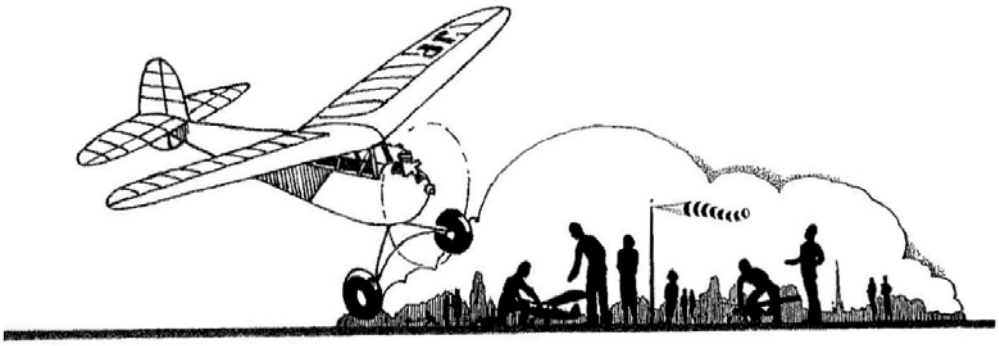


Sticks and Tissue No 138 – May 2018

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.

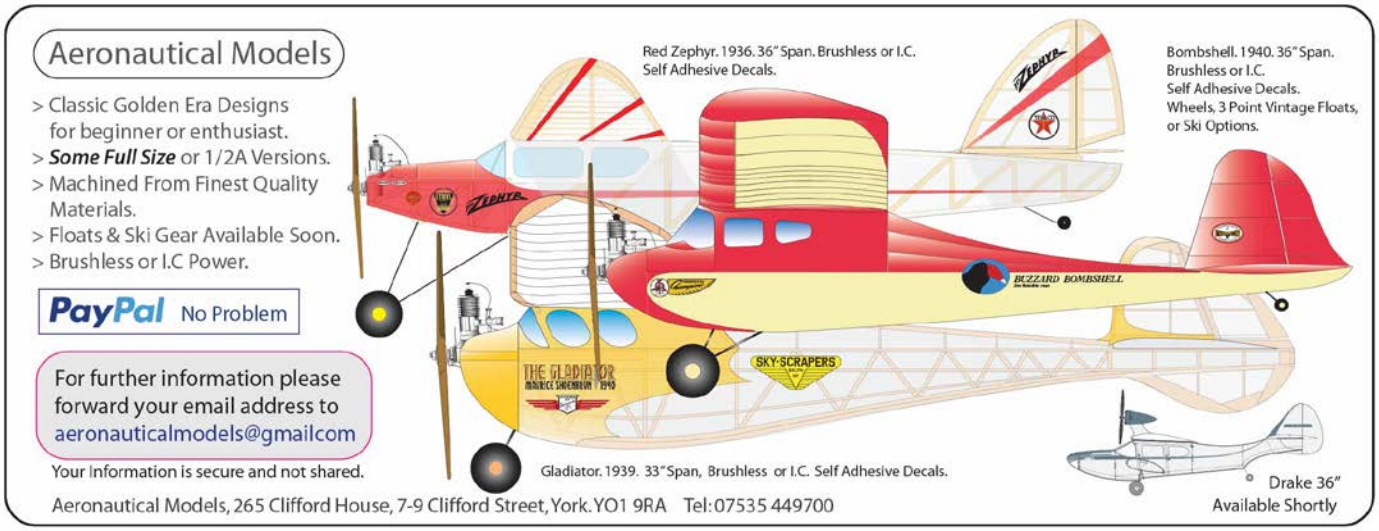
Geoff Collins launching John Taylor's Thunder King at DMFG 18 May 2018

From Bill Wells

Home Construction of a Boll-Aero

I was showing my friend Ashley Dart some model aircraft plans and he showed interest in the plan of the Sugden Special engine. I found a few more model engine plans and very soon Ashley settled on the Boll-Aero engine. The plan for this engine is on the internet and appeals to the home constructor because the engine does not require a crankcase casting or any serious milling. The crank pin is a push in fit into the crank shaft web and there are no large diameter lathe cut threads. Ashley likes making things so very quickly he had made the crankcase, crankshaft and over a few more weeks the engine was complete. All I might add constructed from scrap metal! The most difficult thing was the piston fit as can be seen by the number of pistons!! The piston fit was eventually solved by growing a piston. The first con rod was too soft and the second too brittle. The Boll-Aero was not designed as a competition engine more for it's ease of construction. The wide crankshaft web necessary for the push fit crank pin and the robust wall thickness of the Steel cylinder contribute to make the Boll-Aero a bit on the heavy side at 7.1 ounces. As expected the power output was not going to shatter any records!! Ashley reported that using Kavan props a 9x4 gave 4300 rpm, 9x6 3700 rpm and an 8x6 3800 rpm. The engine as expected was difficult to start on the 8x6. With a poor power to weight ratio the engine might just power a free flight model with a short nose something like a reduced size Junior 60. The satisfaction that Ashley got from the trial and error in making and running this engine has spurred him on to making another engine.

Meanwhile, more long term, Ashley has expressed an interest in making a 'Nova 1' but all the Internet attempts to secure the plan have come to no avail. If there is someone out there with a plan or knows a way of getting a copy please let us know.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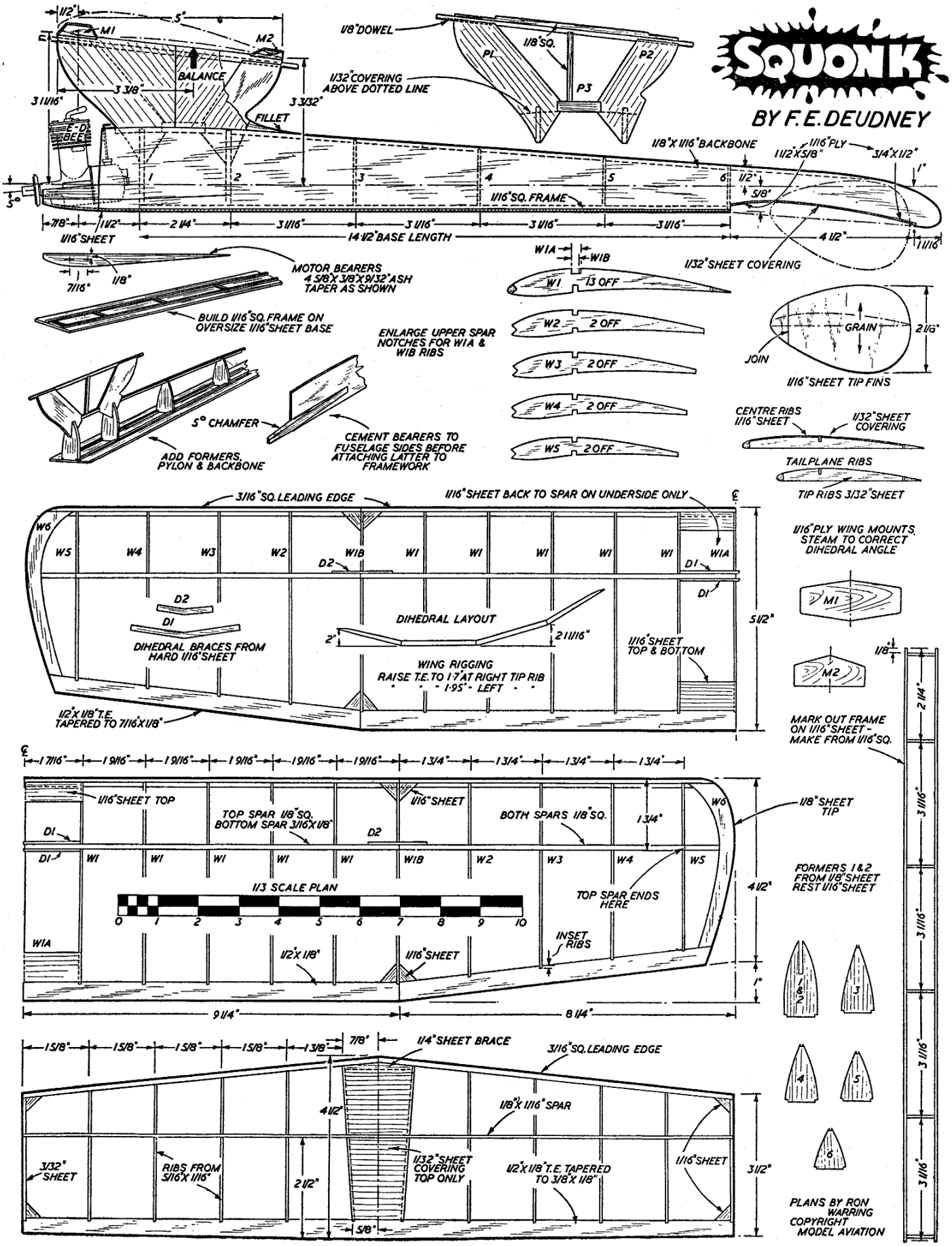
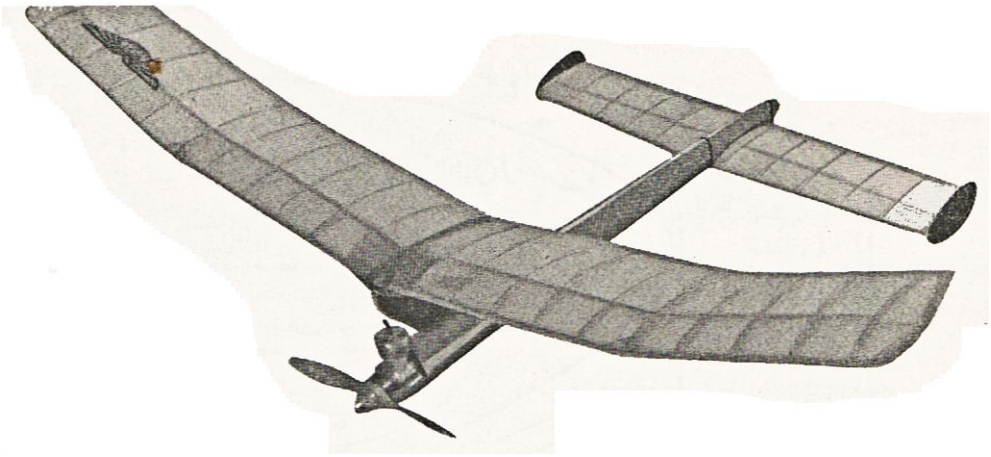


Squonk by Fred Deudney for ED Bee from Model Aviation Summer 2950



Before we get down to the building instructions for this ED powered contest design, here are a few home truths about free flight in general. Most fellows seem to feel that the best bet for real performance—in the ratio sense—is something around 60” span, powered with a “ 29.” Build anything under this size and they reckon you’re just not making a “serious” effort. The sight of Ray Collins’ beautiful 30-ounce K & B 29 powered 5-footer, effortlessly clocking ratios of up to 15 on 3/4 power last January, convinced us of the wide gap in performance between this type and the average small diesel job—a difference due to the glide. How fast a model descends is largely dependent on its wing loading, but the bigger models win hands down on glide by scale effect. Not only is the wing itself considerably more efficient in a larger size but the parasitic drag of fuselage, and in particular engine and prop, is lower in relation to wing drag. In effect, the bigger jobs are inherently superior in lift/drag ratio, even without deliberate streamlining.

Take the San de Hogan—a truly functional design, with a performance representing just about the ultimate wider the current American 6.1 oz./c.c. power-loading rule. There’s the clue to the whole set-up; with rate of climb dependent more on power/weight ratio than on drag and wing area, it means that American designers must accept a virtually fixed rate of climb for all motor sizes, hence the trend to lightly loaded, slow-gliding “monsters,” with the good “big-un” still beating the good “little-un “—but since they fly in separate classes, it doesn’t matter.

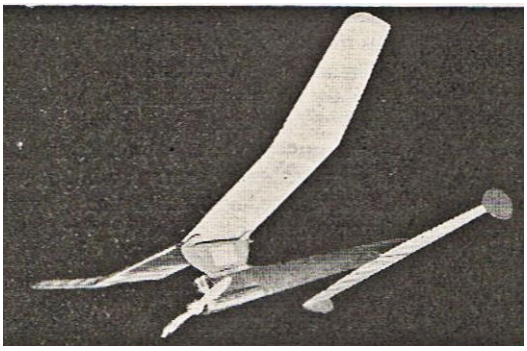
Here, with no power-loading rule, we can, if we choose (or dare), make full use of the high power/wt. ratios of modem ignition less motors by forgetting American ideas of size (since they have to build up to a fixed weight / c.c.), concentrating instead on design based, more logically, on engine weight rather than capacity. But just study the “newsy” articles in American magazines or watch a few S.M.A.E. contests; the American “rut” is a mighty good one and those “heavy” jobs are a real handful—evidently pretty much a case of the winner being “the one that got away.” Let’s leave well alone so far as the bigger jobs are concerned, as a “Wind in” can so often mean “write-off.”

