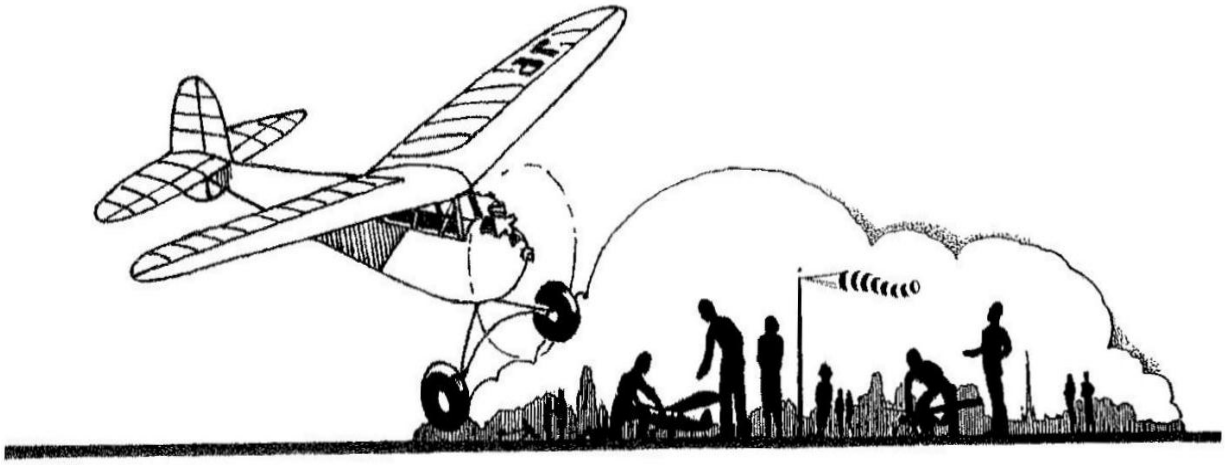


Sticks and Tissue No 55 – June 2011

I'd like to thank all the contributors, without whom this newsletter would not be possible.

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

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. The content does not follow any logical order or set out, it's "as I receive and put in".

Bill Longley and Starduster 600 at Cashmoor (Wimborne MAC)

From George Stringwell

Couple of pictures of a Tomboy I have just completed, mainly with the aim of flying off the local lakes. Power is a 140 watt outrunner, 2S 1300 lipo. As you can see it has alternative float and wheel undercarriages, all up weight with wheels is 14.3/8 ounces, an ounce heavier with the floats. Covering is Esaki tissue over 10 micron mylar.

I received several emails regarding the passing of Maynard Hill. This link was sent by Peter Branigan
http://www.washingtonpost.com/local/obituaries/model-airplane-history-maker-maynard-hill-dies-at-the-age-of-85/2011/06/08/AGcnyQNH_story.html

J D Haytree

Hi James, perhaps you can answer my query, do you know who took over the business when Haytree retired last autumn? Mrs Haytree told me a young chap had bought it which was good news as they wanted to retire. The web page still exists but the phone number is cancelled.
Regards Geoff Goldsmith

From Peter Michel

Has anyone ever built a KK Outlaw? I'm currently knocking out one for a chum with a sight problem which rules out close-up work. But I've come to full-stop at that horrible lash-up of a centre-section where the wing overhangs the cabin. The plan just shows various bits and pieces which don't seem to fit the fuselage. And I don't have the printed kit bits which might have helped. Any clues would be appreciated..

A 29¼" Span Free Flight Model for 5'- B.C.C. (APS code B.C.)

SHARP SCOOTER

DESIGNED BY

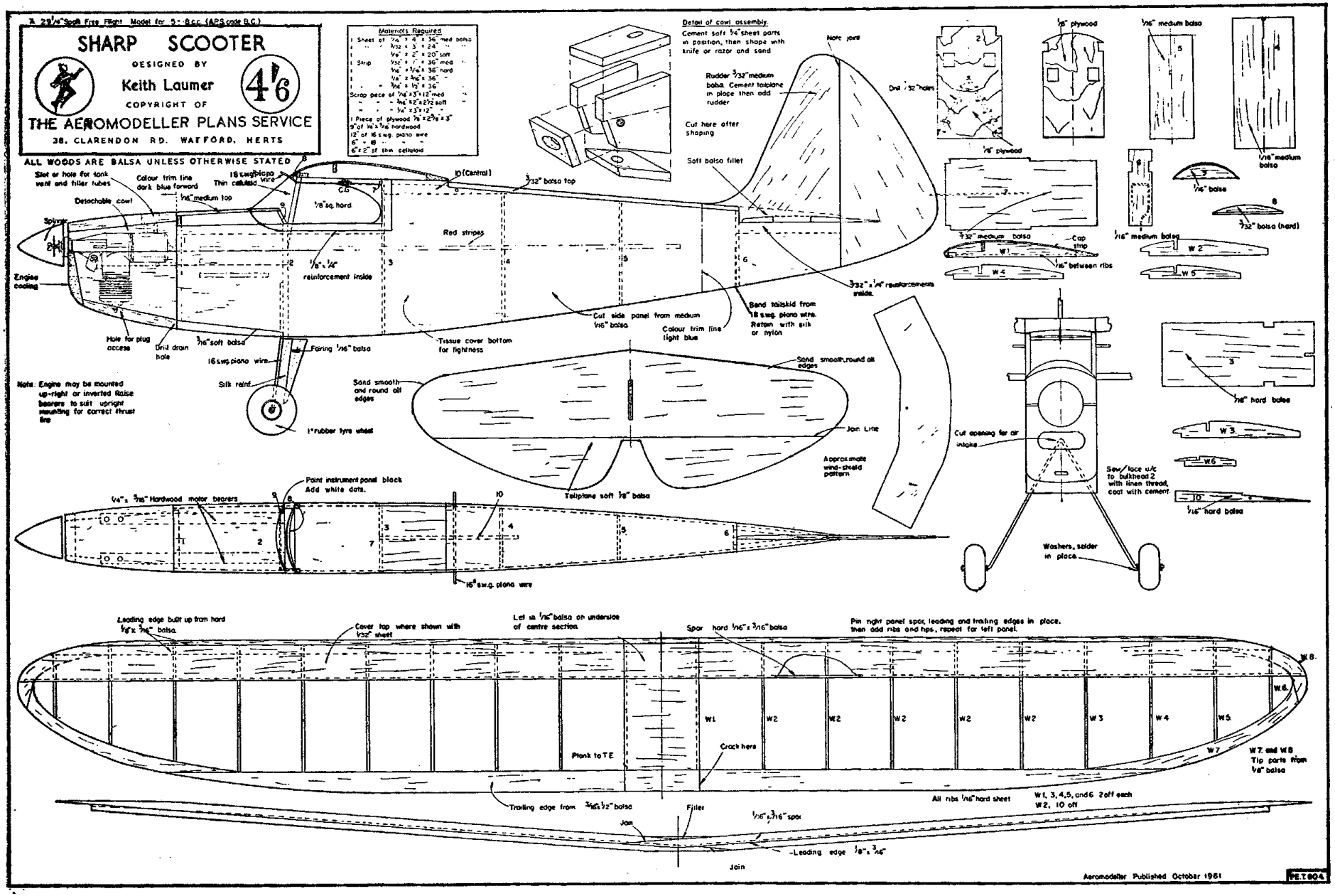
Keith Laumer

4/6

ALL WOODS ARE BALSA UNLESS OTHERWISE STATED

Materials Required

1 Sheet of 1/16" x 4" x 36" med balsa
1 " " 3/32" x 3" x 24" " "
1 " 1/8" x 2" x 20" soft "
1 Strip 1/32" x 1" x 36" med "
1 " 1/16" x 3/16" x 36" hard "
1 " 1/16" x 3/16" x 36" "
1 " " 3/16" x 1/2" x 36" "
Scrap piece of 1/16" x 3" x 12" med "
" " " 3/16" x 2" x 2½" soft "
" " " 1/4" x 3" x 12" "
1 Piece of plywood 1/8" x 2⅜" x 3"
9" of 1/16" x 3/16" hardwood
12" of 16 s.w.g. piano wire
6" x Ø 1" " "
6" x 2" of thin celluloid

