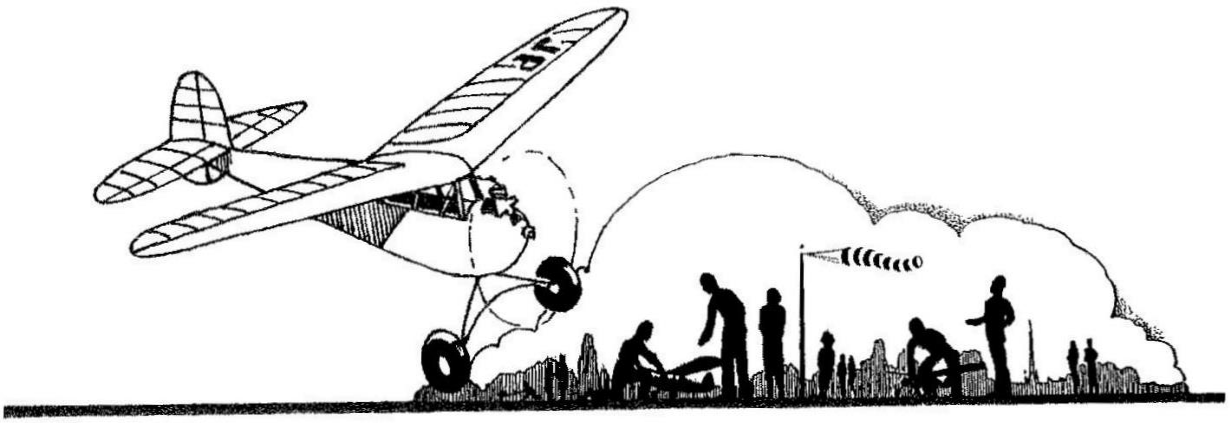
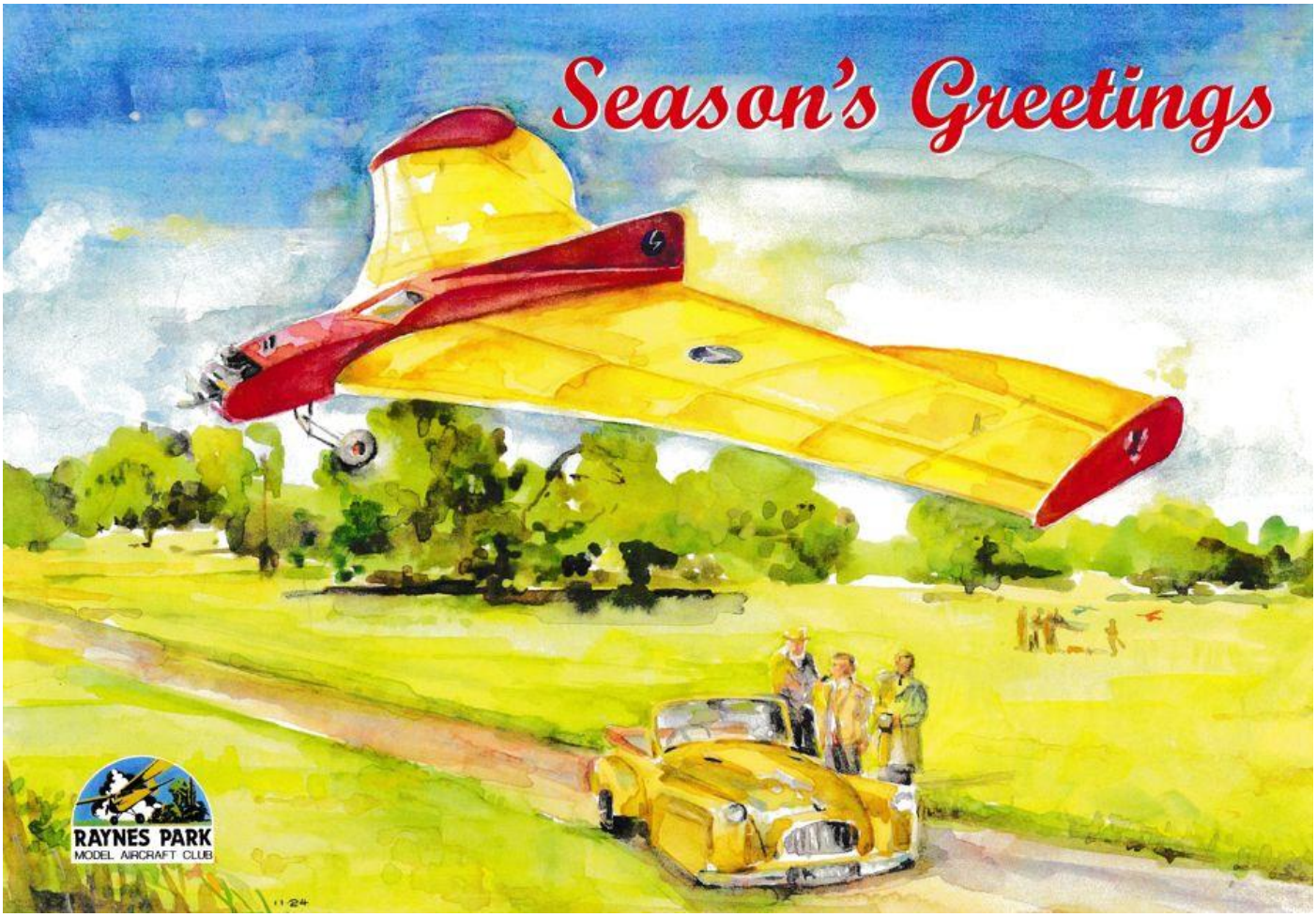


Sticks and Tissue No 182

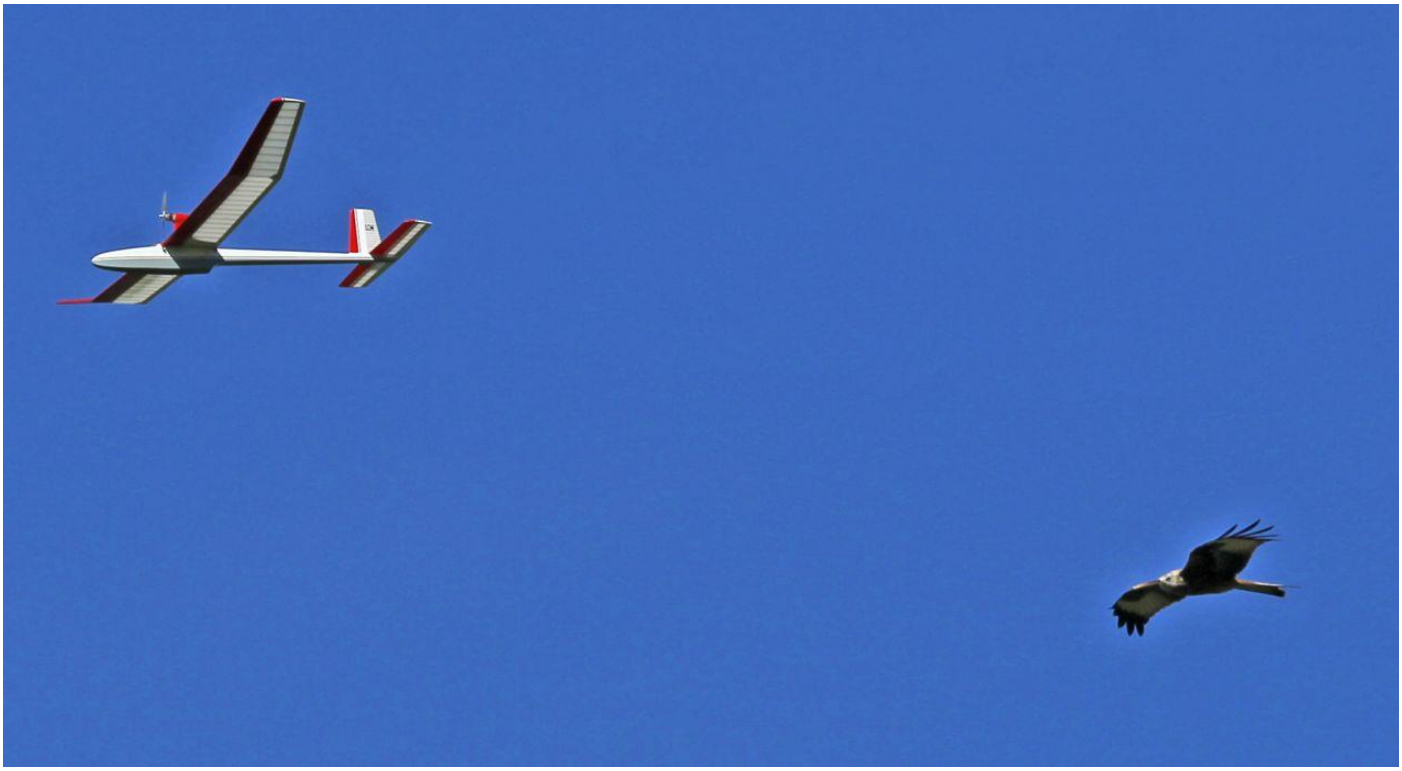
If you can contribute any articles, wish to make your point of view known etc please send to or phone 01929288879 JamesIParry@talktalk.net The content does not follow any logical order or set out, it's "as I put it in and receive". Thanks to Mark Venter back issues are available for download from http://sticksandtissue.yolasite.com/ Writings and opinions expressed are the opinion of the writer but not necessarily the compiler/publisher of Sticks and Tissue.



