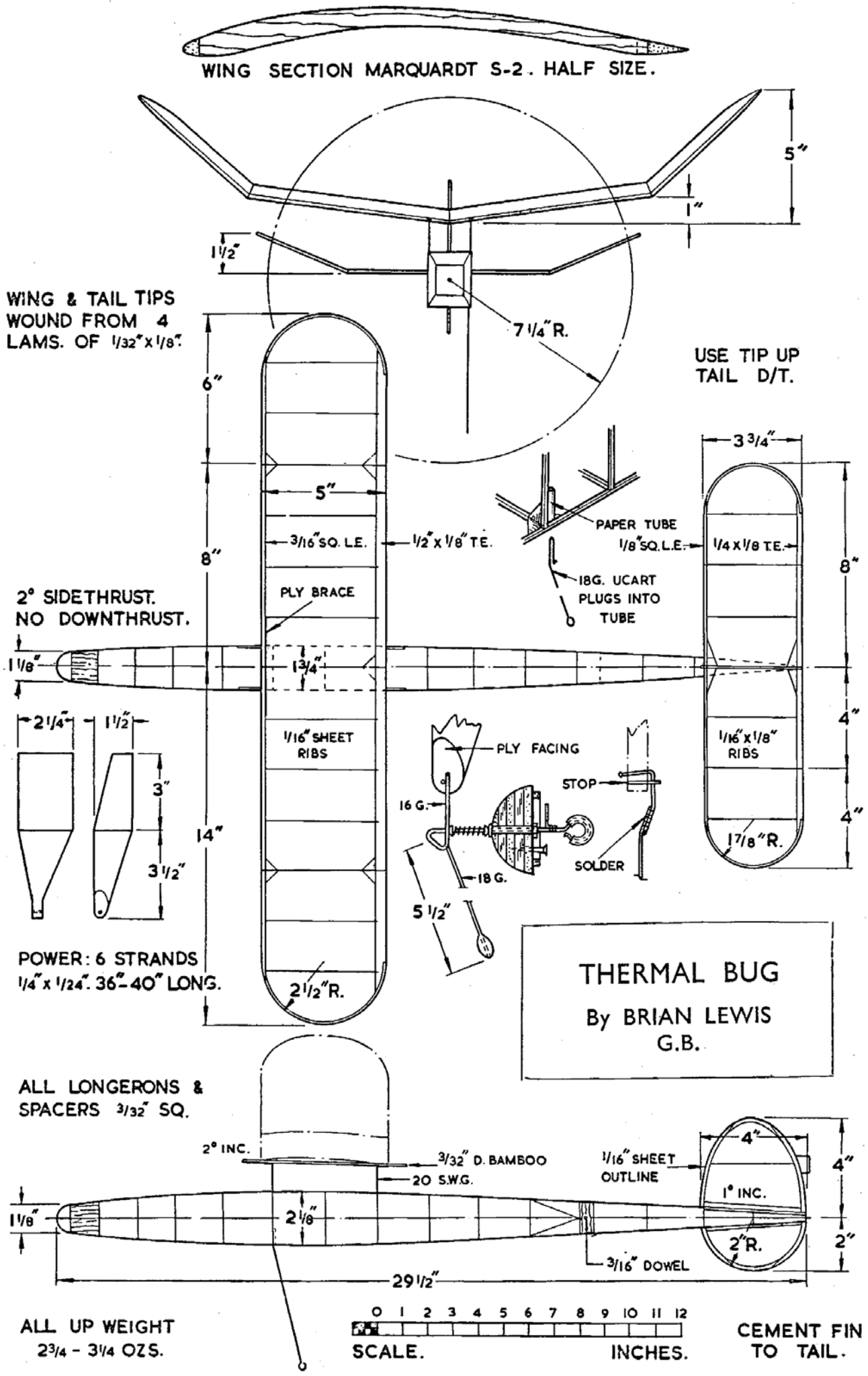
Halfway last august I went to the model shop (about 3/4 of an hour drive) to fetch a number of small model items. When I walked about in the shop (it is quite big) I noticed in a corner a ARF kit for sale: the Miss-2, made in Czechiaa long time ago and was unavailable for many years. At €75 it was a steal and I bought it on the spot. The Miss-2 was meant for beginners to learn to fly with. It appealed to me because of its Old Timer looks and construction. After assembly and introducing the necessary bits to make it go (a Hacker A20-26M, a 10x5 prop and a 950mAh 3cell LIPO) I also decided I did not like the cockpit arrangement: a piece of preformed plastic that had to be attached with velcro. It did not have the Old Timer look for me. I made a balsa stick construction instead and covered it with purple transparent film.

The maiden flight happened in blustery conditions, but the Miss-2 passed the test unharmed and was very easy to control in a gusty wind force 4/5. She has been my field companion ever since. No flaps and corrections or CAR to think of, just a simple bonafide superbly flying model airplane, giving hours of fun. If I found another one, I'd put a 1cc or 1.5cc diesel in, instead of the Hacker and see how that combination works out.

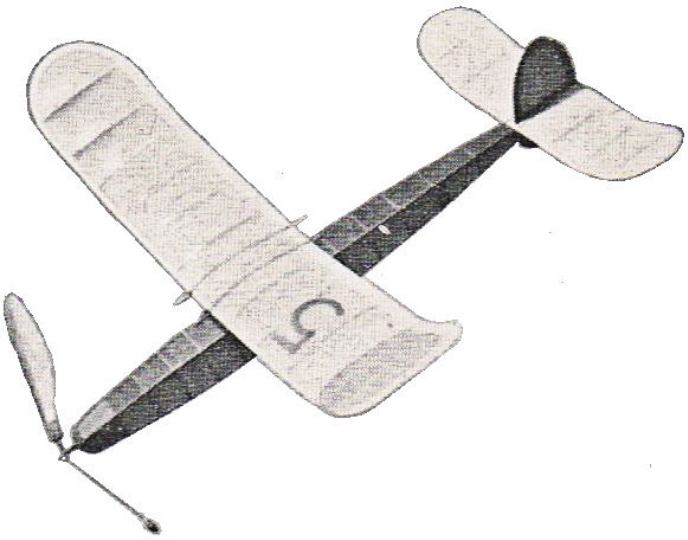

miss2


miss2

here a follow-up picture of me with the Miss-2 during a flying session today. Marvellous flying weather: no discernable wind, +3°C and some sunshine, simply lovely!


WING SECTION MARQUARDT S-2. HALF SIZE.
5"
1"
1 1/2"
7 1/4" R.
WING & TAIL TIPS WOUND FROM 4 LAMS. OF 1/32" x 1/8".
USE TIP UP TAIL D/T.
6"
3 3/4"
5"
PAPER TUBE
1/8" SQ. L.E.
1/4 x 1/8 T.E.
3/16" SQ. L.E.
1/2" x 1/8" T.E.
8"
8"
18G. UCART PLUGS INTO TUBE
2° SIDETHRUST. NO DOWNTHRUST.
PLY BRACE
1 1/8"
1 3/4"
2 1/4"
1 1/2"
1/16" SHEET RIBS
1/16" x 1/8" RIBS
4"
PLY FACING
STOP
3"
16 G.
4"
14"
1 7/8" R.
SOLDER
3 1/2"
18 G.
5 1/2"
POWER: 6 STRANDS 1/4" x 1/24". 36"-40" LONG.
2 1/2" R.
THERMAL BUG
By BRIAN LEWIS
G.B.
ALL LONGERONS & SPACERS 3/32" SQ.
2° INC.
3/32" D. BAMBOO
20 S.W.G.
1/16" SHEET OUTLINE
4"
4"
1° INC.
1 1/8"
2 1/8"
2"
2" R.
3/16" DOWEL
29 1/2"
ALL UP WEIGHT 2 3/4 - 3 1/4 OZS.
0 1 2 3 4 5 6 7 8 9 10 11 12
SCALE.
INCHES.
CEMENT FIN TO TAIL.

Thermal Bug By Brian Lewis from1952 Aeromodeller Annual loaned kindly by Terry Burnal



The first Thermal Bug was designed in the early part of 1948; it weighed 2 1/4 oz. and had a 2 1/2 min. motor run. Since then the design has been developed through seven models, and a Wakefield version is being built for the 1953 season.

Mk. 2 won first prize in the 1950 Southern Cross Exhibi tion and went on to win two club contests, and win second place in the Southern Counties rally. Mk. 3 was lost on its first flight and spent two weeks in a potato field, which wrote it off. Mk. 4 was flown in the Northern Heights gala, but after climbing to 100 feet the motor peg slipped out, prop and rubber shot out of the nose, and the rest of the model sank for 30 secs. ! Model No. 5 won a Southern Cross contest first day out. Flown in the 1951 Bill White trophy it was lost on its second flight, but placed 13th; another flight of 2 1/2 min. would have placed it first. The sixth model was flown in the Farrow Shield and returned top time in the S.E. Area. Later it was flown in an Icarian/Luton / St. Albans triangle match at Eaton Bray and placed third.

Trimming the model is straightforward enough. Just move the wing fore or aft to get the glide, then trim the bamboo runners to project 1/4 inch either side of leading and trailing edges. This will make sure the wing position is the same every time the model is assembled. Try not to use any downthrust, but use a little sidethrust if necessary. A tight right hand turn is best. The Thermal Bug has plenty of spiral stability so do not be afraid of overdoing the turn, provided that the model is launched to the left of the wind it will get away safely every time.