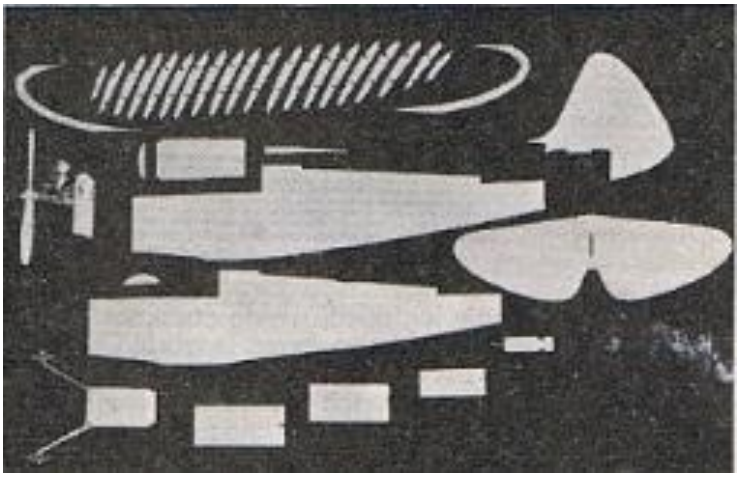


Aeromodeller Published October 1961

P.E.T. 804

Sharp Scooter by Keith Laumer from October 1961 Aero Modeller a slick 29” sportster for .5 - .8 cc engines

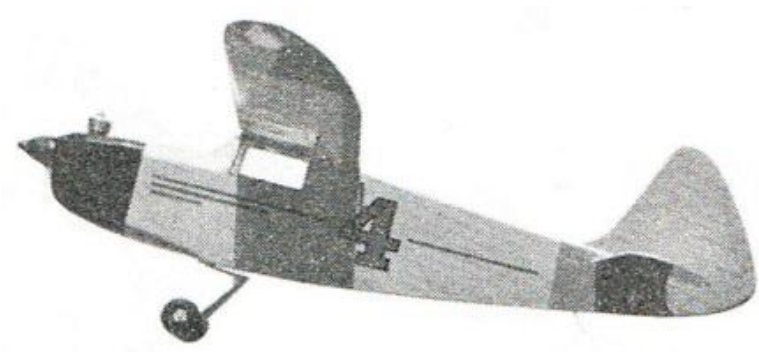
This is the first power model in our series and we have specially chosen a design and structure that will give a maximum reward of fun for minimum effort. With the thrust of a miniature aero engine to haul your model skyward, you can afford to build heavier stronger structure - which is fortunate, since these power plants require a rigid, vibration-proof mounting.
Surprisingly, added weight detracts nothing from the flying ability of a model (within limits, of course). In fact, a little added wing-loading makes for smoother, more realistic flights and better performance in windy weather.



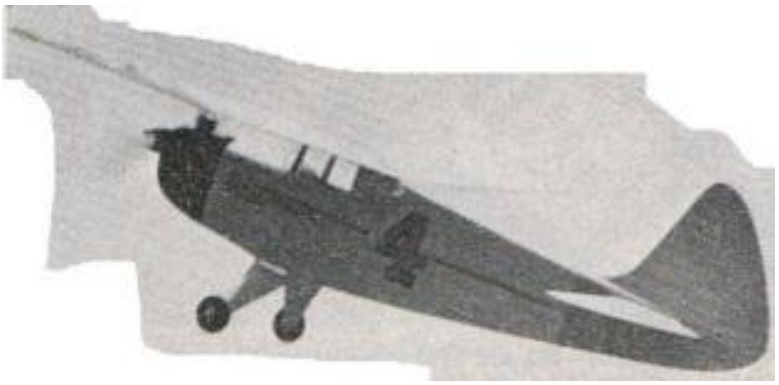
Sharp Scooter is a sturdy all-balsa (well, almost!) ship with a high-aspect ratio (long and skinny to you) wing, sheet tail surfaces and ultra simple construction which gives yet another exercise in different types in this Beginners Course. Start by cutting out two fuselage side panels, tracing the pattern from the plan and add reinforcing strips. Now cut out bulkheads 1 to 6. Bend the landing gear from 16 s.w.g. piano wire, bore holes in bulkhead 2 and lace the wire to the plywood with heavy linen thread. Coat the lacing with cement, forcing it through the holes to make a secure job. Bend the tail skid from 18 s.w.g. piano wire and attach to bulkhead 6 with a strip of cloth (silk). Decide on the engine you will use, and bore the hardwood motor bearers to fit. Attach the engine to the bearers, then
mark the locations of the notches to receive the bearers on bulkheads 1 and 2. (The locations shown on plan are for inverted mounting of a D.C. Bantam and upright mounting means that the bearers must be raised by the thickness of the engine lugs in order to retain the correct thrust-line).
Join the fuselage sides on bulkhead 2 and 3, then add the remaining bulkheads. Bevel the rear edge of the fuselage sides so that they can join as shown. Add part No. 10, then the cabin roof (7) after bending the front wing hold down wire and cement to the under side of 7, then add part No. 8. Fit part No. 9 and cement motor bearers in position. Cut the fuselage top panel and cement in place behind the cabin. Cut a section of 1/16 in. balsa to cover top of fuselage forward of cabin, soak in water and hold in place with rubber bands until set; then trim and cement in place. Add the balsa block to the underside forward of the u/c, then cut cowl sides, notch to fit over motor bearers and cement in position. Add 1/4 in. cowl bottom and front. Fit a soft balsa block in place temporarily to complete cowl outline. Use a sharp knife and a sanding block to trim cowl to final shape. Add cabin posts of hard 1/8 in. sq. and sand entire fuselage smooth; apply a coat of clear dope and finish- sand with fine sandpaper.

Cut the rudder and tailplane, using wood noted on plan and join as shown. Sand surfaces smooth. Cement elevator in place, then add the rudder and align both surfaces carefully. Add a soft balsa fillet to carry on the fuselage lines, then clear dope and sand the tail assembly. Cut landing gear fairings, sand smooth, and attach with silk. Start wing construction by cutting all ribs tip parts, spar, and leading edge members. Study the front view, then assemble spar and leading edge—and be sure they match! Sand the trailing edge to shape
from a strip of 3/16 in. by 1/2 in. hard balsa to come out slightly shallower; score on upper surface at position of ribs W-l, and crack to proper dihedral angle.
Pin leading and trailing edges in position on plan; block up left tip two inches and add ribs and tip parts to right panel. Then block up right tip and complete left panel. Now add the spar, cementing all joints care

fully. Remove the wing from plan, sand carefully and add leading edge and centre section planking. To increase strength of wing, daub all joints thoroughly with a half-and-half cement-dope mixture. Clear dope wing planking, and sand lightly.