Mike Cummings festive painting of Performance Kits Ion c1957 designed by O.F.W. Fisher

Christmas card from Peter Scott

From Peter Renggli. Antik Modeliflugtag beim MV Bern 2, September 2023.
Photos and copyright Kusi Brönnimann Photography

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E.DALLENBACH
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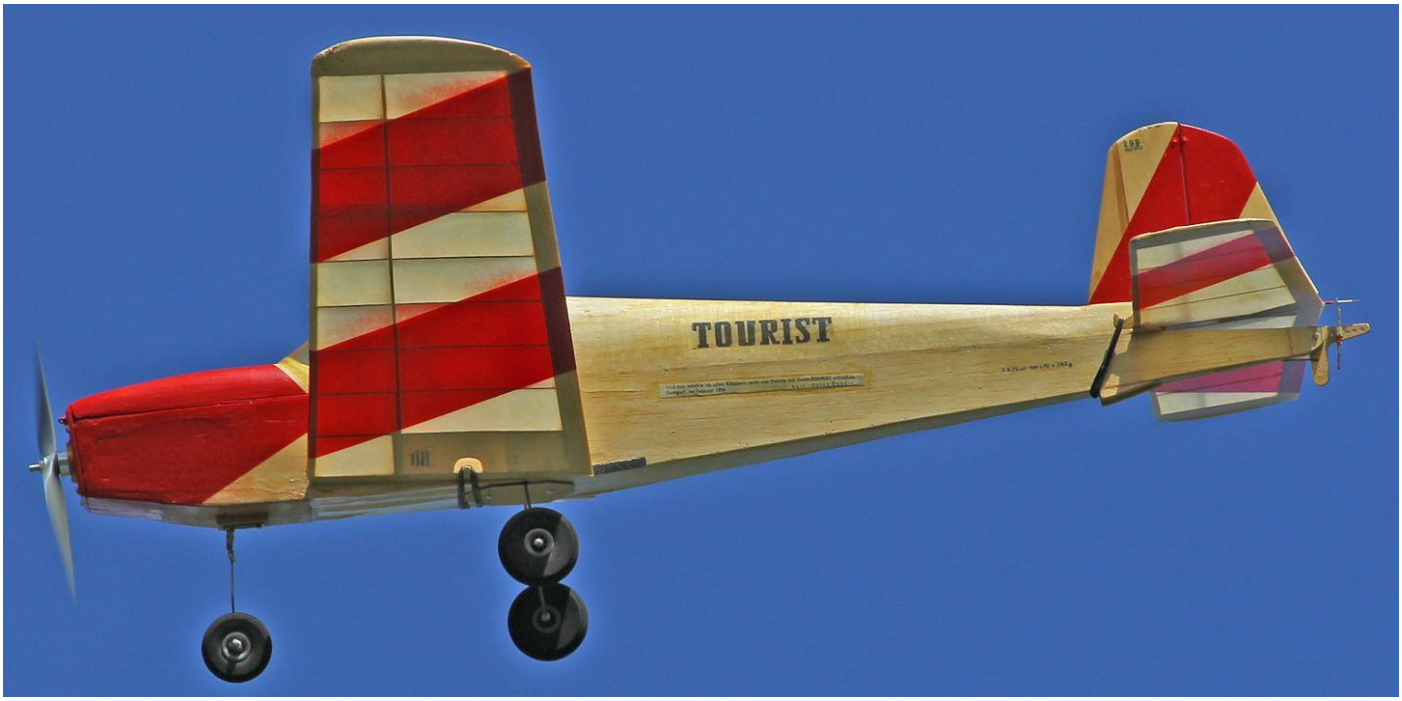
TOURIST


TOURIST


D-E
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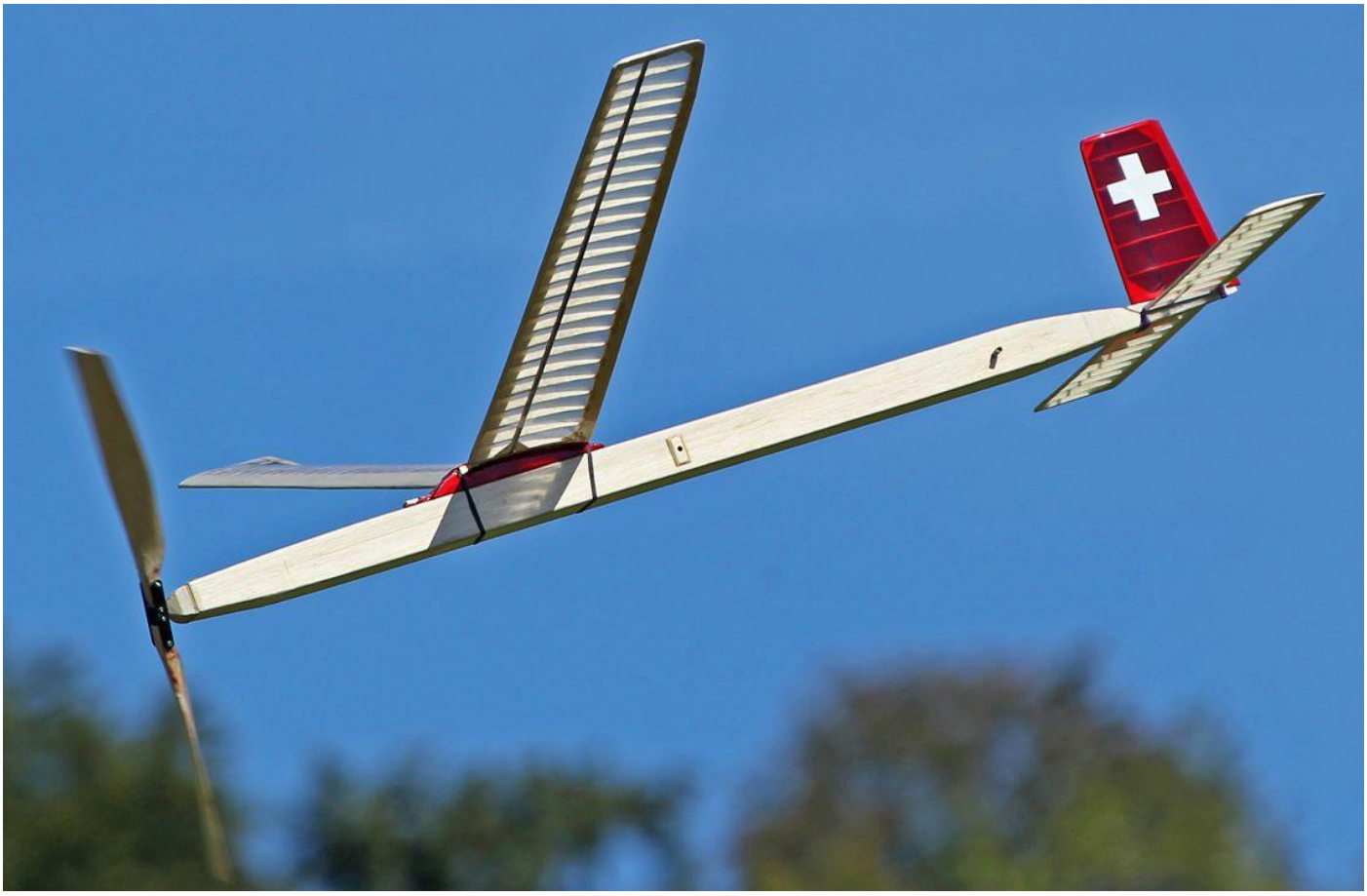