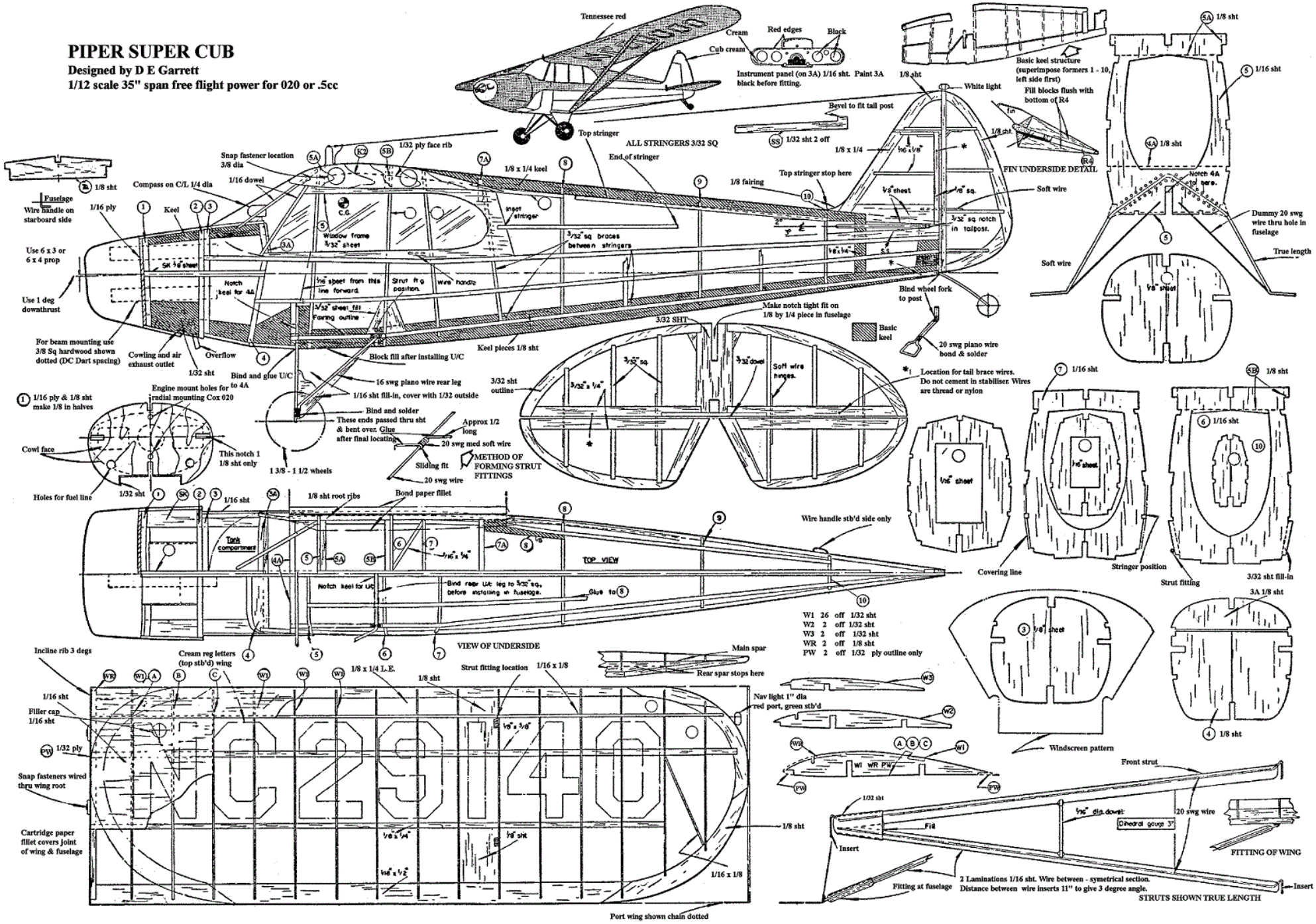
Though the first Thermal Bugs were very light, due to influence of indoor flying, the later jobs are made more robust using quite hard balsa. This has paid off in consistency of performance, less repair work and fewer warps.

This type of job makes an ideal contest model. It costs about 3s. all up to make and can be built in a week of evenings. Trimming is usually completed in half a dozen flights. By the way, final trimming is done by bending the prop hinge to alter the pitch and obtain the best climb : motor run ratio. This can be altered to suit conditions—fine pitch for gusty weather, coarse pitch for “still air.” .

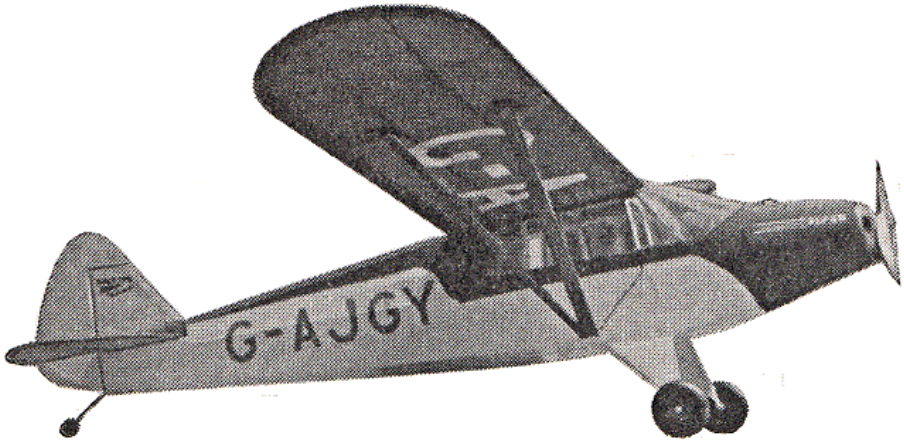
PIPER SUPER CUB

Designed by D E Garrett

1/12 scale 35" span free flight power for 020 or .5cc



Piper Cub Super Cruiser – A 35” span free flight scale model for .020 cu in or .5 cc. By D E Garrett from Aero Modeller Ferbruary 1963

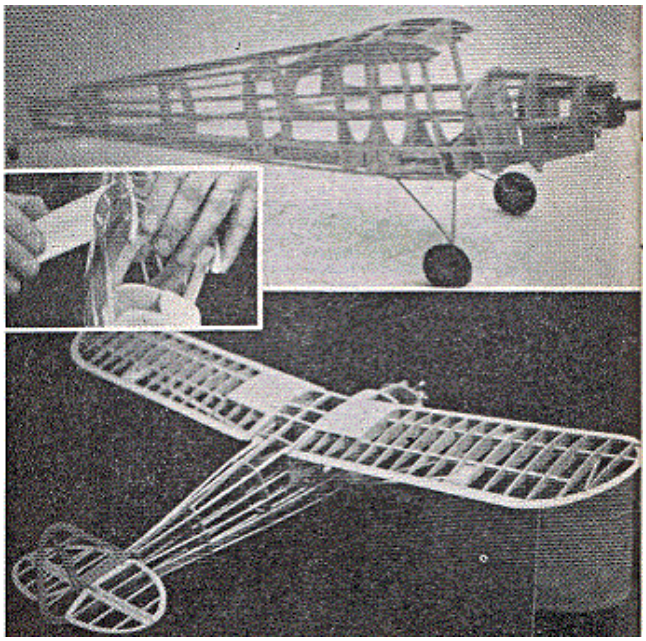


Although no longer in production, the-Piper Super Cruiser remains a very popular light aircraft and one which offers the Aeromodeller a most attractive subject of ideal scale proportions. Prototypes have been tested in America using the Cox .020 glow plug motor, radially mounted, and in England by Bill Newman, using the D.C. Dart .5 c.c. diesel with beam mounts. The model Super Cruiser has turned out to -be a first-class subject and, with its near scale type construction, will offer a most distinctive appeal to those who like realistic modelling.

The fuselage Is constructed by first -pinning down the 1/8 in. keelpieces over the side view—formers l-10 are then -erected (excepting those with letter suffixes —e.g. 3A, 4A, 5A, 7A, which are added in one piece at later stages), -making sure to keep them vertical and properly aligned. When joints are dry, 3/32 in. sq. stringers may be added in place along with 1/8 in. SK. When this assembly is complete, locate carefully the 3/32 in. window frame and glue in place.

After the port (left) side has set, remove from plan and add right side half formers and cross braces 5A and 5B. Before adding stringers on the starboard (right) side, install the undercarriage, by binding to 4A which is one piece, and the tailwheel. The piece SS is a stop for the adjusting tail, so line tip sides carefully. When the tail is down on SS, there is 3° negative incidence. The notch in the tail post should be a good fit, not loose. A 3/32 in. dowel on the tailplane fits into the notch, and acts as a pivot for the tail. The 1/8 in. sheet root ribs K2 can be added at this time. They are surfaced later by 1/32 in. ply facing ribs.

Before planking the nose, install the model engine fuel tank and a timer if needed. On one original model a Tatone 1/2A timer was installed and the tank placed under the windscreen, with the filler tube coming out through, former 2, and curving upwards. The overflow tube came out the bottom of cowl as shown on the plan. -An extension arm was fitted to the timer and this extends out of the left side of cowl. An access door was provided on the right side of the upper cowl between 1 and 2 to allow timer to be set. The nuts for the engine bolts were soldered to a tinplate “staple” and embedded and glued to the back of former 1.



The “tunnel” shown on the plan allows exhaust and excess oil to pass from the cowling area. The carved block cowling may be cut for access in the manner of your choice.

The tail surfaces are of simple construction. The wires are used for a scale separation in the surfaces as well as providing trim. The fin base is the upper stop for the tail, and should be cut accurately. When tail is up tight on the fin base there is 2° positive incidence. The surfaces have rounded edges, with the control sections having a slight taper. Filler blocks used on the fin as shown by the asterisks. Glue the brace wires (linen thread or nylon) to fin and fuselage only.

The tail adjusts in the following manner. The centre piece contains a slot in its forward edge, and a smaller space in the rear. The dowel which comprises part of the structure fits in the notch in the tail post. The forward slot rides up and down on the vertical piece of 1/8 in. x 1/4 in. at the rear of the fuselage and this should be a firm fit—not loose!

The degree of trim is obtained by the following method: To obtain 0° incidence, insert a piece of 1/16 in. sq. over, and a piece of 3/32 in. sq. under the tailplane. When this 0° point is located, mark lightly on the model surface for future reference. From this point one can adjust trim to suit model requirements. The two "inclined planes" provided will give ample range of adjustment. Allow enough length on the packing strips to adjust easily, and, when final trim is formed, trim and glue the tailplane in place.

The wing is made in two panels, Newey dress snap fastened to the fuselage, and held at proper dihedral angle by the struts. Pin the spars and trailing edge down over the plan and add the ribs, checking WR angle with the dihedral gauge before the cement dries. Add the upper spar. Fit the 1/16 in. sheet centre section while still pinned down over the plan.

When the panel is dry, remove and add the leading edge with 1/32 in. sheet covering. Do not add the ply face ribs yet.

The struts are built of 1/16 in. sheet to the outline shown. Each strut is made in halves, with 20 s.w.g. dia, wire glued well between. When dry, sand to symmetrical section. The strut fittings are wound lengths of 20 s.w.g. soft wire, subsequently firmly attached at the fuselage and wing points.

Snap fasteners and strut fittings are fitted at this time. Cut four 1/32 in. ply ribs to outline PW. These ribs should have no notches and should match wing and fuselage roots exactly. Separate ply ribs into pairs and tape together.

Drill a small hole in the centre of the circle formed by the maximum diameter of the snap fastener. Glue one rib of each pair to fuselage wing root ribs K2. Insert a pin through the studs of the fasteners, pass the pin through the hole drilled in ply rib, and through the root rib, glue stud in place, leave to dry well, then remove locating pin and pass fine wire through holes in fastener, clinch, and glue well.

