Sticks and Tissue No 68 – July 2012

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://www.cmac.net.nz

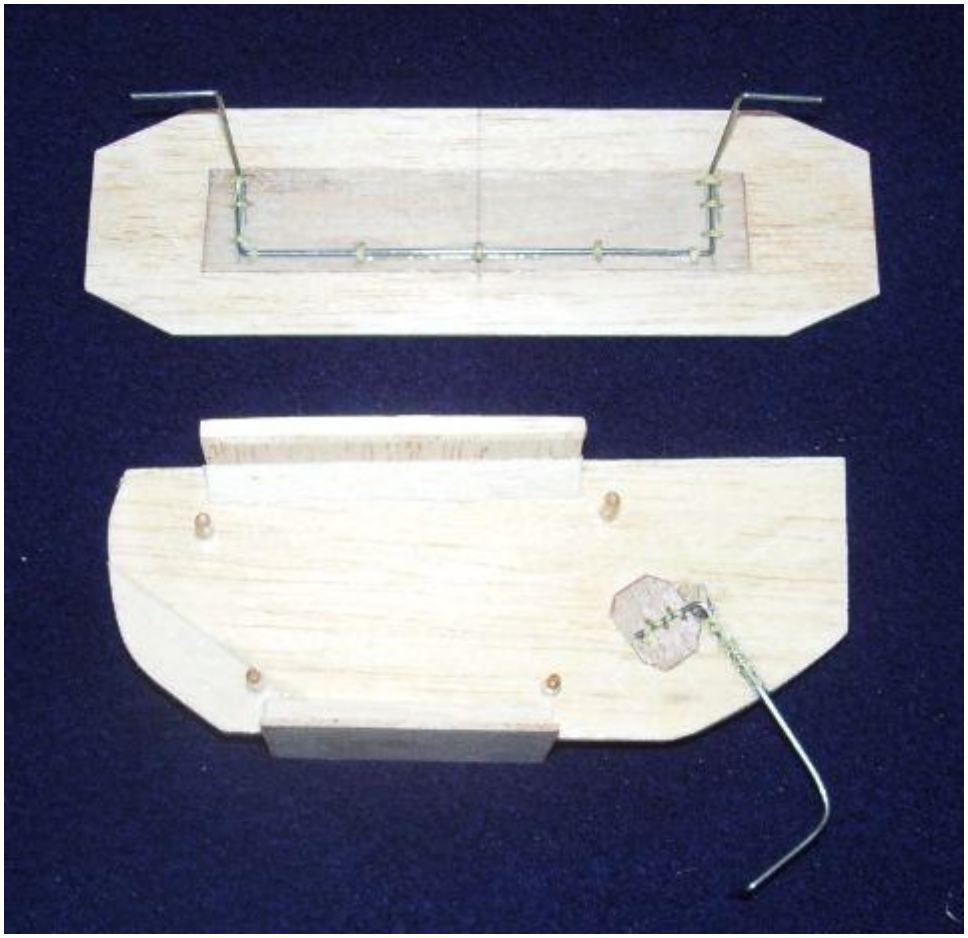
Writings and opinions expressed are the opinion of the writer but not necessarily the compiler/publisher of Sticks and Tissue.

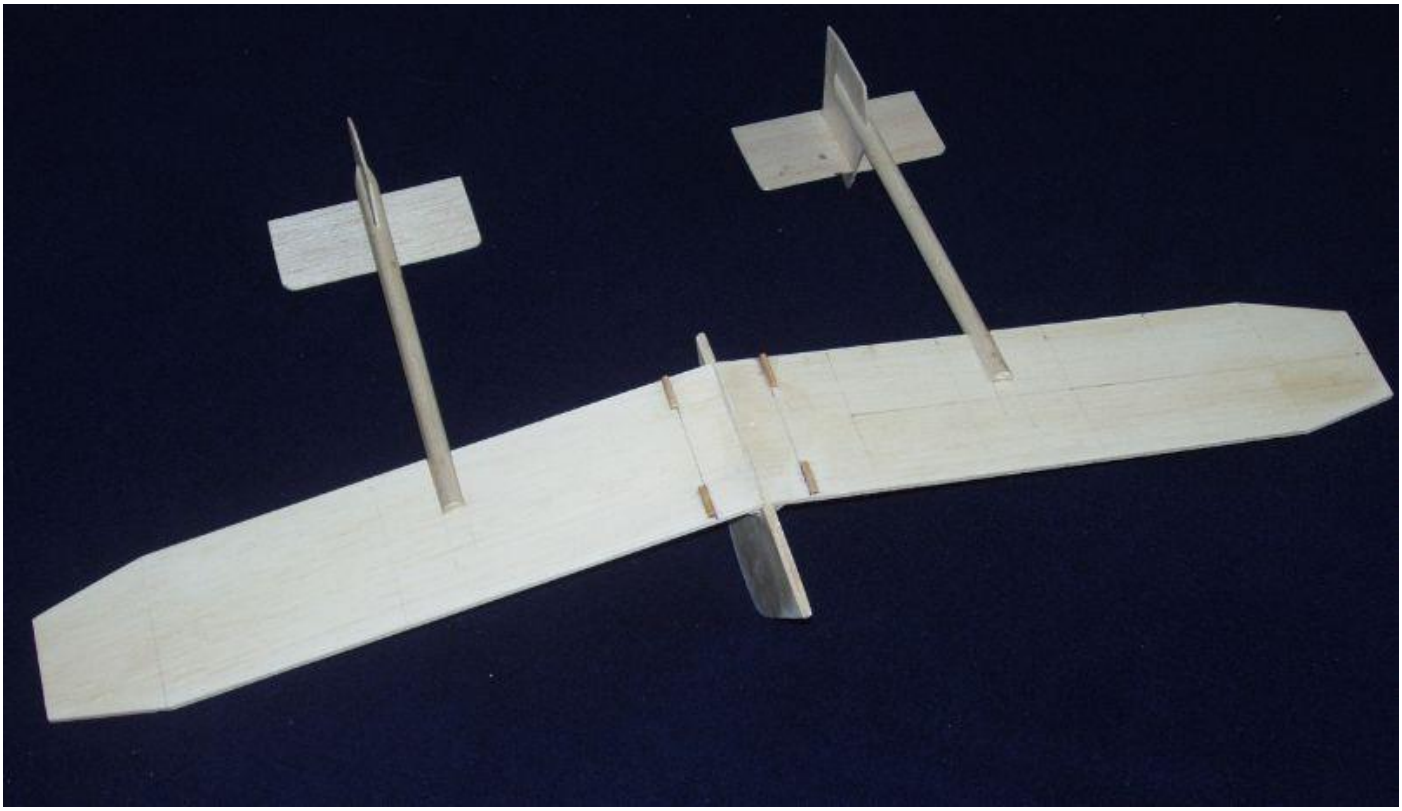
Leon Cole with his Lanzo bomber at Sculthorpe in July

AUGUST BANK HOLIDAY MIDDLE WALLOP HAS BEEN CANCELLED

Transavia PL-12 Airtruk Ebenezer by Bryan Lea

This model came about when we moved from Grantham to Milton Keynes in 2008. We decided to rent a property for 6 months whilst we looked for a house to buy. Of course just about all of my modelling gear was packed away in cardboard boxes at this time but I thought the one thing that I can build is an Ebenezer for the big event at Old Warden in May. But what to build? Somewhere at the back of my mind I remembered seeing a picture of this weird aircraft with twin booms and twin tails. I've got a feeling it was probably in Jane's All the World's Aircraft but no longer having said book my first port of call was the internet. Having a break from looking at houses I Googled 'Australian crop duster' and came up with the Transavia PL-12 Airtruk to give it it's full title. Looking at Google images I picked a bold red and white chequer colour scheme and a 3 view drawing to help with the design of the model.
I wanted to build my Ebenezer as near to the original vision of Bert Striegler so a Cox Pee Wee 0.20 was the power source for a span of 24ins The wing is a sheet of 1/8th x 3ins balsa, the fuselage from 3/16th balsa, the booms from 3/8th balsa dowel and the tails and sub wing from 1/16th sheet. It would be nice to say it flew straight off the board but although engine runs before Old Warden were OK come the day all it would do was run on the prime and no more. Various things were tried but no joy. We moved into our new house in August and after a hectic time re-decorating etc. thoughts drifted back to the Airtruk. By now I was the owner of a Clan 0.20 diesel so the decision was made to remove the engine pod and fit some bearers. Having done this the Clan would run but would it fly the model - no. It just had no poke. Bemoaning my troubles to my dear late friend Dave Hammond he took pity on me and gave me a Cox Pee Wee with the assurance that 'this one will run'. More mods to the airframe and so at the model's 3rd Old Warden Ebenezer day at Old Warden in 2010 it finally flew! It climbs and flies in a stable pattern either left or right but left is best of course. Thin brass shims behind the engine give just the right amount of power turn. The glide if you can call it that is typical Ebenezer but there shouldn't be a problem losing it really. If I was to build another one I would probably cover the wing with glass fibre 1/2oz cloth or at least with tissue as a couple of 'landings' on Barkston's runways have ended in a broken wing. Attaching the wings with magnets would be neater than with elastic bands too. Despite its engine troubles I just love the weird appearance and I'm really quite pleased with it.





From Charlie Yost

If you like Oldtimers, you might like this one. All have sound. Enjoy.
Subject: Models 1936
www.youtube.com/watch?v=1VB8f-e17aU

A 44"SPAN VINTAGE FREE FLIGHT POWER MODEL FOR ORIGINALLY .15 (2.5cc) SPARK IGNITION MOTORS. (AES CODE 6)

AIR TRAILS SPORTSTER

DESIGNED BY Ben E. Shereshaw

10/-

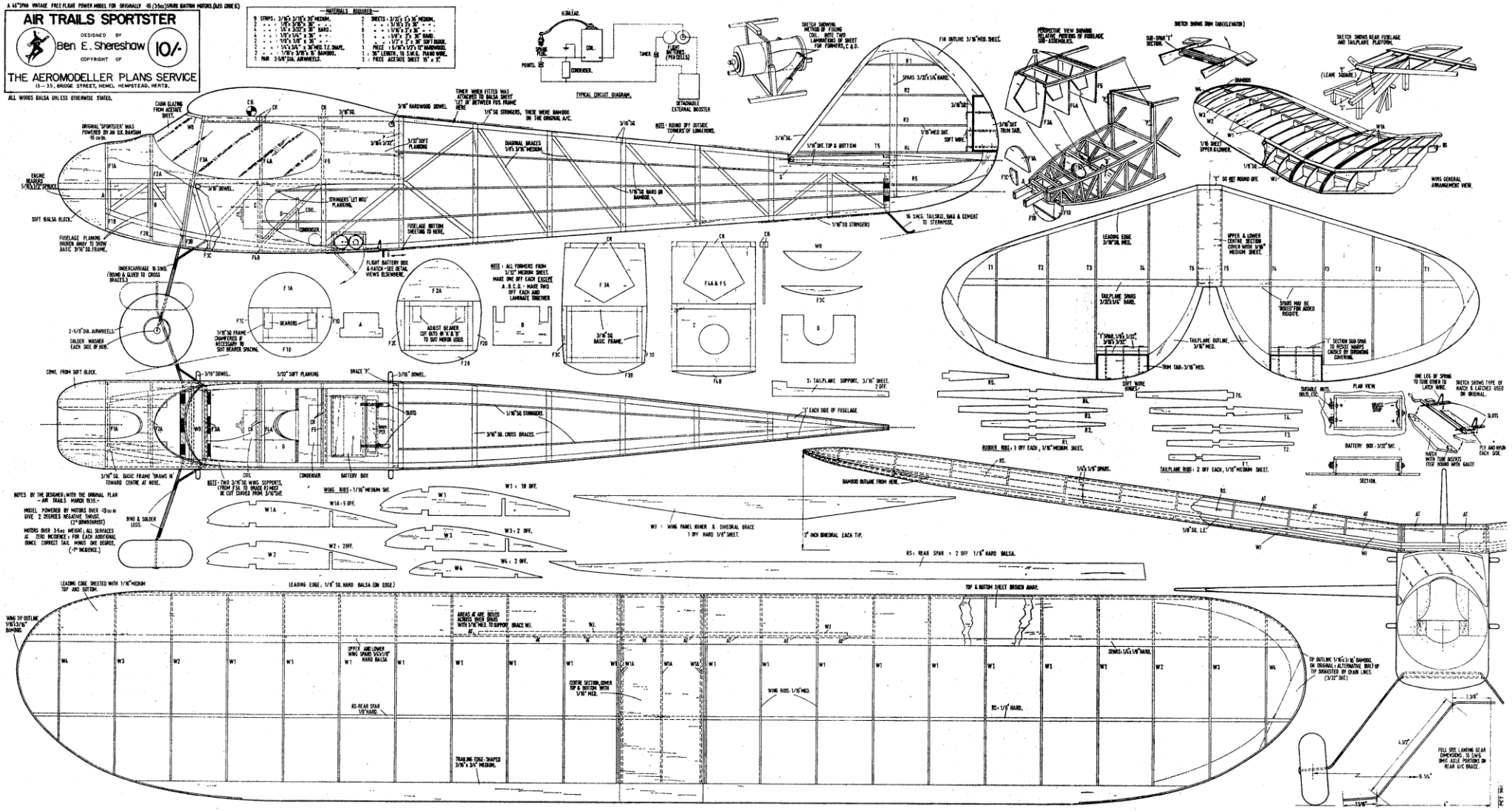
THE AEROMODELLER PLANS SERVICE

13-35, BRIDGE STREET, HEMEL HEMPSTEAD, HERTS.

ALL WOODS BALSA UNLESS OTHERWISE STATED.

—MATERIALS REQUIRED—

9 STRIPS: 3/16" x 3/16" x 36" MEDIUM.	2 SHEETS: 3/32" x 5" x 36" MEDIUM.
2 " " 1/4" x 3/32" x 36" HARD.	1 " " 3/16" x 5" x 36" " "
4 " " 1/8" x 1/4" x 36" " "	8 " " 1/16" x 5" x 36" "
2 " " 1/8" x 1/8" x 36" " "	1 " " 1/16" x 5" x 36" HARD.
2 " " 1/4" x 3/4" x 36" W.T.E. SHAPE.	1 " " 1/32" x 2" x 36" SOFT BLOCK.
2 " " 1/8" x 3/16" x 36" BAMBOO.	1 PIECE: 1/8" x 1/2" x 12" HARDWOOD.
1 PAIR 2-5/8" DIA. AIRWHEELS.	1: 36" LENGTH, 18 S.W.G. PIANO WIRE.
	1: PIECE ACETATE SHEET 15" x 3".