Kaiser
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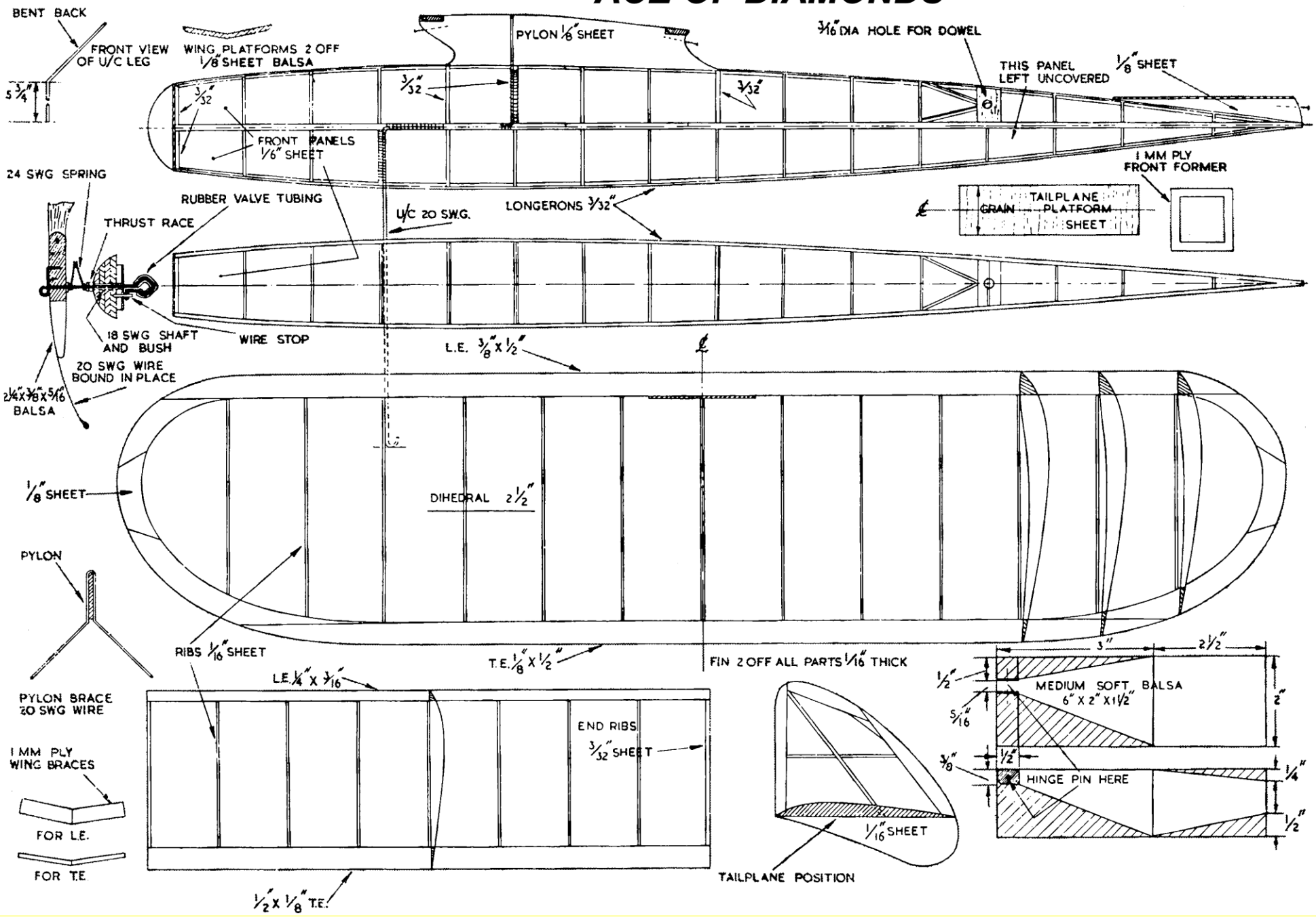
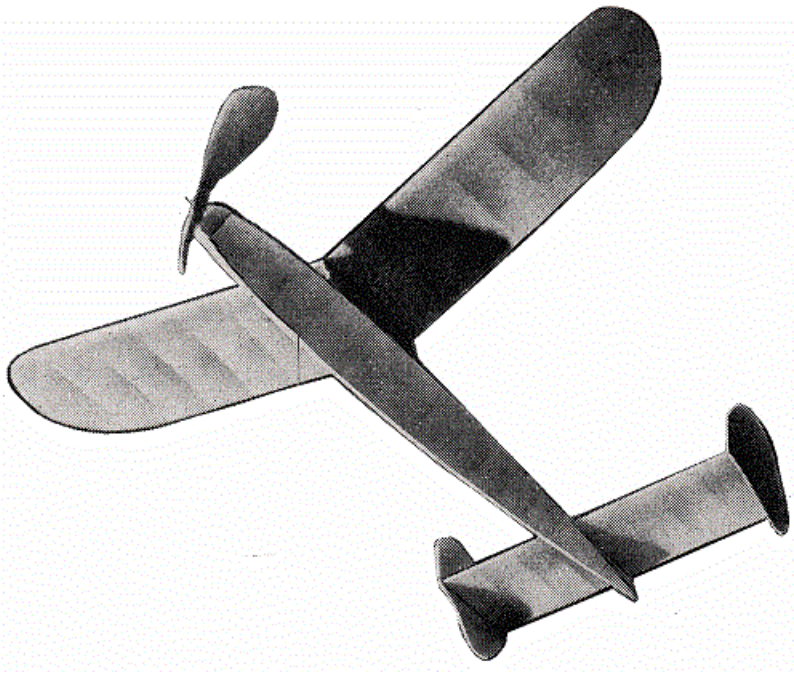
Photography

ACE OF DIAMONDS



Ace of diamonds by R A Twomey from Model Aircrafy July 1950



The aim in designing the “Ace of Diamonds” was to produce a rubber-driven lightweight that was different in appearance, without, if possible, any loss in performance. The results have been very satisfactory, the model being capable of making a vertical climb—if such a method of ascension be your choice. It is not an ultra-lightweight and is, in fact, pretty tough.

The “ Ace” is very versatile and the prototype has also been fitted with a Jetex 200 unit by way of variation. This change is easily effected by the removal of the rubber motor and the substitution of a glider nose-block for the propeller assembly. The Jetex unit is mounted forward over the mainplane, the centre section of which is protected by a piece of asbestos paper. This Jetez version flies very well indeed and holds the Ampleforth College M.A.C. record for this typeS with a flight of 5 min. 52 secs. o.o.s. The rubber-driven version also holds a club record in the rubber category, clocking 9 min. 30 sec. before going o.o.s. vertically overhead.

The construction of the “Ace of Diamonds” is so simple that building instructions are hardly necessary. The fuselage is made in the usual way on the plan and the only point requiring special mention is that the positions of the 3/32 in. square spacers should be noted, most of the spacers being 1/16 in. square. The wing platform is braced with 20-s.w.g. piano wire shaped as shown on the plan. .

As with any duration model, particular attention should be given to the propeller. This is carved from a balsa block 6 in. x 2 in. x 1 1/2 in., and should be left fairly thick until trimming tests have been carried out. If the model tends to be nose heavy the propellri can then be sanded to a thinner section to obtain the correct balance. Make sure that there is no vibratiorion in the whole propeller assembly—this is very important. Trim for right-hand glide and climb.

List of materials required :—

4 lengths 3/32 in. x 3/32 in. x 36 in.
3 lengths of 1/16 in x 1/16 x 36 in.
1 length ½ x 1/8 x 36 in.
1 length ½ x 3/8 x 36 in.
1 length 1/16 x 3 in x 18 in
(All the above hard balsa)
Block (medium soft) balsa 6 in. x 2 in. X 1 ½ in
Small piece 1 mm. ply.
20-s.w.g. piano wire.

From Stephen Winkworth

We are recovering from another excessively hot summer: too hot to venture out except in the early morning or late at night - worse still, too hot for the workshop to be habitable.

However, I have managed to nearly complete this weird machine: flying tests in the next few days, thunderstorms permitting! It is based on a tiny plan in a rather precious document of which I only have a photocopy: Chapter 13 of 'Home Mechanics' - Model Aeroplanes by V.E. Johnson, M.A. (no less!); publication date unknown, but, from the contents, certainly pre-war, possibly even pre First World War.

Balsa wood was unknown to Johnson, but he knew that full-sized aeroplanes depended for their structural integrity on wire-braced kingposts, usually for the wings, but why not for the rather stick-like fuselage. He gives details of how to fashion this component from 'a solid rod of white wood, 1/2 square in section at the centre, and tapering to 1/4 inch square at the ends. The central mast can be made from two steel hat-pins cut down to 4 inches in length.'

The overall shape of the fuselage is a 'T': did this precede the rather more elegant 'A' frame models, such as the one on display in the Science Museum (which has solid wings, by the way)? Anyway, as in A-frame pushers, there were twin propellers at the rear end. He does seem to be writing at a period when 'model aeroplaning' was an established hobby: indeed he is quite lyrical about 'the progress that has been made in the art - extraordinary as regards distance, duration, and stability. The pastime is healthy, good for the body, providing plenty of exercise, which can be taken as violently or as leisurely as one pleases; and being essentially of a scientific character, it also furnishes that necessary mental stimulus without which no hobby can be entirely wholesome, or, in the end, even agreeable.'

It appears that the propellers ("which may be either bentwood or carved") can actually be bought 'from any good dealer in model accessories', and here one has a glimpse of a whole nascent hobby trade. He mentions fastening the wooden fuselage stick to the cross-piece with 'a couple of brads: assorted packets cost about 5d per oz.' There is much use of 'strips of the thinnest "tin" (sheet iron) procurable - the metal can often be obtained from old penny toys'.

Now, I have not tried to produce a faithful, museum-quality reproduction of the Johnson machine: I just wanted to retain as much of the flavor of these very early model aircraft as possible, while taking advantage of recent technology so as to make testing and flying relatively painless.

This brings me to the choice of power systems and the not unrelated question of guidance. One route I could have taken (perhaps a more obvious one) would have been to use two pusher electric motors, with independently variable speeds to effect steering. Instead I have chosen a single motor, and in place of the twin outrigger props, a couple of pivoted fins (in the shape of half propellers), linked in such a way that only the fin on the INSIDE of a turn moves. I used this system on the wingtip rudders of my model of the solar powered Easy Riser, and was impressed by its effectiveness, as it works like a drag plate on the inside of the turn. It is relatively easy to set up, and means you exert force on the appropriate rudder by pulling against a light spring, so you only need a single thread, rather than twin cables or a heavy pushrod.

It looks pleasingly weird too. Of course these early flying machines are totally devoid of vertical fins, the importance of which had yet to be appreciated. (You don't see many birds with fins either, though I know of at least one prehistoric flyer which sported a fin-like structure at the end of a long flexible tail.)

The machines in question derive their stability in the yaw axis from propeller effect. (Just how this works is not totally clear: but a curious example - at about the largest size difference that can be imagined! - is to be

found in Jack Northrop's giant flying wing bombers, the YB35 and 49. The YB35 used pusher propellers, and had no vertical surfaces whatever; but when they came to build the jet-powered YB49, they found that "much to Jack Northrop and his engineers' dislike", four small vertical fins had to be added for stability.)

The Johnson machine had single-surface wings and foreplane, covered in 'Bragg-Smith proofed silk', sewn to the frames. He obligingly gives an address for 'G.P. Bragg-Smith, at 44 Caithness Road, Mitcham, Surrey' and my AZ shows that such a road still exists, a short bicycle ride from Mitcham Common, where a good deal of early 'model aeroplaning' took place. Were I a younger man, and still living in south London, I would certainly visit No 44 , and maybe suggest a modest blue plaque recording this pioneer. There was a Peter Bragg, I remember, who used to fly some of the earliest electric models on Epsom Downs… and maybe his grandfather - but no, that way madness lies: back to what passes for reality in my project.