Cover wing and bottom of fuselage with jap tissue or lightweight modelspan, moisten with water, allow to
dry thoroughly, and clear dope. Remove upper half of engine cowling, hollow to fit over engine; fuel-proof the interior of the engine compartment. Cut the drain hole, glow plug access hole, air intake and fuel access hole. Spray or brush the entire model with two coats of white dope, sanding lightly between coats. Tape off all but nose and tail of model; spray tail assembly with a light colour and nose with a darker tone of the same
colour. Paint instrument panel black and add white dots. Cut and install windshield and paint window outline. Add rear wing-hold-down. Install engine and spinner; cut transfer strips for fuselage sides and apply transfer numerals, etc.
Attach the wing with a couple of two inch rubber bands, add wheels, and solder retaining washers in place, and you're ready for flight testing. Pick a calm day and try a few hand launches over tall grass; Sharp Scooter has a fast, flat glide, and requires a healthier toss than a lightweight rubber job. If the model stalls,
add a 1/32 in. strip under the trailing edge of the wing; for dives, block up leading edge. If more than 1/32 in. blocking is required, use a weight added to nose or tail. When a smooth glide is achieved, fuel the engine for a five to ten second motor run, and hand launch with the engine at half throttle, correcting any stalling or diving tendencies by adjusting engine thrust angle. Gradually increase power (but not motor run) until Sharp Scooter is blasting away under full thrust—then just lean back and watch her go!



Ian Finlayson

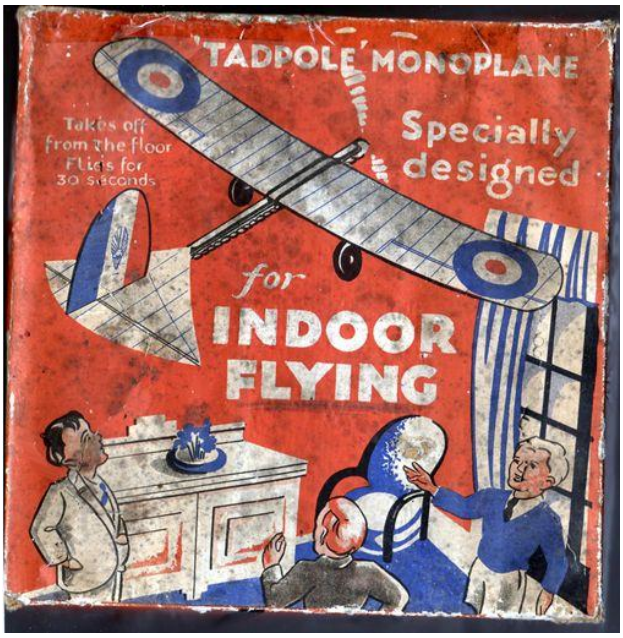
Ay up James, attached is an article written by Michael Kavanagh,president of our small club in Ireland. He is dangerously close to being an octogenarian and has been an active aeromodeller all his life. In fact he is still as enthusiastic as ever and flies indoor and outdoor regularly and his models are not all slow flyers. Anyway feel free to modify the article in any way you wish, I have incuded some extra pics at the end of the article. I've never even heard of a Frog Tadpole.

I purchased this little "Frog" Tadpole from a local toyshop in my home town of Wexford, Ireland shortly after the 2nd world war. It was 1948 and the price of the model was 2/6d (about 12.5 new pence or 16 eurocent) and took several weeks saving to amass the vast sum needed to purchase it. As is always the case, to rebuild the model from spares would have cost a lot more. The most vulnerable part of the little model was the tiny glass bead which formed the bearing between the 'prop and the nosepiece. The 'prop itself was also very delicate as it was formed from 1/32" balsa steamed into shape. The

airframe was made from split bamboo cane (the carbon fibre rod of its day) covered in, I think, condenser paper. This covering was stronger and more refined than tissue paper.

Having purchased the 'plane I flew it hundreds, if not thousands of times in our, not so huge, living room. Flights could not be made after dark for fear that my beloved "Tadpole" would end up incinerated in the bowl of the gaslight illuminating the room. All the usual reasons, earning a living, getting married, raising a family, then prevented me from flying it for many years when it rested in the loft space of, first my parent's house and then mine. It was when our Wexford M. F. C. was celebrating its 50th birthday in 2000 (actually it's 52nd) that the Tadpole flew once more, by making several flights in the ballroom of the Cedars hotel in Rosslare.

As the extra light rubber bands used to turn the 'prop were well and truly perished by this time the search for replacements was far ranging. I tried various bands from assortments available from several sources. All of these proved too strong, lifting the model into an almost vertical climb for far too short a flight. It was my intention to attempt cutting these bands along their length with a sharp modelling knife. This proved impossible and almost resulted in injury to my fingers. My wife Celine watched these attempts with some apprehension (I was still working at this time and really needed my fingers in good nick) and suggested that I try cutting fine bands from the cuff of some rubber gloves with a scissors. A far less dangerous method and as it proved, a far more suitable substitute for the original tiny bands supplied. The rubber lubricant used was" KY jelly". DON'T ASK! The manufacturers of the "Tadpole" were Lines Brothers who also produced the "Frog" Interceptor, another R.T.F. a lot bigger than the "Tadpole" so I suppose the name was a natural for the smallest model in the "Frog" range



The little "Tadpole" is still flying and manages to fascinate my grandchildren as it slowly and silently circles our living room. When, all those years ago, I proudly tendered the price of the model to Mrs. O'Brien, little did I realize that a third generation of Kavanaghs would still be enjoying it, and I wonder if this could be the oldest R.T.F. model still flying???…….

MODEL SPECIFICATION
Wingspan. 8 inches. Length 7 inches
Weight.1/6 oz. Power. 2 to 4 rubber bands.
Michael Kavanagh EI 776

LOOPING THE LOOP. Bend the "*Elevators*" well *UPWARDS*. Set the RUDDER straight, the Mainplane about 1 inch from the nose, wind up to maximum and launch by hand fairly sharply. Counteract any tendency to turn away from the loop, with the RUDDER.

SLOW ROLLS. Bend the elevators *downwards*. Set the RUDDER *slightly* to the LEFT and the mainplane slightly further forward than for normal circular flying. Wind fully. Launch the model by hand but *UPSIDE DOWN*, when it should complete 2 or 3 slow Rolls in a straight flight.

STALLED or SLOW FLYING. Set the elevators quite flat, push the mainplane right forward, control direction with the rudder. Interesting and amusing "tail down" and stalled flights off the floor can be made, giving from 20 to 60 turns.

DURATION. For record duration flights, given the necessary amount of room and height, the number of turns may be very gradually increased up to 120. The elastic must be WELL LUBRICATED. If handled correctly the model will remain in the air for 40 to 50 seconds—or even a minute.