Air Trails Sportster a 46in design for free flight by Ben E Shereshaw.

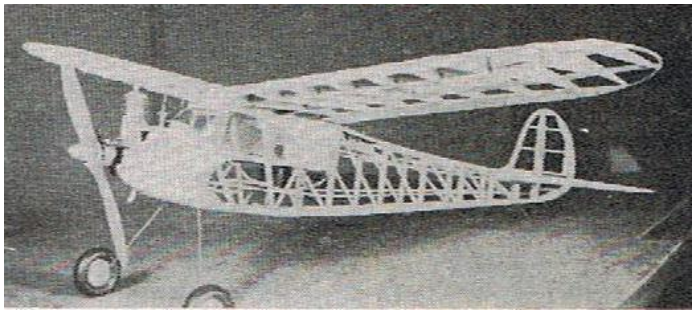
In answer to many appeals for an attractive vintage model we revive a great favourite from pre-WW2 from the pages of "Ait Trails" From Aero Modeller March 1968

Twenty nine years old this month, this design represents a true vintage sports model for 3.5 cc. to answer the innumerable requests we have had for vintage plans. Initially published in the American magazine Air Trails, of fond memory, the Sportster introduced a new classification in engine capacity and started a series of attractive cabin power models which were used for competition as well as fun flying through from 1939 to 1944. Who could deny that the lines are attractive? The vertical fin shape, which was to become the trade mark of the many Ben Shereshaw designs subsequently kitted, the stringered fuselage, the large curving transparent cabin area and the robustness of the structure characterised a model of an era which many old timers hold in happy memory.

When it was introduced in Air Trails magazine, the Sportster was a small design for power, particularly when one considers that only spark ignition could be used and the model had to carry the payload of a coil, condenser and flight batteries. Ben Shereshaw had created what was then termed a "small bore" engine which was to have been put out as a do-it-yourself magazine design. Named the "Bantam", the engine proved to be so popular and successful that Ben put into production and for many, this new .19 (3.25 cc.) engine created a new engine capacity class and a new phase in model engine design. For the "Bantam", in terms of power to weight ratio was an exceptional product by any standards. It was practically the first rear disc valve induction engine to go into mass production. It was extremely light in weight. It peaked very happily at high r.p.m. on small diameter airscrews and when subsequently employed for the 1945 period pylon model such as the Goldberg Intercepter, it was darned near invincible till the arrival of the Ardens and accompanying Glowplugs.

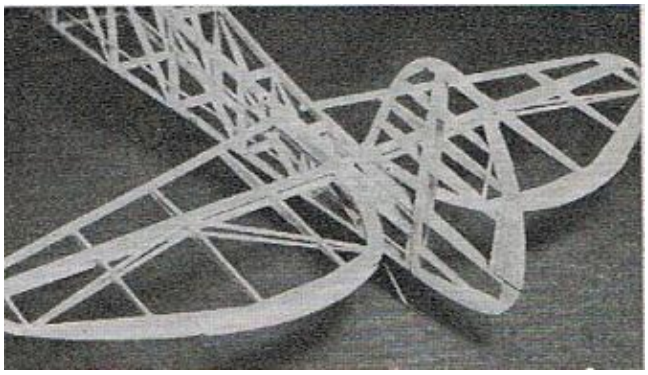
So, in many ways, this model was a trail blazer and we are sure that by using a diesel to take advantage of the short nose and to eliminate the weight of the batteries and coil, the Sportster will provide scintillating performance today. The plan includes all the detail exactly as the original presented by Ben had in the March 1939 Air Trails. This means that installation of battery box, coil, and relevant formers and bulkheads as necessary, are provided for the vintage purists who believe in using nothing but the original material. For those using a diesel or a glow engine, such details can be omitted.

As the designer was a perfectionist, his original instructions for assembly were also more complex than those to which we have become accustomed. For example, he recommended the construction of a jig to hold the longerons and diagonal members in place over the drawn positions on the plan whilst the parts were assembled and the cement was drying. The jig was formed by tacking brads on either side of the components; but nowadays, we have become used to using a soft board, household or steel pins and do not go to the extent of using jigs. Assembly begins with fuselage sides by laying out the longerons and by fitting all the diagonal and vertical cross members as can be seen in the side elevation. The sketch on the plan clearly indicates how the cabin is subsequently made as a sub-assembly and the nose framework extends on the basic sides along the line of the horizontal longerons only. Make two sides exactly the same, one over the other, above the plan. When these are dry, they must be joined by the cross members as indicated in the plan view. Start joining the fuselage sides at the cabin area where the width is constant, fitting former C at the third spacer position and this will be found to keep the assembly square. Draw the nose together and then the tail, fitting the intermediate cross members at each point as indicated in the plan view. Use plenty of elastic bands to draw the longerons in at the nose for the rather sharp curve at Fl. Formers A and B should also be fitted to help keep the nose assembly square but first check the slot spacing for your engine bearers, having decided which particular engine you intend to use.



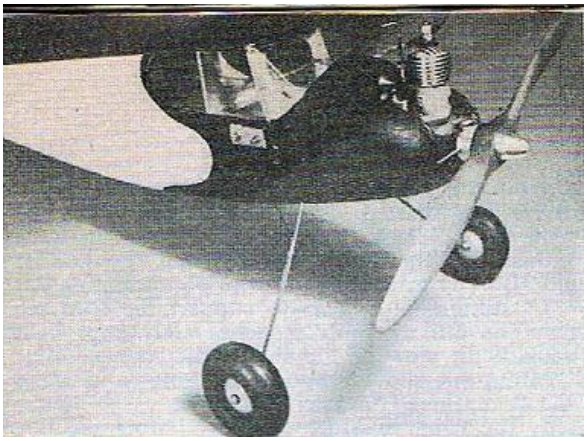
The cabin sub-assembly, using formers F3a, F4a, F5 and the upper false longerons which create the wing seat, are self explanatory on sight of the diagram. This can be made up ready to fit on the nose frame and formers prepared to round off the nose. Before fitting these however, bend the undercarriage, noting that it is from doubled lengths of 16 s.w.g. only and

bind securely to the cross members at F3b and F3c positions. It should be noted that air wheels are specified on the plans as used during the 1939 period. These pneumatic wheels absorbed a lot of the landing loads and hence there was little need for a very rigid heavy gauge undercarriage wire. Those who intend to use solid wheels should increase the wire diameter to 14 s,w.g. When the nose formers are fitted, the cabin is sheeted and nose blocks prepared to provide the shape to suit the engine. A tank can be positioned in the area near F2a and fuel shut off and modern timer accommodated according to one's modern whims. It should be noted that the original timer which interrupted the circuit for the coil and condenser was positioned above the fuselage, and behind the wing trailing edge. This was a
normal position since most flights started by taking off on the undercarriage from the ground.
The tail surfaces should be the next task. The structure is rather like that introduced by the Californian Radio Control enthusiasts in, for example, the "Smog Hog" design by Howard Bonner. The similarity ends when one begins to study the weight of the structure! In each case for the fin or the tail-plane, the lower spar is laid down first over the position on the drawing and the ribs cemented in place on the spars. Make sure they maintain proper alignment. The eighth balsa outline is then cemented in place, jigging it up with scrap balsa over the building board in order that it meets the rib centre lines properly. The outline should be roughly pre carved to the airfoil contour before making this joint in order not to strain the structure too much after it has been assembled. The upper spar can then be fitted and when thoroughly dry, the assembly lifted from the plan, and in the case of tailplane, the centre section sheeted. It is recommended that the spar on the tailplane could be boxed in with webs on either side for added rigidity, and the builder should also pay attention to the recommendation for the "T" section false spars to support the trim tab hinges. The tail assembly is deliberately kept light particularly in view of the short nose moment. For this reason, one should choose only soft balsa wood or the 3/16 in. thick trim tabs.
Study the wing structure carefully before tackling this most important part of the model. Note that the centre section is flat, to seat on the cabin super structure and there is plain dihedral out to the tips. This amounts to three inches under each tip as shown in the front view. The wing panel joiner and dihedral brace as well as the spar pattern are given full size on the drawing for the sake of accuracy. Cut these parts carefully and make sure that the contours are correct.



The wing is constructed in its three sections, the centre section and the two panels. Start by laying down the 1/4 x 1/8 in. hard balsa lower spar and the 1/8in. hard pattern cut rear spar for whichever panel you have chosen. Cement the ribs for that panel at their proper station. Ensure that the ribs are all properly aligned both fore and aft and also that they are perpendicular to the building board. The root ribs (which are laminated two standard ribs) are cemented at an angle which would result in the proper dihedral for each panel. Refer to the front view and make a small jig or pattern to ensure that this is correct. The original tips can be made of bamboo such as can be obtained from craft shops dealing with basket work material, but in the event of difficulty in local supply one must laminate the tips from 1/16in. balsa using four or five laminations to obtain the outline. If bamboo is obtainable it can easily be bent to shape over a gas stove or Bunsen burner. Now attach leading and trailing edges into position. Again making sure of alignment. It might be a good idea to add a few triangular gussets at the junction with the trailing edge in order to preserve a good joint and others might prefer to slot the ribs into the trailing edge, but this must be allowed for when originally preparing the ribs. The upper spar is fitted and for the inner three rib bays, the two main spars are boxed with 1/16 in. medium sheet between ribs Wl. This adds considerable strength and is also used as an attachment point for part WJ—the wing panel joiner. The opposite wing panel is then prepared and also the centre section, fitting the centre section end ribs (which are also laminations of two standard ribs) to accommodate the angle and also to match up with the root ribs of the wing panel so that the correct dihedral results. The three panels are then joined together with part WJ. This must be of strong grade balsa and the joint double-cemented for security. Finally, the entire leading edge is sheeted with 1/16 in. medium balsa, sanded before application to about 1/20th so that it is not necessary to rub over afterwards which creates the "starved horse" look of sagging sheet between the ribs. The wing tip area is cleaned up and now we have virtually a complete airframe ready for covering.

The original aircraft was covered in a light shade of what was then called Bamboo tissue, the nearest equivalent today being wet strengthened Modeispan. Three coats of dope was applied to the colour tissue of the original. No records have been retained of the weight of the original model but the reader may take it from us that it was light by modern standards. Obviously the performance of such a model will be improved by weight saving and careful construction throughout, in fact the Sportster represents a very interesting structural assembly challenge for the modern modeller. The provision of trim tabs on the tail surfaces and Ben's rule of thumb recommendation for correcting the tail angle according to the weight of the engine (motors over 3 ounces should demand minus 1 deg. incidence for each additional ounce), make for a very easily trimmed design. We know from letter requests how many modellers will appreciate this renovation of a good look ing model. It comes from an era when the Douglas D.C.5 was news, when the Brown junior engine was still on sale (at $10 each), the Ohllson 23 had just been introduced at $16:50 and the latest airliner was the Boeing Stratoliner. The Paris Air Show was showing the latest version of the then new Hawker Hurricane and the Fokker DXXIII twin-engined twin boom fighter was the sensation of the month. Megows of Chicago had introduced Plane-film, "The Magic Covering" which was a forerunner of today's MonoKote. And . . . dare we mention it? for each $1:50 subscription for a year's supply to Air Trails magazine a modeller was offered a FREE kit of Jim Cahill's Wakefield winner! Times certainly have changed! By building the A T. Sportster, modellers can turn the clock back and appreciate something of the skills of earlier designers and also obtain an enormous amount of pleasure in the process. Today Ben Shereshaw is still connected with this hobby. He has over the past few years, been perfecting his twin cylinder R/C motor, the latest twin carburettor version was displayed appropriately enough among the old timer designs in the vast hangar of Los Alomitos, California, during the 1967 American National Championships. We are indebted to Ben for his permission to reproduce the design and wish him many many more years of modelling satisfaction.



Thought for the day

Landing a free flight, CL or RC model really is very easy, you can't put it off for ever it will happen eventually. The difficult bits are where it lands and at what attitude and speed it presents to the ground.

From Karl Gies. Earl Stahl "Gypsy" 8 Ounce Wakefield, covered entirely in regular polyspan, Higgins Fade proof ink used for the color, site a little over 7 minutes from my House

I did not have anyone with me to take a launch picture. I weighed the motor, 36" long, 24 strands of 1/8 FAI Tan II from the 90's and it was (I think) 2.83 ounces. I put in a little over 200 turns on the first flight and it flew well actually getting up there to my surprise. My second and last flight showed 472 turns on the winder and it got up quite high, picture in the air to follow. The glide can best be described as "floaty" or superb. cheers, cccnh out in the Rural American West, Lewistown, Montana, home of The Greater Central Montana Co-Prosperity Sphere p.s. this model was built in about 1997 or '98 and this is the second prop which is much better than the first one. Very little vibration. Having a swell gin and tonic and basking.

The "Gypsy" still climbing, the air was dead calm

My Earl Stahl "Gypsy" Wakefield taking off about 8:20 p.m. Unfortunately the guy who took the picture did not get me in it. On 520 turns it got real high. This model is about 15 years old but still a good flyer.

Keil Kraft "ACE" on 497 turns getting up there, about 4:30 p.m.

Gettin' up there, KK "ACE"

From Gerry York

Great newsletters, enjoying reading through all the archived versions. Maybe these photos are of interest? taken in the arrivals/departure/cafe at St Marys airport, on the Scillies.