Snap female part of snap on to the stud on the wing roots, then glue them to the other two ribs remaining of each pair. When cement has set, unsnap the rib from the fuselage and glue ribs to end of wing panels, pass wire through wing parts in the same manner as fuselage roots.

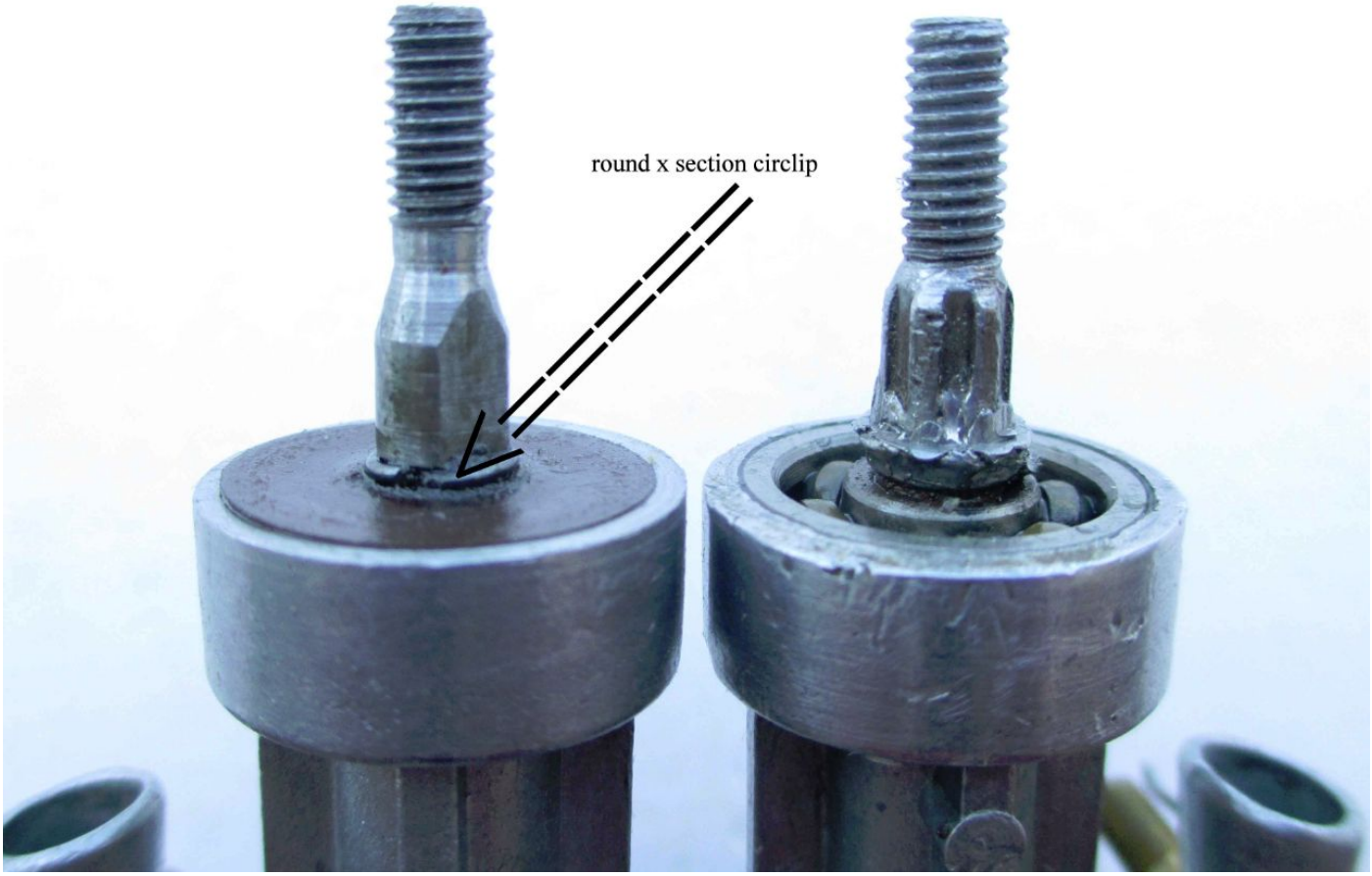
To engage wings, slip struts into each wing fitting, engage strut to fuselage, and then snap wings in place. While wings are on the model, cement the cartridge paper fillet to the fuselage only. When dry, remove wings.

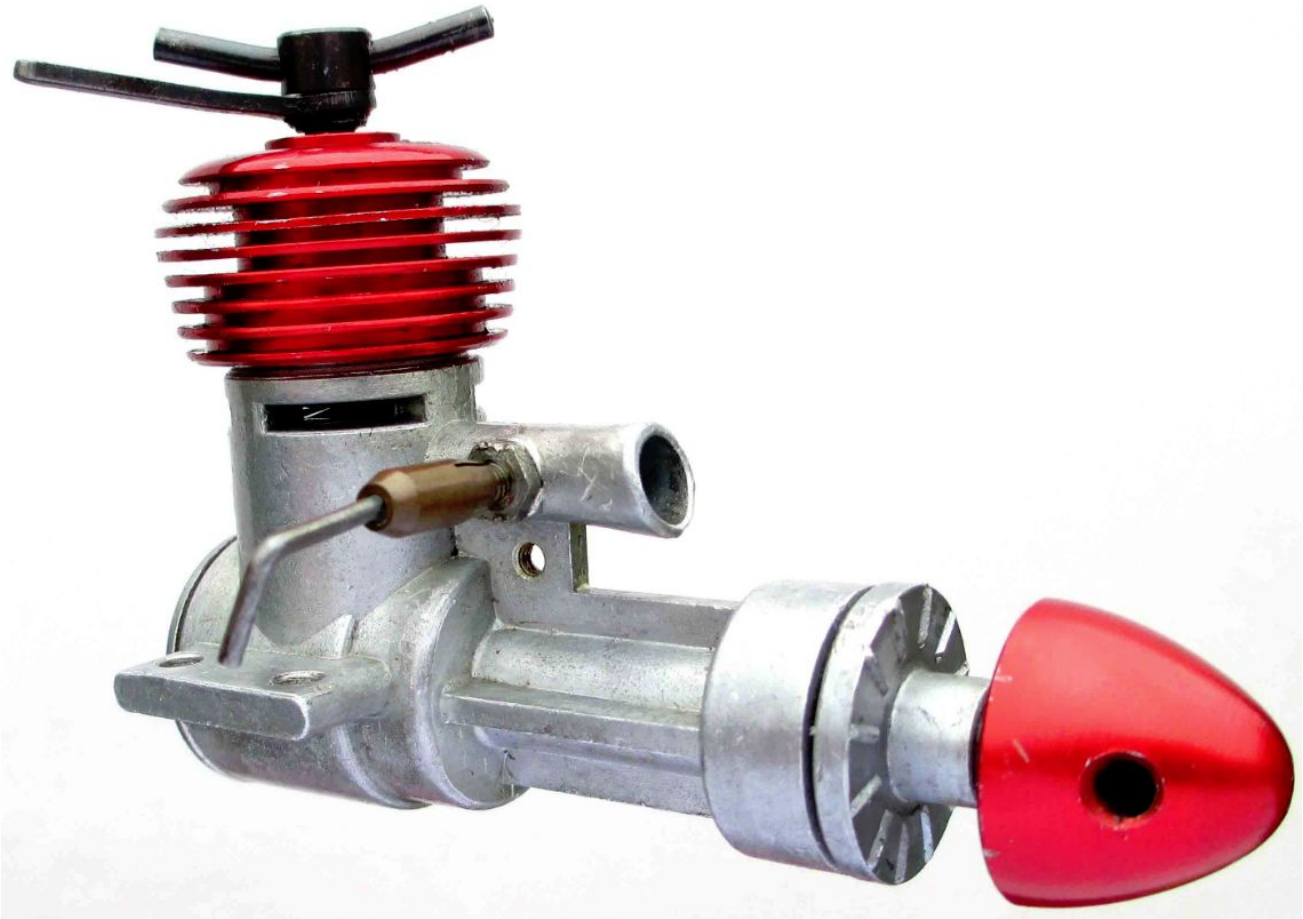
The model was finished with two coats of clear, three coats of colour with a cream fuselage and fin, red wings and tail. Registration letters are in cream on the wings, red on the fuselage. British registration is G-AJGY over the same basic Piper PA12 colour scheme known as Tennessee Red and Cub Cream.

The trade name transfer appears on the fin and is identical to the heading title of this feature.

Jena 1cc Update From Bill wells

In Sticks and Tissue 135 February 2018 I described my problems with a Jena 1cc engine. Looking on the Internet I wasn't the only one with the problem of the alloy prop driver sliding over the splines and binding on the crankcase. There was no shoulder to stop the prop drive going backwards. It has now come to light that some engines were produced with parallel flats milled either side of the shaft instead of splines to engage the prop driver. However behind these flats the shaft has a groove of a half round cross section the same as the splined shaft type. This groove is normally fitted with a spring steel circlip of round section that acts as a shoulder for the prop driver. If this clip is lost during disassemble a replacement might be very difficult to find or make. So if buying one check that the spring clip is in place, without it you will have a problem!!!