It can be flown out of doors on an absolutely CALM and warm day.

Two or three models will greatly add to the interest and amusement that can be had from these fascinating toys—such as formation flying, duration competitions, races, etc., etc.

SPARE PARTS

1. Mainplane	6d.
2. Motor Rod complete with Tail-plane and Rudder	9d.
3. Air Screw, complete with Nose Piece, Shaft and Bead	9d.
4. Under Carriage	6d.
5. Elastic Motor	1½d.
6. Wing-retaining Band	½d.
7. Winder Belt	1d.
8. Box and Lid, complete with Winder	9d.
9. Instructions	1d.

Postage extra.

BRITISH MADE BY

INTERNATIONAL MODEL AIRCRAFT, LTD.

SOLE CONCESSIONAIRES :

LINES BROS., LTD., Tri-ang Works, Morden Road, London, S.W.19

25M./2/34 PRINTED IN ENGLAND

PLEASE READ CAREFULLY BEFORE FLYING.

The "TADPOLE"

Indoor Flying Monoplane

INSTRUCTIONS

Regd. Design. Patents applied for.

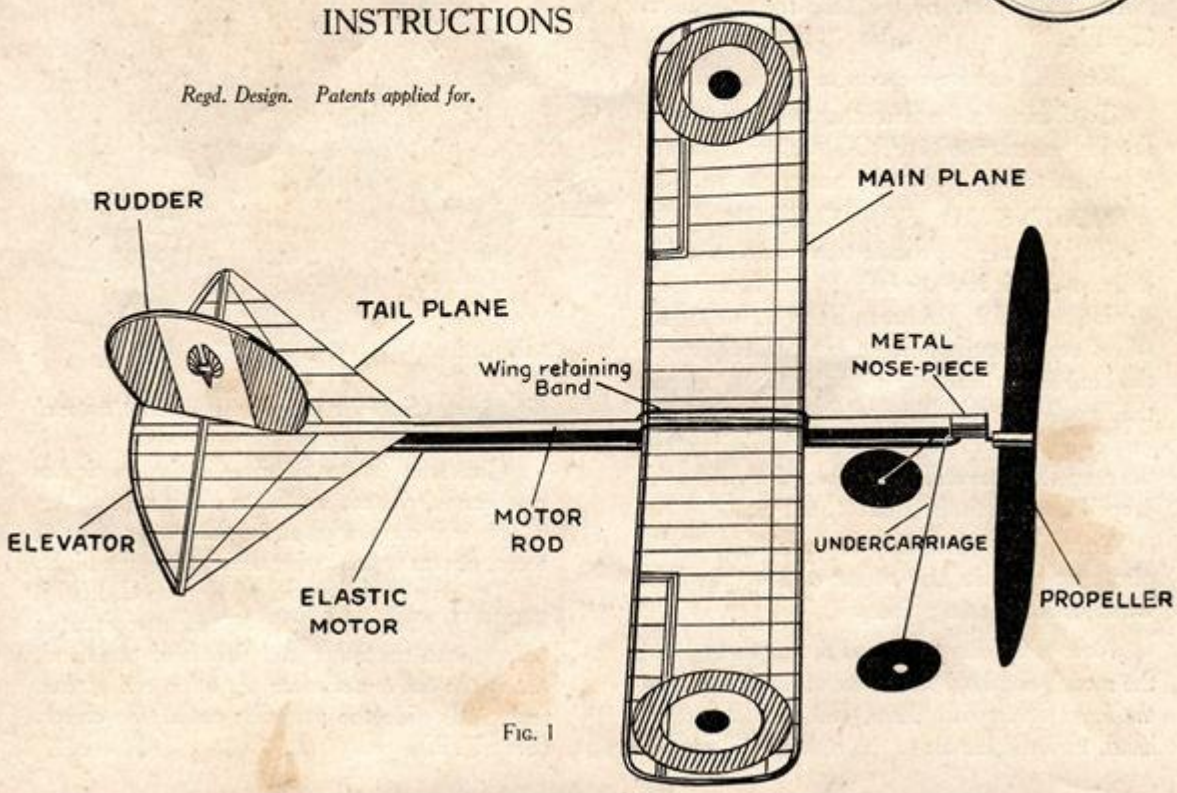


Fig. 1

From Luitpold Fiess

As an interested reader of your great Sticks and Tissue I send you some pics from one of the German OT model events held every year in June in Bobingen near Augsburg.


Strolch

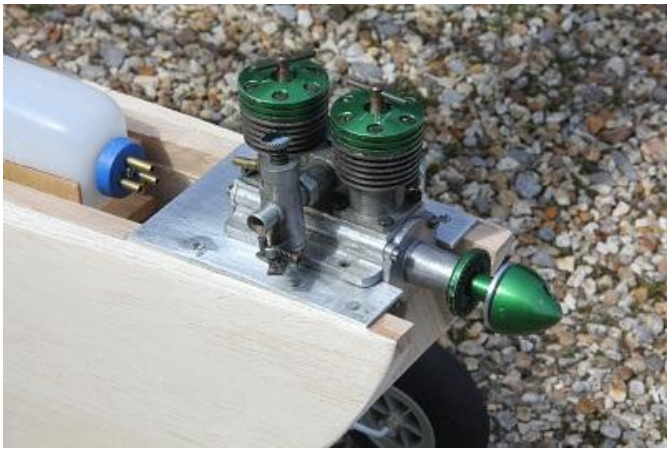

DONALD DUCK

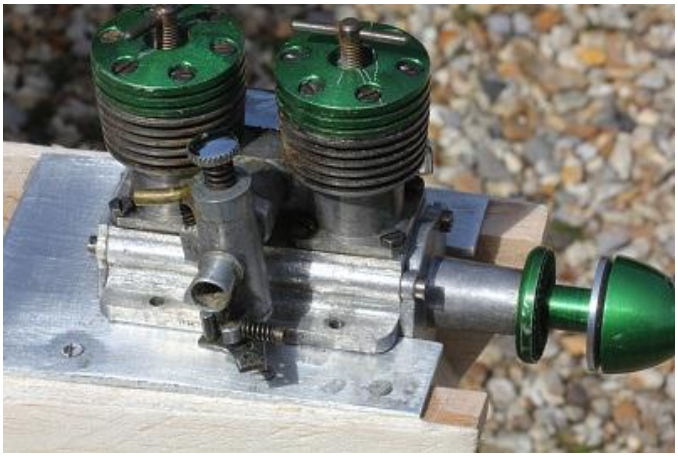
From Ray Ivey

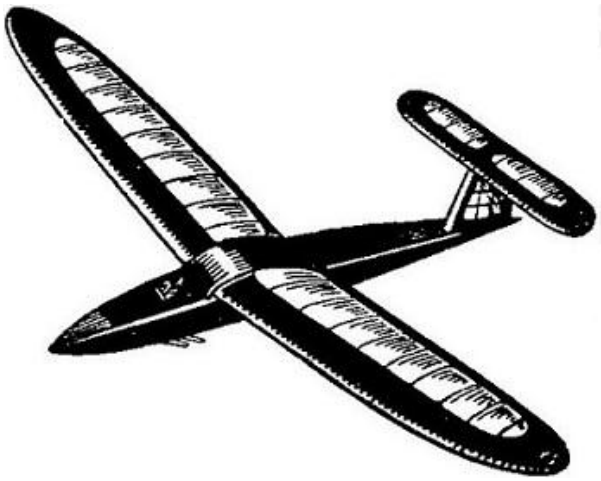
Just a couple of pictures of my “HEP CAT”