SAM 35 Vintage Power Duration, 21,22 July 2012 East Anglia Gala, Sculthorpe
From Bill Longley

The weekend was the best of the year so far, the Saturday was blessed with the best of weather, very light wind with much thermal activity. The Sunday was overcast and blustery in the morning, but cleared later in the day.
The entrants enjoyed the terrific conditions, the top 4 all achieving 2max's each from the 3 classified flights. With possibility of being able to enter in 6 different classes (Contest / Sport, and 3 engine size categories), multiple entries were acceptable from each competitor. Total of 11 entries were received from 5 individual contestants
In the contest classes :-
Bill Longley flew Starduster 600 / Torp 19 (Old Faithful)
Wes Denton flew his TD .09 powered Jumpin' Bean .
Leon Cole flew 96" Lanzo Bomber, OS 65 4-str. (built from Belair kit) Roger Hollett also flew a Bomber, as above. David Bell from Hull entered an Alert, but did not record a score. Bill Longley also flew his Payee Max, but having completed an easy 2 max's had problems bringing the model down from the abundant lift, and the model unfortunately spiralled into the concrete due to what was later ascertained as a flat battery. The Sport Class had Wesley Denton flying his Belair Kits Buzzard Bombshell powered by a Saito 62 4 stroke. An incident just before the start of the competition being hit and damaged by another competitors model, damage was sustained to the cabin area, but not to the flying surfaces, and did complete 3 flights in the Sport class. Mid morning a wind gust did pickup the Gazebo control tent, this rolled over onto Bill Longley's Super Creep, damaging the tailplane mount , rendering it not flyable..
Prizeware was given out by Mrs Cole, wife of Leon.

SCORES	Engine run allowed	Total time secs (3 flights)
Contest Class		
1st Bill Longley	20	889
2nd Wes Denton	20	825
3rd Leon Cole	15	814
Class win Roger Hollett	15	741
Sport Class Wes Denton	22	713.

Leon Cole with his large 96" Belair Kits LANZO BOMBER gave some very impressive flights, 15 second engine run allowance on the OS 65 4-stroke gave climb height of 500 – 600 feet. This model then showed that it could detect lift with the greatest of ease, of particular note, the ability to perform flat turns on a sixpence without loss of any height, wings rocking at the slightest of detected air movement

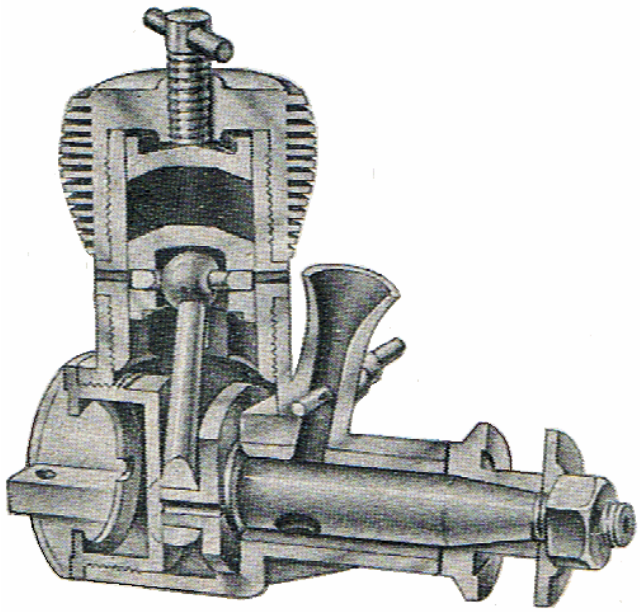
David Bell's collection

Leon Cole Taibi Powerhouse, Bomber in background

Leon Cole Lanzo Bomber

Wes Denton Buzzard Bombshell

All the winner



Elfin 1.49 Engine Analysis from Aeromodeller June 1950 by L H Sparey

An opportunity has just arisen to test two small diesels of identical capacity hut of different manufacture, and the comparative results are most interesting. Both these engines are of the modern, “hot-stuff” type, using uniflow porting, short stroke, and rotary inlet valve via the crankshaft. They are, in fact, so extremely similar in design that a change over of the cylinder heads would make difficult to distinguish which was which at a casual glance.

Such a similarity in appearance is almost bound to occur when designers are aiming at the same thing, because logical thinking along similar lines is bound to lead to similar conclusions. Anyone who has tried to take out a patent will have been amazed at the number of similar ideas which have been invented, in almost identical form, by folk living poles apart.

When two things, such as small engines, bear a marked resemblance to one another, it is extremely unsafe to say that either of them has been” copied “ from the other. Especially is this so when design is centred around a highly-specialised product such as small engines. What is more interesting than a mere external resemblance is the fact that the performance of these two units showed a very close comparison. The peak output was, in fact, almost identical-only .005 b.h.p. variation-although it is true that the r.p.m. at which this occurred was higher in the one engine than the other.

In a future issue the test report of one of these engines will appear; meanwhile we give here the report on the other— the “ Elfin” l’49 cc. diesel. Readers will remember that in the issue of July last there appeared a report on the “Elfin” 1.8 c.c. diesel, and that the figure of .1138 b.h.p. was recorded at 12,100 r.p.m. The smaller engine shows a remarkable consistency of performance, and the output is just about what one might expect from the smaller capacity; the running characteristics of the two engines are almost identical.

The handling qualities of the 1.49 c.c. engine are excellent, and the running was smooth and consistent at all the useful speed ranges. At the very low end of the r.p.m. scale the running was not so good and power output fell alarmingly.

This is undoubtedly due to the porting arrangements, which seem to be designed for the quick cut-off necessary for high-speed efficiency. The engine was also notable for the extremely high speed at which the maximum power output was developed-almost 14,000 r.p.m. This is, I believe, the highest maximum speed/power figure yet recorded for miniature diesel engines. In spite of the high speed at which this engine was tested, no mechanical trouble was experienced, and the unscrewing of parts which was encountered while testing the larger Elfin engine seems to have been cured.

TEST

Engine: “Elfin” l’49 c.c. Diesel.

Fuel: Mercury No. 3 and Mercury Special Ether: 1—1.

Starting: The engine was experimentally hand-started from time to time, with engine both hot and cold, and response was immediate in all cases. For convenience, pulley and cord starting was employed for the main tests. The starting position of the needle valve, as marked on the test card, was fairly accurate, and should enable the novice to obtain a quick start.

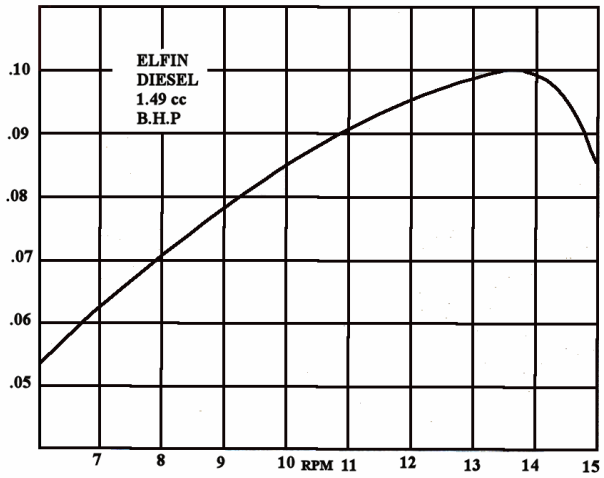
Running: Extremely consistent at all speeds above about 5,000 r.p.m., but was inclined to be “lumpy” at speeds below this figure. Considering that this unit is definitely in the” hot” class, it was remarkably free from temperament.

B.H.P.: A maximum output of exactly .10b.h.p. was recorded at the high figure of 13,700 r.p.m. The peak of the curve is not exceptionally flat, as between 12,000 and 14,000 r.p.m. the rather large drop of. 005 b.h.p. is encountered. At 10,000 r.p.m. the output is reduced to .085 b.h.p., and at the lowest tested speed of 6,000 r.p.m. the output vas only .053 b.h.p. At the other end of the scale it will be seen that power drops steeply once the 14,000 r.p.m. mark has been reached. It seems desirable that this engine be run between

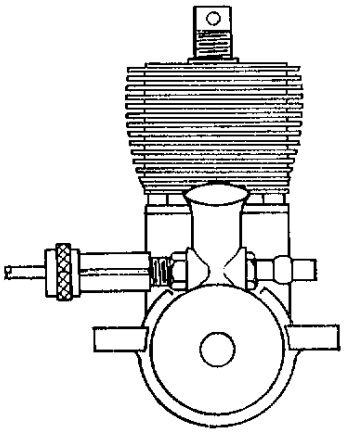
13 and 14,000 r.p.m. for maximum efficiency.
Checked weight : 2.7 ozs. Less tank.
Power / Weight Ratio : 549 b.h.p./lb.
Remarks: The engine was run-in for one hour at 5,000 r.p.m., and no mechanical trouble was experienced throughout the tests. An interesting feature of this engine lies in the use of cast iron for the piston and main hearings — a material which I strongly advocated for these purposes in this journal as long ago as 1935. When properly fitted and run-in such bearings can be practically ever lasting.

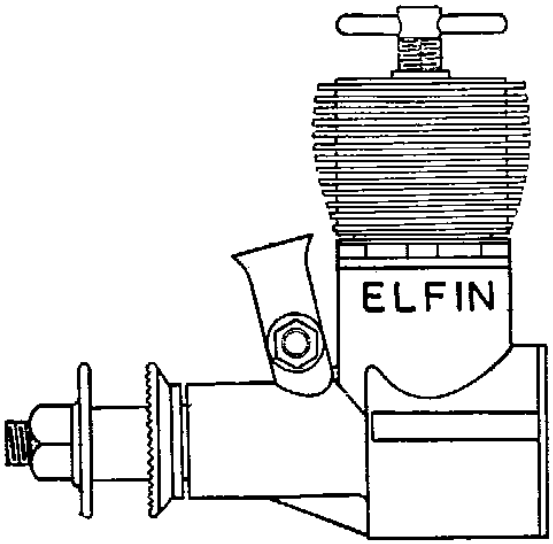
GENERAL

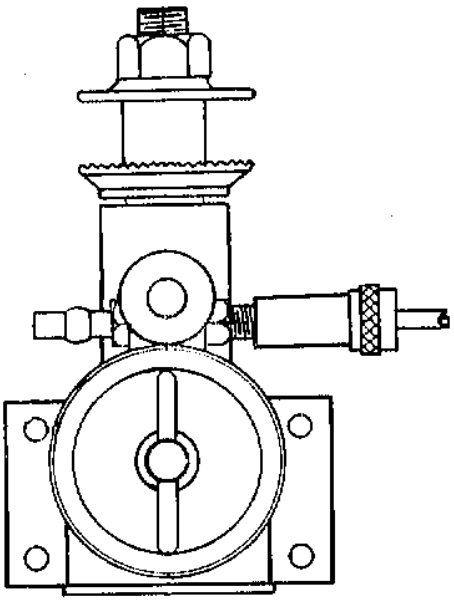
CONSTRUCTIONAL DATA



Name: Elfin.
Manufacturers: Aerol Engineering, Henry Street, Edge Lane,
Liverpool 13.
Retail Price : £2. 10s. 6d
Delivery: Immediate
Spares : Immediate.
Type : Compression Ignition.
Specified Fuel : Castor oil 1/3, paraffin 1/3, ether 1/3.
Capacity: 1’49 c.c., 091 cn. in.
Weight (bare) : 2 1/2 ozs.
Compression Ratio : 14: 1 to 10 : 1.
Mounting: Beam, upright or inverted.
Recommended Airscrews : Free Flight, 8 in. X 4 in. Control Line, 7 in. X 6 in.
Recommended Flywheel: 3 ozs. .
Bore : 503 in. Stroke : .460 in.
Cylinder: One piece, attached by 40. T.P.I. thread.
Cylinder Head: 40 T.P.I. thread.
Crankcase : Pressure die-cast.
Piston: Angular deflector, no rings.
Connecting Rod: Duralumin.
Crankpin Bearing: Plain. Crankshaft: Nickel chrome.
Main Bearing: Cast iron. Little End Bearing: Plain Crankshaft Valve: Rotary valve.
Cylinder Liner : Nickel chrome steel.