The model is shown in several different guises: monoplane or biplane, wheeled or hydro. The foreplane, Johnson suggests, may be constructed from 'a specially tempered steel wire, 18 and 20 gauge, which opens out straight from the coil, the price being 8d per coil.' I tried making one out of wire, thinking it would remind me of a rather successful little catapult glider I owned as a boy, which I used to fly in the Galleria of Milan, (to the annoyance of the people sitting at cafe tables), among other, more conventional flying sites. That had wire flying surfaces, covered in cotton, and was pretty well indestructible, in an era before plastics came along and ruined everything.

But maybe my skills with the soldering iron leave something to be desired, as I found it almost impossible to construct. So, to that extent I have compromised: and perhaps the authenticity has had to take a back seat. But Johnson advises 'white wood' for the wings, so I used dowel for the l.e. and, I have to confess, balsa trailing edge stock for the t.e. Nor have I sewn the fabric to the framework: sorry about that. But dimensions have been kept close to the original (I made the foreplane a little larger, as the one shown, at 8" by 1 1/4", looked really wee, despite that long moment arm).

I kept the nose wheel structure pretty close to the sketch in the book, and found it annoyingly fiddly to make, though he assures the reader that 'all the best designers use it for small models'. The rear wheels are shown bound to the l.e. and t.e. of the wings, and would have caused a great deal of problems if made as shown, so I cheated by using some plug-in wire u/c legs cannibalized from another model.

Virtually everything is attached to the motor stick, using his favourite brads and glue, or strips of tin wrapped round the stick and pinned in place, to which he solders all manner of parts. Not a good idea, I felt, so my bits and pieces are almost all bound with thread and glued, so that in the end I felt I was making some kind of antiquated fishing rod.

Next thrilling installment: will it fly?

Photos of the 'Johnson machine'

of thin aluminium foil. The straight edge of each is turned over about $\frac{3}{16}$ inch, so as to double the thickness and stiffen it. A number of small holes are then made with a needle or fine punch just beyond this, and the aluminium "sewn" or threaded on to the ends aa^1 and ee^1, thin, soft iron floral wire being used for the purpose. These stabilizers are not essential, as the machine will fly very well without them, but they do give the model additional lateral stability. They should be upturned, so as to make an angle of 35 to 40 degrees with the horizontal.

Instead of building the main planes as described above, the reader can, if he chooses, build them of steel wire throughout—struts (save the two central ones) included.

A specially tempered steel wire (18 and 20 gauge, which opens out straight from the coil) can be obtained from models accessory dealers, the price (including postage) being 8d. per coil; 20 gauge is quite thick enough. Such planes, if well made, not only offer less resistance, but are almost unbreakable. They will be, however, slightly heavier than those shown in the drawing. The number of ribs should be increased to six at least. The balancers will in this case form part of the main framework. The method of construction is similar to that of the elevator.

Copper or soft iron wire is used to attach the fuselage to the front and back spars of the main plane of the monoplane, and to the centres of the two middle struts of the biplane.

Wheels.—Next comes the question of the wheels. These should be of aluminium, and not less than 1 inch in diameter. Very suitable wheels, $1\frac{1}{4}$ inches in diameter, weighing $1\frac{1}{2}$ drams, and costing 5d. each, can be obtained from Messrs. J. Brown & Co., 97 New Oxford Street, London, W. The same dealers, by the bye, will supply the necessary wood, etc.

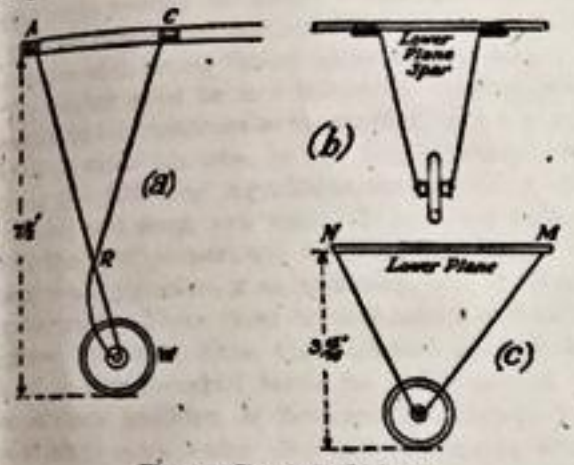


Fig. 33.—Chassis for Biplane.

Plain-tyred wheels with long bosses should be selected. Three such will be required. Very light disc wheels should not be used, as a hard landing will probably double them up.

The **Chassis** which connects these wheels with the main planes and motor rod is shown in Fig. 33, *b* and *c*. The compression struts, of 20-gauge steel

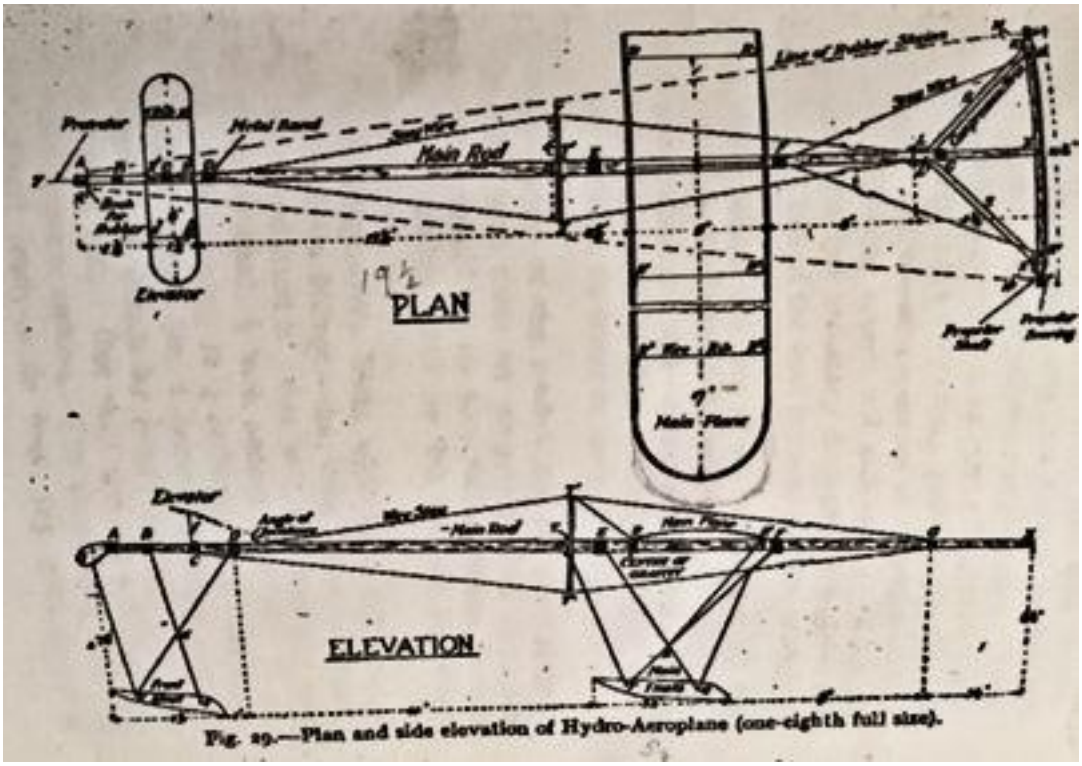


Fig. 29.—Plan and side elevation of Hydro-Aeroplane (one-eighth full size).

James,
The more I think about it, the more unwieldy Johnson's flying machine seems: especially in its biplane and hydro versions. Did he, or any reader of his article, ever actually build, let alone fly one of these contraptions?

I shall certainly attempt to test fly mine: but the forecast is very stormy for the next few days. The heat has abruptly left us and we have already had a couple of thundery cloudbursts (even the workshop roof leaked, though only a few drops luckily).

Pictures of models in flight are rather hard to achieve. But I'll let you know what happens.

Stephen

James
Definitely more work needed here… first launch it was all over the place, but the few seconds in the air ended with a 'floating' descent, full up elevator and fully stalled. Second flight was even shorter and it came in a bit harder. I expect to have to make quite a few changes before it can be tamed. The c.g. Is probably too far aft, and the foreplane may have to be rebuilt to give some dihedral (Johnson remarks that 'if the planes are allowed to bow in an upwards direction this is no disadvantage' but there is no indication of dihedral on his plan).

Right now the weather has taken a plunge towards winter, with strong winds and a huge drop in temperature. So further tests will have to wait until it gets more stable.

Stephen

On the runway!

Dear James,

A few more thoughts about this curious machine, and lastly, some BREAKING NEWS!

Could the model described in 'Home Mechanics' ever have flown? It is becoming pretty clear to me that, without some pretty drastic trim changes, it could not. That does not mean to say that the general concept was un-flyable. But, for example, the foreplane depicted in his Figure 29 has a grotesque degree of incidence: as measured on the plan it is over 21 positive. At that angle, it would have been fully stalled.

More importantly, the 'balance point' he insists on is at the leading edge of the Mainplane, which must surely put it behind the Neutral Point. Mine originally balanced near that point, or maybe half a centimeter forward of it, but from flight tests it has become pretty obvious that it should be much further forward. Using Martin Simons' 'cardboard silhouette on balsa sticks' method, as described in his "Model Aircraft Aerodynamics", and adding a 15% stability margin, I posited a c.g. 1.9 inches in front of the l.e.; whereas when my initial tests were done it must have been just BEHIND the neutral point: hence the wild and erratic 'flight'. A bit of extra lead, and moving the li-po as far forward as the battery lead allowed, has moved it to the new position.