Fox 09 Rocket

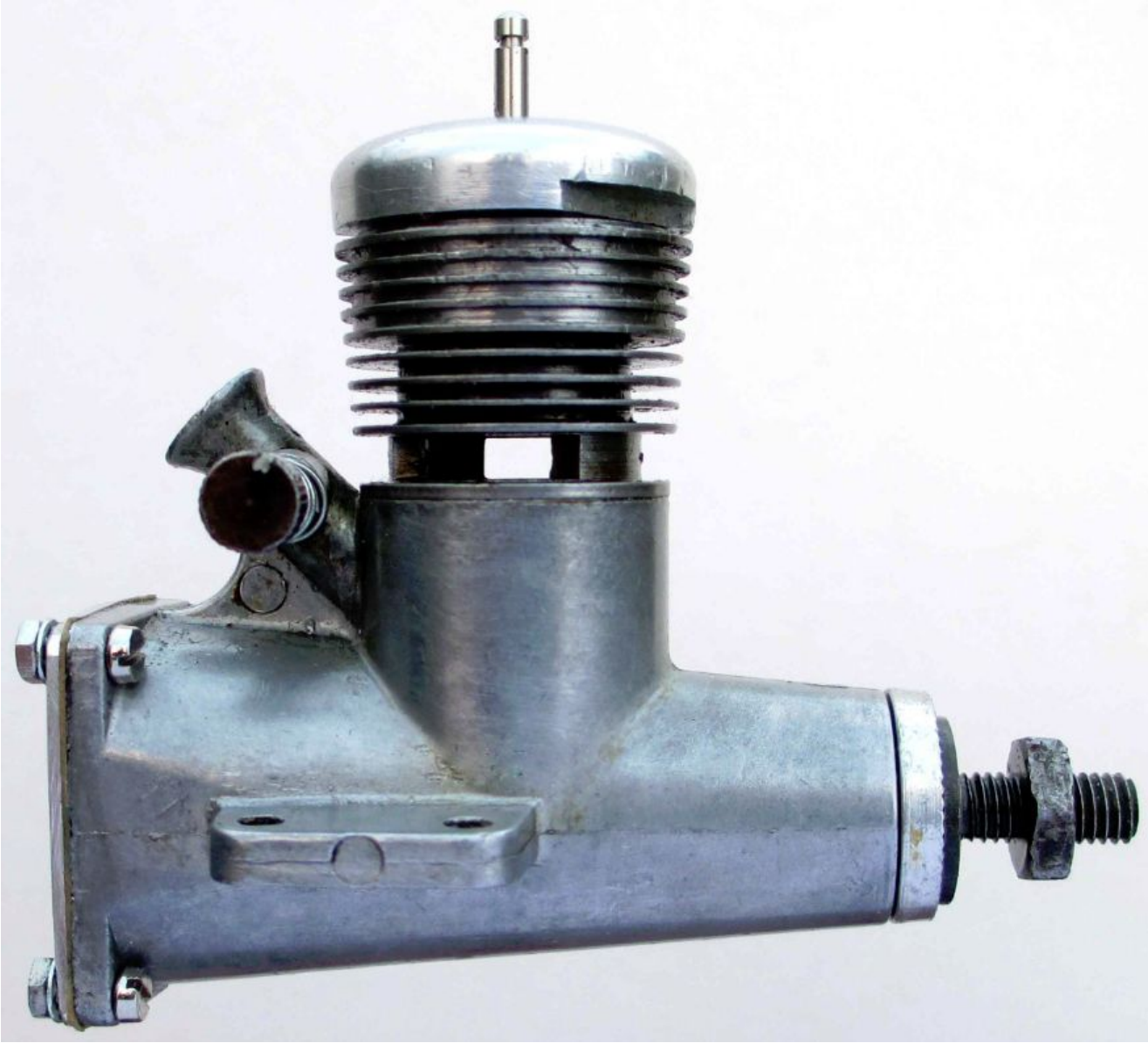
Now for something completely different, as they say. I recently bought a Fox 09 Rocket as part of an auction lot which contained three other engines, so pro-rata it cost £16-23. Who said collecting engines was expensive? They say condition is everything so I suppose it depends on what the collector finds acceptable. The word Rocket was the 'in word' with the advent of the Space race started by Sputnik in 1957. Fox took advantage of that one word and named his 09, 15 and 35 engines Rockets! In the case of the 09 he even shaped the engine like a Rocket extending the tapered shape passed the cylinder to form a fuel tank. The Fox Rocket 09 was advertised in Model Aeroplane News in April 1959 for $4-95. The engine was a low priced beginners motor easy to start and with the needle valve aft of the cylinder to keep fingers away from the propeller. The engine has a side port induction fed though an annular collector ring the into slots cut into the cylinder liner. These engines do not mind rich starts but will annoying start and run clockwise instead of anticlockwise. For first starts if the engine runs backwards let it! The engine has a side port induction, it runs equally well in either direction so take the opportunity to adjust the needle valve. The rear cover is made out of a thin pressed steel plate which is bolted in place with a gasket to form the fuel tank. The actual back plate to the engine is a screw in affair which forms the other end of the tank. Light weight radio gear was coming in so Fox decided a small RC engine was the way to go. Unfortunately there was no easy way to fit an RC throttle to 09 Rocket. To this end Fox produced a Hustler RC which in November 1961 was being offered on a 10 day free trial!!

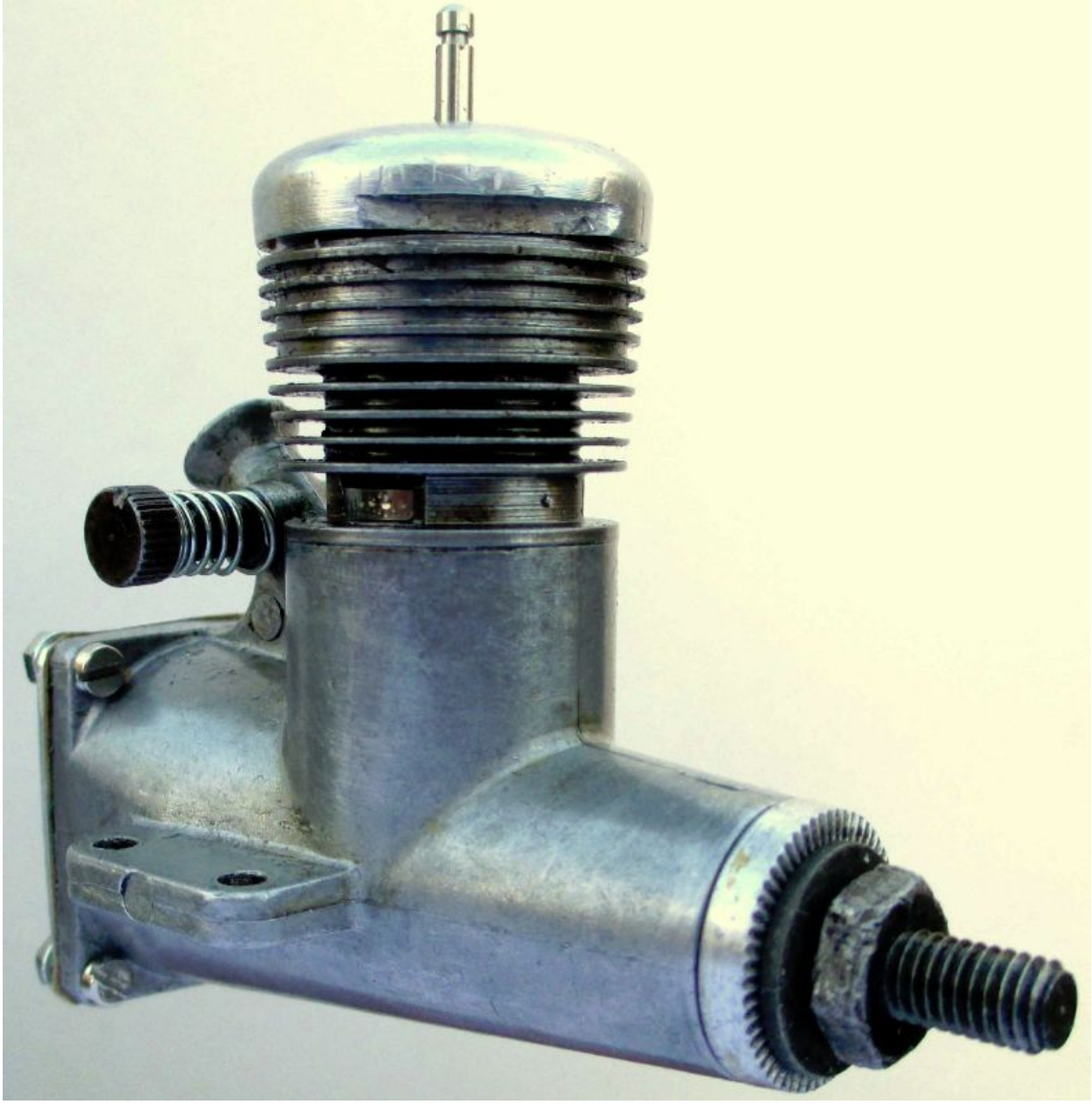
The 09 like a lot of engines has the Glow plug integral with a screw on head. Like the Cox engines when the glow plug expires the whole head has to be replaced or a bit of nifty machining is require to fit the head with a standard glow plug. I was unlucky with this engine as the glow plug was visibly burnt out. While drilling out the remains of the old bits of glow plug a ¼ inch insert came out on the drill! Not what I wanted as I had hoped to just thread the head ¼ 32 tpi and then recess the head to get the glow plug at the right height. Instead I had to make up a 5/16 insert plus recessing the head and only one chance to get it right!! Not as bad as I make it sound and it all worked out OK. The tank back plate was missing. I guess I might have got away with just a thin piece of aluminium but to get a little more area for a gasket seal I spun

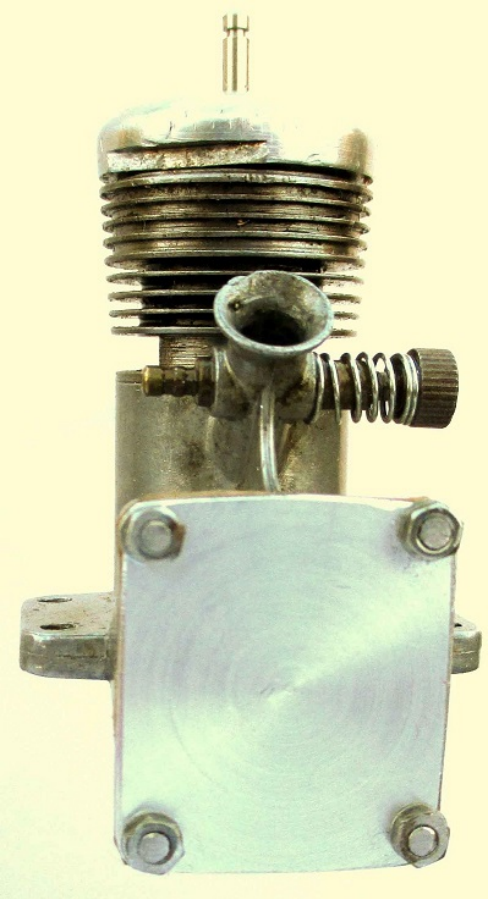
a piece aluminium to make a slight insert which needed a bit of file work because the back of the engine casting is not round, it has a flat each side. Simple drilling and use of a piercing saw plus making a new gasket finished the job.