A 42 1/2" WINGSPAN STREAMLINE STUNT MODEL

FIREBRAND Mk. II

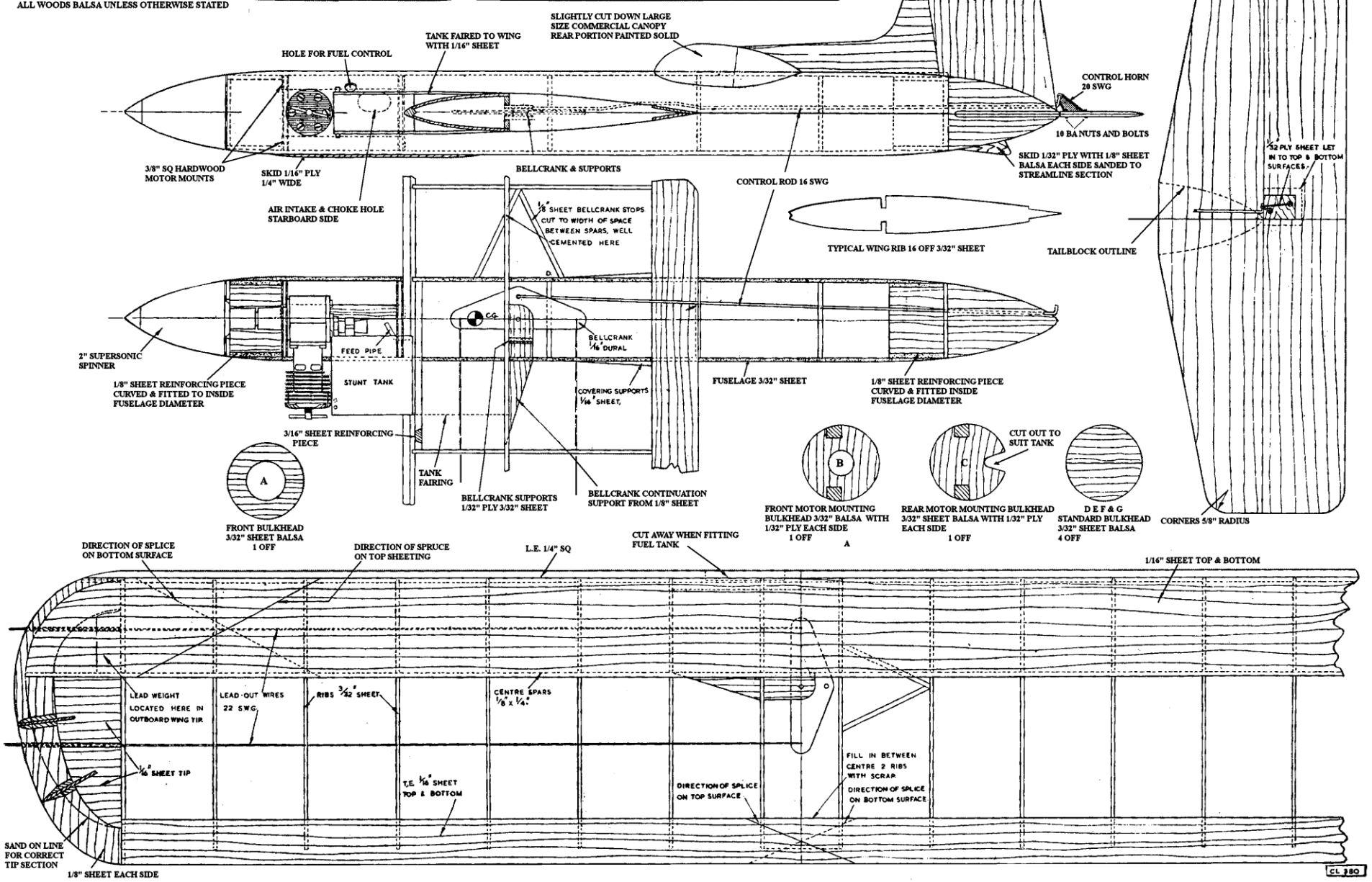
DESIGNED BY R COOKE

3/-

ALL WOODS BALSA UNLESS OTHERWISE STATED

DATA	
SPAN	42 1/2"
AREA	326 " "
LENGTH	27 1/4"
WEIGHT	20 1/2 OZS
ENGINE CAPACITY	3·46 CC - 5CC
LINE LENGTH	65 FT

MATERIALS	REQUIRED
STRIP	SMALL SCRAP 3/16" MED. HARD SHEET BALSA
3 STRIPS OF 1/8" x 1/4" x 36" HARD BALSA	1 BALSA BLOCK 1" x 2" x 6 1/2"
2 " 1/4" x 1/4" x 36" " "	2 HARDWOOD ENGINE MOUNTS 3/8" x 3/8" x 4"
SHEET	1 SQ FT OF 1/32" PLY.
4 SHEETS OF 1/16" x 3" x 36" MED HARD BALSA	1 PIECE OF 1/16" PLY 1/4" x 5"
2 " " 3/32" x 3" x 36" MED BALSA	72" OF 22 SWG CONTROL WIRE
2 " " 1/8" x 3 x 36 HARD BALSA	6" " 20 " " "
MISCELLANEOUS	
SMALL SCRAP OF 3/32" HARD SHEET BALSA	2" OF 10 OR 12 SWG PIANO WIRE
1/8" MED " "	1 - 1/16" DURAL BELLCRANK.



Firebrand a 42 ½” wingspan streamline stunt model designed by Ralph Cooke from Aeromodeller June 1950

Presenting a new form of tubular balsa fuselage construction, the Firebrand is a fast flying stunter suited to the latest 3.5 C.C. to 5 c.c. motors.. Its sleek lines are apt to mislead one into thinking in terms of frailty, whereas it has proven tough beyond comparison with other standard forms of structure.

We have seen wound sheet, planked and commercial paper-bound sheet used on other control-liners and free flighters, but this wrapped construction is different. Firstly, it allows the” works “to be put inside with the least difficulty (ever tangled the push-pull rod with the formers in a planked job ?), and secondly, it’s the quickest built all-balsa fuselage, outside the crude box type.

Building Instructions. Firebrand is built in three stages. First make the fuselage halves, then the wings and tailplane and, finally, assemble the whole in strict sequence.

Fuselage Halves. Find a round former of approximate fuselage diameter. Cut out from 3/32 in. medium sheet balsa two fuselage halves 3 1/4 in. wide and of exact length. Mark all bulkhead positions on the inside surfaces and steam the outside surface. During the steaming, the side will naturally curve, so place it on the former occasionally to check that it will bend the full curve without forcing. When sufficiently bent lay the side on the former and either pin or wind tight with a piece of elastic. Dry the curved balsa near a fire for ten minutes and then repeat the process for the second half. Cut out all bulkheads and halve each, with the exception of B and C (the two supporting the engine mountings). Cut out the portion occupied by the wing in each half and cement each bulkhead firmly in its correct place. Bulging between bulkheads can be removed by a skin of cement to pull in the offensive spot. Cement in place the 1/8 in, soft sheet reinforcing pieces at the nose and tail, which are formed in the same way as the fuselage side. These can be made with 3 in. wide balsa plus a small strip for packing. Cut out the plan view of the tail block from 1/8 in. sheet, and cement temporarily to each side of it a block of 1x2 in. soft balsa, with the grain fore and aft. Mark out the diameter of the fuselage on one end and sand and carve the block to shape. Separate the halves from the 1/8 in. centre core and cut a strip approximately 1/8 in. wide across the forward end of the core. Now pin all three together again, using this strip instead of the full plan- view of the core. (This allows easy fitting of the tailpiane.) Fasten the two fuselage halves together with elastic bands and cement the tail blocks to the fuselage, checking that the slot for the tailplane coincides with the dividing line between the two halves. When firm, separate the two halves and carve the rear ends to merge into the tail blocks.

Mainplane. Cut the ribs from 3/32 in sheet and sandwich eight between two 1/32 in. plywood templates, to position the holes for the lead out wires. Cut the leading edge, spars, and trailing edge pieces from hard balsa and begin to construct the wing by pinning a spar to the plan view, noting that the spar must be raised 1/16 in. off the board for correct alignment. Assemble the ribs to the spar, add the upper spar, the trailing edge top and the leading edges. When set, remove from the plan and add the bottom trailing edge piece. Check for warps as the wing is assembled. Add the wing tips.

Cut back the inboard centre rib 3/16 in. and fit the leading edge reinforcing piece of 3/16 in. sheet, which is 1/4 in. deep at the front and 3/8 in. deep at the rear, conforming with the wing section. Make up the bellcrank assembly of ply faced 3/32 in. balsa and fit in position between the centre spars. The bellcrank is of dural pivoted with a piece of heavy gauge steel wire which is cemented in place after the lead-outs are fixed, and soldered with cupwashers at the bellcrank end. Add other strengthening supports. The lead weight on the out board tip must be very firmly fixed, and should balance the model laterally at a point 1 in outboard of the fuselage centre line. Complete the wing by covering the leading edge portion with 1/16 in. sheet, noting the splice position on the plan. The Tailplane and Elevator are of sheet and cut as per plan.

Final Assembly. Carve the outer faces of the engine mounts to the section shown and assemble complete with engine on to the bulkheads, glueing the whole unit firmly into the fuselage lower half. Remove the engine and give all exposed parts a coat of thick coloured dope to resist oil. Adjust the venture tube and needle valve assembly, so that the needle projects through the upper fuselage half at the correct angle of approximately 45°, sloping towards the inside of the circle. While the motor unit assembly is drying in the

lower half, alter the large size “F. Guest” stunt tank by unsweating the feed pipe and sealing hole. Enter another feed pipe as shown in the drawing. Cover the tank with rag tissue so that it can be cemented in place on the fuselage. Fit the wing to the lower half of the fuselage, cutting away the leading edge for the tank. Check the fit of the top half over the wing and sand the fuselage as necessary. Now fix the mainplane in position with pins, and temporarily mount the tailplane in order to bend the control rod to accurate length. It will be necessary to cut away the bulkheads and the tail block in the upper half for control rod clearance. Check any tendency to twist in the fuselage and make sure that the wing and tailplane are both neutral to the thrust lines. Cut out from the top half, the access holes for choking, needle valve, and to give a good fit round the engine. With the engine firmly fixed glue the wings to the lower half and then add the tailplane and upper fuselage halves completing the assembly by adding the fin. Remember that each of these joints is important and should be pre cemented. The tank may be streamlined into the mainplane with 1/16 in. sheet. Prepare the model for covering and coat all exposed balsa parts liberally with sanding sealer, then cover with llghtweight “Modelspan “. After doping, colour the model to your requirements with “Aerolac “.
To fit a drop-out undercarriage, drill holes may be drilled for prong fittings through the balsa centre of the bulkhead “B.” Line length on the original was 65 ft., using light Lay-strate.

From Bill Wells

In the 1970s I was employed in a Laboratory. Notice how I used the word employed and not the word ‘worked’! There were times of concentrated work with unpaid overtime so generally when things were slack if I put in an appearance once a day they didn’t seem to get too excited. My desk draw was an ideal place to store bits of model while the glue dried. There was also heavy utilisation of tea breaks and dinner hours! The model was the Pfal-se Pfighter a freebie plan in the August edition of 1973 Aeromodeller magazine. It was the only model I didn’t build at home! I covered the wings in nylon and then covered that with an iron on film. It was afterwards I found out the film wasn’t too happy with diesel fuel!! I have flown the model quite a bit it nearly pulls my arm off so I guess I was a bit over enthusiastic with the rudder offset. I should have put bigger wheels on it because on rough grass it will tumble over on landing. For take offs on long grass only a few feet need to be trodden down in front of the model as the take off run is short! Initially the engine used was a PAW 2.49 but this engine found its way into another model so the PP was moved from loft to loft less its engine until I fitted a PAW 15 TBR to it. Unfortunately the thin tight fitting cowling didn’t fit around the new engine so being lazy ------ I just continued to fly it without the cowling. I have done quite a few timings on the model and generally the speed is 40-47 mph.
PS Surely you remember that fine day we had at the end of February or perhaps it was March? Well that was 'Summer' this year!!

David Kinsella's Column

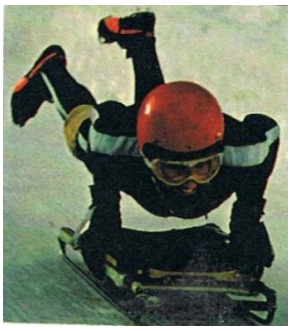
Perfect Ear

Time slips away and already Dick Roberts has published 31 columns of his Engine Ear, each bulging with info and pictures we return to with joy. Hot bikes appear as well as McCoys and Doolings, at summer's close a 125cc MV from those drum brake days of Hailwood and Aggo, Read and Duke. Close to the track in those freedom days, Stanley Schofield recorded all the cars and bikes in action and released several records in arresting sleeves worthy of display in the den. An utter treat is the Mercedes W125 at Oulton Park, Collins and Brooks storming round in the Silver Arrow. NB: caught once, check that disc and sleeve match!

Big Problem

Robert Aickman (1914—1981), scribe of spooky stuff arid a founder of the Inland Waterways Association, said that with the Industrial/Energy Revolution that kicked off wìth cotton spinning over here, we turned in the wrong direction and closed on even, greater problems than before. Right now most are cutting back but the economy needs extra spending to get it going. How do you square that? Robert's grandfather wrote The Beetle, at the time said to rival Dracula as a creepy tale.

Flying Down



On a tiny sled lead-weighted for speed the rider starts at 514ft (St Paul's is 365ft) and touches 100mph going down-— head first! It's the Cresta Run, founded in the 1880s and a mighty test of skill and nerve. Hemingway said that only motor racing, bull fighting and mountaineering, mattered as the ultimate test, yet a jet pilot likened the Run to falling off the Empire State! Daredevils flocked to the St Moritz course, Grand National and Mille Miglia ace Portago being one. Pictured, an expert flies near the edge just as de Portago had done before joining Nelson and the big Ferrari in Italy.

Tiger Tim

Trimming down on costs - divorce, tailors bills, motor racing, flying and the social whirl - Tim Birkin moved from Tacolneston. Hall to Shadweli Court but pressed on with his Blower project. Amherst Villiers designed the twin rotor device and pretty new to the UK motoring scene the engineer had booklets printed for the London Motor Show showing how it worked. Along the way a row developed and the now-rare items were taken home (an artist too, he later worked for NASA in California and restored a Bentley). Tim's book Full Throttle (1932) is colourful but berates the UK industry for not taking racing seriously (Germany well ahead!) despite Brooklands and attempts such as his. Snapped at Goodwood, Tim's famous car sports front drums for road and track work. Bentley powered many RFC machines in the 1914-18 war.

Another Loss

At least for the time being models in volume will no longer fly at Old Warden. True that the grass airfield is small for free flight, its location off A1, not far from London or Brum, its world class collection of famous aeroplanes (DH88 Grosvenor House), the very atmosphere of the place with its
Close-to press of people and lines of traders made model days at Old Warden like no other. Not good for aeromodelling or the magazines that cover it, these days the loss of any flying site is serious business. As with all things carpe diem is of the greatest importance.

Be Prepared

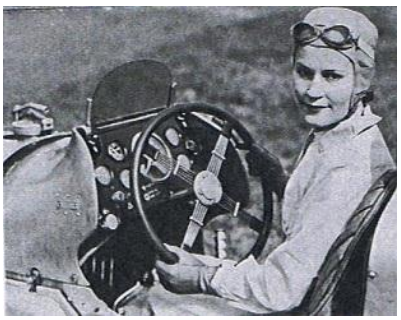
Kit to cover an accident and how to deal with it is both smart and advisable. If a chum suddenly goes down, remember FAST (face, arms, speech-— then call 999 if you're not satisfied with responses). A fall when attempting to get a model from a tree - as at Old Warden - may be serious stuff too. Caution is the watchword here. Don't get him on his feet pronto but ask a question or two first: he may have broken a leg, his pelvis - or his back! Like being able to swim, basic First Aid saves lives.

Best Bond?

In the Bahamas and waiting for his rnaster, Fido provides scale in this shot of the Vulcan used in Thunderball (1965). Highjacking happens and along with the underwater fight and Largo's Disco Volante, the 007 franchise was really motoring. So big in fact that Thunderball premiered at two cinemas in London (Row D at the London Pavilion costing £26). A staggering 75 million saw the movie on release. A laugh was raised on a Vulcan Squadron when a crew member walks back from the controls. In a Vulcan you can't do that. Fifty years ago the Bahamas was an unreachable paradise for most, the preserve of rich men with all the trimmings and that's what made Thunderball great. Tom Jones sang the intro and John. Barry's music carried it along.

Fast Lady

A fine Brooklands shot of Kay Petre highlights the big steering wheel with its could-be dangerous wire spokes. In a shunt, rim pushed forward, the spear-like spokes could spring from the hub, enter arms, hands or chest, even the driver's neck or face. Outlawed in time, away from the race tracks this classic wheel with its several spokes is still the bee's knees along with polished wood, thick carpet and leather and rows of proper instruments. As here, the egg-shaped Merowitz goggles were worn by flyers too and could be ground to correct sight defects. Wire mesh at the sides keeps the glass free of condensation.