Since we have no separate motor classes in our F/F contests, however, it’s obviously worthwhile taking advantage of the absence of power-loading restrictions by aiming first at bringing the little job’s performance more into line. This scale effect gap can only be bridged by stepping up rate of climb well beyond the best average-type big job, but the idea becomes more tolerable when you realise how much less there is at stake ; time, effort and expense are small, and a crack-up doesn’t call for a vacuum cleaner to collect the pieces—often as not the little job just bounces. It’s vital to keep weight down, but only to the minimum consistent with the practical and handle-able structure essential for gradual working-up to best trim, and retention of that trim once achieved. The “slide rule kings” (include us out !) are apt to get carried away by the fabulous rates of climb made technically possible by extreme power/wt. ratios, but hats off to the Scalded Cat designer for showing us the sort of climb that can be achieved.

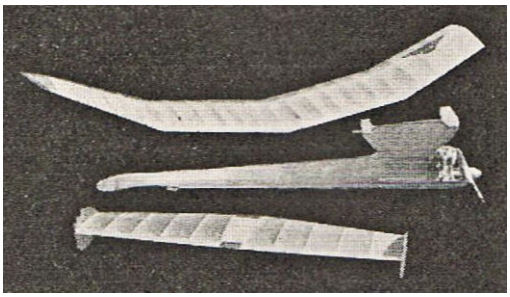
Personally, we consider reliability too closely linked with durability to justify real extremism in lightness; we’re seeking a modeller’s model for regular flying, and who wants a job that won’t survive the first afternoon’s orgy of prop slamming, oil soaking and maybe violent contact with solid earth due to the “error” associated with “trial”? It just depends how you like your flying, but if like us, you prefer to utilise a motor’s power as its design and weight permit, then remember that there’s plenty of scope for exciting performance with the small jobs; less disillusionment and destruction, with big-stuff performance as the goal.

The Squonk hardly comes into the story; it was built as a beginning only, an easy introduction to the realms of fast climbers. Ideas on aerodynamic and structural layout were finally put into practical shape in this sturdy job. It had to serve as a universal test-bed to “prove” the design in every sense; to size up the

performance obtainable from the deservedly popular “Bee” without resorting to extreme lightness; to provide clues on rigging and trimming techniques and above all it had to survive winter flying. Since the M.A. Editors took a fancy to the design, it’s presented as it was after first flights last January, when the final trim, with the nose held down more, had not been reached. Weighing 6.4 to 6.6 ozs., depending on the prop, performance was very promising, and reliability was finally buttoned-up by keying the flying surfaces.
Construction is easy enough—take care to use a light, pliable grade of sheet for the fuselage (not the brittle variety), and hard balsa for wing spars, pylon outline and the backbone.
Fuselage assembly is as follows :— the base outline is built on to a 14 ½” length of -1/16 sheet, keeping the strips parallel at 13/16 external width. Surplus is trimmed off after fuselage sides are added. Fit formers, the complete pylon (built over plan) and backbone.
Fuselage sides are cut about ¼” too wide ; cement the finished engine bearers accurately in place and coat inside sheet with cement (for oil proofing), back to first former. Fit sides separately, cementing along bottom edges only, flush with the 1/16 sq. outline. When set, pull in at top of fuselage, trim to fit pylon, then cement sides to first two formers and pylon base (pylon sheeting should end about ¼” below top of fuselage sides). Mount engine to ensure correct bearer line-up. Build in left side thrust so that the outside of crankshaft housing is approximately parallel with the bearer. Pack up back of mounting lugs to give 5° downthrust. Work back former by former, both sides together, running cement down the formers as well as along the backbone, and holding the sheet down with steel pins. The 1/32” sheet across the gap between tailplane supports ensures rigidity in this important region. Wing mounts should be pre-cemented to slightly more than the dihedral angle, filleted to the pylon with plastic wood and cemented over, to reduce the tendency to flatten and prevent wing rocking. Use 8 B.A. screws, heads soldered to tinplate, for engine mounting, offsetting to give approximate sidethrust; the 6 B.A. clearance holes in the engine lugs permit final adjustment. Fillet bearers with balsa and don’t spare the cement in the engine region. The original had the needle slanted out slightly to the right (viewed from the rear), and the glass tube gravity tank cemented down the inside of the opposite sheet side, the top protruding at the pylon base on the same side as the needle—but we fly lefthanded ! Set wash-in on right wing and wash out on left by using different dihedral angle at the trailing edge from that at the spar.
Raise T.E. 1.7” at tip rib on right wing and raise T.E. to l.95” at left tip rib. Figures given are approximate and will change with doping, but these “warps” are essential and should be quite marked.
Cover the entire job with Jap tissue (doped on) and finish with Glider dope. An under-proofed job picks up more weight by fuel absorption than you’ll save in an odd coat of dope, and turns itself into a “heap” in the process, so make a good finishing job.
FLYING

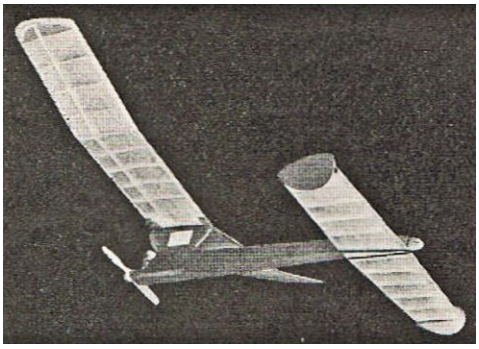


The generous wing warps have a 100 per cent. effective anti-spin effect when flying to the right, so always trim for a right-hand climb. Left rudder and right thrust trim proved “dicey” in avoiding spiralling on the glide and also tended to give a rapid opening-out of the right climbing turn, as the rudders took over from the reduced sidethrust effect when speed built up. Right rudder for a good glide circle plus enough left sidethrust to take the job up in a right turn proved better. When demonstrating, we learned the safety of this trim in an unfortunate way ; we trimmed for a moderate right circle on low compression, but put more left sidethrust before opening up to full revs, the result being a violent series of skew loops, degenerating into a left-hand spiral and full-power contact with the Fairlop runway. A few minutes with a cement tube and we were flying again, but now we know that this trim tends to compensate for changes in power and completely eliminates any tendency for the turn to tighten into the familiar vicious “spin.”

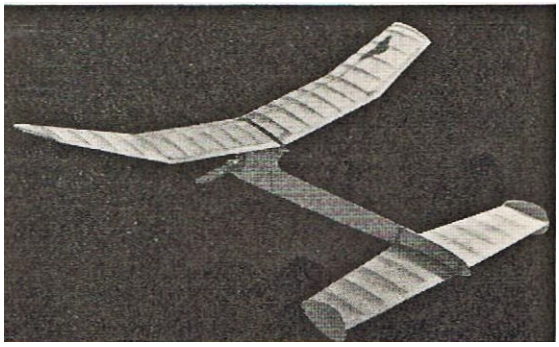


Aim for a fast, not-too-steep climb with enough right turn to prevent looping (this requires downthrust, as shown on the plan). In spite of the low aspect ratio fins, the tail requires keying, once the approximate offset has been ascertained. Bear in mind that mistakes should be

made to the right when balancing the “left thrust and right rudder” settings for full power ; be patient when taking out the right turn in case you overdo things—and always check your engine line-up. Plugging the clearance between the mounting screws and the holes in the lugs helps to locate the engine setting. Finally, don’t worry about warps if they’re the right way ; once the structure has set and the covering has finished shrinking (after a few weeks, not hours, removal of such warps by heating and twisting is generally unwise, for they creep back “on the field.”



Flight tests with a 7 3/4 X 5 (nominal) plastic airscrew gave a ratio of 9 on an 8-second motor run. Later, the prop was changed for a 7 X 5” accurately carved wooden type (narrow blades) and the performance was much livelier. At 5.30 to 6.00 p.m. one evening in early March, the model was clocking not less than ratios of twelve every time on 8—10 seconds’ motor run (best ratio 13.4).



Experience with this model has shown that performance would be distinctly improved by increasing wing and tail areas, working to the same, or slightly reduced weight. The mathematical limiting performance with the heavy “Bee” is too low to justify further development, however, and the “next off” will probably be of similar weight, enlarged areas, with much more power (Elfin 1.8 or Allbon Javelin). A dethermaliser system and reliable motor run timing are called for, so a motor of high power/weight ratio is required to permit the extra gadgetry.

DESIGN DATA
Weights—WIng 1.27 ozs., Tail .43 oz., Fuselage and Motor 4.4 ozs., Airacrew .4 oz.—Total 6.5 ozs.
Wing area—181 sq. in. (A.R. 6.77); Tailplane area—70 sq. in. (38.7 per cent, of wing); Fin area—11 sq. in. (6.1 per cent, of wing). Wing loading—5.17 oz./sq. ft.

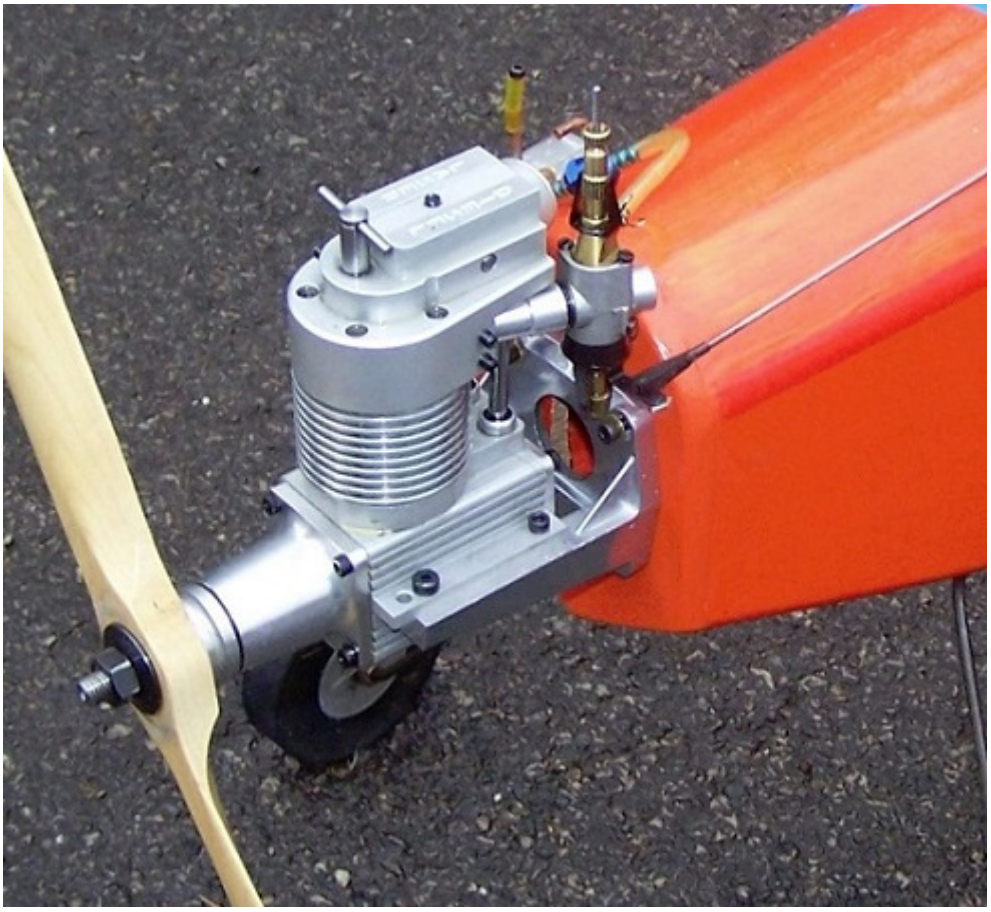
Fred Deudney, B.Sc.(Eng.), Grad. R.Ae.S., has been modelling for 11 of his 22 years. Takes a dim view of phoney theories and amateurish “scientific design” stuff Asserts that good designs are the product of instinct and experience —and that an Intelligent modeller needs nobody’s theories. A founder member of West Essex Aeromodellers and the first to try control lining. Even now rides a side-winder motor-cycle. Interested only in “performance” jobs—both free flight and speed. Is an aero dynaimicist at the R.A.E. (Farnborough) on Guided Weapons research. So it’s big ones during the week and little ones on Sundays.