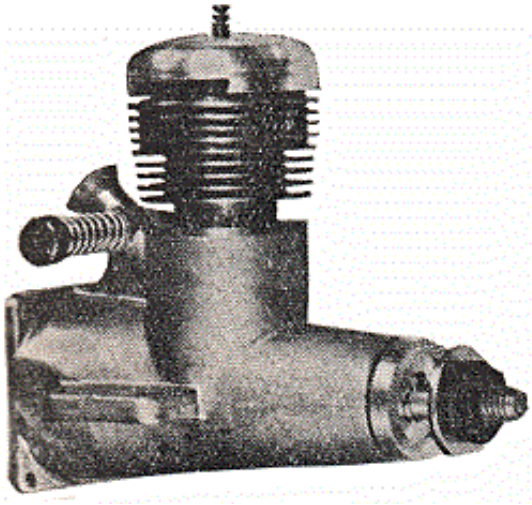
The engine is about 3 inches long which for its capacity makes fitting it in some models a bit difficult. To overcome this problem some modellers have cut the tank part off which makes the engine look a bit weird because the mounting lugs protrude well aft of the crankcase screw in back plate. The engine weighs 3.16 ozs and produces a modest output of .084 bhp at 14,000 rpm according to the test report published in the January 1961 Aeromodeller. It appears that the engine was produced for about a two years before being replaced with the Hustler. Fox must have made a lot 09s because even this side of the pond they do keep appearing even 57 years on!!

Information for the above was obtained, with kind permission, from an article written by Bill Mohrbacher President of Model Engine Collectors Association (MECA), which was originally published in the Engine Collectors Journal (ECJ). Information on MECA and ECJ is available on the internet.









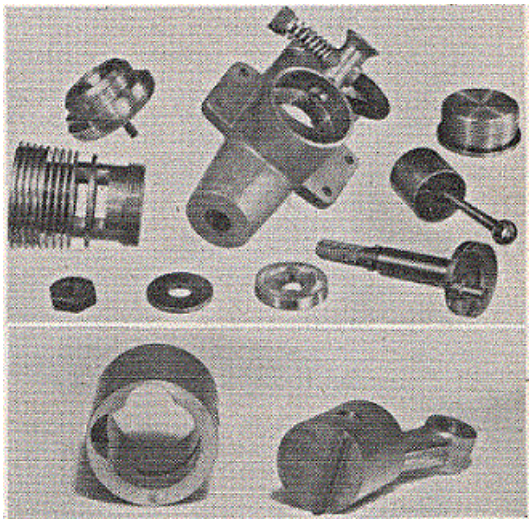
Fox .09 from Aero Modeller January 1961

Designed as a low-priced sports engine with the emphasis on being suitable for beginners, the Fox “09” is particularly interesting in employing sideport induction. As far as this country is concerned, sideport induction, characteristic of the original spark-ignition motors, has survived only in the Mills diesel (and that design dates back some fifteen years). In America, sideport induction has been almost unheard of as a production design since the famous Ohlsson series. The limitation, as far as high speed engines are concerned, is that with sideporting the intake port cannot be opened as early as desirable without also having excessive opening after top dead centre, causing blowback down the intake tube. Hence it has always been considered that a sideport arrangement cannot induct enough fuel for high speed running.
The Fox “09” certainly shows that as far as sheer running speed is concerned, the generalisation does not necessarily apply. It ran quite happily on load speeds beyond 16,000 r.p.m. and achieved its peak power output between 13,000 and 14,000 r.p.m. However, it must be borne in mind that the power output achieved was only moderate, due principally to the limitations imposed by the method of induction. But Duke Fox makes no claims for this to be a “performance” engine and in producing an engine which will start easily and run consistently and well he has achieved a technical success.
A particular, advantage resulting from the sideporting is a terrific amount of suction lift, so that priming by finger choking is no problem at all. Also the engine likes to be quite wet for starting and will run steadily over a whole range of needle settings, whilst four-stroking, with a positive transition to two-stroking when the mixture is finally leaned right out. The slightest movement of the needle past “minimum lean” setting cuts the Fox at once, so a logical running setting would be slightly on the rich side.
A marked disadvantage, is that the timing being perfectly symmetrical, the engine will start and run with

equal readiness in either direction. In fact, at one stage on test it was more often running backwards from a normal flick start than forwards. Whilst granting the point that this makes the Fox “09” an excellent “pusher” motor using standard propellers (looks well as a pusher too), it is equally aggravating and possibly confusing - not to be sure which way round the motor is running without “feeling the draught”. But we will completely endorse that this motor does start very easily and the plug is reasonably tong lasting, provided no more than 1.5 volts are applied to it for heating.

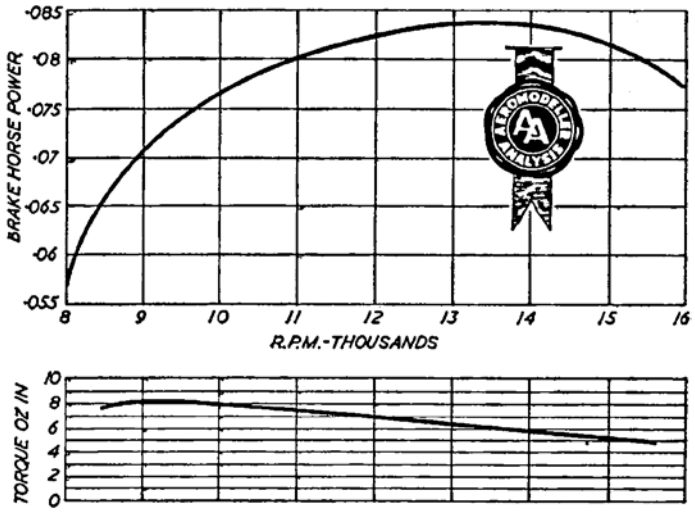
The Fox “09” was initially run through a series of tests on a 25 per % nitrated fuel, after finding a reluctance to two-stroke on standard Mercury No. 5. Later, however, a number of test runs were repeated with perfectly satifactory two-stroke running on non-doped (methanol-castor) fuel, and with no very marked fall off in performance. The fuel particularly specified for the American market is “Missile Mist” which has a nitromethane content. On our assessment, the compression ratio of the engine was suitable for firing undoped fuels, and the use of highly doped fuel for the majority of runs possibly aggravated the tendency to “fire back” and start in the reverse direction.

Constructionally, the Fox “09” features a “solid” tapered crankcase casting which is virtually unrelieved except for the beam mounting lugs and the lower cylinder housing. The rear of the crankcase forms an integral - tank by the fitting of a suitable cover plate and gasket, the normal back cover being screwed well inside the casting and approximately level with the back of the cylinder. The intake tube is cast in with the crankcase, opening into the cylinder housing. Resulting position bf the needle valve is most unfortunate right in the line of the exhaust and making any prolonged adjustment a most painful process.



Its cylinder is relatively massive for an American glow engine and is machined from mild steel and left soft.

The bore is finished by honing, the twin exhausts and twin transfer ports, both diametrically opposed are cut in the cylinder walls underneath each other and immediately above and below a thin flange. When the cylinder is screwed into the crankcase this flange seats against the crankcase casting, no gasket being employed. Cylinder threading is on the bottom portion of the cylinder. The remaining length of cylinder up to the flange thus forms an annular space with the crankcase casting, into which the intake opens, transfer being controlled by movement of the piston. The design relies on the lower cylinder threads themselves to seal this annular intake volume off from the crankcase. To this end a relatively deep thread is used and the threads are well formed. Certainly this is a simple solution to what could have been a difficult production problem and it appears to work quite satisfactorily.



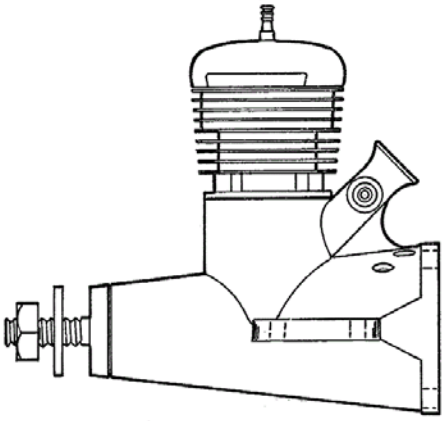
An extremely thin walled piston is mounted on the connecting rod with a ball and socket joint. It is hardened and ground to bore size and to achieve this and still leave the material inside ductile enough to peen over to trap the ball-end connecting rod, all surfaces of the piston other than the outside walls are copper plated.

Thus these surfaces do not harden during the hardening treatment. The connecting rod itself is machined and is extremely thin - only 1 1/8 in. diameter at the bottom end and tapering off towards the top ball end.

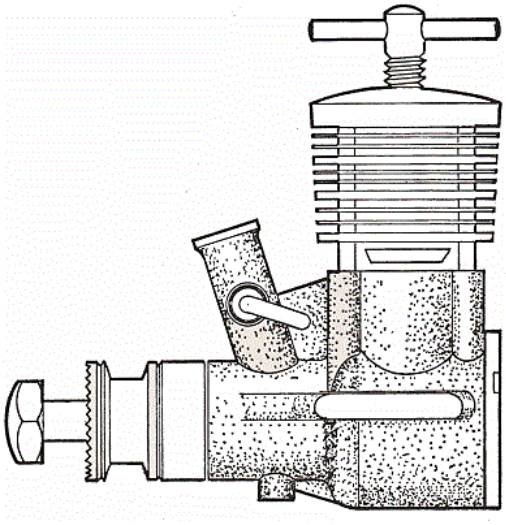
The crankshaft is also quite tiny, ¼ in. overall diameter stepping down at the front to a 3/16 in. diameter threaded length. It is quite substantially counterbalanced on the web and the whole shaft is hardened with journal surfaces and 1/8 in. diameter crankpin ground to finish. The shaft runs simply in a hole drilled and

reamed in the solid front section of the crankcase casting in terms of what can best be described as a "rattling good fit". Certainly there is enough play at the front of the bearing actually to see the clearance space, whilst examination of the shaft itself shows it to be running on two high spots, one at each end of the bearing.

The cylinder head is a light alloy machining which screws into a recessed portion in the top of the cylinder, incorporating an integral glow plug which is essentially a separate unit pressed into the head and then lightly peened to lock in. place. A burnt out element cal1s for a replacement head, although it would appear readily possible to adapt the head to take a standard glow plug, should this become necessary (e.g., for engines purchased in this country and failing a supply of replacement heads). It is rather surprising, in fact, that an integral element has been used in an engine of this size.



Summarising, a very clever design and a nicely made engine which, for its price, must be something quite exceptional in value in the States. We endorse its easy starting and good running characteristics, but it is rather a "lot of engine" for the power it delivers.