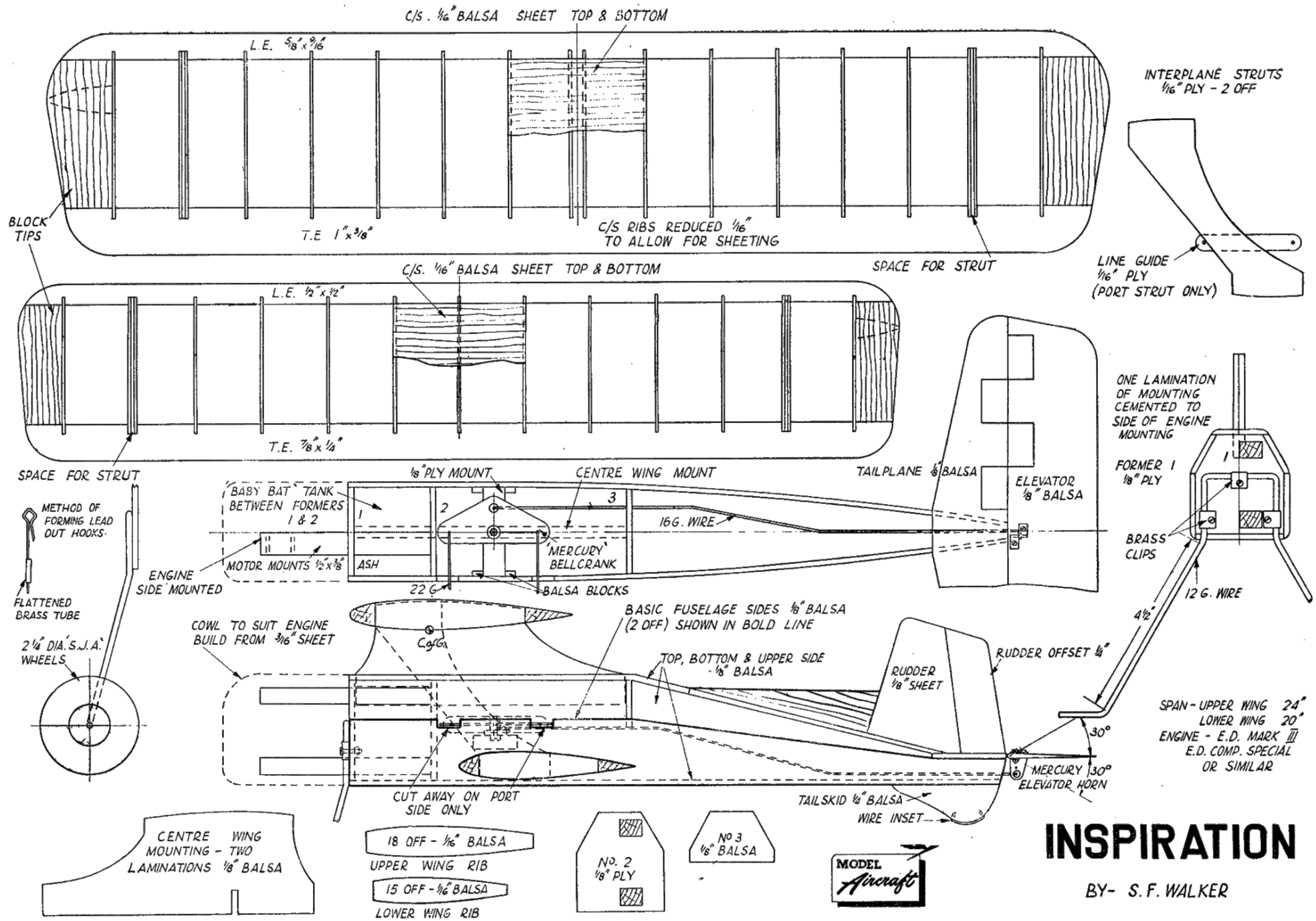
From Bryan Targett

Seeing The picture of the Taplin Twin in the last S&T I thought this might be of interest.
Earlier I sent some pictures of a Bowden White Wings I was going to rebuild,
Well I have been slowly progressing trying to keep some of the original, not particularly successful.
I did keep the main wing frame, you can see the original numbered ribs, LE sheet on starboard wing and most of the TE.
The tailplane I covered with 1/32 sheet over the original. Fin and rudder are original.
The fuselage and U/C were beyond hope. and I wanted to convert it to 3 channel RC.
The Taplin Twin is the original fitted to the model in the 1950s,. It is an Aero Version.
The covering on the original was “Fixed” with a white substance resembling a mixture of Wallpaper paste and flour, you can see it all over the tailplane and wing ribs and as the balsa was saw cut finish removing all of it was impossible.








C/S. 1/16" BALSA SHEET TOP & BOTTOM
L.E. 5/8" x 9/16"
T.E 1" x 3/8"
C/S RIBS REDUCED 1/16" TO ALLOW FOR SHEETING
SPACE FOR STRUT
BLOCK TIPS
INTERPLANE STRUTS 1/16" PLY - 2 OFF
LINE GUIDE 1/16" PLY (PORT STRUT ONLY)
C/S. 1/16" BALSA SHEET TOP & BOTTOM
L.E. 1/2" x 1/2"
T.E. 7/8" x 1/4"
SPACE FOR STRUT
TAILPLANE 1/8" BALSA
ELEVATOR 1/8" BALSA
ONE LAMINATION OF MOUNTING CEMENTED TO SIDE OF ENGINE MOUNTING
FORMER 1 1/8" PLY
BRASS CLIPS
12 G. WIRE
4 1/2"
METHOD OF FORMING LEAD OUT HOOKS
FLATTENED BRASS TUBE
2 1/4" DIA. S.J.A. WHEELS
1/8" PLY MOUNT
CENTRE WING MOUNT
BABY BAT TANK BETWEEN FORMERS 1 & 2
1
2
3
16G. WIRE
MERCURY BELLCRANK
MOTOR MOUNTS 1/2" x 3/8"
ASH
ENGINE SIDE MOUNTED
22 G
BALSA BLOCKS
COWL TO SUIT ENGINE BUILD FROM 3/16" SHEET
C of G
BASIC FUSELAGE SIDES 1/8" BALSA (2 OFF) SHOWN IN BOLD LINE
TOP, BOTTOM & UPPER SIDE - 1/8" BALSA
RUDDER 1/8" SHEET
RUDDER OFFSET 1/4"
30°
30°
MERCURY ELEVATOR HORN
CUT AWAY ON PORT SIDE ONLY
TAILSKID 1/4" BALSA
WIRE INSET
SPAN - UPPER WING 24"
LOWER WING 20"
ENGINE - E.D. MARK III
E.D. COMP. SPECIAL OR SIMILAR
CENTRE WING MOUNTING - TWO LAMINATIONS 1/8" BALSA
18 OFF - 1/16" BALSA
UPPER WING RIB
15 OFF - 1/16" BALSA
LOWER WING RIB
No. 2 1/8" PLY
No 3 1/8" BALSA
MODEL Aircraft
INSPIRATION
BY- S. F. WALKER

Inspiration control line stunt biplane by S F Walker from Model Aircraft August 1949

INSPIRATION" was designed with a view to building a biplane that would not only be easy to build and good to look at, but would also do what it was originally intended to do, i.e., stunt. With the E.D. Comp. Special powering this machine it gives a very good performance. It has done wingovers, consecutive loops, eights, bunts and inverted flight. All these stunts, by the way, have been carried out on 45ft. steel line which " Inspiration" keeps tight at 60 deg. angles and in a fairly stiff breeze. The original " Inspiration " used the "Comp. Special" but it is adaptable to the E.D. Mk. III, Allbon, Majesco. etc.