From Jack Hiner

I have traded emails for a few years with Bill Wells in the UK. Both of us have interest in model airplane diesels. I live in the United States and near Chicago. First got into control line in early 1950's with glow engines. Late 1950's 2.5 cc diesels, Super Tigre, O.S. and in the mid 1960's a Webra. Used diesels in control line and R/C sport flying and very little contest flying but some. In 1970 I got into R/C gliders rather heavy and thu the 1970's and 80's got rid of my glow and diesels engines. Flew R/C gliders until 1991 then nothing for a few years. A couple of friends got me into old time models in 1995 with diesels and electric power. Back in the 1950's and 1960's I wanted to try diesels larger than 2.5 cc but never did. Since 1995 I have ran Drone diesels, Dunham Valkyrie and GB all 5 cc diesels. Also a PAW .40 R/C and MVVS 10 cc diesel. And Laser .75 and .80 four stroke diesels. Bill suggested I send you some photos for Sticks and Tissue. So I will send some with later emails.

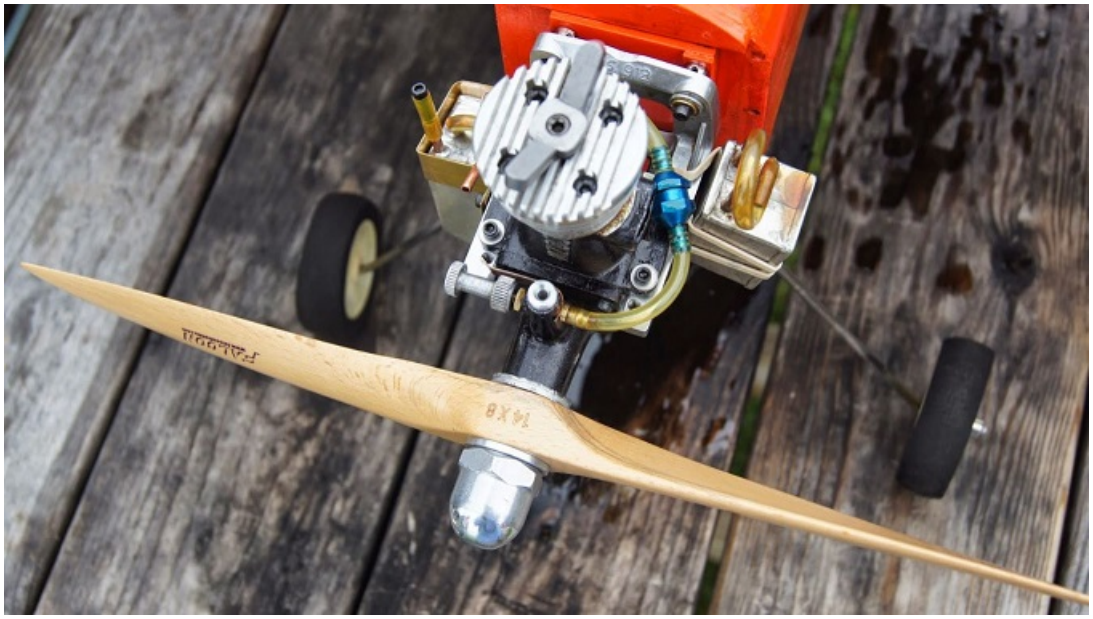
I have an Airborn 1600 flown first with a PAW. 40 for SAM Texaco. Later installed a Laser .75 four stroke diesel. I really like those Laser diesels. The Laser is much heavier than the PAW so had to move receiver and battery pack to the tail and ad a hatch.

1600 sq. in. wing area Lanzo Airborn from Bob Holman short kit



I have a Drone ball bearing diesel with intake restriction for Texaco installed on Airborn 810. The second fuel tank is used to warm up the engine. It has an Aerodyne variable compression head and a few other mods.

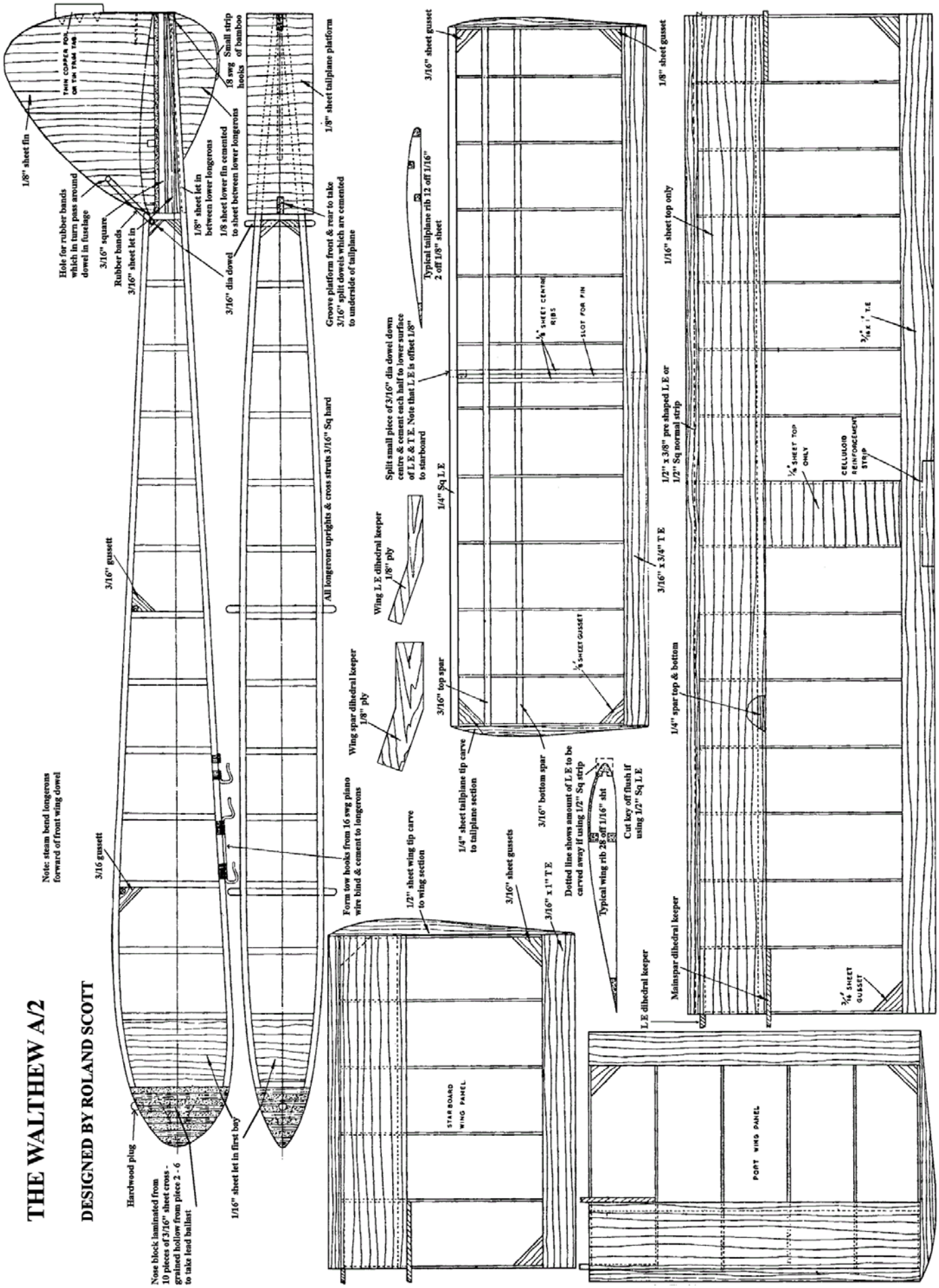
A David Owen GB 5 cc diesel has also been flown on this Airborn in Texaco. Better fuel economy with the Drone. David Owen told me side port diesels are not that efficient. He is correct.



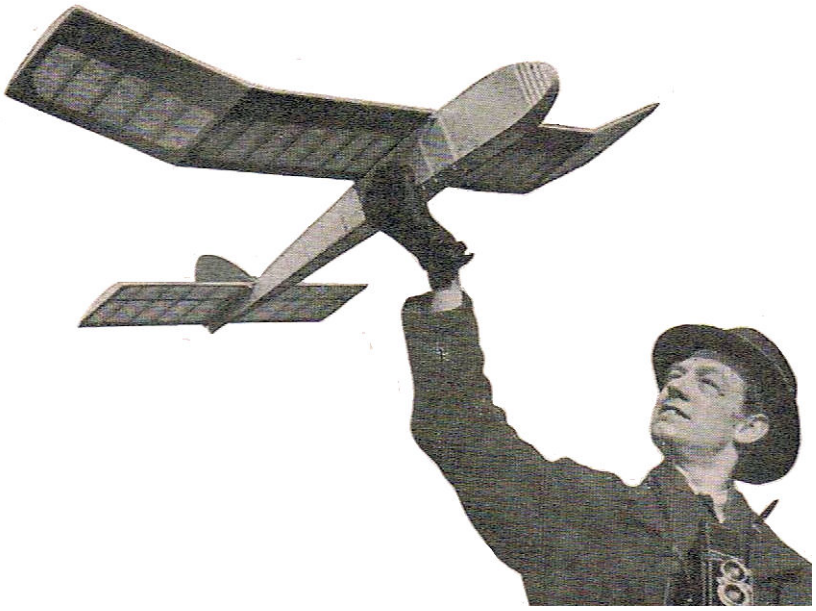
My Airborn 810 sq. in. wing area flown with Drone and GB diesels for Texaco

Laser .80 diesel on the test stand running in. Have not flown this one yet.

Laser .80 Diesel


THE WALTHEW A/2
DESIGNED BY ROLAND SCOTT
1/8" sheet fin
THIN COPPER POT OR TIN TRAM TAB
Small strip of bamboo
18 swg hooks
1/8" sheet tailplane platform
Hole for rubber bands which in turn pass around dowel in fuselage
3/16" square
Rubber bands
3/16" sheet let in
1/8" sheet let in between lower longerons
1/8 sheet lower fin cemented to sheet between lower longerons
3/16" dia dowel
Groove platform front & rear to take 3/16" split dowels which are cemented to underside of tailplane
3/16" gusset
All longerons uprights & cross struts 3/16" Sq hard
Note: steam bend longerons forward of front wing dowel
3/16 gusset
Form tow hooks from 16 swg piano wire bind & cement to longerons
Hardwood plug
Nose block laminated from 10 pieces of 3/16" sheet cross - grained hollow from piece 2 - 6 to take lead ballast
1/16" sheet let in first bay
3/16" sheet gusset
1/8" sheet gusset
Typical tailplane rib 12 off 1/16" 2 off 1/8" sheet
1/16" sheet top only
1/8" SHEET CENTRE RIBS
SLOT FOR PIN
Split small piece of 3/16" dia dowel down centre & cement each half to lower surface of L E & T E. Note that L E is offset 1/8" to starboard
1/4" Sq L E
1/2" x 3/8" pre shaped L E or 1/2" Sq normal strip
Wing L E dihedral keeper 1/8" ply
3/16" x 3/4" T E
1/8" SHEET TOP ONLY
CELLULOID REINFORCEMENT STRIP
1/8" SHEET GUSSET
3/16" top spar
1/4" spar top & bottom
Wing spar dihedral keeper 1/8" ply
1/4" sheet tailplane tip carve to tailplane section
3/16" bottom spar
Dotted line shows amount of L E to be carved away if using 1/2" Sq strip
Cut key off flush if using 1/2" Sq L E
Typical wing rib 28 off 1/16" sht
1/2" sheet wing tip carve to wing section
3/16" sheet gussets
3/16" x 1" T E
Mainspar dihedral keeper
L E dihedral keeper
3/16" SHEET GUSSET
STARBOARD WING PANEL
PORT WING PANEL

The Walter A/2 glider 50” span especially for the beginner by Roland Scott from Aeromodeller May 1951



As was stated in last month’s “Especially for the Beginner “ article, this month is intended for beginners but it is not supposed to be a first model. As a third or fourth model, however, it will offer little difficulty,
although owing to its relatively large size you may get the idea that it will never be finished! The model used
for illustrating this article was built at top speed using every available spare minute and some extremely late
nights (followed by hectic mornings!) and took exactly a week, which shows that it can’t be very complicated. But if it is your first large model you will probably find it rather a slow job; the result, though, will be more than worth the trouble. - Scattered through these notes you will find one or two suggestions which experience has shown to be improvements, though only in slight details, on the original design. For instance it was found that the wing was held more firmly in position when the dowels were set slightly nearer together—inside the adjacent vertical spacers instead of outside them. Again, the underfin would be much stronger if laminated from cross-grained 1/16 in. sheet; on the original this unit snapped off on a hand-glide in gusty weather just before the outdoor photographs were taken, the result being a slight loss in directional stability—i.e. a tendency to wander from side to side, the direction of the flight being affected by
any unexpected puffs of wind.