SPECIFICATION

Displacement: 1.639 cc (.099 cu. in.)
Bore: .530 in. Stroke: .453 in.
Bore/Stroke ratio: 1.17 Bare Weight: 3 ounces.
Max. B.H.P.: .084 B.H.P. at 14,000 r.p.m.
Max. Torque: 8 ounce-inches at 9,000 r.p.m.
Power rating: .051 B.H.P. per c.c.
Power/Weight ratio: .028 B.H.P. per ounce
Material specification:
Crankcase: Light alloy pressure die-casting. Cylinder: Mild steel.
Piston: Hardened steel.
Crankshaft: Hardened steel. Bearing: Plain. Con. rod:
Machined from steel (ball and socket little end)...
Head: Light alloy (incorporating glow plug as integral unit).
Manufacturers: Fox Manufacturing Co. Inc.
5305 Towson Avenue,
Fort Smith,
Arkansas,
U.S.A.

PROPELLER — R.P.M. FIGURES

diameter x pitch	*r.p.m.*
7 x 4 Frog nylon	10,000
6 x 4 Frog nylon	15,200 (14,500)P
8 x 4 Trucut	8,800
8 x 3 Trucut	9,400 (9,200)P
7 x 4 Trucut	10,800
7 x 3 Trucut	12,600 (12,000)P
6 x 4 Trucut	12,700
6 x 3 Trucut	13,400 (13,000)P

25 *per cent. nitromethane content in standard methanol: castor fuel*
P *straight methanol:castor fuel.*

Phil Smith remembered by John Ralph

Hi James , it is a while since I offered anything to Stick and Tissue and these days , when I do it is likely to be a " Blast from the past " . Old age etc. means I am unlikely to come up with anything new for you !! I still fly RC indoors and flying boats etc outdoors but the models were designed and built some time ago .

However , while rummaging through my hoard of old photos I came across some I took in the 1950's of Phil Smith at a Northan Heights Gala day . He was testing his Fairey Delta prior to it's introduction as a VERON kit . (See copy of the advert for it) . I sent the flying shot to The Model Aircraft Mag. I recall.

I thought this bit of nostalgia might be of interest?

The young lad at Phil's side is his son and we met up many years later at Middle Wallop in 1998 where I had chance to talk to both of them. Phil said he often wondered who had sent the photo to the Mag.. After asking Phil to pose for a photo holding my electric powered " Kestrel " I promised to send him copies of the photos you see here. I received a long letter of thanks from him later in which he described his time with Veron's.

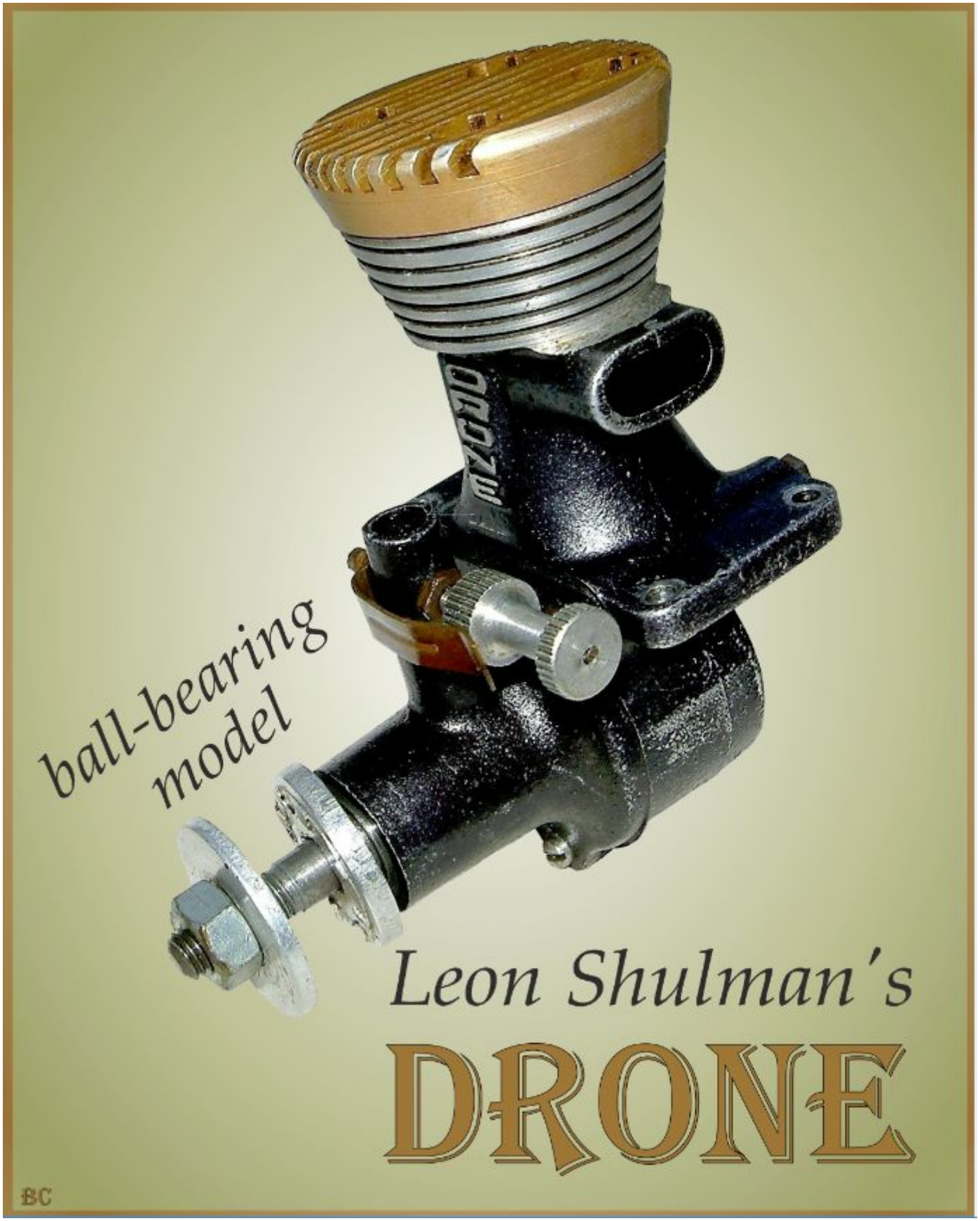
That's about it for now . By the way no one seems to have ever seen those small books which we asked about a while ago. A photo of one was also published in the "Nostalgia " section of the BMFA JOURNAL but no one has responded. I did copy Ron Moultons model plan for one of your members and he was pleased

Cheers for now ; keep up the good work I enjoy seeing what other modellers are up to, makes me feel a bit left out .


WG774
WG774


LEADING THE FIELD
VERON
THE MOST POPULAR KITS IN THE WORLD


Fairey Delta
F.D.2.
for Ducted Fan Propulsion
the finest and most progressive kit ever produced IN THE WORLD!
Thousands have witnessed the proved efficiency of this fantastic 39 inch Span model of Britain's 1,132 m.p.h. World Record Holder, incorporating new improved "IMP" system IMPELLERS and the latest PRE-BONDED BALSA LAMINATION for strength and rigidity in the tubular duct. For 1 to 1·49 c.c. Diesels (·049 to ·099 cu. ins.).
Kit includes: First Grade die cut formers and ribs; turned cone and nose fairings; plastic cockpit cover; authentic transfers; hand-graded strip; selected sheet balsa, etc.
IMPROVED "IMP" SYSTEM IMPELLERS
(supplied separately)
100% efficiency. Safe-bonded, helically pitched fibre blades (with pulleys). Range of three:
Type B—1 c.c. ("Bee," etc., ·061 cu. ins.)
Type C—Racing 1 c.c. ("A.M. 10," etc., ·061 to ·074 cu. ins.)
Type D—1·49 c.c. to 2 c.c. ("Elfin," etc., ·099 to ·125 cu. ins.)



From Brian

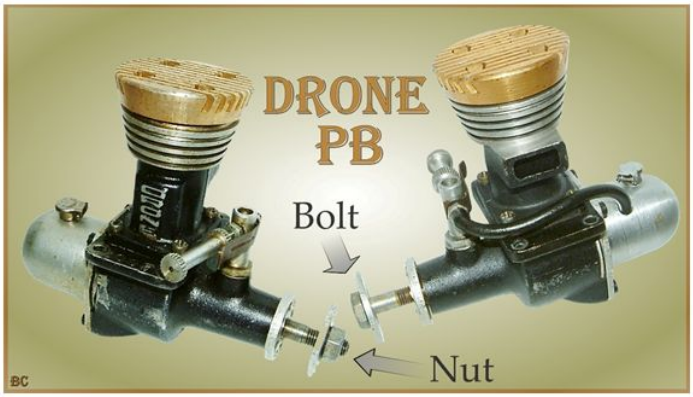
There are quite a few interesting old engines that are good practical choices for « authentic » Old Timer flying. Particularly old English diesels of course.

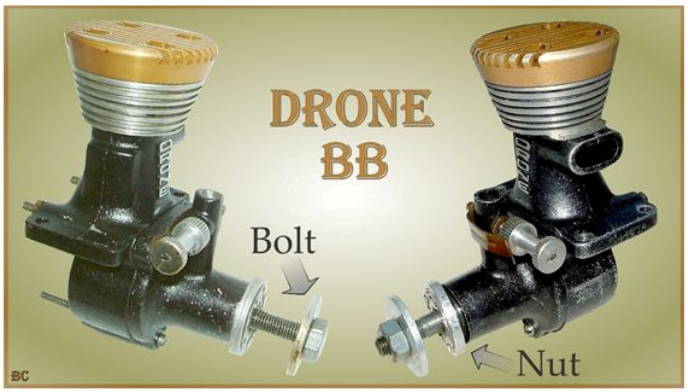
But one of the best is Leon Shulman's American Drone fixed compression diesel.

These were first produced as plain bearing engines, in 1947, followed by a ball-bearing version in 1948.

Engine collectors may be interested in the chronology of a couple of variations that I've never seen discussed anywhere, and that the experts appear to have missed.

As I mentioned, the plain bearing engine was produced first. Then, the following year, the ball-bearing version was released and, for a while, the two versions were produced in parallel.
Finally, the plain bearing engine was discontinued, and late Drone production was, in fact, only the ball-bearing version.
This sequence has an important impact on the remaining Drone engine population, because during the period in which the two versions were being produced together, the propeller attachment system was changed from a conventional prop nut, to a prop bolt. The various versions are shown in the two photos below.





Thus, if we relate this change to the production sequence of the two versions, it explains why nearly all the plain bearing engines have a prop nut, but a few very late ones have a bolt, and why the ball-bearing engines are the opposite. They nearly all have a prop bolt, but a few very early ones have a nut.