Box Vital

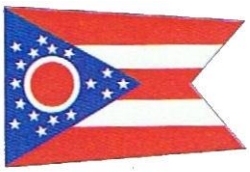
An age ago we junked the box and got on with building the model or bolting our new engine to the test bench. Ted's arrival a while ago with many kits and rolls of plans set me thinking one evening at Raynes Park MAC. I guess the first box I saved held the Veron FWI90 control line kit. Stout and with magnificent artwork, the rack or thumbscrews at least should have been my punishment had I discarded it. Boxes look great alongside a built, model, as I'd see now and then at Old Warden. Chaps in the worldwide Hornby club (HRCA) offer repro boxes for engines and stock, really the only way to care for an item outside a glass case. Floppy boxes are ghastly, never closing properly,
strips of cardboard within one way out. Thankfully outfits like Rivers Knew what men wanted and delivered Streaks and Arrows in Garth-strength containers studded with eight iron staples and wrapped in red, black and white, the item dominant on the cover. And, of course, Merco and Oliver, Mills and ETA, Frog and ED, even tin boxes from McCoy, did likewise - thank goodness!!

Jump To It!

When Pietersen slices a rocket you don't stand still and field it! Best to aviate for a few seconds as the ball screams away to a 'four' at least. Cricket on the big screen now and then some may remember the farmer (Alan Bates) crack the ball all over the field in The go-Between. (1970) until he is caught by his schoolboy Mercury (Domonic Guard).

Green Shoots

First in Ohio in, 1980, I soon realised that there was or had been a strong German presence there. In their covered wagons and pushing West an age before, the great Ohio River and the mountains reminded the settlers of the Rhine and the mountains back home. Some went on, others joined the Gold Rush, but many put down roots, built a railway and traded with Chicago and Washington and sent goods north to the lakes as big as inland seas. Young lads Proctor and Gamble borrowed money from banker Cunningham for a floating soap idea and the rest is history. These days a world player in the soaps business, P&G is the big boy in Cincinnati. It also saw the start of Vision Express and Ohio is one of the famous Super Tuesday States.

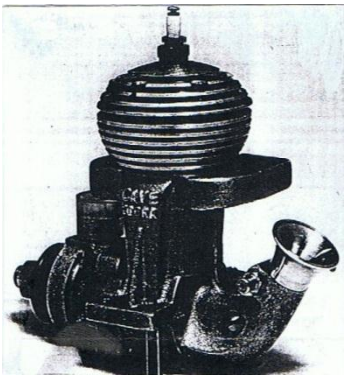


OHIO

Jay's Year

Out of copyright and on a roll, Jay Gatsby will hit the stage and fill the screen. Famous for his cars, shirts and money, the man of mystery played by Ladd and Rediford (1949 and 1974) advances again with Di Caprio in the big house but thinking only of Daisy. Cameras rolling in Australia, Gatsby will hit the screens in December.

Rare Kobra



Those with Clanford's vital book will know well this magnificent hairy - it's big and alone on the back cover. Built for cars and boats, twin exhausts and a brass-trimmed inlet give the rare Cave Kobra a certain look as does the ball-shaped finning. Heavy too, I've only seen one and quite old and original-looking it may well be an original made over sixty years ago in the USA. If you can, heave one in next to your Hornets and Hassads. Mike Clanford's book is a must for all who care about engines.

Battleships

Famous for aviation art, two large pictures from Roger Middlebrook take us back to big gun days in the Royal Navy. In review order Ramillies is seen close to a Thames paddle boat, excited passengers gazing up at the great ship. The second depicts Force H, carrier Ark Royal flying her Swordfish as Hood watches from a distance. A 15in gun from Ramillies stands with another outside the Imperial War Museum, London.

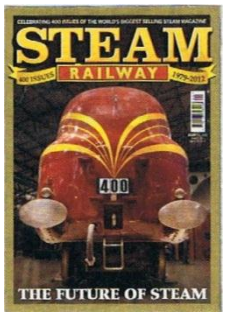
David Delivers

Launched in 1951 fighter ace Closterman's The Big Show enjoyed wildfire sales (8 printings in 4 years) and is one of the greats of war in the air. DS0 and DFC, 420 combat missions, strikes on flak ships, V-bomb sites and straffing at 20ft, a signed copy with jacket is no stroll in the park. But David Bancroft found one for me, his number (01983 759069) always on the wall. S&T No 57 gives more on the Spitfire and Tempest ace.

Not 007s

Rating agencies sprang from bonds which sprang from big projects: rai1way, ship-carrying canals, dams and giant bridges. Early bonds (IOUs) were lavish bits of paper with coupons on the bottom. These were clipped by banks and so you earned your interest. The bond explosion meant that less was known about the things and so rating agencies (three big players today) emerged to rate them as to risk, the best the famous AAA. Countries too. But they are not. auditors, these boys awarding AAAs, AABs, ABs and so on. Thus fiddles. Deep in an organisation may not surface for years - if ever. Caveat emptor if possible. Sometimes it's not.

Boy's Own Stuff



Star of the NRM York is the stunning LMS streamliner Duchess of Hamilton. A rare walled city, the Minster and York University are added attractions. Pin bright and, of course, with brand new casing just completed, Stanier's masterpiece is sensational in size and looks, power and detail. No wonder towns and villages turned out to see the speed-striped train charge past.

Classical RAF

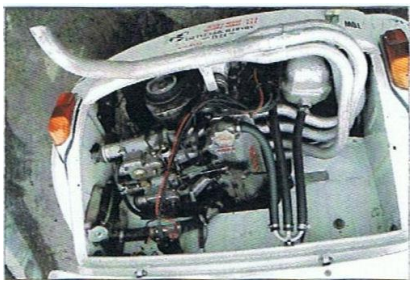
Shortly before he died a fighter pilot with great experience on Mk IX Spits and H 24-cylinder Typhoons and Tempests put down in detail what it was like to tackle VI flying bombs, often referred to as Doodlebugs and noisy with their ram-jet engines pushing some 1800 lbs of explosives across the Channel. Hitting them with gunfire or wing-tipping them over was the way to do it, but sometimes wild gyrations ensued as bits flew off or an explosion rendered the pilot flash-blind as shards of metal struck his fighter when it was moved across the sky by the blast, even turning it upside down! (all this was confirmed to.me by Tìffy ace Roland

Beamont) But the arrival of the stunning V2, silent until impact, genesis of the 1969 Moon landing and Japanese racing two-strokes, put the fighter bays out of business. So advanced in fact that the first V2 strikes were put down to domestic gas explosions! Sqd Ldr Joseph Berry DFC of 501 Squadron sent down sixty VIs and was the above expert before he died in October 1944 just 24. Formed in 1929 flying the DH9a, 501's badge was a boar's head and its motto Fear Nothing.

Great War Scout

Sopwith at Kingston cranked out famous fighters to tackle the enemy over the Western Front, their rotary engines letting them spin on a sixpence. But one that was quite unlike the Camels and Pups, Triplanes and Snipes was the V8 powered, 4 gun Dolphin, upper wings staggered back to improve forward view for the pilot - who sat up high anyway. Now fully restored, a Dolphin is on show at Hendon. Plans and pictures are ok for the Scale fiend, but the real thing close up really gets you in the mood. Nearest Tube is Colindale on the Northern Line. Delight in the Dolphin and thank Hendon for yet another great achievement. Late from Kingston was the ground attack Salamander with several guns (even7 tried) and more than 300lbs of armour.

Buzzbox Bolide



An Eelmore Plain sprint meeting was followed by a lift from Hampshire in a tiny Fiat Abarth, the rear open to suit the heavily souped 4-cylinder engine. The big Webers, oil tank and piping dominated the tiny motor. Part of the massive 'go' depended on a tuned exhaust system. Drawn in Turin by Dante Giacosa, tuned by Carlo Abarth (born Karl in Vienna) and famous for its Scorpio sign, the Fiat Abarth shifted seriously! Zipping past three or four at a time, I was glad to get out - but I'll never forget the experience!

Ron's Tenure

With a sure and enthusiastic hand at the tiller, Ron Moulton took his great magazine to 59,000 copies a month. And all was properly done and presented with style, staffer Bagley's covers giving us storming SE5s and Camels close to, Lancasters attacking the dams, FWI90s on the prowl. Tend your stock and add to it for hours and hours of happy reading.

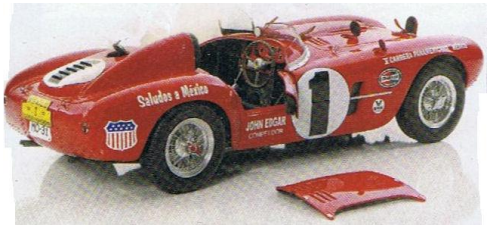
Flyer Fantastic

Tony Tomlin's 7ft Ionosphere, almost 7lb.s and twin engined too, is a proper star of the skies. Pictured in S&T and Speaks, proud Tony smiling on, it should inspire others to go for something different rather than another monoplane. The designs are around, the Skyleada control line Flying Wing as built by Richard Bavin thanks to Derick Scott (S&T for April 2010) being a great idea at 6ft or so. There's thePeter Fisher designs, a Jabberwooky Class . VTR, Colonel Bowden's mighty beasts and many more of ages past. RPMAC's Tony is a prime mover on the Tomboy scene and regularly attends our happy meetings in South West London, once site of the great Raynes Park estate.

Still There

Often in Buckingham Palace Road I at last remembered to look up - and there it was, an impressive reminder of Britain in a more expansive age, the globe and attendant figures above what was once the entrance to Imperial Airways, London (S&T March 2010). For the great Imperial story there's nothing to touch the ten years of work put in by Robert Bluffield which Ian Allan published as Imperial Airways (2009). A long read at 225 big pages, there's plenty of pictures, maps and colour adverts to keep you going.

Easier Shopping



Models mentioned in this column - the 300SLR, DH88 Comet, Brough Superior - sold quickly from main outlet Grand Prix Legends (0844 887 8888). Grand Prix has a forward base next to Motor Books off Leicester Square. Easy by bus or tube, the bays at GPL have or can source all the models you need. On the

way is improved Uhlenhaut Mercedes (see S&T No 46), a ridge-roof Bugatti Atlantic and the Ferrari 599. Open Late

Remembering Noel

The Triplane reissued at £500 or so, years ago Hasegawa offered three big museum class kits (Camel and SE5a with the Dr I). A thousand parts in a stout box built a Camel fit for Biggles, beefy at 40in. Half covering the model is the way to do it, all the interesting bits there to be admired. But what you see when the lid is raised is so impressive that actually building the thing is never attempted! But Noel Barker did erect the SE5a, cased it and gave it to Brooklands Museum where it may be seen today. These really big statics permit - and inspire - detailing to a ripsnorting degree. And with these fine models the spirit of McCudden and Ball, Mannock and Manfred is at one's shoulder...

Hairy Racer

And we bow out with a beautiful bike seen at Brooklands. More like it in the museum there, summer events are high action, rarty and pong-filled (what do they put in those tanks?) as enthusiasts gather within the famous speed bowl in beautiful Surrey. Cut through to help the war effort., who would dare say that the track will never be whole again. Chum Bill Boddy of Motor Sport got the movement going, others gathered with aeroplanes and now Brooklands Motor Course is attractive, fit and healthy. Not to be missed.

From Harry Witney

Hi James, I don't want to be seen to monopolise your magazine but at 84 have alot of anecdotes that my family are tired of hearing so may as well bore people I do'nt know.
1-- Relating to surname Witney (as in blanket ?)
During my working life I was at one time Inspector of Engines & Hydraulics on assembly line at D.H.'s Hatfield , Tridents etc. and as such on a "Final before going for test runs
a Dual Inspection is carried out, ie 2 checks on each item ,each inspector virtually checks the other mans work, The person I worked with was sometimes a bit picky such as
noting down a small snag whereas he could simply ask the operator to fix it on the spot. After being informed that all snags were corrected we approached the aircraft for a
second check to be greeted by a "comedian" with the call "Look out lads here they come ," Pratt and Witney "
2- Ref. Tim Birkin-My father who also served in Egypt / Palestine during 14-18 war returned to his job in Norfolk and used to tell of having to pull his bike up the bank to get out of the way when Birkin and his pals were chasing each other round the very narrow lanes in assorted big noisy Bently's etc . A number of roads were below field height and with Norfolk being quite flat they could be heard quite a long time before they arrived.