Cutting out the Ribs The method here is identical both for tailplane and wing, so we will deal with the latter only. First trace the rib outline twice onto 1/16 in. plywood. If you are using a ready shaped grooved L.E., then the forward end of the ribs will have to be tongued (as in the illustrations) ; if a ½” in. square spar is used, it will have to be straight. Cut out the ply master ribs, and sand them to a uniform accuracy. Test the spar holes with the correct size of spar, and see that the tongue fits snugly into the L.E. groove.

Now cut up two full sheets (36 in. x 3 in.) of 1/16 balsa into rectangles, slightly larger than the rib outline, and sandwich them between the two master ribs with pins pushed through from both sides. Since the pin points must reach comfortably past the middle of the sandwich, you will need extra long pins, or failing this, do the job in two instalments—thirteen ribs at a time. Carve and sand the balsa rectangles to follow the outline of the master ribs. Fig. l shows the rectangles pinned in place between the ply ribs.

Use a small hacksaw to cut out, the spar holes (see Fig. 2) and finish off neatly with a file and smooth sandpaper—see Fig. 3, which also shows a cross-section of the L.E.

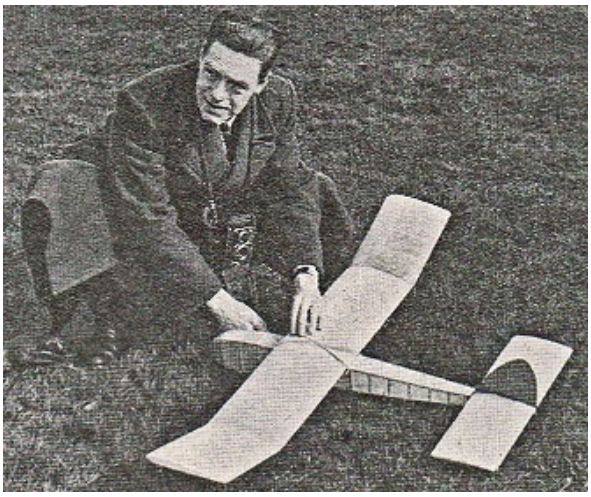
As there are no formers to worry about, we can go straight on to the fuselage. The Fuselage The 3/16 in. square longerons should be really hard stock, which means that the curves at the nose will have to be steamed more or less to shape before pinning down. Fig. 4 shows the general set-up. If the spar is held stationary in the jet of steam from the kettle spout, a sharp curve will result, so move it to and fro as pressure is applied, comparing the spar with the plan every so often as you go along.

The 3/16 in. sheeting at the extreme rear of the fuselage is best done as follows: first, cut the sheet accurately to shape, then cement it against the lower longeron which carries right on to the tail. The upper length of 3/16 in. square spar which passes along immediately below the tailpiane platform can then be cemented against the top of the sheet. Build the second side of the fuselage over the first; remove from the plan when dry; sand and slice apart.

Join the two sides together in the usual manner, sheet in the front panel all the way round, and add the wing dowels and tailplane platform, having first cut out the grooves which are to take the split 3/16 in. dowel keys, later to be cemented to the underside of the tailplane. Since the underfin will come in for some hard knocks on landing, it is also advisable to sheet in the triangular space between the last bottom spacer and the

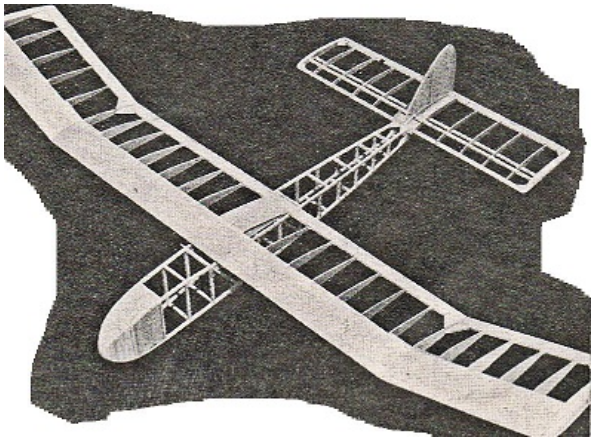
end of the fuselage directly beneath the tailplane platform, with 1/8 in. sheet. This sheeting should not be covered before the underfin has been cemented in place, so as to ensure the cement getting the best possible grip. Finally add the single rear dowel round which the rubber bands working the tip-up tailplane will pass.
The Nose Block cut the ten rectangles from 3/16 in. sheet slightly on the large side to start with. With the grain running in opposite directions on alternate pieces, lightly cement them together in a block, putting a single blob of cement in the centre of each rectangle, and carve and sand roughly to follow the curve of the fuselage longerons. Then slice the pieces apart and cut rectangles out of the centres of number 2 to six going from the front of the fuselage towards the nose. Since quite a lot of weight will have to be inserted into the nose block, these rectangular apertures will have to be as large as possible—up to 1/4" in. off the edges of the pieces of sheet. On the original, the centre was also cut out of the largest sheet (number 1), and a piece of 1/16 sheet cemented between it and the front of the fuselage when the block was put in position.
The laminations are now reassembled and cemented firmly together under the pressure of a vice or some sort of weight, and left to dry for several hours. The block is then cemented to the front of the fuselage, and a 1/4 in. hole drilled into the top for tbe insertion of the lead shot. Final sanding should be first with rough, then with very smooth sandpaper.
The Wing The trailing edge will have to be cut from 3/16 in hard sheet and carved and sanded to shape. Lay out the T.E. and lower mainspar for the flat centre-section over the plan and add the ribs, making sure that the two middle ribs have been cut down 1/16 in. to leave room for the sheeting: The top spar is now added, and finally the L.E. The two tips are built separately in the same manner. Note that the ribs at either end of the flat Centre section are the same two ribs as those which occur at the inner ends of the tip sections, and that these ribs must not be added until after the dihedral joint has been made.
The Dihedral Joints Trace the dihedral braces —two of each width—carefully onto 1/16in. plywood cut them out with a hacksaw, and sand the edges smooth. Wrap a piece of sandpaper round a large sanding block; it should be a couple of inches longer than the size of the wing chord... With this the L.E., mainspars) and T.E. can all be sanded at the same time to the correct angle needed between the ends of the centre section and the tip sections, as is shown it Fig. 5. Check carefully that these joints meet flush with each other when the tip is raised to the correct height. The joints are then made in the following way :—

1. Cement one of the wide braces against the ends of the mainspars of the centre section—Fig. 6.
2. Having pre-cemented all the ends—L.E., T.E. and spars—bring the tip into position and hold the ends of its spars firmly in contact with the projecting half of the dihedral brace by a strong paper-clip or some such method—see Fig. 7.
3. Cement the thinner dihedral brace against the inside of the leading edge across the joint.
4. Cut the dihedral joint rib in two, and having removed 1/8 in. from the forward end of each part (to leave room for the ply braces), fit the rib in place— see Fig. 8.
5. Add 3/16 in. gussets between each side of the joint rib and the T.E.
6. Add 1/16 in. leading edge and centre panel sheeting.



Tail Unit. The tailplane is perfectly straight forward and will offer no difficulty. Since the fin is six inches long and the grain has to run vertically, two pieces of 3 in. wide sheet will have to be cemented end on together. Pin one piece down over greaseproof paper, cement both edges, and slide the second piece up against it, pinning this also in place to dry. When the joint has set, trace the fin outline onto the sheet and cut it out. Slots will now have to be cut out of the lower edge of the fin to slip over the two tailplane spars, and the front of the fin will also have to be cut away to fit over the L.E. But do not cement the fin in place between the two centre 1/8 in. ribs of the TP. until after this unit has been covered and is ready for doping; the tissue between these ribs can easily be trimmed away with a blade. (Note that the 3/16 in. T.E. may have to be sanded down somewhat to fit the ends of the tailplane ribs.)

Final details. We are now almost ready to begin covering, but there are still one or two small points to be attended to. Towhooks must be bent to shape, bound and cemented to the starboard lower longeron at the places indicated. Try to get the slight curve correct in the horizontal part of the hooks; this helps to prevent the towline ring from slipping off before it should do.



Cement rectangles of soft 1/2in. sheet (1/4in. for the tailplane) to the tips, and when dry, carve and sand to shape. The centre section of the wing must also be sheeted, the grain running parallel to the length of the wing. Check over all joints, and see that no gussets have been left out: there should be one at every comer of both wing and tailplane. A final sanding all over with very smooth sandpaper will make for neater covering. Fig. 9 shows the model at this stage; the fin has been loosely slipped into position for the sake of the photograph.

Covering Heavyweight Modelspan should be used. On the original, the undersurfaces were light blue, sides and upper surfaces white apart from the fin which was also light blue. Paste or dope the tissue onto both fin and underfin this improves them in strength as well as appearance. When covered, they are cemented in place.

Doping. Two coats of clear dope should be applied to the fuselage and one to the rest of the model, this being followed up with an over-all coat of thin banana oil. The wing can be doped all over as a single unit, the centre section only being pinned down flat to dry. The tailplane too should be pinned down. If the T.E. of the wing is made from really hard balsa, there will be no need to add the strip of celluloid over its upper side at the centre; this is intended to prevent the rubber bands from biting into the wood. If celluloid has to be added this should be done before doping, and cement should be used for the job.

D/T. Arrangement This was dealt with in full last month, so there is no call for a repetition. All that has to be done is to drill a 3/16 in. hole through the fin at the point indicated, and to bend and insert the two rear retaining hooks into the T.E. of the fin and the end of the lower longerons at the tail.

Trimming arrangement. The entire tail unit is permanently offset to give a slight right turn, by cementing the front tailplane key (split dowel) under the L.E. of the tailplane 1/8 in. to the starboard side—just off-centre. The rear key should be immediately below the fin. Cut the trim tab from thin copper foil or tin; open up the T.E. of the fin with a blade, and push the tab home. The joint may be strengthened by the addition of a gusset of cement all the way down both sides.

Flying the Walthew A/2

Add lead shot to the nose block until the centre of gravity approaches a point below the thickest part of the wing chord. -With a model of this weight the flying speed is fairly high, so hand launches should not be too gentle—see where the designer Roland Scott (complete with Rolliflex camera t) is having a go. A flat glide of about twenty yards should be aimed at, and the tab adjusted to give a very slight right hand turn.

Your towline will have to be something much stronger than ordinary cotton, for the strain, once the nose lifts, is considerable. All three hooks have been used successfully, but start with the front one for safety's sake. In very calm weather when the rear hook has to be used, be careful to reduce the pull should the model swing over to one side, and only take the final strain when the nose points well upwards. Launch on a slight right turn, otherwise height will be lost while the model finds its true direction again.

From Jörgen Daun

Hi James sending Pictures of my nearly 15 years old Luscombe silvaire built from an org Kiel Kraft kit .And also My Fledeling from a short kit from Douglas Wass.

From David Bintcliffe

I came across these photos in an album left some years ago by Alex Mc Donald. He won the Nationals in the 1950 s with a Mercury Matador. In this photo he is watching another competitor. He was a rep for Henry J Nicholls, whose son Richard is shown in the second photo.(note K and B engine on the counter!
Final photo shows a large petrol plane with double nose wheel and ? Ground base TX (or is it a starter battery?

Here are some seaplanes .Top photo is my Deperdussin (lots of wires and slightly overweight does not give benign landings)
Next is Trevor’s 4 engined Scale seaplane returning to base ...
Finally from Old Warden is Peter Illif s Austro Hungarian seaplane ..and a beautiful Albatross (?)
Both flew perfectly on the calm Saturday morning ...