Rereading the article it seems probable that Johnson, although certainly enthusiastic about 'model aeroplaning', was relaying a lot of his ideas from other keen types who were rather more experienced. But how much were they really letting him into the secrets of their subject?

As Jean Champenois explains in his "Grande Histoire des Petits Avions", (a splendid book which I have alluded to already once or twice in 'Stick and Tissue'), books describing how to build model aircraft were

already appearing in the early 1900s. But there was little understanding at this time of the laws of aerodynamics. Designs for elaborate machines that had no chance of achieving stability in flight would be detailed alongside very simple models, that might be perfectly flyable, if only the correct centre of gravity could be established. This vital information would never be given - or when it was indicated, it would be wrong.

And when a model flyer did manage to find a viable c.g. position, says Champenois, he would keep it a closely guarded secret. This rings a familiar bell: how many of us, as we begin to think of ourselves as 'experts', clam up or go a bit mysterious when questioned by novices in the sport?

But so little was really understood by anyone in those early days. Even full-sized aircraft of the time were often unstable (he mentions the Farman Voisin of 1908, which generally flew on the point of the stall).

I am beginning to think that the model described represents a period well before the First World War. Champenois writes of a golden age - 'La belle époque' - in those years of growing affluence around the turn of the century, when hobby shops started springing up around Paris: he mentions l'Aerienne at the Quai des Grands Augustins, le Petit Aviateur in rue Madame, La Source des Inventions in boulevard de Strasbourg, and a company, founded in 1905, named Manufrance.

By about 1911 tractor monoplanes of more or less familiar layout were becoming common. The old A-frame pushers were old hat. So the "Johnson", in concept at least, must date from well before the First World War. Of course, maybe the French were ahead of us - but what true-blooded English aeromodeller would ever admit to that?

Will my odd-looking propeller-shaped fins, operating one at a time as drag-rudders, suffice for directional stability? A little more 'fin' area would surely do no harm, so I have added a small sub-fin in front of the tailskid, after moving that back a little further, as it was not really protecting the propeller. I have added some dihedral to the foreplane, as this seems, from rereading the article, to have been a feature of the original machine.

Johnson describes the method of sewing the fabric to the frames: 'some little skill and practice is necessary' - an understatement if ever I heard one! Then, 'when completed, the plane will probably have a SMALL curvature upwards towards each end - that is, it will contain a "dihedral angle", as it is termed. If it has, so much the better.' So, for authenticity, and for any small stability advantage it may confer, I have decided to incorporate dihedral in the foreplane of my version. Nothing is said anywhere about dihedral in the main wing, but here again, I have built in a few degrees, and my wings, under the tension of doped silk on the upper surface only, have also themselves acquired 'a small curvature upwards towards each end'.

Well, this morning the weather was calm and overcast, so I went to the flying site, and tried the machine with the new c.g. position. It flies! The laws of aerodynamics are not mocked, and Martin Simon's card silhouette method showed its true worth.

Three flights in all: the first was aborted when it became clear that the side thrust I had built in was not a good idea: it wouldn't turn left and came in rather hard on the right hand border of the field, tearing out the wing holding clip and loosening the lower fuselage wire.

A small shim was removed from the motor mounting plate. The second flight was just a single circuit with an abrupt bounced landing, as it badly needed a nose-down trim adjustment, and I rather lost my cool. The third was a series of wide swooping turns, at a comfortable speed and moderate angle of climb. Turn control is not as sharp as I would like, but I think I could improve that. The landing was excellent, nose high.

Back to the workshop to re-tension the fuselage stick and repair the wing clip (I was taking a chance testing it without, as there was nothing to stop the wings sliding off their wire mounts. No reason why they should, but it could happen. Testing, one takes chances!)

SUCCESS AT LAST!

From Bill Wells

Gremlin 1.8cc

In Sticks and Tissue 146 I produced pictures of the Fox 10 and Fox Hustler. There is very little difference between the engines some had a screw in back plate and some a bolt on webbed back plate. Basically, they are the same engine so I will just refer to them as a Fox 10. If it looks like a Fox 10 smells like a Fox 10 and Runs like a Fox 10 then it is probably a Fox 10! Not necessarily!!! It could be a Gremlin!!!! The Fox 10 was sold in the UK as a Gremlin 1.8cc Glow engine for the princely sum of 55/- (£2-75), not a modest price in the early 1960s. The Engine was Distributed by Bradshaw Model Products Ltd. 4 Norton Street Salford, 3, Lancs. I was extremely lucky to get what would appear to be an un-run engine. Better still I got the Owner's Manual which is a single 8x3 inch sheet of paper printed on both sides! Neither the box or the manual makes any reference to Fox engines. The box has marks and folds on it that are identical to the box shown in the late Bill Mohrbacher's 2016 article that I referred to in S&T 146. I wonder where this engine has been since 2016 or even since it was sold by Bradshaw Model Products?

The engine runs OK but it is a bit tight at TDC. The needle valve setting is 3 ¾ turns open and is not too critical but there is a significant lag after a new setting so best to make small movements hesitating between each to let the engine catch up. My measurements in inches of the bore are .531 and stroke .449 which if I have got my calculations right is 1.629cc. Marketing the engine as 1.8cc is pushing it a bit, obviously to attract more buyers! The engine weighs in at 2.61ozs which is light compared with some 1.6 glow engines of that era. The RC exhaust chopper can be used to vary the power output (noise). A Simple device nothing much to go wrong! I used a similar Device on another glow engine on a hydroplane which needed a low power setting most of the time and that caused overheating! However, for short periods of slow speed running in a model aircraft it should work OK.

Owner's Manual

Gremlin 1.8 cc

Suitable models —Your Gremlin Is suitable for model airplanes designed for motors up to 15 size. In the event you are not sure here are some good rules of thumb.

Control Line Models—I ½ lbs. is about Max.

Radio Control Models—4 lbs. Is about Max.

MOUNTING—Your Gremlin should be mounted on hardwood beam motor mounts, not Balsa, and firmly attached with 6 BA. bolts. The motor mounts in turn should be securely glued and gussetted to the plant so that they will absorb the vibration without becoming loose.

FUEL TANK—A good engine run is completely dependent upon a good tank Installation. For Control Line models the tank should be mounted directly in back of the motor and with the centre-line of the tank directly in line with the needle valve when in normal flight.
PROPELLER—We recommend a 7m, diameter 4m, pitch prop for small models and an 8 in. diameter 3in, pitch for larger models. Large Radio Control models may fly better on a 9in, diameter 4in. pitch prop.

FUEL TO USE—Usually D/C Glow is your best bet. On very hot days or to obtain better low speed characteristics E/D Glow may work better.

PROCEDURE POR STARTING THE MOTOR
1. Set the model level and fill the tank.
2. Turn the needle valve in until it becomes tight and back
it out 6 turns.
3. Open exhaust valve.
4. Rotate the prop until the exhaust port Is uncovered.
5. Inject four or five drops of fuel into the cylinder with your filler Syringe,
6. Flip the motor over a couple of times and then connect one battery lead to the centre post in the head and the other lead to any convenient place on the motor.
7. Start to crank the motor counter-clockwise looking from the front. You should crank with a quick flipping. motion, swinging your fingers out of the path of the blade as the propeller passes over compression. The motor should start. If the motor gives a short, sharp burst there is not enough fuel. Give the needle valve a half turn counter-clockwise and try again. If the motor gives a 'Bloop' type of sound it is flooded. You should turn the needle valve a half turn clockwise and try again. Much of the trick in starting a motor Is to determine whether is is getting too much or too little fuel. An expert can tell this by the sound as he flips the motor over.

NEEDLE VALVE ADJUSTMENT - The needle valve controls the amount of fuel the motor gets. It is desirable to adjust the needle so the engine always gets a little more fuel than It really needs at al) times. Too rich (too much) a run does no harm, but too lean a run may burn out the Glow Head, and even overheat the motor so the piston is ruined.

GLOW HEAD—Ignition occurs automatically when the piston brings the fuel mixture up on compression and it is subjected to a red hot platinum coil. This platinum coil is extremely fragile and will often burn out or be broken by particles of dust that go through the motor. It is impractical to guarantee these coils and you should consider replacement of the Glow Head occasionally to be a standard part of your operating expense.

EXHAUST VALVE—Speed reduction Is accomplished by restricting the exhaust. If your Gremlin does not run slow enough with the Valve closed, pressure is escaping either around the Valve or up between the cylinder and top of the casting. The Exhaust can be tightened by carefully filing the small end of the Exhaust. Valve Bushing Leakage around the cylinder can he sealed with Sodium Silicate (common Water Glass). Apply with an eye dropper or swab around bottom cylinder fin and allow to set before runnning. If you do not intend to use thís feature we recommend you remove the valve completely.

DJS-ASSEMBLY—We generally recommend that you do not dis-assemble your Gremlin. However, you will not harm it provided you do it correctly. We cannot assume any responsibility for parts ruined by Incorrect assembly.

1. Remove from airplane—Remove prop and needle valve.
2. Using a crescent wrench unscrew Head.
3. Using a suitable piece of flat steel unscrew rear cover. NOTE: We do not recommend your dis assemble any further except In cases of major damage as ihe cylinder is sealed to the case and this seal must be broken with force. Parts may be ruined in so doing.
4. If you must remove the cylinder wrap several turns of pasteboard around upper fins. Grasp with pliers and with your left hand unscrew the case.
5. If necessary to remove needle - body-it presses out by pushing on the needle end. Use a piece of wood for a pusher.
6. The piston and rod arc permanently assembled.