The first story I think might be suitable for you to print , might cause a laugh or two , the second really just shows how the devil may care attitude seen throughout the 14-18 war
continued quite some time after in all motorised activities,land sea and air-Harry Witney

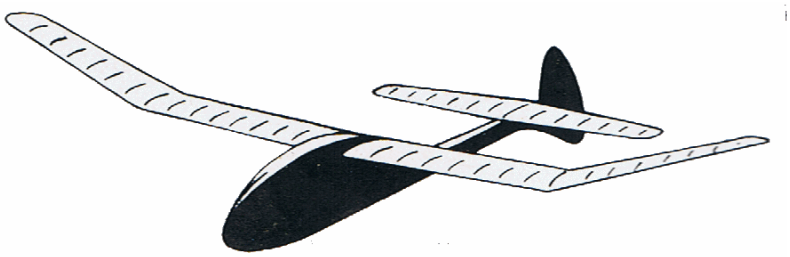
A friend sent me this, apologies to Mr Kipling and his exceedingly good cakes

From Richard Jones

A friend sent me this, apologies to Mr Kipling and his exceedingly good cakes

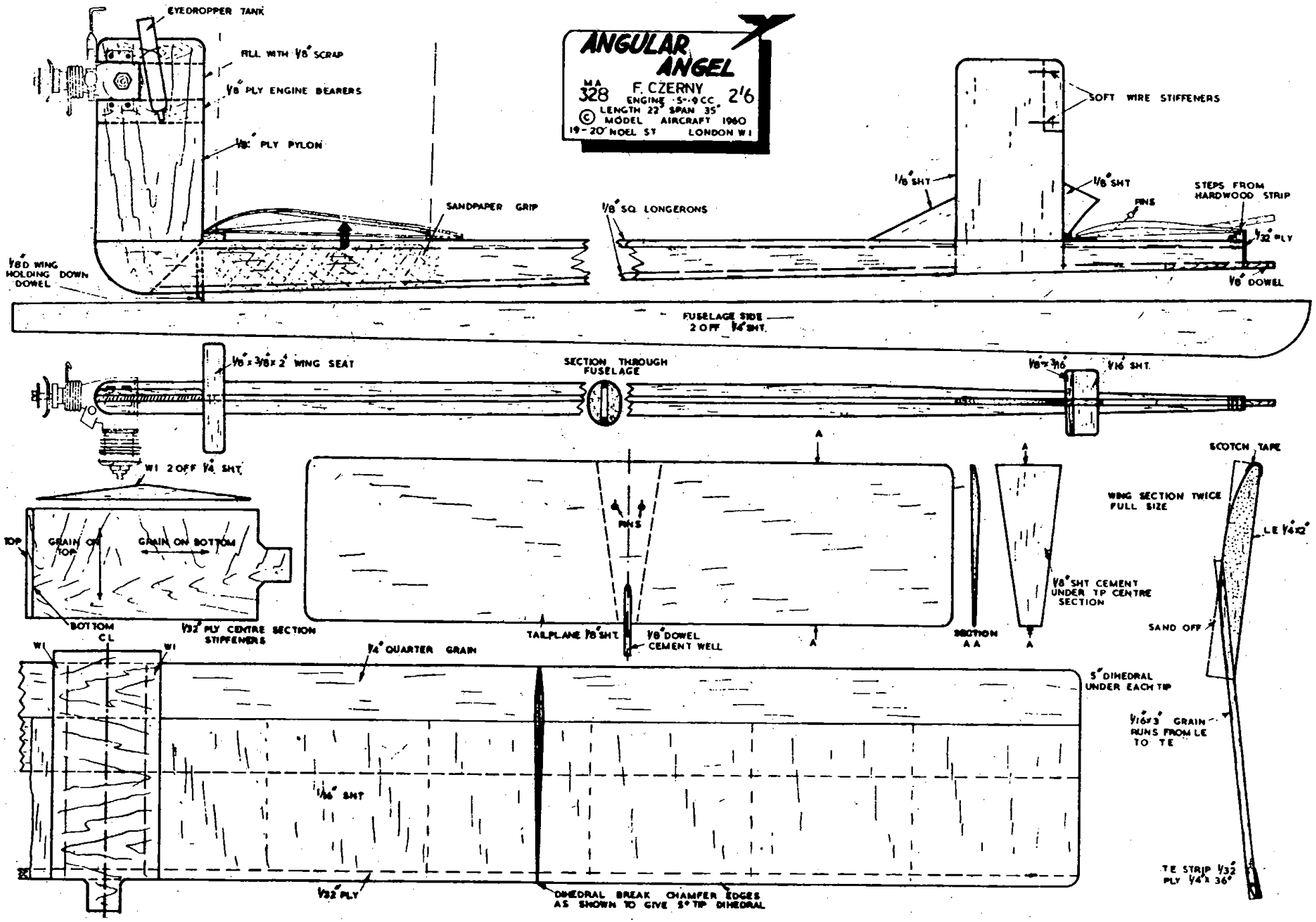
<u>Lift</u>

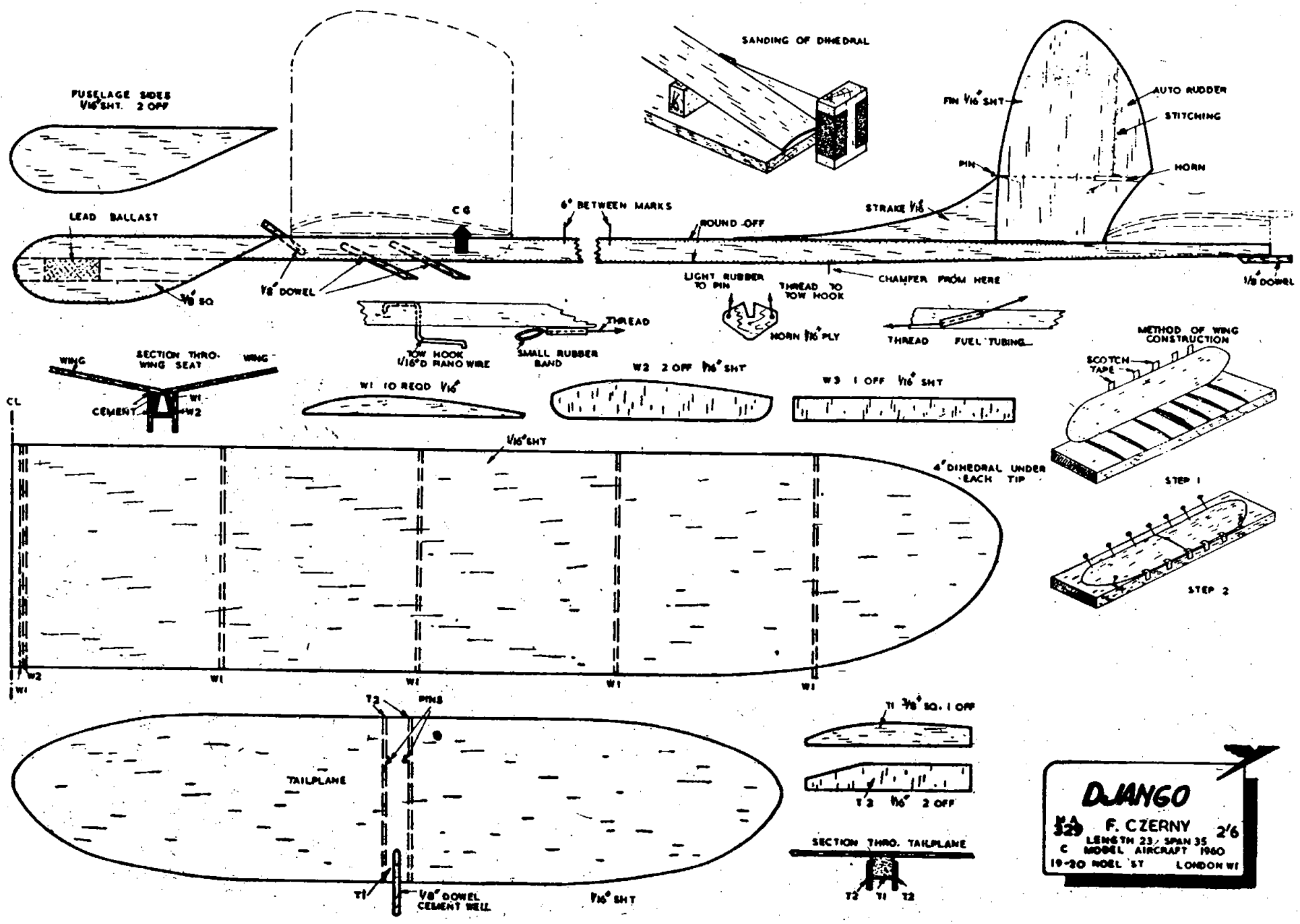
If you can stand in fields and football pitches
For hours and not care how many hours
If you can snub the summer's stings and itches
And choose tamed fliers over wild flowers
If you can squint and turn to face the skies
And keep that precious speck in constant sight
If you thrill to see your latest beauty rise
To attempt that one illusive perfect flight
If you can stand alone with aching hand
And turn the prop another hundred turns
Mesmerised by the coiling rubber band
Engrossed and free of other world concerns
If you can spend a morning modifying
Tweaking for an afternoon's fine flight
And then finding that it's still not good at flying
Be happy to tweak more far into the night
If you can risk with glee a broken finger
And an aching shoulder for the coming week
If you always for just one last flight twice linger
And one last blast of engine noise you always seek
If you swoon with bliss at the smell of burning castor
And revel in the heady scent of dope
If you can trim and trim again to make it faster
And towards perfection never cease to grope
If you can suffer a mangled broken wing
And an undercarriage warped and bent
And smile at crashes with all that they bring
And still think it was an afternoon still well spent
And if that afternoon had been a poor provider
The engine failed, and failed again, no flight
And the wind was strong, too strong to chuck a glider
You can smile and shrug and think, well that's all right
If you can cut and craft the perfect rib, and then
Sand it till your sanding fingers ache
And if it should go wrong you start over again
With no care for how long it will take
If the thrill that you feel when you pick up a plane
Fills you from six to sixty one
And you feel without flying that you'd go insane
You're an aeromodeller my son



From Peter Scott

I made it to Old Warden on Sunday for the Scale Weekend, I was car-booting and had no time to take any Model Pics before the weather cracked up and we all went home about 3pm, shame !


ANGULAR ANGEL
MA 328
F. CZERNY
ENGINE 5-9CC
2/6
LENGTH 22" SPAN 35"
© MODEL AIRCRAFT 1960
19-20 NOEL ST LONDON W1
EYEDROPPER TANK
FILL WITH 1/8" SCRAP
1/8" PLY ENGINE BEARERS
1/8" PLY PYLON
SANDPAPER GRIP
1/8" D WING HOLDING DOWN DOWEL
1/8" SQ. LONGERONS
1/8" SHT
1/8" SHT
SOFT WIRE STIFFENERS
PINS
STEPS FROM HARDWOOD STRIP
1/32" PLY
1/8" DOWEL
FUSELAGE SIDE 2 OFF 1/4" SHT.
1/8" x 3/8" x 2" WING SEAT
SECTION THROUGH FUSELAGE
1/8" x 3/16"
1/16" SHT.
W1 2 OFF 1/4" SHT.
TOP
GRAIN ON TOP
GRAIN ON BOTTOM
BOTTOM
1/32" PLY CENTRE SECTION STIFFENERS
PINS
TAILPLANE 1/8" SHT.
1/8" DOWEL CEMENT WELL
A
A
SECTION A A
A
A
1/8" SHT CEMENT UNDER TP CENTRE SECTION
SCOTCH TAPE
WING SECTION TWICE FULL SIZE
LE 1/4" x 1/2"
SAND OFF
W1
CL
W1
1/4" QUARTER GRAIN
5° DIHEDRAL UNDER EACH TIP
1/16" x 3" GRAIN RUNS FROM LE TO TE
1/16" SHT
1/32" PLY
DIHEDRAL BREAK CHAMFER EDGES AS SHOWN TO GIVE 5° TIP DIHEDRAL
TE STRIP 1/32" PLY 1/4" x 36"


FUSELAGE SIDES 1/16" SHT. 2 OFF
SANDING OF DIHEDRAL
FIN 1/16" SHT
AUTO RUDDER
STITCHING
PIN
HORN
LEAD BALLAST
CG
6" BETWEEN MARKS
STRAKE 1/16"
ROUND-OFF
3/8" SQ
1/8" DOWEL
LIGHT RUBBER TO PIN
THREAD TO TOW HOOK
CHAMFER FROM HERE
1/8" DOWEL
THREAD
TOW HOOK 1/16"D PIANO WIRE
SMALL RUBBER BAND
HORN 1/16" PLY
THREAD
FUEL TUBING
METHOD OF WING CONSTRUCTION
SCOTCH TAPE
SECTION THRO. WING SEAT
WING
WING
CEMENT
W1
W2
W1 10 REQD 1/16"
W2 2 OFF 1/16" SHT
W3 1 OFF 1/16" SHT
CL
1/16" SHT
4" DIHEDRAL UNDER EACH TIP
STEP 1
STEP 2
W2
W1
W1
W1
W1
W1
T2
PINS
T1 3/8" SQ. 1 OFF
TAILPLANE
T2 1/16" 2 OFF
SECTION THRO. TAILPLANE
T1
1/8" DOWEL CEMENT WELL
1/16" SHT
T2
T1
T2
DJANGO
F. CZERNY
2/6
LENGTH 23/ SPAN 35
MODEL AIRCRAFT 1960
19-20 NOEL ST
LONDON W1

Ideal for beginners—two models that are simple, tough and really fly. Designed especially for novices by noted Austrian modeller FRANZ CZERNY From Model Aircraft May 1960

Angular Angel

Here is a simple contest F/F model of unusual, but very practical layout. The construction is rather unorthodox, yet it is easy to build, warp-proof, robust and easy to trim and fly. You can use the model for open or FAI contests, although for the latter it must be ballasted.

Wing

This is the most important part—once you have finished it, the model falls together almost by itself. Start by sanding all the balsa sheet you will be using, then sand the leading edge block and ply trailing edge to a wedge-shape. Cement the 1/16 in. sheet on to this wedge-shaped nose with contact cement or PVA white glue. This sheet must be prepared beforehand, because the grain has to run chordwise. For this cut 3 in long pieces from 3 in. or 4 in. sheet, cement them edge to edge, and then glue the ply trailing edge in position. After the whole assembly has dried, sand the upper side of the leading edge to an airfoil shape and place a strip of Scotch tape around the L.E. for strengthening and to prevent splitting.

Now cut off the outer panels and sand the ends to the correct angle to allow for a neat dihedral joint. Double cement the outer and inner panels together. In case of a bad crash, this cement joint will break and the tips come off without doing any harm, it is then a simple job to cement them back in place.

Fix the wing-seat parts in position, do not spare the cement, and cement a strip of sandpaper to the front of the wing-seat. Treat the wing with banana oil or similar non-shrinking dope, thin this down to the consistency of water and give three coats as quickly as possible, so that it soaks well into the wood. Lightly sand the wing after the dope has dried, in order to get a smooth finish.

Tailplane

Cut out and sand to an airfoil shape, lightly dampen the panel on the upper side and cement the parts together. As hold-downs, use ordinary pins, which are pushed through, bent over and pulled back flush with the underside. A piece of dowel is used for the rear hold-down. Give the tail only two coats of dope.

Fuselage

Cut the pylon from 1/8in. ply. Also cut the other necessary parts and cement everything together. Cement the engine bearers to the 1/8 in. ply pylon and fill the space between these with 1/8 in balsa. Drill the motor-mounting holes for the motor you are going to use. Fix the wing and tail seating strips to the fuselage and the stair-like incidence piece (extreme rear). Round off all the fuselage corners to the section shown and cement sandpaper to the fuselage sides, then dope as for the wing and finally give one coat of fuel proofer.

Flying

Slide the wing backwards or forwards until the model balances at the point shown on the plan, then key the wing and tail with split dowels. Now hand-launch as usual and trim for a flat glide.