1552

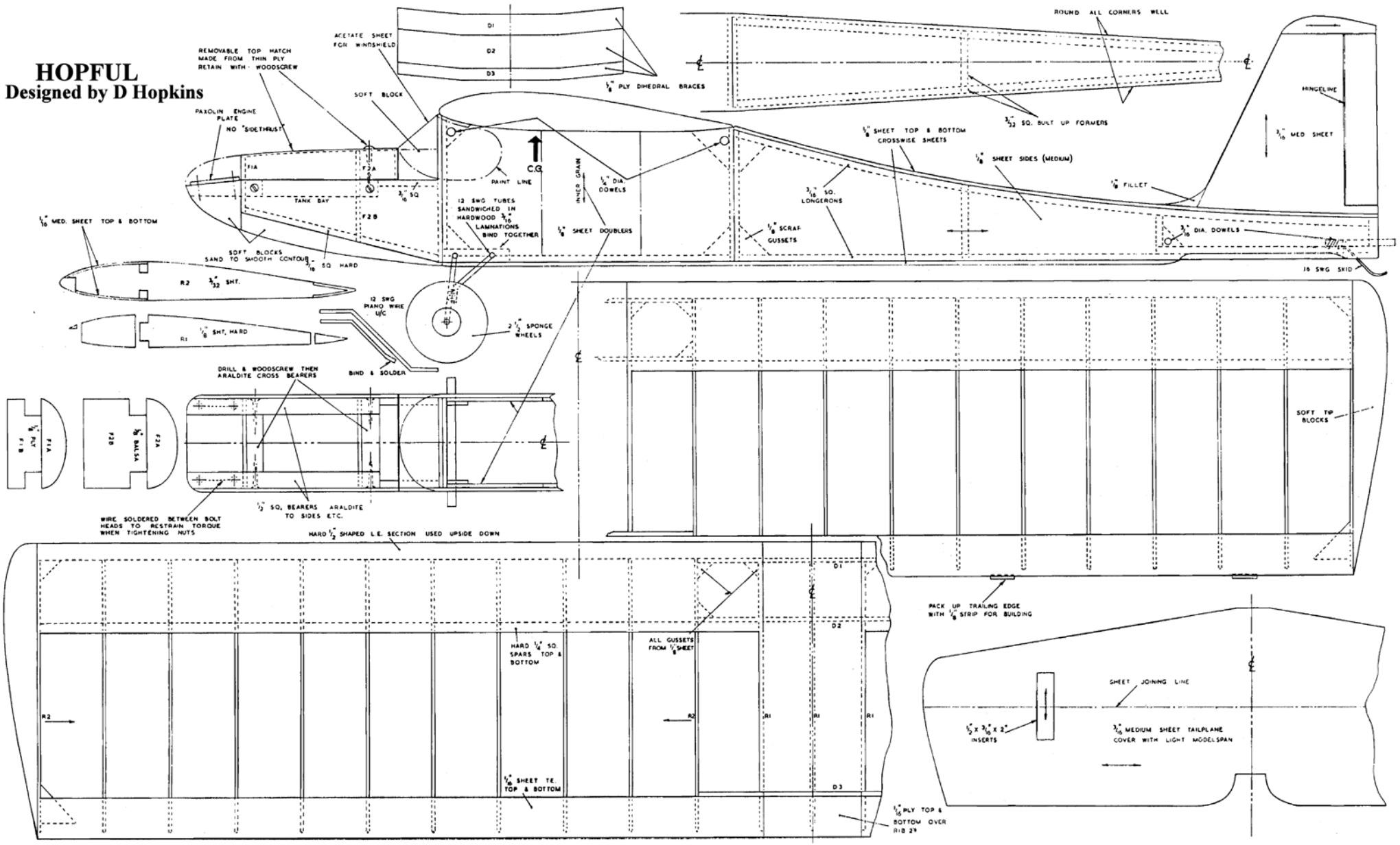
I was lucky enough to witness the first water flight of Martyn Hardy's New Piaggio amphibian . It had had 3 flights from the ground, and flew very well off the water .Water handling helped by differential prop thrust ...no spray hitting the props ..on takeoff ...looked nicely stable in the air .Good landing ...pilots pulse remained below 160 or so !

From Chris Hague

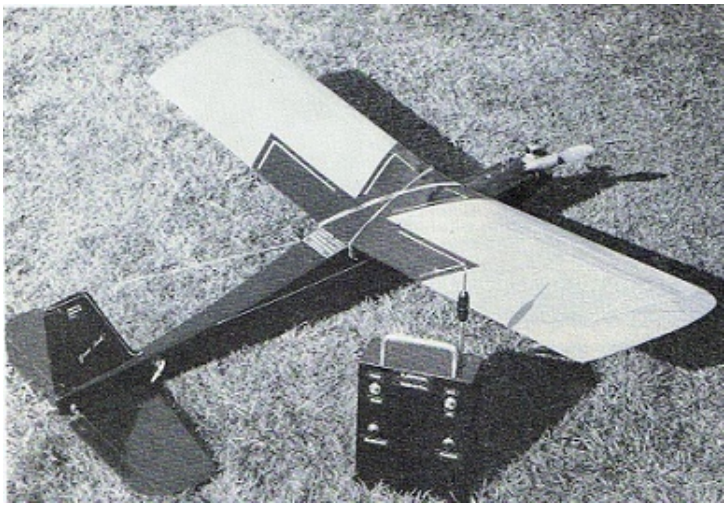
Some OW photos from the weekend 12 & 13 April.


HMS
INCREDIBLE

HOPFUL
Designed by D Hopkins

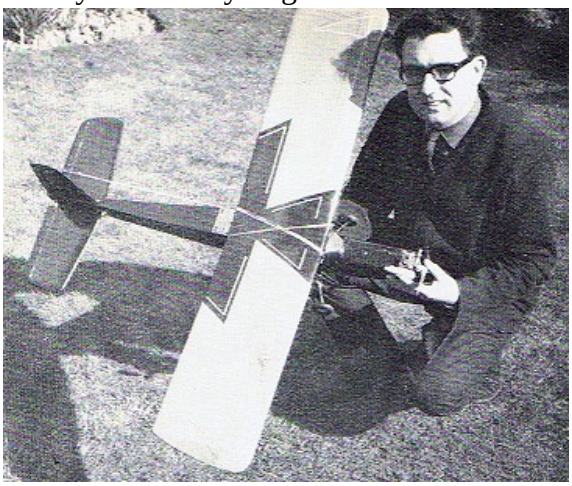


Hopful a smooth flying model for rudder only to G.G. Designed by D Hopkins 15 – 19 power 46” span From Radio Modeller September 1969



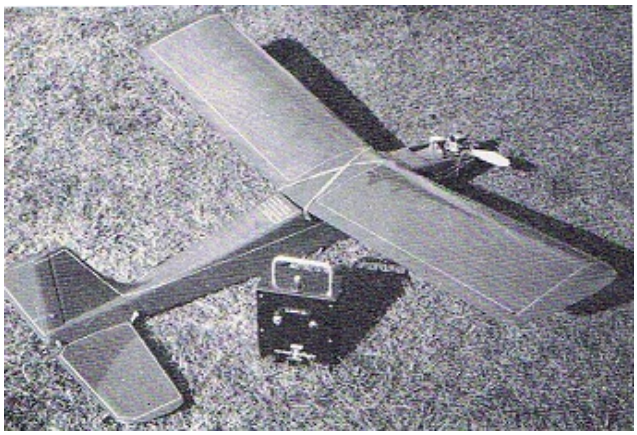
The original Hopful design was conceived and built as an attempt to rationalise the club’s thoughts on single channel R/C flying. It was evident, at flying sessions and rallies that there were basically two approaches to single channel flying. One school presented a highly aerobatic “bomb” which required definite pilot skill to be successful; the other gave us models which, although “safe.” twitched and wallowed most unrealistically all over the sky, and would actually fly back wards (relative to the ground)
in a wind. The qualities required of a model were considered to be as follows:
(j) It must fly smoothly (and thus more realistically), and have room for throttle control to aid this.
(ii) It must be quite safe in the air on rudder only and yet be aerobatic enough to satisfy, in the hands of a good pilot.
(iii) The model should be able to penetrate a reasonable wind and—
(iv) be able to withstand rough field treatment (etc.) with impunity.
Personally—and I know I am open to much criticism here— model weight was considered to be of secondary importance, provided the original aims were fulfilled.

The result, after evenings of discussion on wing sections, areas, moment arms, dihedral considerations and so on, plus eyebalI engineering,” beer and balsa sessions, was Hopful Mk. I. This sported a slightly larger wing area than the Mk. IV presented here, and is 8oz. lighter. Penetration was reasonable but the model suffered from having too good a glide, making landing approaches difficult to judge.
The Mk. II was given an undercarriage (our club having started to lay a runway in the meantime) and a kick-down elevator to be used in pylon racing attempts. Never again!
All worked well, for two flights, until the elevator stuck down at about 300ft. with the motor at full bore. Needless to say, the model hit the small runway in our very large field and little was left to salvage. So the



Mk. III was built, followed by the Mk. IV, with improved, more simple, construction.
Hopful has more than proved itself, both from the point of view of smooth flying and rugged construction, with Mks. I and III flying smoothly through their fourth season.
Many Ashford club members have built Hopfuls, with various radio installations, using rubber driven escapements, motorised actuators, galloping-ghost and also multi gear. One flew very successfully with pro
portional and an OS.19. Power and trimming a motor which throttles reliably is considered essential.
Here the O S.l 5 fills the bill perfectly, with plenty of urge and faultless idling making touch-and-go’s a joy to perform.
Three-position throttle actuators have been used by some, with great success. The ideal trim to aim for is a natural left hand turn, thus needing only occasional dabs of right to fly into wind. The rudder movement may be altered for greater deflection, if more complicated aerobatics are the aim, but for sheer

enjoyment and general fun flying, keep to the in. each side of neutral, as specified on the plan.
The plan itself is complete enough for anyone who has built a model or two previously without recourse to ‘now’ stick this to that” type of instruct tions, so I will not presume to give them. The construction is quite straight-forward and, if covered with the materials specified, the model is very strong and has the basis for getting a really good finish if desired. Build a Hoppful and many happy and smooth flying hours will be yours.



From Dave Day

Multi protocol transmitters

What is it?

This is a relatively new term which won't mean a lot to most of us. Since the advent of 2.4 Ghz radio control systems there has been an explosion of radio control toys. Basically these use methods of transmission that originated in mobile 'phones. Both the transmitter and the receiver will use basically the same transceiver circuit and they will 'talk' to each other. The principal involved in 'binding' a particular transmitter to a given receiver will consist of the receiver searching for the transmitter. When it finds the transmitter, it will say, "got you" and the transmitter will lock on, or 'bind'.

That sounds simple enough except that there are dozens of different ways in which that can be done. Once bound, there are several different ways that the information can be transmitted. Each of these is called a 'protocol'. Where things become even more complex is that there are basically four different transceiver 'chips' that can be used (there is no point in naming them here).

So, a multi protocol transmitter will have up to four different RF modules and supporting software that will accommodate most of the systems in use from 'toy' quadcopters up to aerobatic aircraft or helicopters. To put it another way, you can fly everything on the market with one transmitter. Is there a price to pay? Yes, you have to learn to program the thing!

Although a multi protocol tramsnitter will bind to most available products, you still have to work out the minor controls. These include such functions as turning a camera on or off or flipping, etc. In most cases, these are operated by pushbuttons and the current range of Multi protocol transmitters do not have pushbuttons.

History

It all began when the chinese company Walkera changed the design of their R/C systems. Walkera have always been at the forefront of R/C design (they produced the first quadcopter, the first contra-rotating helicopter, etc.). For various reasons, they brought out a new range of radios called 'Devolution' which weren't compatible with their previous range. This contained just one of the four RF sections above but was capable of having it's software (or firmware) updated. An enterprising bunch of individuals, calling themselves 'Deviationtx' realised that by updating the software the existing transmitter could be made to work all of the previous Walkera systems, together with Spektrum DSM2/DSMX, Nine Eagles and others.

Devo 7e with extra switches

The next stage was to add the other transceiver chips so that it could work the remaining systems. Originally, adding extra modules meant adding extra aerials, but the advent of 3 and 4 in 1 modules eliminated this.

The range included transmitters from 6 to 12 channels, most of which were of conventional size. However the Devo 7e was smaller, lighter and conveniently shaped. This originally had two 2 position switches in addition to the sticks, but the deviation software allowed extra switches to be fitted.

Jumper T8SG Plus

The Deviation software allows you do just about anything you want - if you can work out how to do it. Although all of the above come with 30 model memories you can easily increase that. The theoretical maximum is 200 for the Walkera and 255 for the Jumper models.