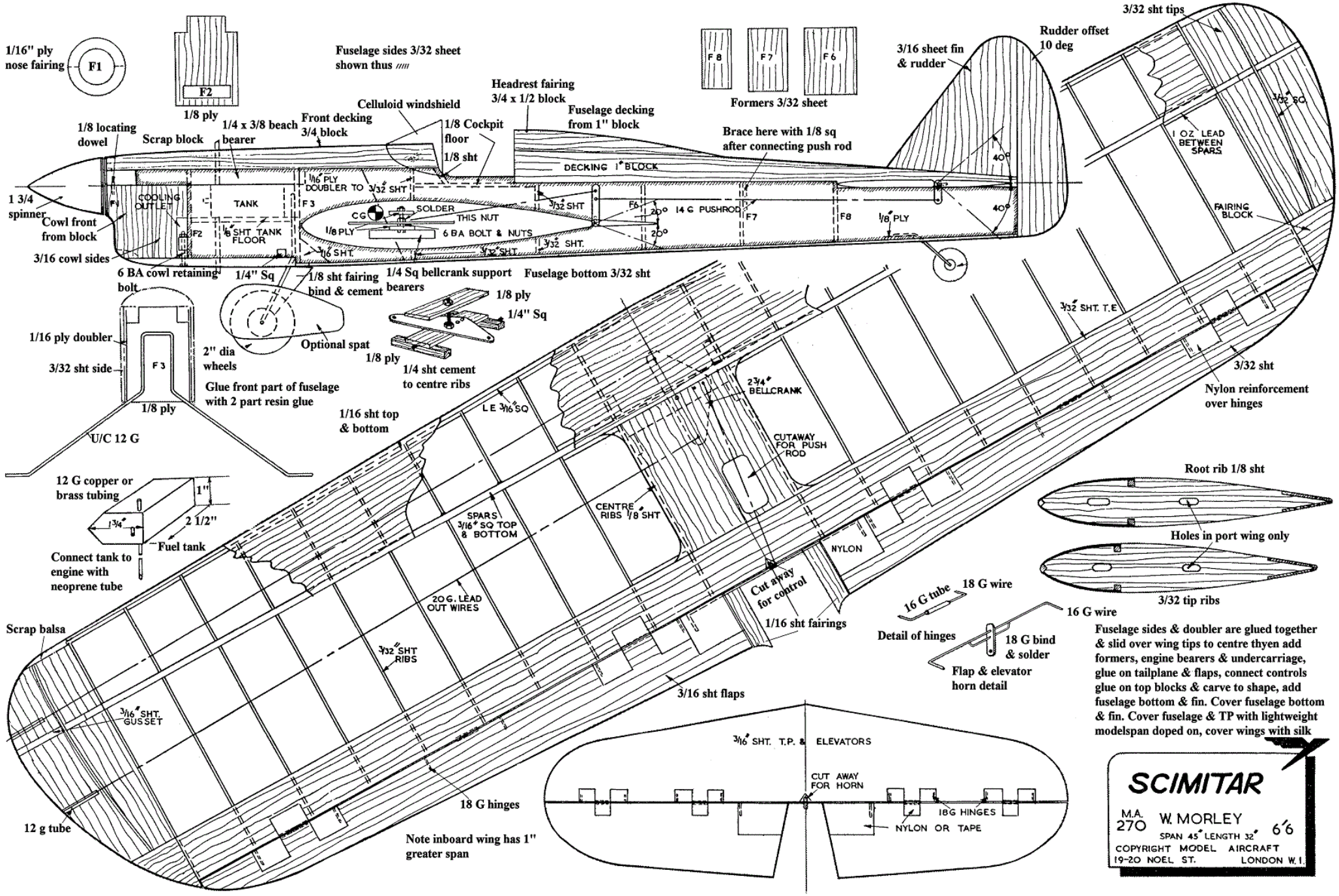
How exciting isn't it... OK, maybe I'm the only person interested, but it highlights and explains engine differences that appear to have gone unnoticed.
The bottom line is that the ball-bearing Drone is an excellent and practical engine.
I've done a little video (last summer), in an attempt to show some of its qualities. It's here:
https://www.youtube.com/watch?v=VvLl8aDObKg

North Cotswolds MAC August event from Gray

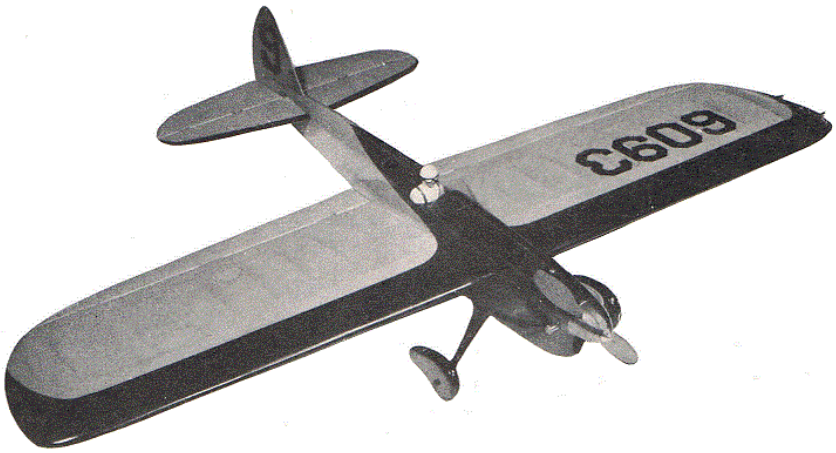
I'm pleased to announce that the North Cotswold MAC's Fly For Fun 2019 event will be held on Aug 10th and 11th at Far Heath Farm, Moreton-in-Marsh. This will be a special one, as we will be celebrating the club's 70th anniversary.

We'll be holding two special events alongside our regular programme, with informal judging and prizes - on the Saturday for Vintage and Nostalgia models and on the Sunday, 21st century designs only!

We'd be very grateful if you could give this an early mention in S&T when you can. I'll send further details after the Xmas mayhem has subsided.



Fuselage sides & doubler are glued together & slid over wing tips to centre thyen add formers, engine bearers & undercarriage, glue on tailplane & flaps, connect controls glue on top blocks & carve to shape, add fuselage bottom & fin. Cover fuselage bottom & fin. Cover fuselage & TP with lightweight modelspan doped on, cover wings with silk



Scimitar a stunt model for 2.5-3.5 cc engines. Designed by Bill Morley to "slice" its way through the new stunt schedule.
From Model Aircraft January 1958

In the 1954 Gold Trophy I flew a large Fox 35 powered model, and in the same contest the following year I used a model powered by an AM.25. While both of these machines were excellent in their own ways, they each had their dis advantages. The smaller model hadn't the all-weather contest performance of the larger job, and the latter proved somewhat cumbersome to transport.

For these reasons I decided to design, for use in 1956, a medium-sized model around the Fox 19. Requirements for the design were good looks, coupled with the ability to perform such manoeuvres as square eights, hour glasses, triangles, etc. The result was the Scimitar.

On its test flight, it showed remarkable ability to "square off" and in fact its potential performance was limited only by the pilot's prowess with the handle. In the Gold Trophy of 1956 the model gained the highest appearance points of the whole entry, but was unfortunately wrecked when the up line broke in a wingover. It has since been repaired and is now performing square loops, bunts and eights with great ease and regularity.

Construction is very simple. The wing ribs are made by sandwiching blanks between root and tip rib templates, then carving and sanding to shape. Note that there is slight taper on the leading edge, and that the inboard wing panel has 1 in. greater span than the outboard.

Before you assemble the wing, all spars will have to be spliced, also make sure these splices are staggered when the wing is assembled.

The fuselage is constructed by first cementing together the sides and doublers, and sliding these over the wingtips to the correct position on the wing. Note the small cut-outs for the flap-horn. - This component is placed in position as the sides are being slid into place. The rest of the fuselage is assembled once the sides are cemented in place, after which the small cut-outs are glued back into the sides, and the flaps are assembled on to the wing. Before finally cementing on the top fuselage decking, limit the control movement to that shown on the plan by firmly cementing in stops restricting the travel of the flap-horn.

The original model was silk covered, and this is well worth doing on any model of 2.5 c.c. and over. The spats are made of fibreglass with small metal inserts soldered to the axles. These are, of course, optional and in no way affect the performance. All other pertinent building instructions are shown on the plan.

The total weight should come out at about 32 oz. and if the model does not balance at the position shown, add lead to the appropriate end until it does.

Fly on 57 ft. Light Laystrate or 6o ft. 30 S.W.G piano wire lines and make sure the ends are securely formed and the lines free from rust spots and kinks, or you are likely to have a rebuilding job on hand!

The Scimitar is the ideal model for the difficult manoeuvres in the 1958 S.MAE Stunt Schedule, so build yours now and start practising.

From Mark Barnfield *(as a result of seeing his models at the flying site. JP)*

The main site address is:
https://www.flitetest.com/

The page from which you can access all the free plans is here:
https://www.flitetest.com/articles#/textSearch=FTScratchBuild

The plans for the models I've built and flown at TH are the Simple Cub and the Bloody Wonder. The plans are here:
Simple Cub:
http://s3.amazonaws.com/plans.flitetest.com/FT_Simple_Cub_v1.0_AIO.pdf

Bloody Wonder:
https://s3.amazonaws.com/plans.flitetest.com/stonekap/FT-BloodyWonder-TILED-PLANS.pdf

I'm currently building a Sportster, the plans are here:
https://s3.amazonaws.com/plans.flitetest.com/stonekap/FT%20Sportster%20v1.1%20AIO.pdf

I've also included some photos of my successful foam board builds so far.

I thought you might like to see the finished model.
Electrics:
- Turnigy Park 450 1200kV motor.

- Turnigy Plush 30A ESC.
- Battery 3S 2200mAh (this JUST fits into the battery space).
- 8x6 prop.
- The above set up delivers 160W. It may be slightly underpowered as the finished model has an AUW of around 900g. We'll see on the maiden flight.
- Servos; 9g Turnigy TG9e
- Receiver Orange R615X 6 channel (5 channels used, as I'm using 2 channels to give a flaperon set up).

Airframe:
- 5mm foam board from Hobbycraft. I used four A1 sheets which cost £10.
- U/C made from 3mm Al sheet. (Amazon).
- Painted with Kira acrylic spray paint from Amazon.
- Trimmed with Fablon from Hobbycraft.
- Pin stripes on a roll from Balsa Cabin.
- 1000mm wingspan.

I think that's about it. I have included a photo below of the foam board models I've built to date, two of which you've seen fly.