Fuselage

Start by cutting out the two formers of 1/2lin, ply, and making the motor bearers. Put former 2 at the extreme back end of the bearers then put the tank in position and thread on former 1. Drill a hole in former 1 to allow the feed pipe to come through. Use plenty of cement and whilst this is drying, cut out the bottom and sides of the fuselage, pin the bottom down to your building board and cement the sides in place. Next, form the undercart and secure to former1i with brass clips or "J " bolts. The motor bearer unit and the basic fuselage are now ready to fix together, so pre-cement the inside of the fuselage where the formers will go and cement the two units together. Cement two balsa blocks to the inside of the fuselage walls to form supports for the 1/8in. ply mount, fasten the bellcrank to the mount before fixing in place, use a 6 B.A. nut and bolt and secure the nut with a lock-nut or a blob of solder, pre-cement all these parts and use ample cement when fixing as considerable strain is put on this unit. The tail-plane push-pull rod and lead-outs may now be fixed. Leave the lead-outs long and do not form the loops. Former 3 can now be fixed in position.

Next make the centre wing mount from two laminations of1/8 in. sheet and cement in position. Allow one lamination to extend down the side of the upper motor bearer. This completes the fuselage except for securing the tank and the upper sheeting.

Tailplane and Fin

This is made from 1/8 in. hard sheet and sanded to the section shown on the plan. Use silk or linen hinges along the whole span. The fin is also made from two pieces of1/8 in. sheet joined as shown on the plan. Cut a slot in the top of the fuselage and cement in place, not forgetting the offset.

Wings

Cut out both sets of wing ribs and shape both trailing edges but do not shape the leading edges except for cutting the slots for the ribs. I used what I think must be quite a new technique in building the wings. First of all pin down the leading edge with the rib slots facing upwards, now cement in position vertically the end ribs and centre ribs, or rib in the case of the lower wing, line these ribs up by sighting along them from one end of the wing, next fit the already shaped trailing edge on to these ribs. Now fit the rest of the ribs working from the outside towards the centre, at the same time keeping an eye on the line up. Now unpin the wings and sheet the centre section with 1/16 in. sheet and fit the tip blocks. Shape the L.E. and the tip blocks. A 1/4 in. slot is left in the sheeting on the underside of the upper wing between the centre ribs to accommodate the centre wing mount. Cover the wings before fixing in position.

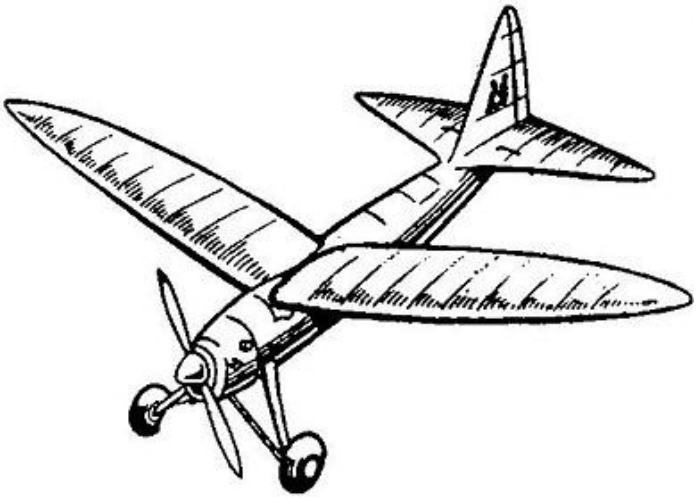
Assembly

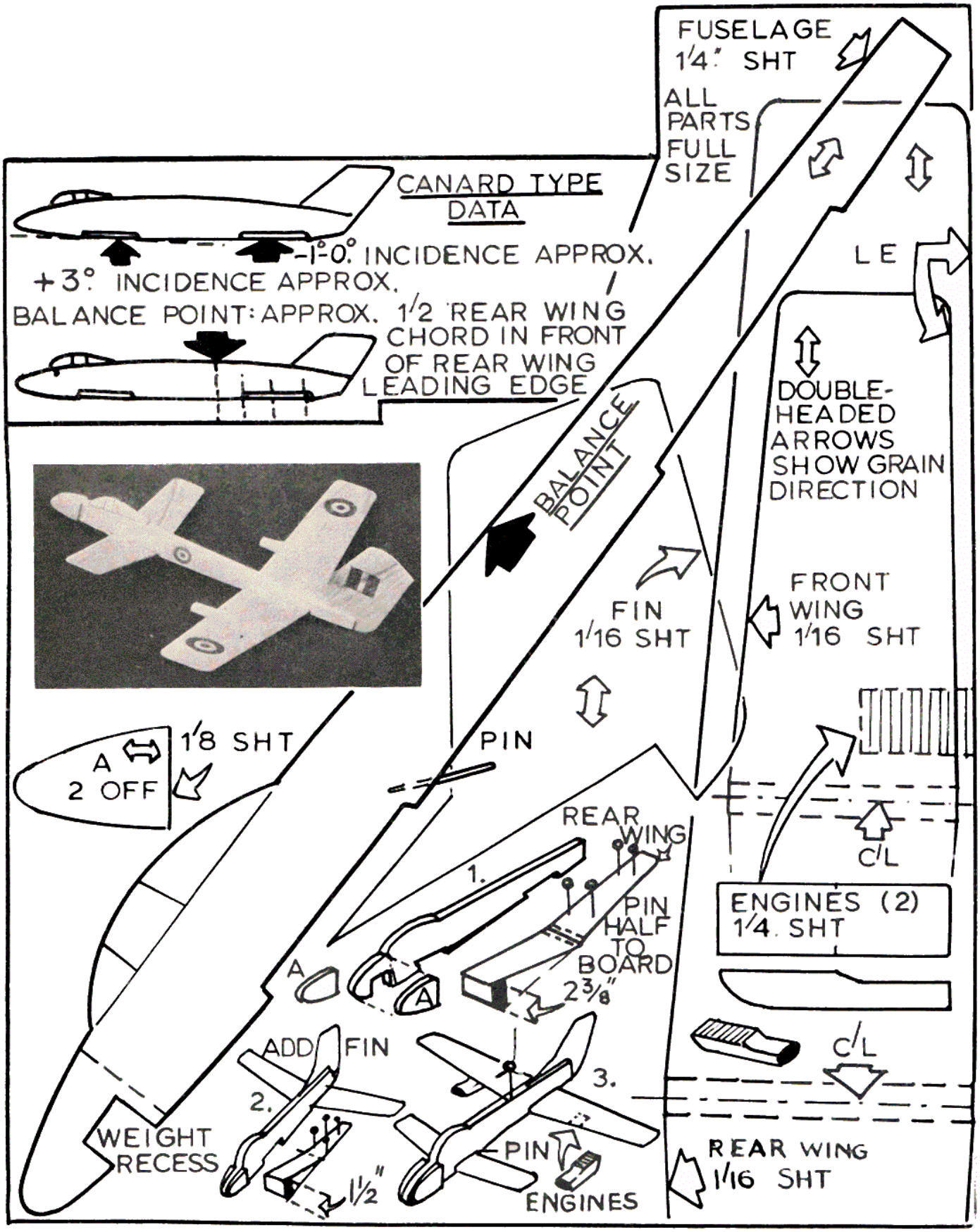
Push the lower wing through the slots in the fuselage and cement in position. Next (and this has to be done quickly) thread the lead-outs through the line guide on the port strut and cement both struts in their respective positions. Now cement in position the top wing and, before the cement dries, line up the two wings at zero incidence and see that the gap between the wings is parallel. It is a good plan to assemble these