FrSky Taranis X9D

For some time now the standard transmitter for drone racing has been the FrSky 'Taranis X9D' although it is almost unknown in the UK. This was unique (at the time) in that it had an internal module which could be used for a small range of protocols, plus a bay at the rear which could accommodate modules for other protocols. You can now obtain a module made by iRangeX which will fit this bay and will allow you to use most of the remaining protocols, all programmed from the main display. The 'Taranis' also has a voice synthesiser which can give verbal warnings. Yhe Taranis is festooned with switches and knobs and has six 3 position switches, two 2 position switches (one spring-loaded) and four proportional knobs/levers.

Not to be outdone, the Jumper T8SG V2 and Plus now have a similar bay at the rear. This must be with some future development in mind, since the standard version covers most of the available systems. It may be for a future voice module.

The 'Taranis' runs 'Open TX' software which involves a much steeper learning curve that 'Deviation'. The one thing that all of these transmitters have in common is that they are programmed via 6 buttons: 'Enter', 'Exit', 'Left', 'Right', 'Up' and 'Down'. You will have guessed by now that they all have a different layout. The layout of the Jumper models is much more intuitive. The 'Taranis' is just about the most unfriendly system imaginable. Not only are there a host of menus within menus, but long or short presses of the buutons do different things.

Other transmitters are currently being developed and things are flexible at the moment. One other transmitter has appeared and then been withdrawn due to problems with the stick potentiometers. By the time tou read this, an updated version will probably be available.

To put things in perspective, a Walkera 'Devo 7e' (other models are available) will currently cost you around £50 but you have a fair amount of work to do. The original Jumper T8SG' is no longer available. The V2 costs around £91 and the V2 Plus araound £107. A FrSky 'Taranis X9D' will set you back £170 (but you do get a receiver with it) and the iRangeX 'IRX4 Plus' module £30.

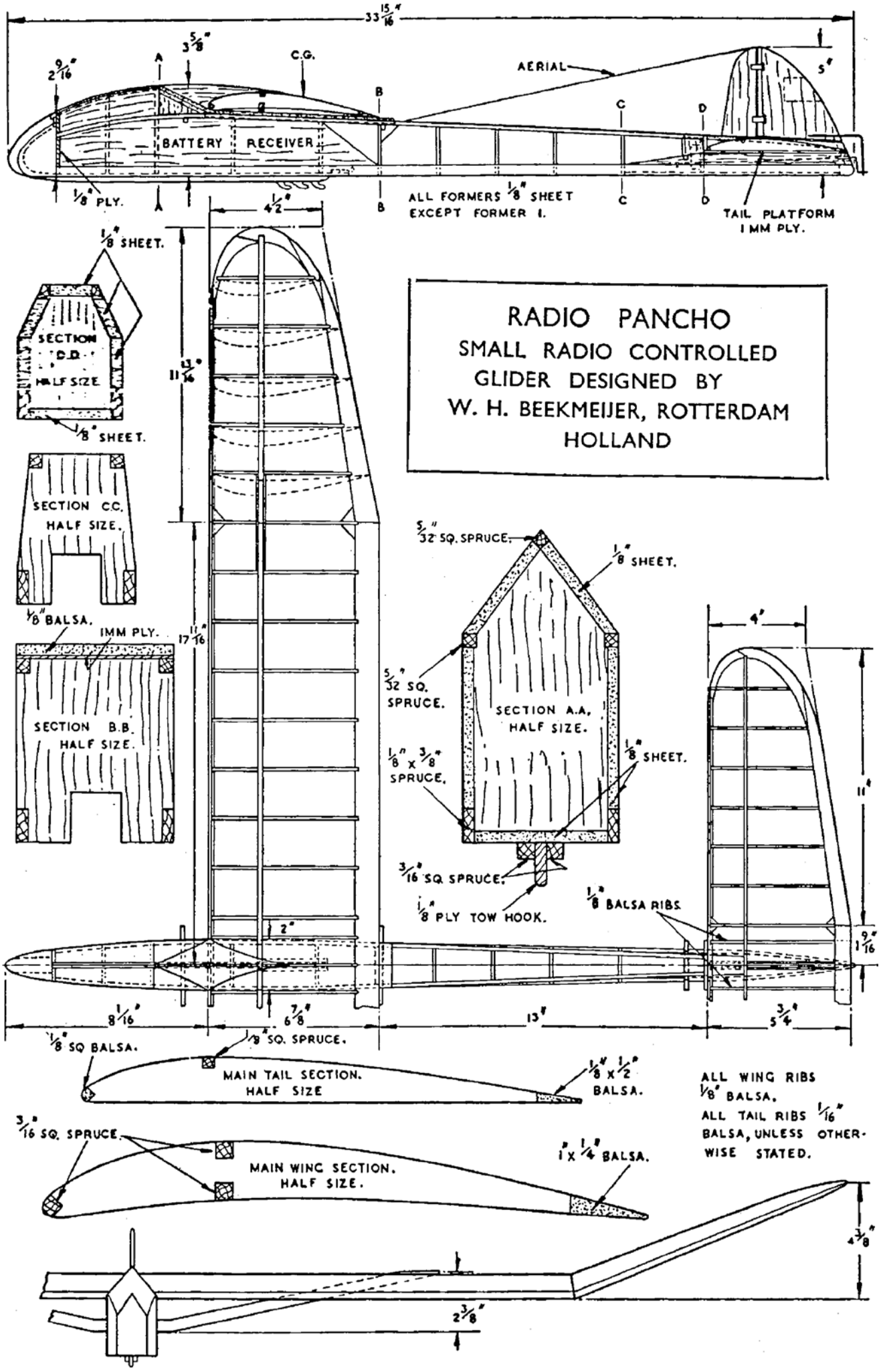
All of the above can be found at http://www.banggood.com/ and other outlets.

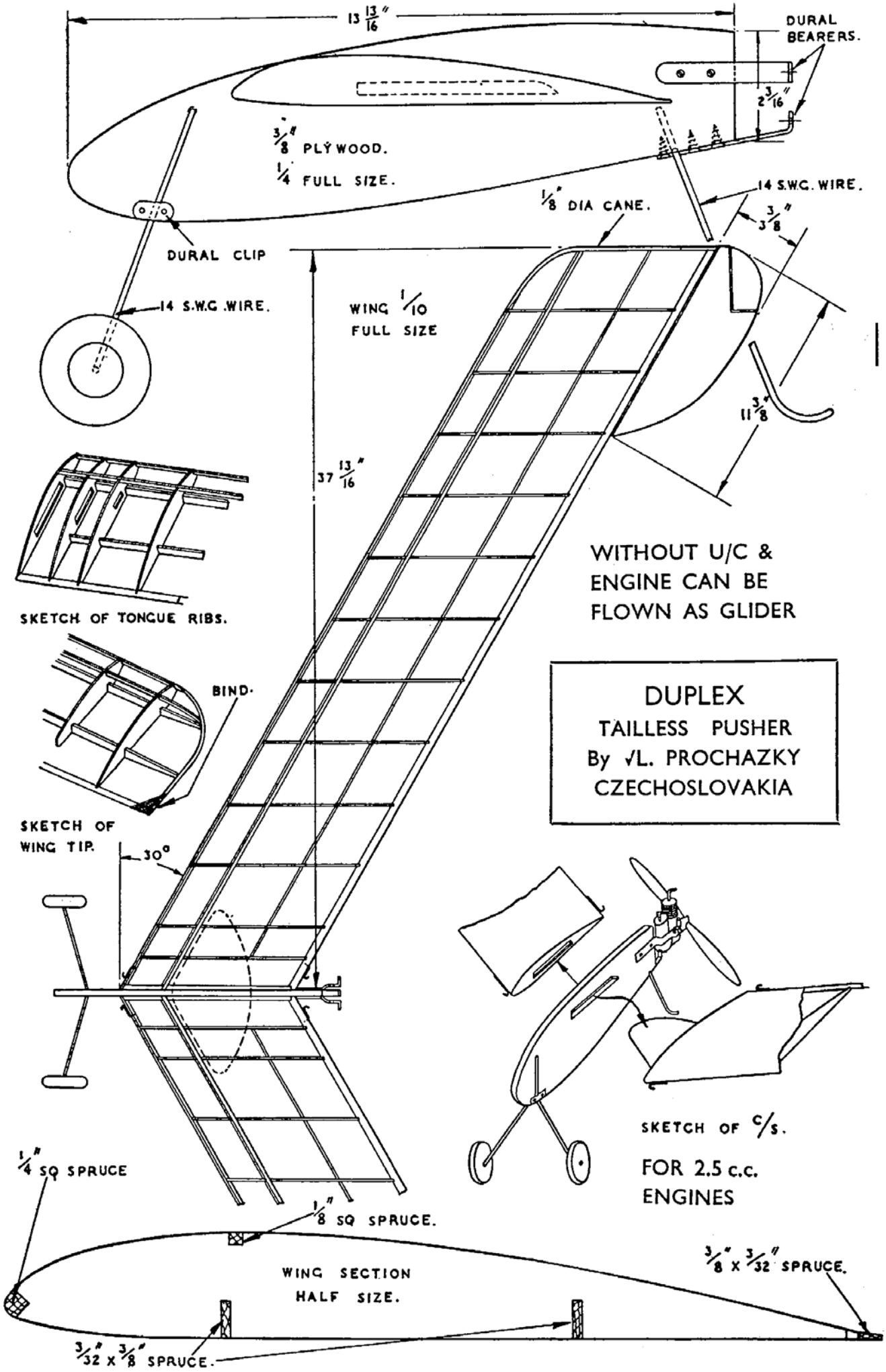
Deviation software can be found at: http://www.deviationtx.com/
Open TX software can be found at: http://www.open-tx.org/
Videos on how to modify and update the software on all of these versions can be found on Youtube at: http://www.youtube.com/
A full list of the protocols in use, the models covered and the RF chip involved can be found on the Deviationtx website.

Hall effect sticks

A conventional control stick uses a potentiometer (variable resister) to control the electronics. This involves a scraping contact and will give no problems if of good quality. Poor quality 'pots' can give problems. One solution is to use proximity sensors which have a magnet to give a varying magnetic field (the 'Hall' effect). The Jumper 'T8SG V2 Plus' has these as standard and they are available as an update for the FrSky 'Taranis'.

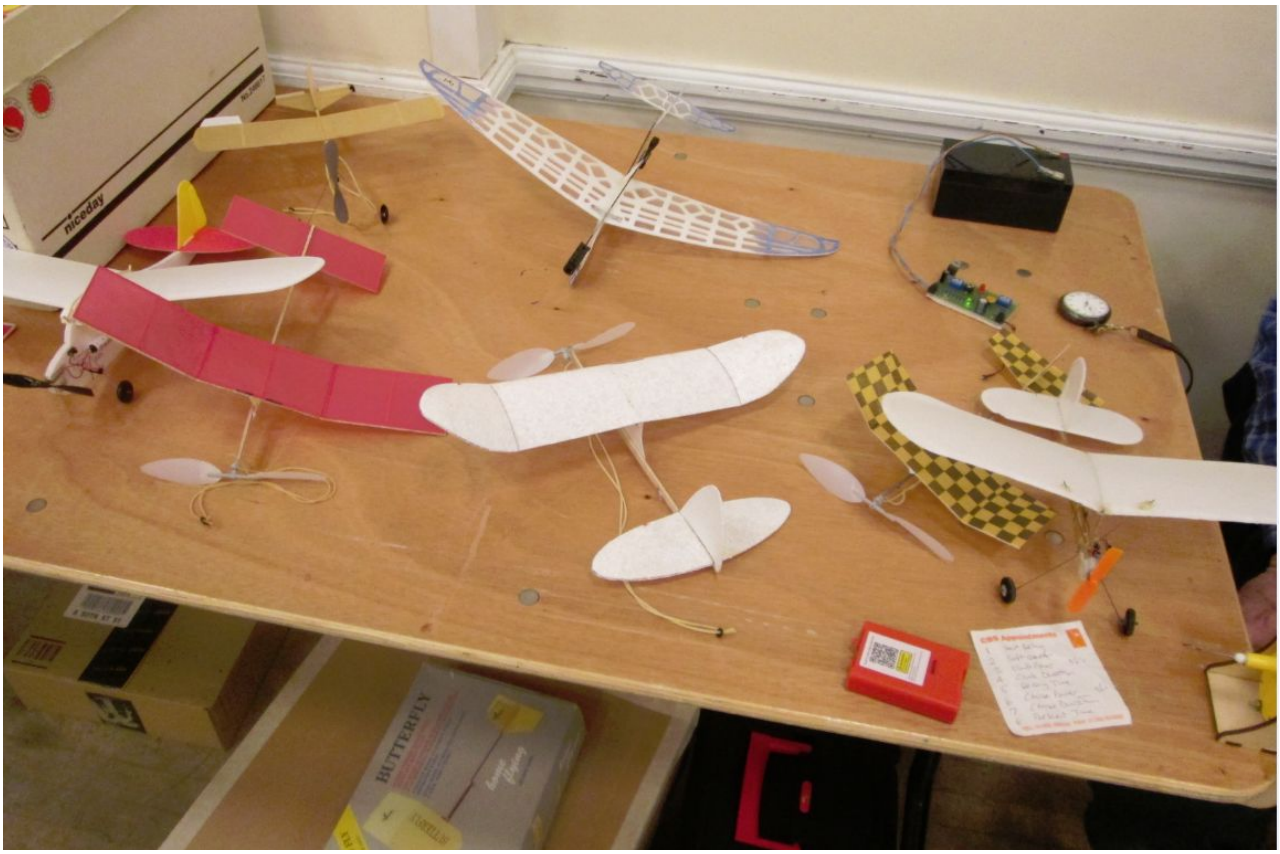
Following are a couple of plans I liked the look of and taken from the 1955 Aeromodeller Annual