The first powered flights should be made on full power but with the prop on backwards. The model should fly almost straight with only a very slight turn which should be in the same direction, both under power and on the glide. Correct the power-on turn by altering the thrustline. The model needs a moderate throw on launching to achieve full flying speed, or else it will sink to the ground before climbing away. The climb is at an angle of 45 deg. And very fast. Always use a dethermaliser fuse in the rear tailplane rubber band when flying under power, otherwise you may easily lose your Angular Angel.

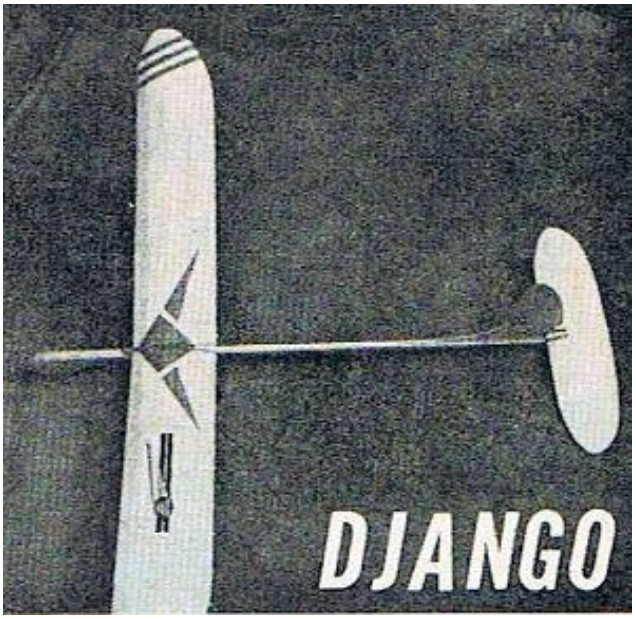
Django

The trouble with most so called beginners' models is that they are too complicated, and take too long to

constrnct. Django is so simple that it can be built in a couple of evenings. Despite its simplicity, it is an excellent flier, and building costs are low.

Wing

Cut 10 wing ribs (W.1) and spot cement these lightly to the building board (see sketch). Next cut and sand the wing panels; only the right wing is shown on the plans. Slightly dampen the forward half of the upper surface to produce the correct section and cement the panels to the ribs with a rolling motion. Secure the whole assembly with pins and Scotch tape. After drying, remove the panels with a sharp knife, separate them in the middle and sand the centre joint to achieve the correct dihedral, as shown in the third sketch. Now cement the wing halves together and fix the wing seat. Ribs W.2 are now fitted; note that they are parallel and trued up to the wing seat. Construct the wing seating accurately, for the squareness of the model depends upon it.



Tailplane

Check for squareness. Cement the tailpiane panel to the top side of it, and cement the seat-ribs (T2) in place.

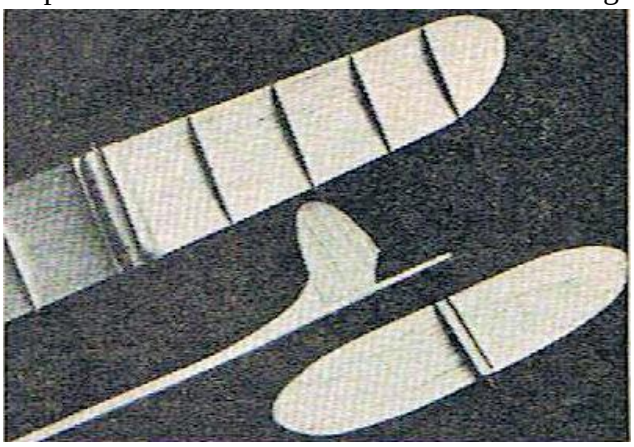
Push two ordinary pins through the tailplane as hold-downs, bend them over and pull them hack flush with the underside of the seat.

Fuselage

Cut a 28 in. length of 3/8 in; sq. for the fuselage boom, and a 3 in. length for the tailplane rib. The rest of the 3ft. length is used for the fuselage-nose, with the nose side panels from 1/16 in. sheet. Cement the appropriate parts together, and fit 1 oz. of lead in the space provided. Taper the end of the boom as shown in the side view and round off the corners, except where the wing and tail " sit." The fin and strake are then cemented to the fuselage, together with the tailplane holding down dowel. The wing holding down dowel and the two hooks can now be fixed in place—use great care in order to avoid splitting the fuselage.

Flying

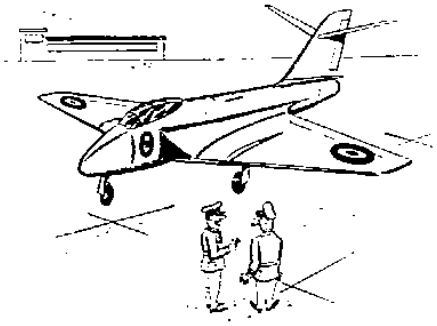
Assemble the model and balance at the point shown on the plan. Test glide from shoulder height and adjust for a flat glide, by packing up the L.E. or T.E. of the tailplane or wing. Excessive turn should be corrected by warping the rudder. When trimmed the model may be tow or catapult launched. For a catapult, use a loop of 1/4 in. flat rubber about 10 to 15 ft. long and a length of fishing line about 30 yd. long. Push a spike into the ground, and fix the rubber hand to it. Attach the fishing line to the rubber hand and fit a wire ring to the other end. Launch by hooking the model to the line and gently pulling hack. You may also, of course, tow launch the model. If Django veers to one side, then release it, banked to the other side. The tow will not be exactly straight but rather in the form of a gentle S." In windy weather use the forward hook, in calm the rear. When you have gained some experience, cut the dowel tow-hooks away, and install the auto rudder with the wire hook. This will enable you to achieve a straight tow and circling flight.



Assembling "Angular Angel" and " Django "

The wing is fixed by a rubber band, which goes from the dowel, over the wing, around the fuselage and back over the wing to the dowel. For the tailplane a rubber band is fitted from one pin, around the fuselage to the other pin. A small band is stretched between the two rear dowels. The stair-like incidence piece is used for test-gliding, starting with the middle step. The steps, which are not used after testing, are eut off or filled in, as necessary.

"What I like about model flying is the bags of good clean fresh air."

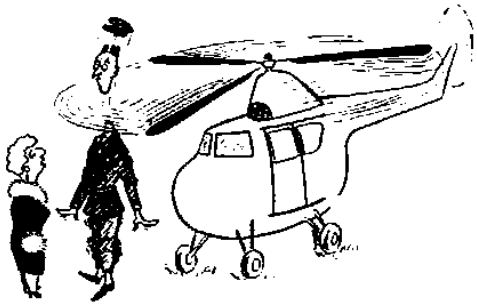


"Keep it under your hat—it's one of the latest plastic kits."

"Be careful Bill—I can feel that jet on my neck."

"It's a good job old Charlie's got big feet."

"So that's why they call them 'choppers'."



Mike Fairgray model.1@windowslive.co.nz

I have been sent your latest publication by a member of my club (Auckland Model Aero Club) and would like to be placed on your email list.
In response to your request for an article I am a member of the National Association (NZMAA) Control Line & Free Flight Scale Special Interest Group.
We have recently held a F/F Scale day and I have attached a report as written by our Chairman and photos which you may use if you find it interesting to your readers. I can continue to forward reports and photos of other F/F scale meetings if you wish. Last year we held a postal competition for Earl Stahl models and this year we are holding another postal comp for any scale models made from a published plan which opens up all sorts of models from kits to mags from magazines such as Aeromodeller. The model must be made as per the plan so to keep the details and finish simple and thus hope to encourage other modellers to have a go at a scale model. In addition to this we have introduced into our National Competitions a a new comp for kit scale I have attached a set of rules for your information.
As the photos puts me over my email size I will send them to you in a separate email.

Kit Scale Rules: Effective June 2012

Introduction:
Kit Scale will be run as an official event at the Nationals using the British Model Fliers Assoc (BMFA) rules. The intent of kit scale is to offer an easy class to fliers who may not wish to build the developed and detailed models required by existing Scale Competition Scale Rules for example. In essence, any small scale model originally offered as a commercial kit qualifies. This brings in Keil Kraft, Veron, SIG, Peck, Skyleader, Modelair, Airsail, and many others either currently in production or those old 50s and 60s designs you have always wanted to build. The spirit of the class is that you build as close to the original plan as possible. Deviations are penalised.

Rules
A. The maximum weight is150g (including motor).
B. There are no wingspan limitations.
C. The model may be powered by rubber, CO2 or electric.
D. Models may be built from kit parts or the builder's own wood but the kit plan must be provided as authentication.
E. The only modifications permitted (without marks penalty) from the original kit are those associated with fitting an alternative power source, a replacement propeller (including for rubber) and wheels.
F. The minimum flight time is 10 seconds.

Documentation:
The minimum documentation required is the original (or photocopy) plan from which the model was built and one photograph, drawing or painting (e.g. box art) of either the aircraft modelled or a similar aircraft from the same era to authenticate the general colour scheme and markings.

Static Marking
A. Points will be awarded up to the maximum of 100 to reflect the quality of workmanship and character of the models made up as follows.
B. Workmanship is scored up to 60%,
C. Authenticity of colour scheme and accuracy of Markings (if present) 20%
D. Overall character 20%.

Penalties for deviations from the plan:
Most models will have a coloured tissue finish with painted, printed, transfer or tissue markings.
- Fully painted models will not be excluded but will have 5 points deducted from their static score.
- 5 points will also be deducted for each significant deviation from the original design other than those permitted above, e.g. increased dihedral, separate control surfaces where these are not shown on the plan etc.

Flying Points
10 points will be awarded for each of the following
A. Take-off (optional)
B. Initial climb
C. Descent and landing approach
D. Quality of Landing.
E. A maximum of 20 points in total will be awarded for Realism in fight (speed, 'sit', stability and character).

Kit scale offers an opportunity to build kits like the Keil Kraft Stinson Flying Station Wagon a 3/6 stick and tissue model again

model.1@windowslive.co.nz

NORTHERN AREA FREE-FLIGHT SCALE DAY Report by Stan Mauger (Submitted by Mike Fairgray)

Held on April 15, at Patetonga, this day presented an opportunity for scale free flight models of various classes to be flown in the Northern Area Scale Trophy events organised by the Scale Free Flight & Control Line SIG. The Patetonga farm provides a good flying field and this year conditions were excellent for small models requiring calm weather. While this was down as a contest day, it was also an opportunity to test models. With ten
modellers on the field, the day promised lively competition.
The best-supported event was Rubber Scale. Ricky Bould had his Comper Swift flying well, and George Fay provided some entertaining flying with his Kawaski Tony that flew with great purpose and achieved some good climbs and circuits. He also had his Vought Corsair flying most realistically. It looks great in the air. Stan Mauger's Helio Courier flew smoothly for the most part, but a tight turn on the descent brought down flying marks and he had to be content with third place. Angus Macdonald's Stinson Voyager is always a joy to watch. On this day it was making shortish flights, but they were good enough for second place. John Poletti's finely built Cessna 180 achieved the highest static and flying points to win the event.
Low power Scale had only two entrants so it was a duel between John Poletti's Lincoln AP-K5 and Ricky Bould's Piper Cub. The Cub put on its usual stable flying characteristics to provide a challenge for John's Lincoln, out for its maiden flight. He soon had it flying well, but not without incident, however. On the first flight it threw its propellor. John's sharp eyes and some moral support from others soon had this black

propellor found, and on the model again. With only a few marks between them in flying, it was static scores that separated the final winners of this event. There were a number of starters in F4A Power Scale, but in the end it became a contest between just two fliers. Paul Evans flew his Bristol Brownie. It seemed to need just some tweaking of thrust-lines to get it flying more stably. It is a scale subject with lots of character. Don Spray's Heinkel was really gaining altitude in some tight circles. George Fay was unable to proceed with further flights of his Douglas Dauntless after the engine bearer section came adrift in a heavy landing. It was down to John Poletti with his beautifully built Vickers Venom and Stan Mauger who entered his spritely Piper TriPacer. Stan achieved a good enough flight to gain some advantage, but there was only a small points margin between the two models, both of which flew well. This contest day could not have been run without the contribution of the judges. A big thank you to Paul Evans for judging rubber flying and Angus Macdonald for looking after F4A Power flying and static judging. Thanks also to Keith Trillo and Mike Fairgray for assisting with static judging of rubber scale. Mike also took some great photographs, some of which accompany this report. Special thanks also to Peter Kowalski for the use of the farm again this year. The superb weather conditions contributed to an enjoyable day's flying and there was so much activity that fliers found that there was no time to get out some models brought for the day. All of which made the journey to the field well worth the effort.

Results

Static Flying Total

F4A Power scale

1. S. Mauger Piper Tri Pacer 786 410 1196
2. J. Poletti Vickers Venom 740 390 1130

Rubber scale

1. J. Poletti Cessna 180 866 455 1321
2. A. Macdonald Stinson Voyager 766 377 1143
3. S. Mauger Helio Courier 799 331 1130
4. G. Fay Kawasaki Tony 724 404 1128
5. R. Bould Comper Swift 556 387 943

Low Power scale

1. J. Poletti Lincoln AP-K5 777 434 1211
2. R. Bould Piper Cub 657 423 1080

All photos by Mike Fairgray

Angus Macdonald's Stinson Voyager is a reliable flier.

Angus Macdonald's model on the stooge for winding the rubber

Don Spray's Earl Stahl Spitfire

Don Spray’s Heinkel 126 climbing away from the launch.