parts without cement first, then if any snags crop up they can be rectified. Cut two short lengths of 16g brass tube and flatten slightly, now slide these on to the lead-outs and form the hooks as shown on the plan.
Finishing
Wings three coats of clear dope. Fuselage and empennage three coats of clear dope and two coats of coloured. Treat whole machine with fuel-proof varnish.

From Tommy Krasso

On the way towards SanMarinó!
Texaco Model 10ccm Diesel Laszlo Török model building.





Quickie Canard glider by Ray Malmstrom Model Aircraft April 1962

Thinking of designing a tail-first (" canard ") model ? They are great fliers with a fine stall recovery. Below you will find incidences and the centre of gravity (balance point) position. These are approximate, of course, but you will find them handy when designing. The C.G. on a canard is very important, so make provision for weighting fore or aft.

Wing incidence should be adjustable as well—at least until you have found the best position.
However, when you build the fascinating " quickie-canard " job below, you need not bother about adjustments, as they are all built-in." The catapult for launching should consist of 6 ft. of 1/8 in. strip rubber tied to 18-20 ft. of thread. Tie a small paper clip to the end of the thread, and a length of 1/4 in. dia. Dowel rod to the rubber strip. Push the dowel firmly into the ground and you are all set to go !
Incidentally, this little model is based on a revolutionary aircraft that is a project by Convair (the Convair NX-2). Power will be from nuclear engines, and the NX-2 will be the world's first aero plane using this type of propulsion.

From Chris Hague

(Follows on nicely from the above plan)

CHART - this time – Power duration at the Nationals from Chris Hague

Another offer one cannot refuse - a short (!) phone call from Bill Longley asking if I would like to go to the 2011 BMFA Free Flight Nationals at Barkston Heath to fly radio control. This being the third time that power duration radio assist was to be allowed at the BMFA FF nationals, run by SAM 35, using engines up to .20 cu. in. So why not go? We had suitable models and Bill was offering to drive in his capacious - if not luxurious - works van.
We only had suitable models of course because in 2009 James Parry and I ran a new power duration class for models built before 31st December 1959 and powered with plain bearing engines up to .19 cu. in. capacity - with limited response. In 2010, and now in 2011, Bill Longley took over the class and in an effort to encourage more entrants opened it up to three engine class sizes - again with limited response. However, Bill's enthusiasm took over and he built lots - and I mean lots - of power duration models. These were just the models taken to the Nats: Satellite 650, K & B Torpedo 19; Payee-Max, PAW 19; Super Creep, PAW 19; Sandy Hogan, K & B Torpedo 35; Starduster 350, Cox 051; Starduster 600, K & B Torpedo 19 and Starduster 900, K & B Torpedo 35. To add to my own collection of vintage models I built a Zoot Suit produced by the Old School Model Airplane Factory and powered it with an r/c PAW 19.
So we went to Barkston Heath with a van-load of power duration models, two of mine and seven of Bill's. I had never been to the Nationals before so it was going to be an interesting new experience, and also it's a long way from Poole! Bill had been many times before in his younger (much younger!) days, so it was to be a weekend of nostalgia for him. It actually turned out to be a weekend of wind and rain as well (and to think I sacrificed watching the Indy 500 on TV, for this!).
Now Barkston Heath covers a large area, which is perfect for a free flight venue. Having been used to using a pilot's box together with all the r/c rules and guidelines required for safe flight at my local r/c club, it seemed strange to be told that we could launch and land anywhere we liked on the airfield. After a short debate we decided to fly from one end of the large number of parked cars, thus giving to one side a large

area of open space in which to fly. On reflection, designating an area for launching and landing would have enabled us to see our competitors flying, and this would have been my preference. As it was we didn't know who, or even what, we had been flying against until the prize giving! Even then we didn't see their models.
It was wet and windy. The forecast was 100% correct. Unusual, I know - we would have preferred the met office to have got it wrong but at least they had predicted some improvement by the end of the day. The competition times, an aggregate of three flights, had to be handed in by 16.00hrs. As we had driven so far and waited so long, at 14.30hrs we decided to fly regardless of the weather. It did improve slightly so we made a start. Motor run time was limited to 10 seconds for glows and 12 seconds for diesels. This was only half the motor run time we had been used to using and put us at a slight disadvantage. Bill selected one of his models and flew the Torpedo 19 powered Starduster 600, achieving three flights of between 2 and 3 minutes which was very reasonable in the conditions. This was enough to win the pylon class, a handsome trophy, a bottle of red wine and the promise of a kit from Belair. My Zoot Suit was hampered by the short motor run time giving a relatively low climb out and leaving little or no chance of finding the necessary lift to achieve the three minute max - but I did come second.
In order to encourage a wider entry there was also a non-pylon class. To enter this class I put an old r/c OS 20 into and equally old Berkeley Brigadier and also came second in class. That meant a reward for my efforts of two bottles of red wine and two vintage kits donated by Leon Cole from Belair.
We have to thank Harry "Haystack" Perkins and Tony Wilson for their perseverance in order to even get this event staged. I am told that there were 14 entrants and that most managed to hand in their scores before the 16.00hrs deadline. Those present hoped that there would be more similar contests in the future. More r/c assist power duration events are being run both in East Anglia by Tony Wilson and in the Wessex area by Bill Longley.
It was a long drive home, but a rewarding experience. More next time in Chris Hague's Aeromodelling Random Thoughts.

Ramrod 1000

Stardusters

Van of fuselages and wings

Tomboys Suffer with the Weather by Tony Tomlin.

The first R/C Tomboy event, of the nine planned for 2011 was held at Middle Wallop in near perfect conditions. Since then [at the end of April] things weather wise have been, to put it mildly, challenging! The next 2 planned events, at Middle Wallop and Wimborne Dorset, were literally blown away with 25mph+ winds and a little rain for good measure. The last event was hosted by St Albans MAC on 4th June with Stephen Powell and Jane Robinson making an excellent job of running the event, at short notice, as Tony Tomlin was unwell. Again the weather was unkind with strong winds that reflected in a small but keen entry. The regular Tomboyists of Tony Overton, Tom Airey and Stephen Powell welcomed two new competitors, Brian Ball and Derek Etheridge. Derek after a few trimming problems decided wisely not to continue. Due to the conditions only one 4min. max preliminary flight was called for, with the remaining fliers all qualifying.