RADIO PANCHO
SMALL RADIO CONTROLLED GLIDER DESIGNED BY W. H. BEEKMEIJER, ROTTERDAM HOLLAND
33 15/16"
3 5/8"
2 9/16"
A
C.G.
B
C
D
AERIAL
5"
BATTERY
RECEIVER
1/8" PLY.
ALL FORMERS 1/8" SHEET EXCEPT FORMER 1.
TAIL PLATFORM 1 MM PLY.
4 1/2"
1/8" SHEET.
SECTION D.D. HALF SIZE.
11 13/16"
SECTION C.C. HALF SIZE.
1/8" BALSA.
1MM PLY.
17 11/16"
SECTION B.B. HALF SIZE.
5/32" SQ. SPRUCE.
SECTION A.A. HALF SIZE.
5/32" SQ. SPRUCE.
1/8" x 3/8" SPRUCE.
3/16" SQ. SPRUCE.
1/8" PLY TOW HOOK.
1/8" BALSA RIBS.
4"
11"
1 9/16"
2"
8 1/16"
6 7/8"
13"
5 3/4"
1/8" SQ BALSA.
1/8" SQ. SPRUCE.
MAIN TAIL SECTION. HALF SIZE
1/8" x 1/2" BALSA.
ALL WING RIBS 1/8" BALSA.
ALL TAIL RIBS 1/16" BALSA, UNLESS OTHERWISE STATED.
3/16" SQ. SPRUCE.
MAIN WING SECTION. HALF SIZE.
1" x 1/4" BALSA.
4 3/8"
2 3/8"

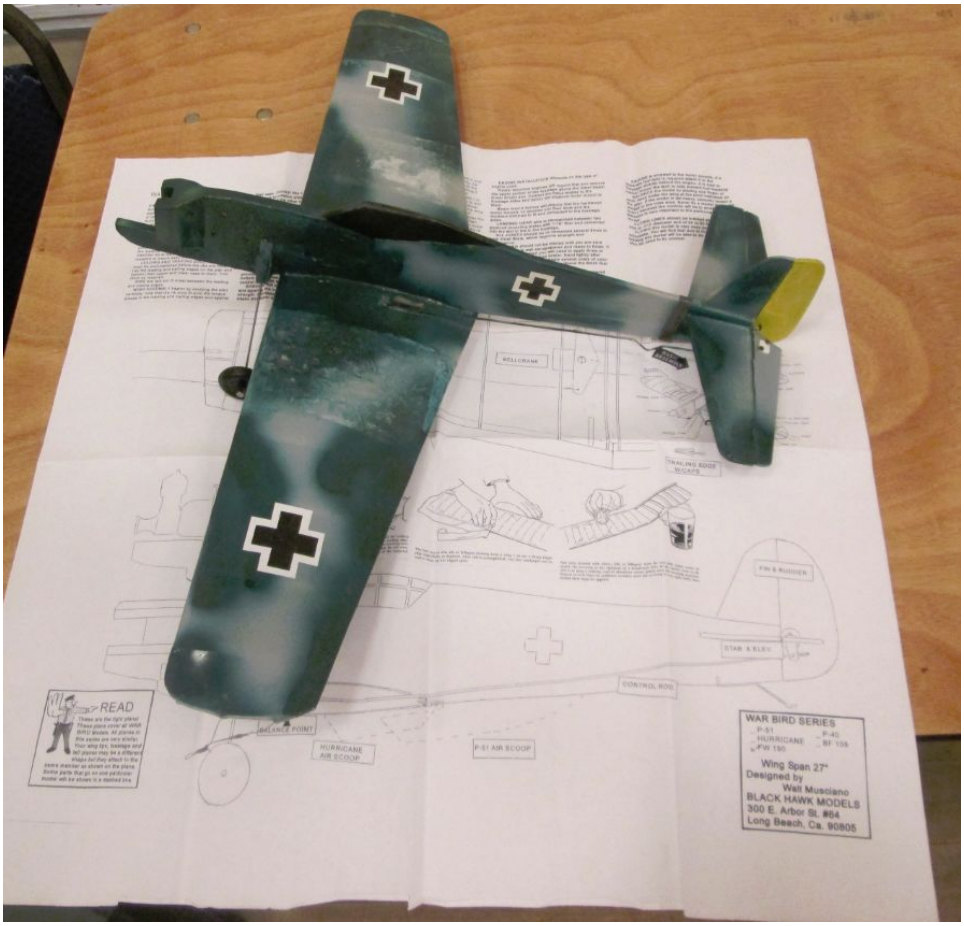

13 13/16"
DURAL BEARERS.
2 3/16"
3/8" PLYWOOD.
1/4 FULL SIZE.
14 S.W.G. WIRE.
1/8" DIA CANE.
3 3/8"
DURAL CLIP
14 S.W.G. WIRE.
WING 1/10 FULL SIZE
11 3/8"
37 13/16"
SKETCH OF TONGUE RIBS.
WITHOUT U/C & ENGINE CAN BE FLOWN AS GLIDER
BIND.
DUPLEX
TAILLESS PUSHER
By ✓L. PROCHAZKY
CZECHOSLOVAKIA
SKETCH OF WING TIP.
30°
SKETCH OF C/S.
FOR 2.5 c.c. ENGINES
1/4" SQ SPRUCE
1/8" SQ SPRUCE.
3/8" x 3/32" SPRUCE.
WING SECTION HALF SIZE.
3/32" x 3/8" SPRUCE.

Funny period for aeromodelling personally speaking but there are a few photos I've taken which are worth a look hope here is a compilation taken in May

Geoff Collins launching his OD glider although the wings were the original Apollo designed by Peter Kessell



Alan Bond's machines at Bournemouth Clubs indoor free flight at Wimborne this and following three photos same time same venue



Stewart Hindle's electric CL FW190

Tony Crollie and Gyminnie Cricket

John Taylor and Gyminnie

Following photos from DMFG event 6 May 2018

Spike Spencer's electric Blue Pants

Spike's Spook

Andrew Squires launching electric FF

John Bainbridge's Carpe Diem. The modle has several wing set ups, Mid Bi plane, low wing and pylon. You may recall this model in Aeromodeller and was built and flown FF by Ray Barrow

It is now powered by an OS four stroke

John Taylor

Tony Tomlin's model

Mike Cummins 1946 Skyleada kit

My very own much used and abused Hallam model, great trainer with PAW 1 cc

John Laird

The following photos were taken at Epsom Downs on 17 May

Tony starting his PAW 80 powered Sharkface

Tony launching, interesting fact when he launches forward with energy his hat flies off backwards

Whilst this is a Sharface I know it as a Pinocchio variant, every time it crashes the nose gets longer. As you can see the nose is very long.

Tony's Chatterbox ***(with Ailerons)***

Prop, saw tooth leading edge on Paul Eisner's model

Now this all looks nice and pleasant, Paul Eisner launching his glider, he gave the engine a 2 second burst and it disappeared into the heavens. I can't recall if he said it was 4 kilo att or 3 killowatt of power, no matter it scared the living daylights out of me

Tony with Cardinal using the fairy launch method

Paul with his there you see it then you don't model nothing in between

The following photos were taken at Middle Wallop19 May. I went to join in with the electric flight day but brilliant sunshine and flight line facing directly into the sun put me off, so went to second flight line where Ghost Squadron were holding a meeting.


MINIMOA
B-289


Blanik


739


Ka
OO-ZDT

John Bainbridge talking to Chris Williams

I know this is an Algebra cos its name is written on the wing

One of the glider tugs


97
VV400


174

THE END

Showscene, from Dave Bishop of DB Sound.

Old Warden's Modelair Mayfly April 12 – 13 -2018.
I motored to Old Warden for the Modelair Mayfly weekend and due to "other things" happening had to restrict my visit to the Saturday. The weather was almost perfect for the left hand free flight end and thermals were in abundance. But arriving at 8.40am I decided to go and enjoy a "full English" breakfast at the restaurant and what fantastic value it was finished off with a cracking mug of tea. Nipping along afterwards to the radio controlled right hand end to say hullo to the team that run things so pleasantly for everyone. It's the same old – same old group and they told me that they only had one transmitter handed in on 35 Megahertz which belonged to the popular flight line official James Gordon. James and Roger Godley share the flight line organisation which with the both there has never been so friendly. It was there that I learned from Sheila Sheppard that her husband Ken the Modelair organiser hadn't been so good health wise for some time but he was getting a whole lot better (she said) which is very good news for us all. It was good to see so many friendly faces and radio flyers including David Colley without his famous father Ted and wife Philippa who were elsewhere.

I took some pictures from the radio modellers and made my way up to the Control Line area which was (as usual) by the control tower. Lying on the ground around the tower was a number of the old public address loudspeakers that were being replaced for a very nice line-up of more modern jobs. (As an aside I will be presenting a full set of DB Sound public address equipment for the new BMFA flying site and it will be under the guidance of the helpful BMFA official Keith Lomax. Keith tells me that the late Ron Moulton has donated a complete set of Aeromodellers to the new site) There was a long line of Traders and a whole lot of boot sellers with them having all sorts of "treasures" on offer. Ali Machinsky (senior) who was there trading with his wife Jane bought me a large cup of really nice tea form the mobile kiosk by the control tower and we had a catch-up chat. He told me that his Son Ali junior and his grandson Xavier who had moved to America had both entered a major competition over there and both had won their respective classes. We had all witnessed how these two had performed together in past years at Old Warden which made me feel very proud. One of the boot sellers was interesting inasmuch as two chaps were offering some beautifully made models and stacks of modelling gear that belonged to their father who was with them. He

told me that he “was in his eighties and could no longer do it” and everything was from his home being offered to the crowd for a donation to Old Warden.
What took my notice was the group of control Line flyers have a whale of a time flying on long lines with real “sparky” unsilenced Olson engines. It was the annual Voetsak race meeting all run by the team of the popular Steve Betney and what fun they all had. Ron Moulton had designed this large control line aeroplane and named it Voetsak which I understand means something rather rude but what it really means I know not. I have had the pleasure of judging some shows with Ron and he employed me as commentator at Old Warden and other places. In those days the cars went into overspill and were parked across the road where later on campers stayed in their vans and tents. He really liked show business and was great to work with and for. I had the pleasure of meeting Ron Moulton’s son Johnathon along with his wife and daughter. Johnathan was competing with Dinah Ripper and sadly suffered with engine problems so couldn’t do the required 40 laps with a compulsory pit stop in the middle. But what fun they all had and the cheering and applause was great to hear and see. Altogether a great time was had by all in this specialised control line racing that was so well organised and friendly. I must say that this was one of the happiest group events that I have seen at Old Warden for a long time with a terrific atmosphere all of the time. Congratulations to all and I cannot wait until the next round that will take place at Old Warden’s Modelair weekend on Saturday July 21. It’s a “must see” event and to crown it all, the mobile tuck shop is right by the tower selling the most cracking (and much) filled bacon baps. Come on now, what more do you want? One of the items I saw being presented afterwards was a small carved model of Ron Moulton and I would dearly love one of them for my office but sadly (for me) they have been painstakingly carved for the competitors only. Apart from that, I was welcomed at the Voetsak control line area by everyone and the team are hoping for more pilots and pitmen (women) to join in with the future fun. Afterwards I did receive an email from the very helpful and friendly top man Steve Betney with the full Ron Moulton story of the Voetsak and it is so interesting that I will take the liberty of adding some of the correspondence that we have had since that competition. His email reads as follows.