TO REASSEMBLE—Reverse this procedure. Use new gaskets. If the exhaust valve is to be used the clearance between the top of the case and the bottom fIn must be sealed with Sodium Silicate. Apply when cylinder is started into case but before it is screwed all the way down.

PARTS LIST

Crankcase 12/6
Glow Head..... 5/6
Cylinder—Piston—Rod Assembly 35/-
Rear Cover 5/6
Thrust Washer..... 3/6
Needle Valve 3/6
Needle Valve Body..... 3/6
Needle Valva Spring 1/0
Crankshaft 12/6
Exhaust Valve 3/6
Exhaust Vulve Bushing 1/0
Exhaust Valve Screw.....1/0
Prop Washer 1/0
Prop Nut..... 1/0
Head Gasket..... 1/0
Rear Cover Gasket 1/0
MAINTENANCE SET 15/-
includes:
2—Glow Heads
2—Head and Rear Cover Gaskets
1—Needle
I—Thrust Wisher
1—Prop Washer
1—Prop Nut
1—N.V. Spring

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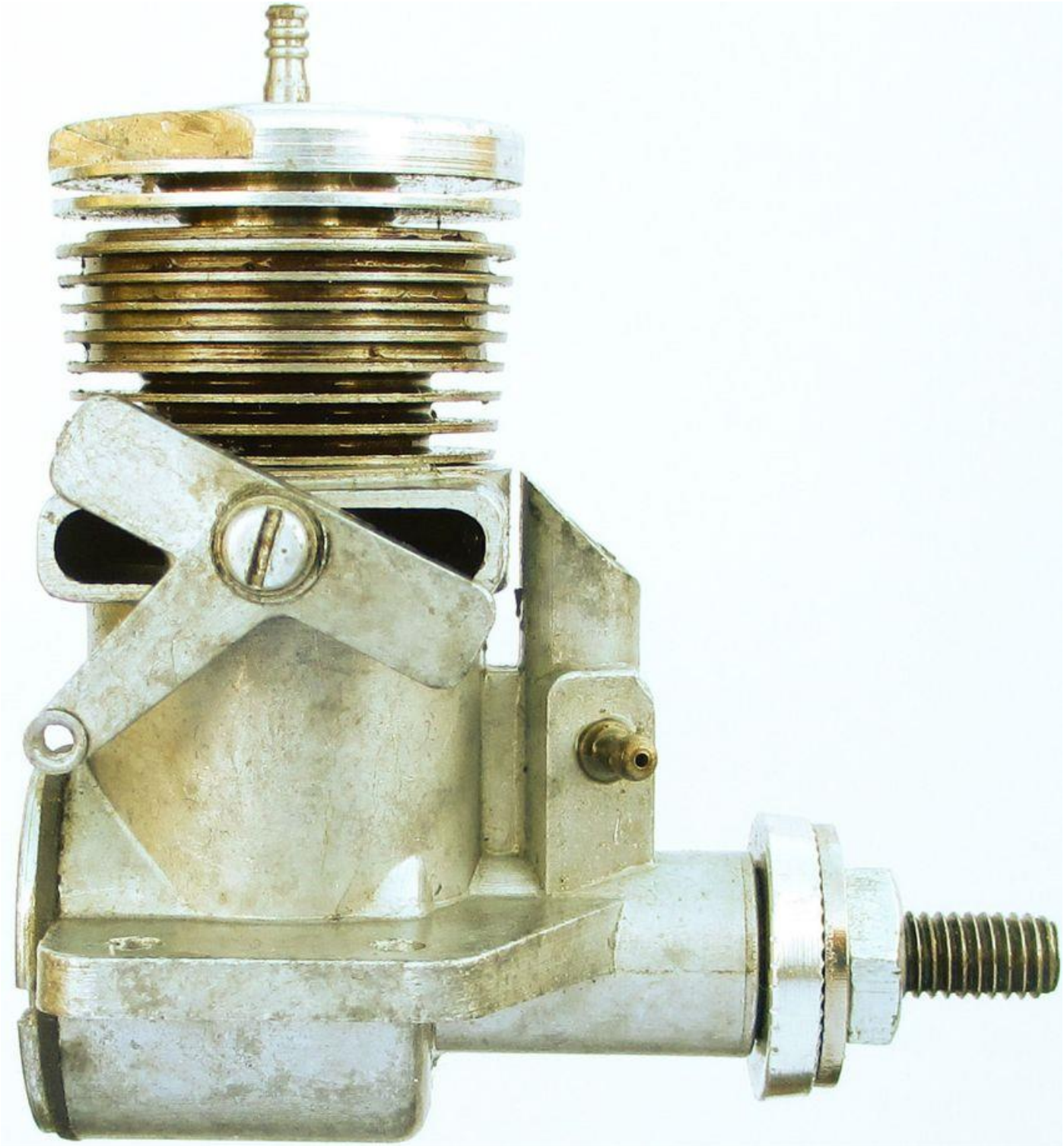
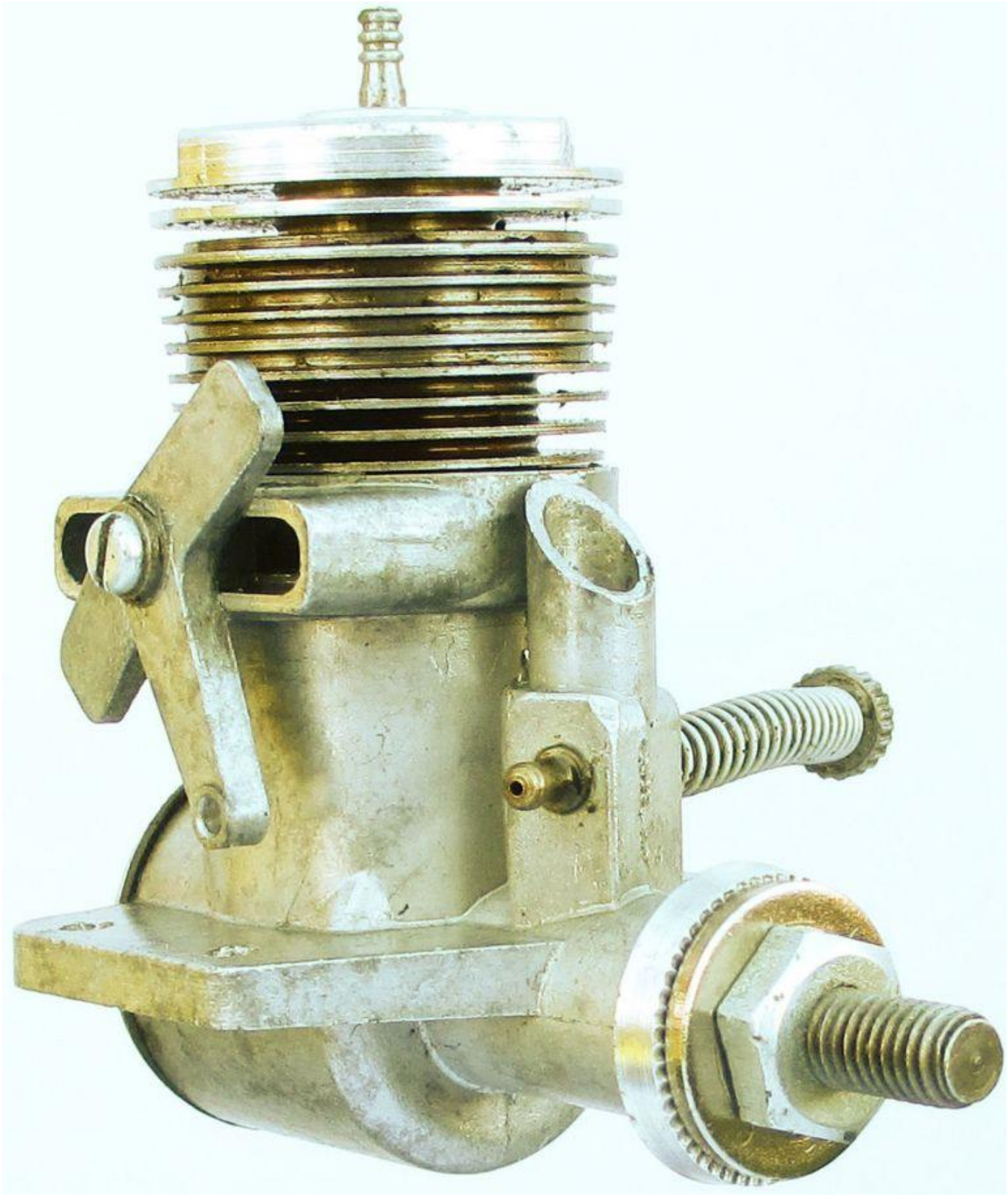
Salford, 3. Lancs.