Bill Watson’s Balloon Adventure From Dave Gee

Here is an item from our club newsletter for inclusion if you wish. "OFFC" is the Old Farts Flying Club, a sub-group of the Black Sheep Squadron model club. OFFC is composed of retired modelers who meet Wednesday mornings for round-table and indoor flying.

Bill Watson is a well-known and expert modeler and fullscale aviation person. He produces exquisite flying models and does quite well at local competitions.

Bill Watson's Balloon Adventure

Attendees at a recent OFFC meeting were treated to a tale of unparalleled lighter-than-air skill and daring. Bill brought in the

gondola of his latest hot-air balloon, along with a report of the flight.

The hardware consisted of a lightweight shallow balsa box about 16 inches square and 4 inches high. It contained a tiny movie camera, along with an RC system to pan the vidcam and control the balloon itself. This was the product of previous developments, successes, and failures. It had been improved and modified from earlier attempts to lift a camera and then retrieve it after the flight. This latest version has large moveable control surfaces on the sides, which Bill said had proven ineffective for anything but waving at the ground crew
during ascent.

Bill's lifting bag was also a development of previous craft. It uses hot air, which is heated by the sun and not any onboard mechanism! Look at the size of the envelope, as compared to humans. With this power source, the balloon will fly all day unless told otherwise.

The descent was initiated by a string which opened the top of the bag and released the hot air. At least that was the plan, but gremlins snuck onboard and loused-up the works. Thus, despite triggering the mechanism, Bill watched as the balloon continued to gain altitude and eventually outdistanced the pursuing ground crew. It went out of sight as it crossed a mountain range.

Bill had his name and info on the payload, which could have been inconvenient if there was a UFO report from the nearby NASA test-flight facility, but in fact proved rather useful. A group of desert campers found the craft and contacted Bill. Rather than having to drive across the state, the fellow who rescued the balloon lived in Reseda, just minutes from the Grassy Knoll Flying field!

A suitable reward was paid, and Bill finally got to see the spectacular footage from the onboard camera. He said that this project has stretched over many years and would likely continue with further development in the future. The expensive-looking payload-box was equipped with mildly-obsolete electronic components, so that the financial outlay was much less than you'd expect. Bill said he didn't need fancy servos to do the job on this craft.

The OFFC guys were amazed at this casually-presented update, and we all are eager to hear stories of more balloon adventures.

FLITEHOOK

Indoor Free Flight Meeting

West Totton Centre, Hazel Farm Road, Totton, Southampton, SO40 8WU

Contact: Tel. 02380 861541

E-mail flitehook@talktalk.net

Café on Site

Flyers £8 Juniors & Spectators Free Flyers must be BMFA Members Sundays 10.00a.m. to 4.00p.m.

2018

30th December 2018

2019

13th January 2019

10th February 2019

10th March 2019

14th April 2019

Waltham Chase Aeromodellers

INDOOR F/F MEETING

Waltham Chase Aeromodellers, in association with South Hants Indoor Flyers, are pleased to announce the continuation of the Indoor F/F Meetings held at the Main Hall at **Wickham Community Centre, Mill Lane, Wickham, Hants PO17 5AL.** These meetings will be held on the following dates:

Tuesday, 2nd. October 2018
Tuesday, 6th. November 2018
Tuesday, 4th. December 2018
Tuesday, 8th. January 2019
Tuesday, 5th. February 2019
Tuesday, 5th. March 2019
Tuesday, 2nd. April 2019
Tuesday, 7th. May 2019
Tuesday, 4th. June 2019
Tuesday, 2nd. July 2019

All meetings will run from 7.00 p.m. to 10.00 p.m. The Main Hall at Wickham Community Centre is particularly suitable for indoor free flight models of all types, with a ceiling free of obstructions. Tables and chairs will be available in the hall, the organisers are always grateful for assistance with moving furniture. A hot drinks machine is available on site.

Admission to the meetings will be £5 for fliers and £1 for spectators, whilst accompanied children will be admitted free. Junior fliers will be charged as adult spectators. Fliers will be required to show proof of insurance.

No R/C models may be flown at these events.

Flitehook, who carry a large stock of indoor models and accessories, will attend many of the meetings.

Waltham Chase Aeromodellers look forward to welcoming all indoor F/F fliers to these events.

For further details please contact:

Alan Wallington, "Wrenbeck", Bull Lane, Waltham Chase, Southampton, Hants.
(Tel. 01489 895157)

(e-mail: alan@wcaero.co.uk)

or see our web site: www.wcaero.co.uk

KK Scorpion - 44" cabin model

Ref: ot-kkscop

Parts Set for the attractive Keil Kraft Scorpion. Includes all the shaped balsa and plywood parts required to build the basic airframe, including bulkheads, formers, wing ribs, shaped trailing edge for wings and tail. Shaped outlines for fin and rudder, sub fin, cowl cheek sides, dihedral braces, gussets, plus many smaller items.

Builder to add their own stripwood and covering.

Full size plan included.

KK Scorpion Specification
Wingspan - 44 inches
Suitable for 1.3 to 2.5cc engines or conversion

RRP: £55.00 Inc VAT
Price: £55.00 Inc VAT
60.50 USD | 65.11 EUR

Super Scorpion - 66" cabin model Parts Set

Ref: ot-kksupersco

Parts Set for the attractive Keil Kraft derived Super Scorpion. Includes all the shaped balsa and plywood parts required to build the basic airframe, including bulkheads, formers, wing ribs, shaped trailing edge for wings and tail. Shaped outlines for fin and rudder, sub fin, cowl cheek sides, dihedral braces, gussets, plus many smaller items. ncludes plan, which shows RC Assist conversion. Builder to add their own stripwood and covering.

KK Super Scorpion Specification

Wingspan - 66 inches
Suitable for 3.5cc engines or conversions
Price: £75.00 Inc VAT
82.50 USD | 88.79 EUR

Air Trails Sportster Cabin Model

Ref: ot-airtrsport

Air Trails Sportster by Ben Shereshaw from Air Trails 1939 - 46in span Cabin model. Parts Set includes all shaped balsa and plywood parts to complete the airframe, such as fuselage sheeting, bulkheads, formers, wing ribs, tip shapes for wing and tail/fin, wing joiner boxes, plus many smaller parts. Includes full size plan

Price: £55.00 Inc VAT
60.50 USD | 65.11 EUR

Linnet Parts Set 43" span

Ref: ot-linnpk

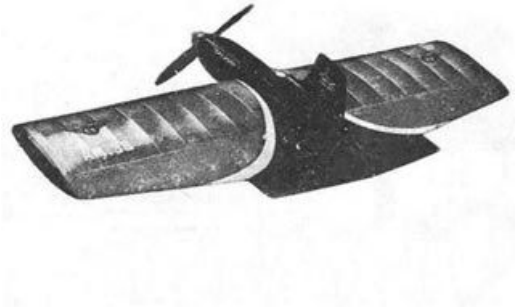
Quirky looking design by GR Woollett published in Aeromodeller January 1954
43in span suits 1.3cc size motors. Tricycle undercarriage and low wing, looks semi-scale and makes a pleasant change from the usual high wing cabin job.

Part Set includes all the laser cut balsa and plywood parts, such as cowl cheeks, fuselage sheet, formers, bulkhead, LG mount, shaped gussets, fin outlines, wing and tailplane tips, wing ribs, sub fin, wing seat, plus many smaller items.

Parts fit original Aeromodeller plan which is not included - shown for reference only. Builder to supply stripwood and covering to complete basic airframe.

Mercury Toreador CL Parts Set

Ref: ot-kktore



Parts Set for the **Mercury Toreador** model. Suitable for Stunt or Combat. Laser cut parts will save you hours of tedious cutting and include fuselage sides, fuselage top & bottom in one piece 1/2" balsa, bulkheads, formers, fin/rudder, wing tip shapes, wing ribs with additional tab to allow the symetrical wing to be built on a flat board without packing each rib, bellcrank mount, spinner ring, shaped trailing edge and elevator.

Also includes **full size plan, and canopy, vac-formed in clear plastic.**

SpecificationsWingspan - 36 inches, weight around 20 oz and suitable for 2.5 to 3.5cc engines (AM35 shown on plan). Builder to supply small amount of stripwood to complete.

Price: £50.00 Inc VAT
55.00 **USD** | 59.19 **EUR**

Regards,
Leon Cole
Belair Kits
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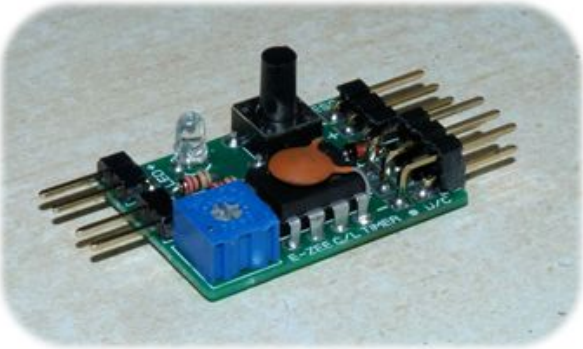
www.belairkits.com
Follow us on Facebook https://www.facebook.com/pages/Belair-Kits/1448177428736984

Dens Model Supplies

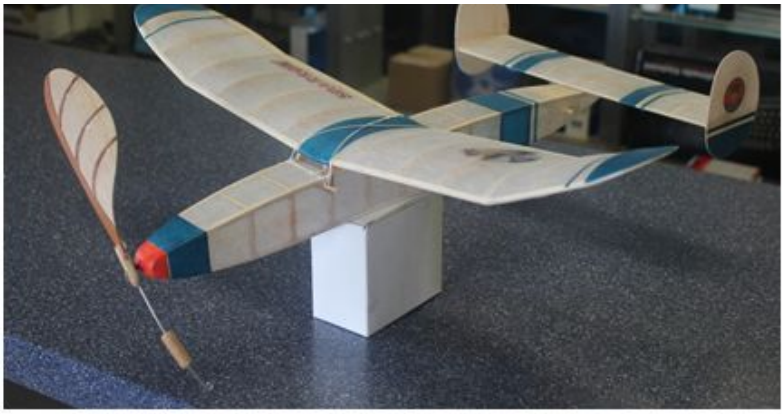
Traditional CL Kits including the ACE + Plug & Play Electric CL Starter Kit….just add glue and a battery !!

Tinplate CL tanks….Bellcranks, Lines, Handles, Cloth Hinge Tape, Leadouts etc

Cox Engines & Spares



Electronic Timers for CL & FF



Laser Cut - High Quality FF & RC Kits