“We were very lucky with the weather for our Voetsak racing activities at OW on Saturday, avoiding the miserable rain for the rest of the day after lunchtime, and we had some good races. Many thanks indeed to or c/d Brian Waterland, even if he did make us take out hats off, and all others who helped with timekeeping/lap scoring. It was great to see Dick & Babs Roberts and their daughter spectating too, and Chris Pinn and his family over from Germany, who should have their Voetsak with them for their next trip. 7 models took part; it would have been 8 if Mike May with Tony Overton's model had been able to solve his ignition problems earlier in the day, as the model flew really well for the rest of the weekend, or 9 if Montezuma's Revenge had not sadly stricken our Barton team's pilot...
Only 2 teams actually completed 40 laps in the allotted 7 minutes in the 2 rounds flown, with the usual hot starting/other ignition problems making for the customary frustrating fun for all others.
The results were:
1st Simon Timperley and Jan Huning in the quite good time of 4 m 9 secs,
2nd The White father & son team, Steve and Eddie in 6m 18 secs,
3rd Steve Betney & Trevor Tabor with 24 (very fast) laps then no hot re-start, and
4th Dinah Ripper and Jonathon Moulton with 14 laps and more re-starting problems.

Next race is Saturday 21st July at Scale Weekend, when we hope to get into double figures for the entry. Best regard to all. Steve”. Thanks to you all for a great time.

Show Dates for this year 2018.
The Weston Park International will take place on June 15 – 16 – 17 of June run by Steve Bishop and his team. The 32nd Wings & Wheels show at North Weald aerodrome is being staged on 23rd & 24th June - 2018 at North Weald Airfield run by Tom Stephenson, Essex. The next Modelair Old Warden events are on July 21 – 22 –Scale and September 22 – 23 which is the Festival of Flight run by Ken and Sheila Sheppard. . All the best, Dave Bishop and if you would like to send an email on anything please do and the address is davedbsound@gmail.com
Pictures attached.

Always at Old Warden are the helpful BMFA Keith Lomax.

The winners receive their Voetsak trophies from Steve Betney (middle) with Mr S Timperley and pitman Jan Huming.

The whole happy group at the end of the Voetsak prize giving.

Another "sparky" Voetsak flyer from the good old Three Kings club.

Another happy pair on the Voetsak line complete with rosettes presented by Johnathan Moulton's daughter.

A very nice couple at the Radio control area.

This lovely radio controlled Saratoga belonged to the Croydon Clubs chairman Peter Royall sadly now is no more after a radio lock-out.

One of the finest show pilots is Steve Haughty with a beautifully flown Tiger Moth.

The huge Vintage 100 model is being held by John Smewing of the Caterham club. John composes terrific quizzes for clubs.

A cracking line up at the friendly radio control area at Old Warden's Modelair event under James Gordon and his team.

The welcoming Transmitter control team at the Modelair Old Warden.

Always friendly and with a ready smile is Mrs "Belair Models" showing their bestselling kit which is the Belair 48" wingspan Tomboy.

The lady in the middle told me that she came from Germany to Old Warden's Modelair.

Look out for the young Tom Stephenson who will be running the Wings & Wheels event of North Weald aerodrome on June 23 – 24.

The team of boot sellers David and his father 86 years old Robert (Bob) Close who had won many major competitions in past years and now getting rid of his gear.

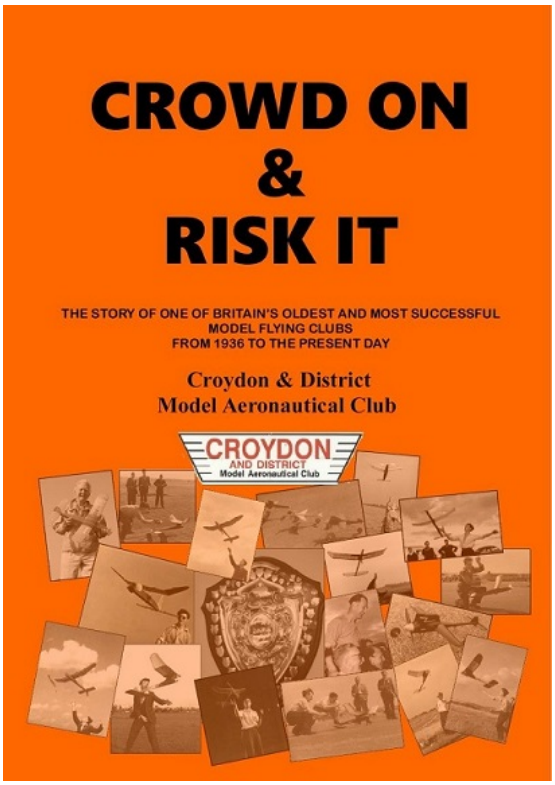
Brian West with his own much modified way back Galaxy Models Escort pictured in the heavy rain that fell down at Old Warden‘s Modelair from 3pm onwards.

CROWD ON & RISK IT

This is the story of one of Britain's oldest andmost successful model flying clubs, Croydon & District MAC, from 1936 onwards. The club contributed much over the years to aviation, both model and full size, and the late Keith Miller compiled its history till around 1960. Now this up-dated 73 page version of the club's history, copiously illustrated with many previously unpublished photos, takes the Croydon club's saga up to the present day. Contributions by past and present members vividly capture the heyday of free-flight, with almost weekly contests at Chobham, Epsom or Bassingbourn. 53 designs by Croydon members have appeared in the model press and 24 of its members have represented Great Britain in World on European Championship teams. Several have gone on to notable careers in aerospace. Crowd On & Risk It covers all this and more.

Just £8.00 by PayPal or cheque

Contact Martin Dilly (martindilly20@gmail.com), phone/fax 020 87775533 or write to 20, Links Road, West Wickham, Kent BR4 0QW.



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
9th September 2018
14th October 2018
11th November 2018
9th December 2018
30th December 2018

2019
13thJanuary 2019
10th February 2019
10th March 2019
14th April 2019

Cocklebarrow dates for 2018 are confirmed as:

8th July
19 August
30th September
For more details contact Tony Tomlin pjt2.alt2@btinternet.com

North Cotswolds MAC 2018 Fun Fly

The North Cotswold MAC's Fly For Fun 2018 will be held on August 11th and 12th at Far Heath Farm, Moreton-in-Marsh, Glos.

We'll be running all our regular features and the models chosen for our Designer's Events this time will be:

On the Saturday - the Keil Kraft Super 60

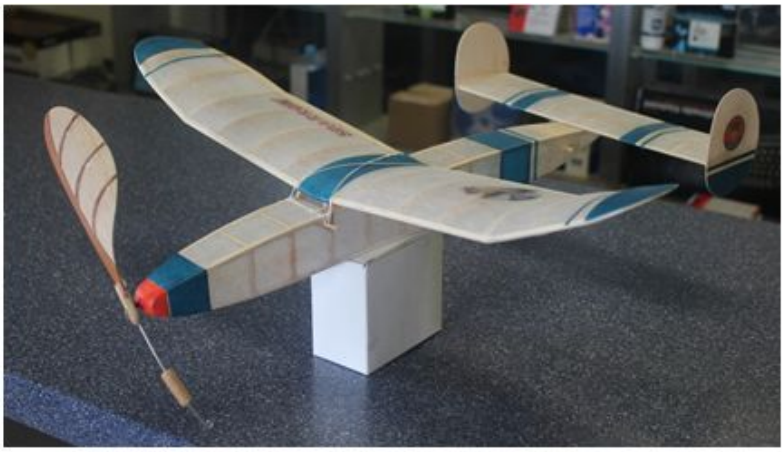
On the Sunday- designs by the late Dereck Woodward (we're revisiting this one as the first time we ran it, the event was hit by bad weather).

In both events, models of any size, variation and power will be welcome.

Gray

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

Cox Engines & Spares



Laser Cut - High Quality FF & RC Kits

Electronic Timers for CL & FF

Small Electric Scale

Belair Kits are very pleased to have commissioned renowned scale designer, Peter Rake to produce a range of small electric scale models.
Wingspans are typically around 36 inch (1m) and all suit the economical 400 brushless motors and mini servos. All airframes are of traditional all wood construction and no mouldings are required. Each aircraft has been thorughly flight tested and are all proven fliers.

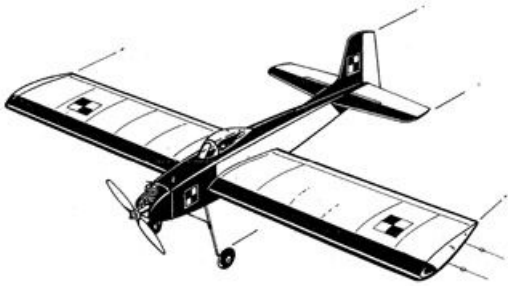
Call Belair on 01362 668658 or visit their online shop at www.belairkits.com

See all the collection on our website

Veron Combateer - Parts Set

Ref: ot-vcomb

Parts set for the **Veron Combateer.** Makes an idela sport combat model or advanced trainer. Easy to build all wood design is even easier to start with a Belair Parts Set that includes fsuelage sides, doublers, tailplane, fin/rudder and elevators, wing ribs, bellcrank mount, wing sheeting & wing tips, bulkheads, formers. Parts set includes facsimile of plan, **Vac-formed canopy to original design and bellcrank**.



Specifications

Combateer
by Phil Smith from Veron 38in span

Follow our build of the Combateer on our facebook page - https://www.facebook.com/Belair-Vintage-Models-1380499095530234

Veron Combateer - Parts Set

Price: £50.00 Inc VAT

55.00 USD | 59.19 EUR

Sukhoi 26 48 inch CL Stunt - Parts Set and plan

Ref: ot-uhk26

Parts Set for the top performing **Sukhoi 26 Control Line stunt model**. Features laser cut parts set with fuselage, doublers, tailplane, fin/rudder, plus ribs and wing parts, all accurately cut and ready to use.

Full size plan included. 48 inch span suiting Fox 35 or similar. Flapped wing.

Proven design capable of flying the F2B schedule and winning. **Originally featured in Model Builder magazine 1988.**

Price: £65.00 Inc VAT
71.50 **USD** | 76.95 **EUR**

Small Electric Scale

Belair Kits are very pleased to have commissioned renowned scale designer, Peter Rake to produce a range of small electric scale models.
Wingspans are typically around 36 inch (1m) and all suit the economical 400 brushless motors and mini servos. All airframes are of traditional all wood construction and no mouldings are required. Each aircraft has been thorughly flight tested and are all proven fliers.

DH82 Tiger Moth - small electric scale range

Ref: res-dh82

We are very pleased to add the DH82 Tiger Moth to our small electric scale range - a truely iconic aircraft.

Our Tiger Moth is designed to 1.23": 1ft with a wingspan of 36 inches. It suits 150 watt brushless setups with 2 cell lipoly batteries and three channel control - ESC, Rudder and elevator.

Designed exclusively for Belair Kits by Peter Rake, this model is a proven flier and quick to build. Its size means it can be left in one piece and fits in even small cars.

The parts set includes many sheets of graded balsa and plywood sheets, accurately laser cut, plus a three sheet plan and build manual.

Model Specifcations

36 inch wingspan for 150 watt brushless motors, 2 cell lipoly batteries and small electric radio - ESC, Rudder and Elevator.

Price: £70.00 Inc VAT 77.00 **USD** | 82.87 **EUR**

Albatros DV - 39" electric scale parts set

Ref: res-ald5

Our Albatros is modelled at 1.31"/1' with a wingspan of 39.3 inches. Designed by Peter Rake exclusively for Belair, the model is fully CAD designed and features laser cut parts. Construction is straightforward and features modern methods.

Includes balsa, plywood and basswood parts for fuselage sides, formers, bulkheads, wing ribs, trailing edges with rib slots cut, outlines for all flying surfaces, interplane struts, tail skid, fuselage crutch, tail skid, plus smaller handy parts. Fuselage is built on central crutch system.

Specifcations of the Albatros DV

39.3 inch span, scale 1.31"/1' for small electric power setups of around 150W. 4 channel radio required - ESC, rudder, aileron, elevator and rudder. Full size 3 sheet plan with constructional guide included

Price: £70.00 Inc VAT
77.00 **USD** | 82.87 **EUR**

Regards,
Leon Cole
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