Internet Picture 2016

My Picture 2022

Ton van Munsteren photos of the Mayfly 2024 in the Netherlands


15

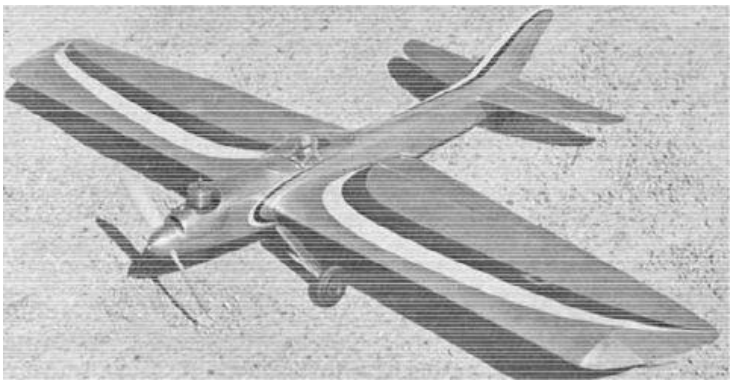

SHARKFACE


eaglet

From Mike Spencer

PEACEMAKER 42”

I recently discovered a version of George Aldrich’s classic PEACEMAKER with a built-up rather than the more familiar profile fuselage that I had flown in circles way back in my short trouser days. This 1960s nostalgia trip immediately enthused me as my next RC conversion project. Workstarted on 26th August 2024 by importing the Outerzone plan to my CAD programme: https://outerzone.co.uk/plan_details.asp?ID=6455



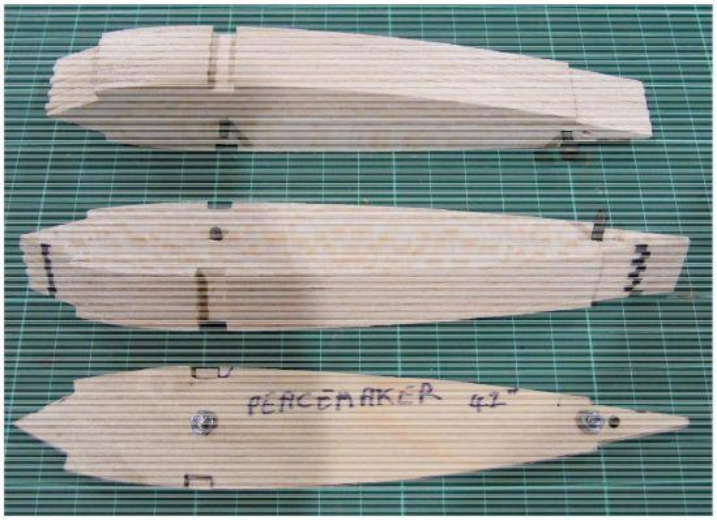
The power setups established for previous C/L conversions should work well at the unchanged size of the original design. My favourite Spreadsheet seemed to confirm that

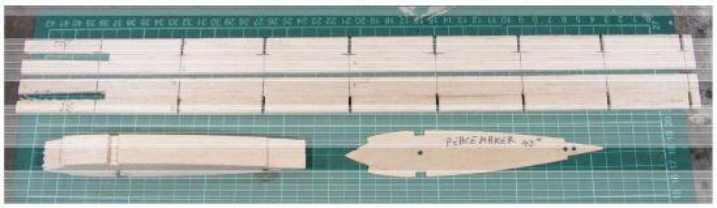
ELECTRIC POWER SPECIFICATIONS | **Model:** | **Peacemaker 42**

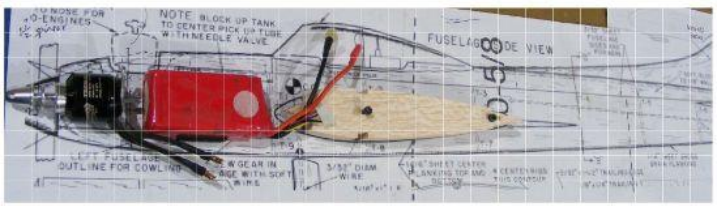
Input fields this colour			*These cells are calculated values*		
Semi SPAN	21.5	Inch	Avge Chord	8.7	Inch
ROOT CHORD	9.4	Inch	Wing AREA	374.1	Sq Inch
TIP CHORD	8.0	Inch	=	2.60	Ft Sq
est. Weight	26.0	Ounces	=	1.6	Pounds
			Wing loading	10.0	Oz/Ft Sq
est. Motor Power	180.0	Watts	Power Load	111	Watts/Lb

Props

Target Motor	9 x 5.5	260	Watts	on 3S
Aeolian	9 x 4.5	210	Watts	on 3S
C2830/1300kv	8 x 6	150	Watts	on 3S



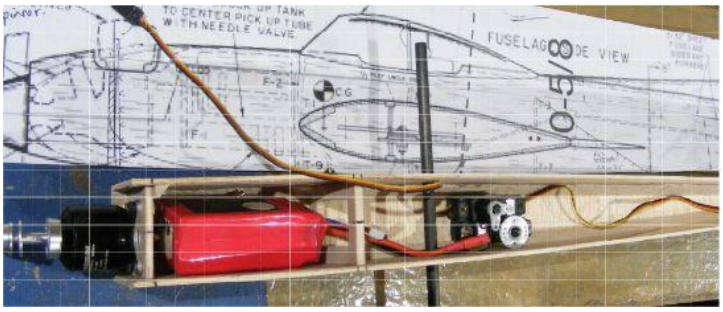




I decided to retain the plan’s American-style ‘egg box’ wing construction but with separate wings for a further development of the wing twist system used on my RASCAL and SPECTRE models. While it is a smooth flyer, the long flat SPECTRE wings look ‘slightly wierd’ with the illusion of Anhedral in the air; for this one I decided to mask that C/L characteristic by including slight Dihedral. The through-fuz carbon rods will leave welcome space for RC gear in the otherwise tight Fuz Ribs were conventionally ‘sandwich-cut’ from 3/32” Balsa between 1.5mm Ply templates but have not yet been slotted for the spar

03 Sept
1/8” Balsa full-depth Spars - to be capped with 1/8” x ¼” Spruce for a robust “I” Beam

04 Sept
It look as if everything might fit



08 Sept
Basic Fuz box assembled as per plan aft of motor former; it tapers early and is quite narrow. Just adequate for 3S 1300 LiPo and pair of HS82MG (3kg/cm) servos behind

SAM Legal Old Time Diesels From Jack Hiner

Folks,

My experience with three different brand old time diesels for SAM. These are the Drone ball bearing version from the USA. And from the UK the Valkyrie. Last the GB 5.4 cc diesel from Australia. The Drone a .29 is Class B. The other two Class C. My plan was t use the engines in SAM Class B and C LER events.

First the Four Drones that required a lot of work to get good performance. I will not list all things that needed attention. But it was a lot. Help from Aerodyne Al, David Owen. Don Blackburn and Caterpillar folks McIntyre and Reno. My best Drone would turn 7,000 RPM on Aerodyne fuel and APC Sport 13/7 prop.

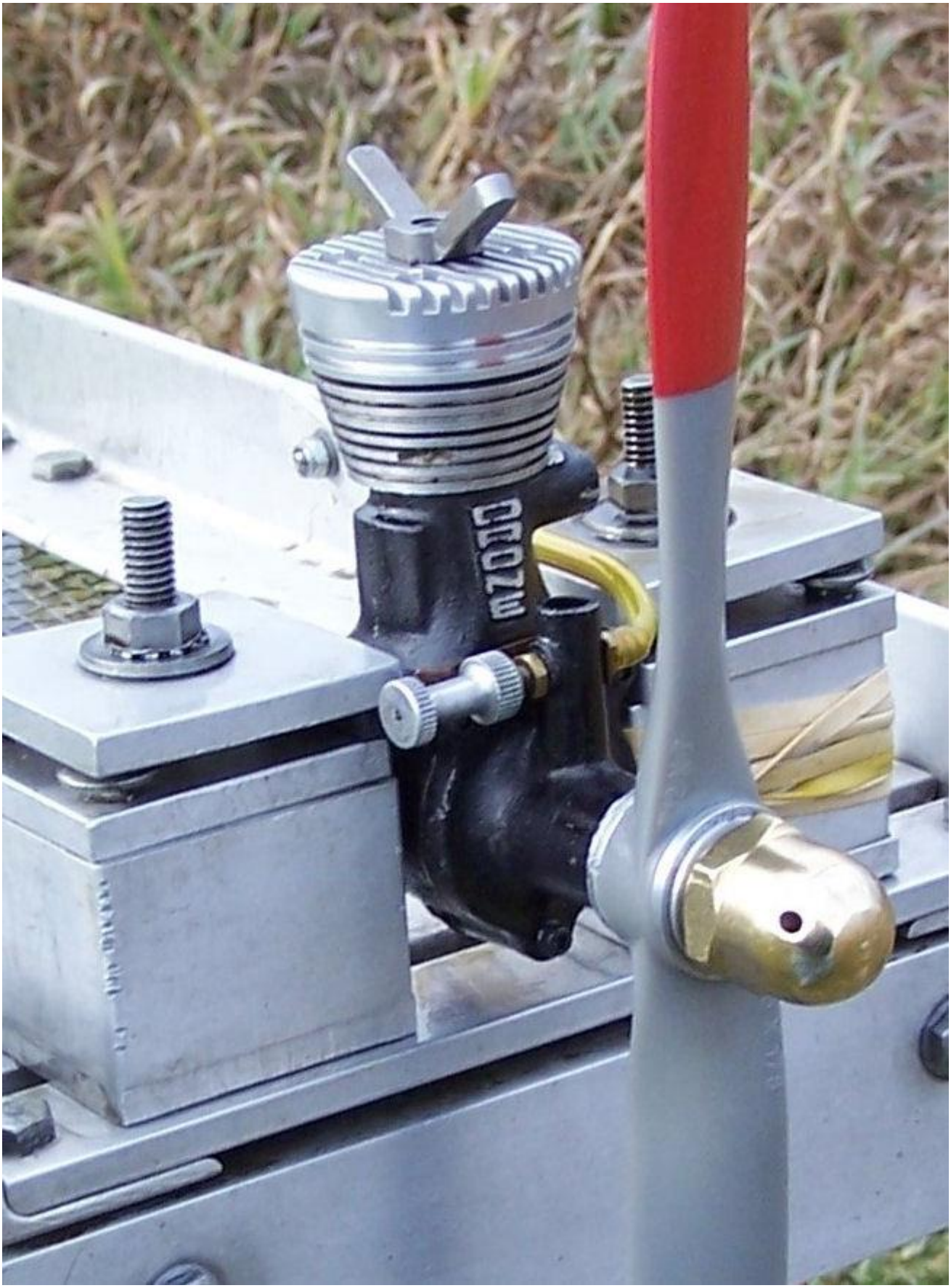
Next the two Valkyrie diesels I got for $30 each. I soon found out why so cheap. Easy to start and adjust but quickly would sag and RPM drop off. Smaller props same problem. An email to David Owen got the answer to my problem.