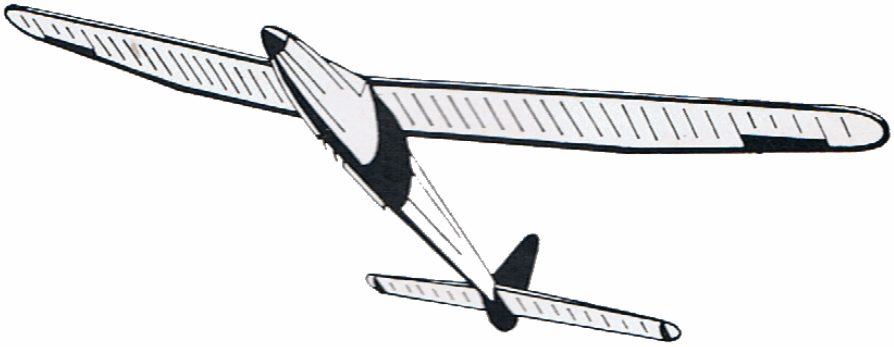
George Fay with his consistent flyer Corsair

John Poletti’s beautifully built Vickers Venom

Paul Evans setting up his Bristol Brownie

Stan Mauger Helio up and away

Stan Mauger's TriPacer another consistent flyer



Fleaz Pleaz Me, Oh Yeah . . . David Lovegrove

I have a liking for oddball aircraft and about three years ago, I built a 33" wingspan model of M. Henri Mignet's somewhat infamous *Pou du Ciel*, otherwise known as the *Flying Flea*. The nicely-drawn plan, published by Traplet (http://www.trapletshop.com/product.aspx?c=3221) in the June 2008 edition of RC Model World, sprang from the drawing-board of Colin Reynolds, who claimed that *"this strangely-configured aircraft design is very stable in flight".* Yeah right. That was not how it turned out to be . . . I'll describe my various experiences with the *Flea* in a moment but first, a bit about the full-size.

As we all know, this tiny home-built aircraft had a reputation for killing its pilots, which it did by simply "tucking under" on application of the equivalent of down elevator. To quote Wikipedia:

" . . . the pilot would push the stick forward to gain speed for the flare and landing. As speed built up, the rear wing, operating at a greater angle of attack, would gain lift and pitch the aircraft's nose further downward. The pilot's normal reaction would be to pull back on the stick. This action would increase the angle of attack on the front wing by lowering the trailing edge of the wing. Because the trailing edge of the front wing was close to the leading edge of the rear wing, the front wing's downwash would accelerate the air over the rear wing and cause it to gain lift more quickly than the front wing, resulting in an ever increasing nose pitch-down and flight directly into the ground".

I suspect these aerodynamic peccadilloes may not have told the full story. I wonder if the chaps nailing these machines together in their garden sheds and garages were a) inexperienced pilots and b) almost certainly ignorant of such esoteric aerodynamic minutiae? Or to put it another way, they hadn't a clue what they were letting themselves in for! Quite possibly, methinks.

As I prepared for the model's first flight, I probably fell into the second category. Although I'd balanced the thing carefully and (I thought) set up the incidences correctly, I soon realised I'd bungled! Full of gung-ho, Can-Do chutzpa, I'd cranked in far more movement on both the wing incidence and the rudder than the designer wisely advised. The wild, roller-coaster, pilot-induced oscillations during the brief flight preceding the inevitable crash quickly proved my mistake. In these ways we learn. Painfully sometimes.

Next time out, after a generous slice of humble pie, I was a bit more successful. However, the Flea still wasn't really happy with this flying lark, being definitely a tad under-powered on the ancient, anaemic, cheap, two-cell, 800 MAh LiPo I'd shoved in it. And yes, this caught me out again. Crash No. 2 damaged both wings and split open the forward fuselage. After that the bits were chucked into a corner whilst I licked my wounds and did other less discouraging things.

A couple of years passed and with confidence restored, the airframe damage was repaired. It hadn't been as bad as it looked and anyway, if you build 'em you can mend 'em! Once again I carefully set everything up, exactly as per Colin's directions. But this time, to address the perceived power issue I'd modified the battery space to accommodate a 3-cell 800 MAh pack. Alongside that I'd upgraded the motor, which meant that overall, the power train was much more powerful. It was a bit heavier too and that allowed me to dispense with a small lump of balancing lead. I hate adding weight, don't you?

So it was that at a secret venue somewhere posh in the Home Counties (if I told you where I'd be killed but I can reveal that it's on the River Thames and the name rhymes with "Hook- 'em") mate John Mellor and I recently convened for a spot of micro aviation. He was to maiden his brand-new Dave Platt *Fleetwing,* whilst I, with a squadron of lepidoptera aerobatting in my tummy, would attempt to get the *Flea* airborne again.

John went first and achieved a very satisfying first flight, replete with loops, bunts and a few rolls. Such a nice model; big, graceful and endowed with impeccable manners. He was justifiably chuffed with the result of his labours.

Then it was my turn with the *Flea* and I elected to try a take-off, this being arguably the safest way to establish if this machine was going to fly or not. After two attempts, careering around the field like a frog on speed, the model showed no inclination whatsoever to lift off. Embarassing. Figuring it needed more incidence, I beeped-in all the up-trim I could get on the tranny and tried again. Nah.

Next stop was to visit the transmitter's Sub-Trim menu and crank in even more positive incidence. But this time I cunningly elected to go for a hand-launch, as I suspected that airspeed might be crucial. Summoning all my strength, I hurled the little so-and-so into the air and – wahay! – away it went.

So far, so good, but subsequent flights have shown that it's not just the front wing's incidence that needs to be right. It turns out that with a three-cell LiPo on board, there's clearly far *too much* power, because the nose dips sharply before powering away, despite there being plenty of speed. Normally you'd say this meant that the motor's thrustline needed to be raised a little, but as the model accelerates and the lift from the front wing develops, she goes up like a skyrocket! This phenomenon also appears in level flight – whack in full power and the nose goes down significantly before normal service is resumed. Going to a two-cell LiPo cures the problem instantly; the climb is more modest but there's none of that heart-stopping drama. Again, this just affirms the designer's advice that a two-cell LiPo is ample. But we all know better than the designer, don't we?

After resolving all those travails, I have to take my hat off to Mr Reynolds. He was dead right when he said *"this strangely-configured airdraft design is very stable in flight".* It was – eventually.

By now thoroughly smitten (or do I mean bitten?) and with a much better understanding of the model, I've decided the next *Flea* will be a 66" wingspan, quarter-scale version. (Thinks: is that naïvety or just sheer lunacy?)

Should make a good picnic table, if nothing else.

PS: The registration number of my model, G-AMEH, is fictitious. In fact it belonged to a DH-82A Tiger Moth which was one of a number sold to the Royal Thai Navy.

PETER'S 5(!) MORRILL SIMPLEX HORNET .19

Excellent engine for practical vintage flying...

COCKLEBARROW FARM

12th AUGUST 2012

7th OCTOBER 2012

All types of R/C up to December 1965 including electric and glider.
Signposted from Aldsworth on B4425 between Cirencester/Burford and off A40 between Northleach and Burford. (Follow SAM 35 signs).
Camping on field.
Contact – R/C and camping – Paul Howkins
024 76 405126

(There may not be any signs due to the local Council imposing restrictions. JP!)

Vic Smeed Tribute Week 2012

As announced in the December 2011 SAM 35 Speaks, we propose that the week Sept 2nd – 9th should be dedicated to celebrating Vic Smeed's designs on a world-wide basis. Please send your photos and anecdotes of/about flights made during this period to Power Struggle columnist Mike Parker (mikedparker@tiscali.co.uk).
In addition there will be special events at the Vic Smeed Memorial Day during the OW **ModelAir Festival of Flight** weekend (Sept8th/9th). Please bring along your Vic Smeed models for display on the Sunday, when a Concours award will be presented.

The Vic Smeed Memorial Trophy Competition will also be held on the Sunday. **Doug Wass** has contributed a superb Trophy for this event and has arranged sponsorship to provide prizes, which will include a kit of Vic's "Chatterbox", kindly donated by **Falcon Models**. The competition will be a spot landing event for **2.4 GHz** R/C assisted FF models according to the following rules:

1 Models must be an acknowledged Vic Smeed design. (Allows for unpublished designs e.g. Metre Maid)

2 Scaling up or down is permitted provided that the maximum engine size is 0.87cc/.049 cu.in.

3 Builder of the model rule applies.

4 Models and fliers shall comply with site rules currently in force.

5 Models shall have rudder only radio assistance: if the model normally has elevator/engine control it must be rendered inoperative. **N.B. 2.4 GHz only**

6 Minimum engine run must be 45 seconds. In windy conditions the competition director has discretion to reduce this to an appropriate time down to a minimum of 30 seconds.

7 Placing in the competition is based on models coming to rest nearest to a designated spot on the field.

8 In the event of a tie for first place there will be a fly off.

9 The Contest Director's decision will be final!

We hope that this new event will be well supported – **there are lots of Tomboy 3 flyers out there**, so bring yours along, disable the elevator and join in the fun!

POST S&T

On Sunday 12 August Wimborne MAC will be holding an RC Classic 1955 – 75 day.
The site is at Cashmoor which is situated on the A354 between Blandford Forum and Salisbury.
The entrance gate is located at N 50° 55' 27.23 W °02 01' 50.34
Contact myself James Parry jamesiparry@talktalk.net for more details

NOT S&T

Zeppelin Country A short account by: Martyn Pressnell

It was our great pleasure to spend our summer break this year in Constance on the beautiful Bodensee. This large lake separates Germany to the north from Switzerland on the south shore, with Austria at the eastern end. The western end feeds into the headwaters of the Rhine, the whole being somewhat greater than the Solent. Of course sailing and water sports of all types are very much to the fore, enjoying largely predictable mid-European weather. It is generally warm with an occasional thunder storm building overnight during the summer. Indeed you could plan in advance to go model flying practically any day of your choosing, with almost certainty that the weather would co-operate.

We stayed in a very well appointed hotel on the lake shore that had formally been a monastery, a plaque on the wall declaring that Ferdinand Graf von Zeppelin was born there in 1838. Indeed we enjoyed the Zeppelin bar with more photographs of himself entertaining the rich and famous. On our first day a Zeppelin NT airship quietly floated by and we were to see it frequently circuiting the lake during our stay. It had been my ambition for many years to visit the Zeppelin museum in Friedrichshafen and this we did.

The wealthy count had founded his company in the town in 1874 and gradually developed his semi-rigid and huge rigid airships there. The largest airship shed actually floated on the lake and the airships were launched afloat. The Zeppelins were the major aerial offensive weapon used against Great Britain in the First World War, striking at east coast towns and into Essex and Hertfordshire towards London. My father served in the army at that time with searchlight and anti-aircraft batteries trying to bring them down.

The Zeppelins proved to be no match for aircraft using tracer bullets and many airships went down engulfed in burning hydrogen, the buoyancy gas at that time. They continued in support of U-boat actions in the Atlantic. The Zeppelins continued in an effective commercial role beyond the Count's death in 1917, with worldwide flights after the war. However, the Hindenburg suffered a dreadful fate when it burst into flames on its approach to land at Lakehurst, New Jersey in 1937. This spelt the end of commercial operations following the similar fate of the British R101 near Beauvais in 1930. The Graf Zeppelin continued to be used in a military role, its last flights being to patrol the east coast to survey the British radio frequencies in use, up to the outbreak of WW11.

Remarkably, the residue of the Count's fortune and his company's legacy enabled the industry to be re-established by the trustees in Friedrichshafen some years ago and it seems to continue to flourish. The much smaller Zeppelin NT series employs a semi-rigid structure in the form of a triangulated keel beam, to which the gondola, engines and control functions are attached, with the envelope inflated with helium, surrounding this and floating above the keel. A pair of propeller units is located close to the gondola on each side and a third propulsor is located at the tail. An articulated lateral propeller at the tail provides turning and pitch control. The ship is very quiet in flight and tends to fly low for joy flights and advertising purposes, but could equally remain above cloud almost undetected on reconnaissance missions.

The museum is housed in the converted harbour railway station at Friedrichshafen with an astonishing array of airship parts and memorabilia. The reconstructed passenger cabin of the Hindenburg can be inspected with its lightweight Bauhaus type furniture. A grand piano constructed from aluminium weighs just 200 pounds. The amazingly intricate structure of the ship can be admired together with engine cupolas and the extraordinary spigot for attaching the ship to the mooring mast (known in the business as the 'donkey's plonk'). The Zeppelin business sporned several other large industries in the region, including Maybach engines and the Dornier aircraft company. In the afternoon we travelled out to the Dornier museum at the local airfield and I was again impressed by the very splendid provisions to view many of their historical research and development machines. The immense Do X flying boat of 1929 with its twelve Bristol Jupiter engines of 525 hp might make a splendid electric powered model for water flying. Its cockpit resembles the bridge of an ocean liner. It carried 150 passengers, 10 crew and nine stowaways on its first passenger flight later that year.

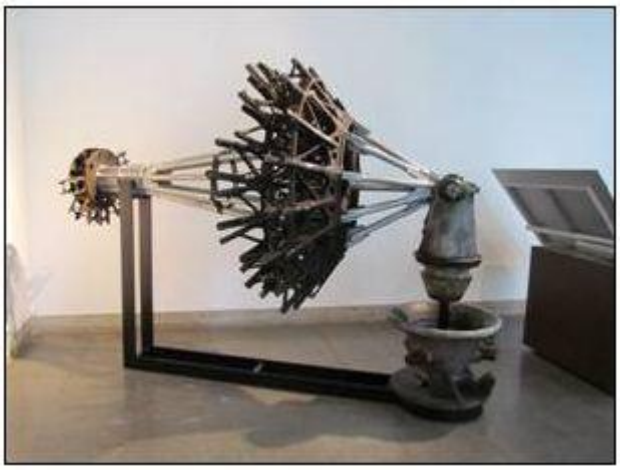
Outside a number of more recent types could be seen and peered into. I particularly liked the twin-engined Do 28 Skyservant, a light utility military and civil aircraft of 1966. It would make a great electric model to construct and fly. Many other types were admired including turboprops, modern small civil jets and fighters. Dornier was certainly a prodigious designer and builder of many types of aircraft and missiles. In many respects they pioneered the development of new aircraft types.

Looking back, my old company Handley Page produced thousands of Halifax bombers during WWII whilst Dornier specialised in night fighters to knock them down. The issue was settled by the RAF who destroyed all the aviation factories and most of the town of Friedrichshafen in 1944. It has been rebuilt as a busy industrial town in a rather utilitarian but functional style. It was a marvellous experience to visit these places under the peaceful circumstances now prevailing whilst acknowledging the great tragedy of war and its aftermath.

Ferdinand Graf von Zeppelin

Zeppelin NT orbits the Bodensee

Zeppelin museum at Friedrichshaven



The original 'Donkey's Plonk' attaches to the mast

Entrance to the attractive Dornier museum

Model of the enormous Do X flying boat

The VTOL Do 31 research aircraft with vectoring thrust engines and with vertical thrust engines at the wing tips

Model of the Dornier Do 217N night fighter

The Dornier Do 28A-1 Skyservant

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