David imported some Valkyries in the 1980's into Australia. Crankshaft bearing too tight on the Valkyries. So, both engines off to Don Blackburn and problem solved. The best of the two Valkyries would turn 6,500 RPM on Aerodyne fuel and the APC Sport 13/7 prop.

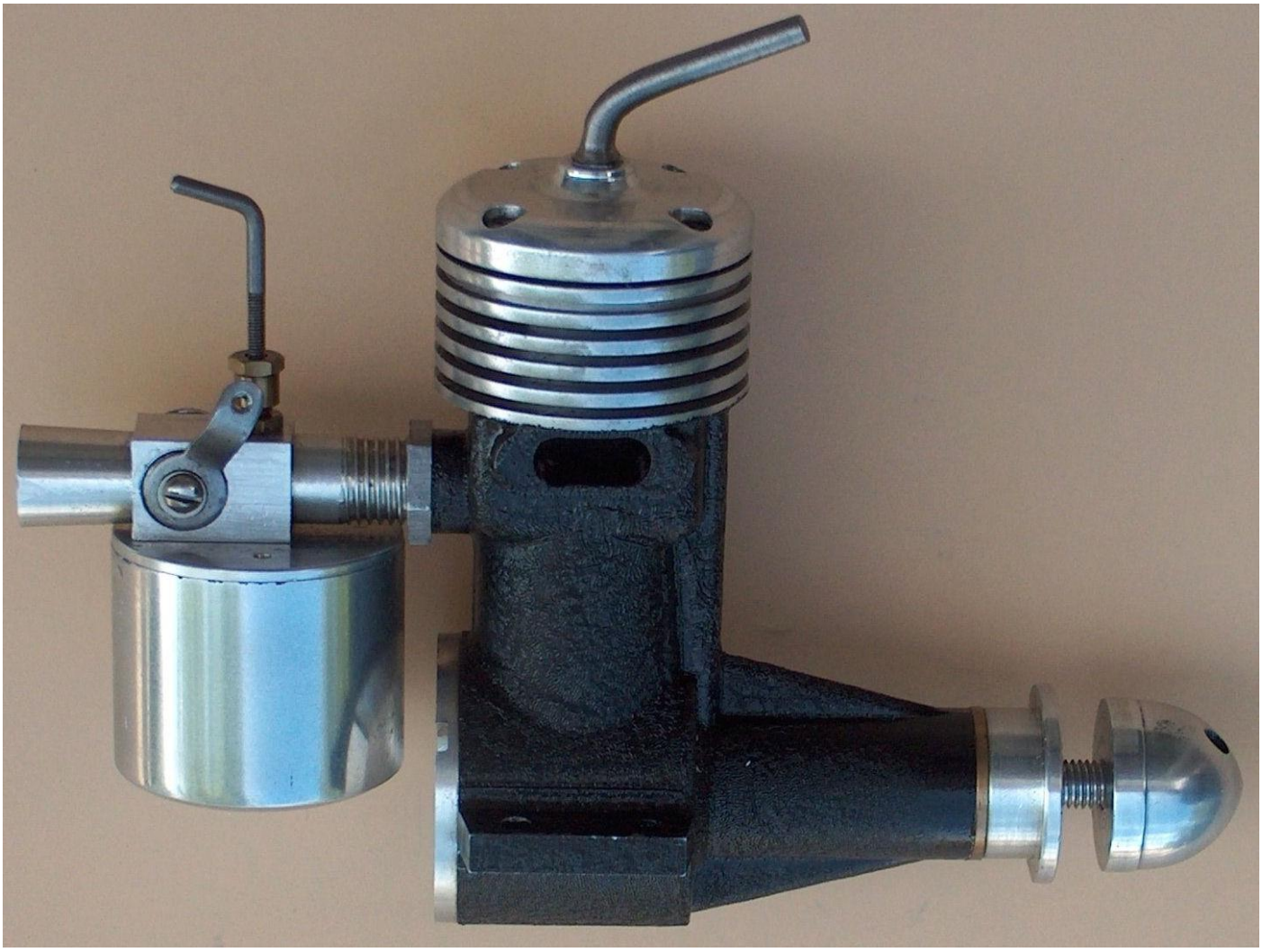
I picked up two used GB 5.4 cc diesels in the early 2000's. One from Allan Laycock and the other from David Owen. No mods needed on these engines. My best GB 5.4 cc diesel would turn 6,000 on Aerodyne fuel and APC Sport prop. Using synthetic kerosene I got 6,050 RPM. I never flew LER events with the diesels. But if I did would have used synthetic kerosene.

These engines ran fine on the very sturdy test stand. But when I put the Drone on a Playboy to fly the vibrations were very high. So, plan B was to use the engines in Texaco at much lower RPM. I did this with the Drone and GB. Until Chuck Hutton from Michigan gave me a four-stroke open rocker OS .60 glow converted to Spark.

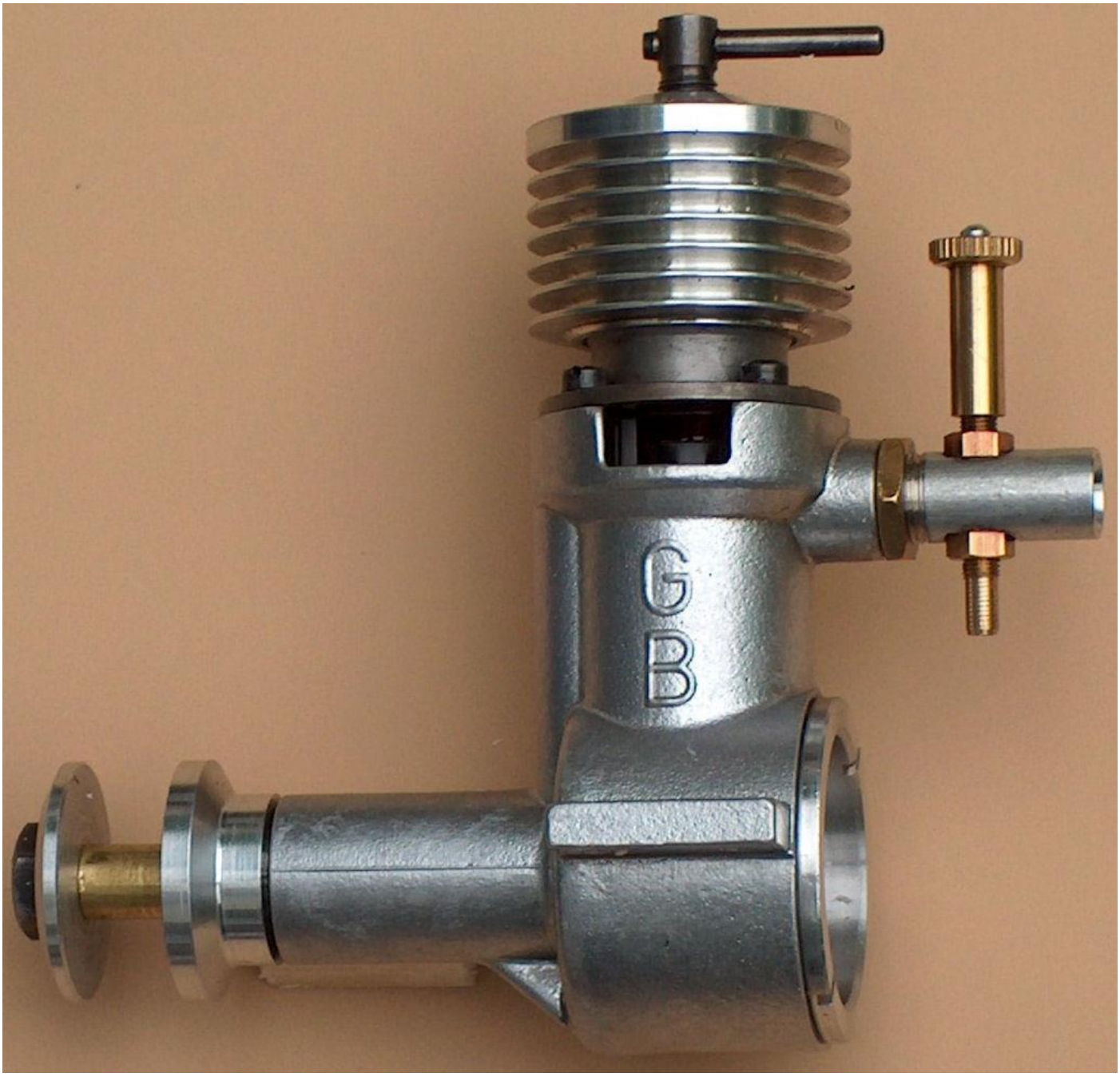
Jack



Drone Two O Rings



Valkrie II



GB 5.4 cc Diesel