Tomboy 3

Jane Robinson was the starter and all models got away cleanly. Tom Airey was as consistent as ever and kept low, pushing well forward into the wind. The other three all zoomed upwards and were soon in danger of being blown back, as models are required to land back on the 'patch' to qualify. Height for these three was being traded for penetration as the models were dived hard to make forward motion. Brian Ball was first down at 3mins 6secs, followed by Tony Overton at 3mins 32sec with Stephen Powell just holding on, to claim second spot at 3mins 37secs and Tom Airey the winner at 5mins 13secs.

Tomboy Senior

The Tomboy Senior event was run 30 minutes after the Tomboys 3s and the wind was noticeably stronger. Again everyone got away OK with Brian Ball flying well and soon all models were very high. Stephen Powell and Brian Ball had drifted downwind and were now diving steeply, as they were on the glide and in danger of being blown further back. Stephen Powell was down at 4 minutes dead followed by Brian Ball 29 seconds later. Tony Overton and Tom Airey were both still very high, with Tom well upwind and Tony now struggling as he was being blown back. Eventually he landed at 5mins 47 secs, leaving Tom to achieve the double, gently landing at 7mins 53secs.

Thanks go to Alan Blunt and his team for organising a successful event in trying conditions.

Eastbourne R/C Vintage by Tony Tomlin.

Sunday, 12th June was the date of the first of the two Eastbourne R/C vintage events for 2011. The event is held at Deanland Airfield near Ripe in Sussex. It is normally a very well attended event, with relaxed flying throughout the day and the occasional break as various light aircraft takeoff or land, all adding to the interest on the day. Sadly for the first time for many years, and like so many other events in 2011, we had strong cross winds and drizzle.

John Perry and Tony Tomlin made up the contingent from the Raynes Park club and were joined by members of the Surrey Club that included Geoff Goldsmith and Roy Woolston. In total there were around 18 modellers at the event which was disappointing.

Some flying took place, with Tony Tomlin flying his Cutlass flying wing designed by G. Bravey in 1954 and a Veron Mini Concord that must be over 40 years old and is showing its age! Geoff Goldsmith was flying his Petrol Anderson Spitfire powered Mercury that after a couple of flights was suffering from a spark problem [or a lack of sparks!] and even with a lot of fettling could not be persuaded to run. Members of the Eastbourne Club had a scale Bristol Monoplane and a Gloster Gamecock but had 'dead 'engine problems soon after takeoff, which together with the strong winds caused some hurried landings, luckily without damage. Our thanks go to Stan Coombe and Tony Ding of the Eastbourne Club, who manned the control tent. we are all hoping that the sun will shine on their next vintage event at this site on 11th September

Cocklebarrow Farm Vintage R/C By Tony Tomlin.

Sunday, 19th June, saw the first of the 3 meetings planned for 2011, at this excellent site in the Cotswolds. As before, the event was efficiently run by Val and Paul Howkins who have run this event for over 20 years. There was also the 5th round of the R/C Tomboy events [to David Boddington's rules] organised by Tony Tomlin.

After the previous vintage events in 2011 which have, with one exception [Middle Wallop 24.04.11], been blighted by strong winds and sometimes rain, we all hoped for better weather. To quote one flier who said "at least its not raining", this sadly was the pattern for the day. There was a steady wind of 10-12 mph with some occasional nasty gusts. This did reduce the number of fliers, but not withstanding, 40 signed on with over 80 models. Larger models seen included The Bigger Stuff of Steve Roberts, the Falcon of Nick Skyrme

and the Junior 120 of Paul Brazier. Around 15 Tomboys were flown as the fliers were attempting to qualify for the R/C Tomboy competition. Models that could be considered unorthodox were a biplane Super 60 that was smartly turned out and two flying wings by Tony Tomlin. One of these was a diminutive 31" span Cutlass, designed by George Bravey in 1954 and powered by a PAW55. The other was a slightly stretched, 79" twin engined, push pull Ionosphere Mk 21, designed by Peter Fisher.

Tomboy 3 Competition

The Tomboy 3 competition [36" span, Vick Smeed Tomboy, 3cc tank, Mills .75] had 9 keen entries who all qualified for the flyoff, by achieving one preliminary flight of over 4 minutes. New to this event, at Cocklebarrow Farm, were Derek Etheridge and Brian Ball. The other entries were seasoned Tomboyists, Tom Airey, Jeff Fellows, Tony Tomlin, Stephen Powell, James Collis, George Ford and Brian Brundell. Nick Skyrme was the starter for the mass launch and as the start board was rapidly lowered, all models got away. George Ford caused some amusement, as his model was hit by a strong gust, and did a perfect barrel roll before climbing away. The rest were all pushing into the wind, most climbing rapidly. New man Derek Etheridge was soon in trouble, his model had gained a good height but was unable to penetrate and was blown downwind and lost. First man down was James Collis at 1min 37secs with an engine problem. He was followed by George Ford, who after his unscheduled aerobatics, had not gained sufficient height and landed at 3mins 30secs. The other fliers were all now in the glide with Tony Tomlin holding steady, well upwind and using some slope lift. Tom Airey was uncharacteristically well back, but at a great height, slightly lower than Jeff Fellows. Next to land was Brian Ball at 5mins 42secs followed by Brian Brundell 23secs later. Stephen Powell was out of luck [and lift] and gently floated in at 6mins 10secs. Tom Airey, now in trouble had to dive steeply to make the field to qualify as a finisher. Tony Tomlin was loosing height but holding on, as Tom crossed the field boundary and landed at 9mins 47secs. Tony claimed second spot 40 seconds later. Jeff Fellows, after a copybook flight was the worthy winner at 11mins 27secs.

Tomboy Senior

Six fliers made it to the Tomboy Senior Flyoff, [48"span Tomboy Mills 1.3cc, 6cc tank]. These were the Tomboy 3 fliers, [less James Collis, Derek Etheridge, Brian Brundell, Jeff Fellows and George Ford], but now joined by Derek Collin and Andrew Fellows. The wind speed had increased since the Tomboy 3 event 30 minutes earlier so the ability to penetrate into the wind was going to be a governing factor. Again Nick Skyrme started the flyoff, all fliers getting away cleanly. The models seemed to be handling the conditions well, although Derek Collin had a short flight and was down dead on 3minutes. Tony Tomlin had pushed well forward but had not gained sufficient height and was next down at 5mins 29secs. followed by Stephen Powell, 3 seconds later. Brian Ball in his first event was doing well and claimed 3rd spot at 7mins 29 secs. The remaining two, Tom Airey and Andrew Fellows were literally in another class, both being at a great height and slowly descending, sometimes finding a little lift, then some sink, but very slowly losing height. This cat and mouse flying went on for what seemed an age but was actually 7minutes with the fliers landing to loud applause, but Andrew was the winner by 2 seconds, at 16mins 30 secs. Congratulations go to both fliers after such an exciting finish.

Valerie Howkins presented the winners certificates and prizes and drew to an end what, although a windy day, was enjoyed by the many modellers and spectators.

Cutlass after argument

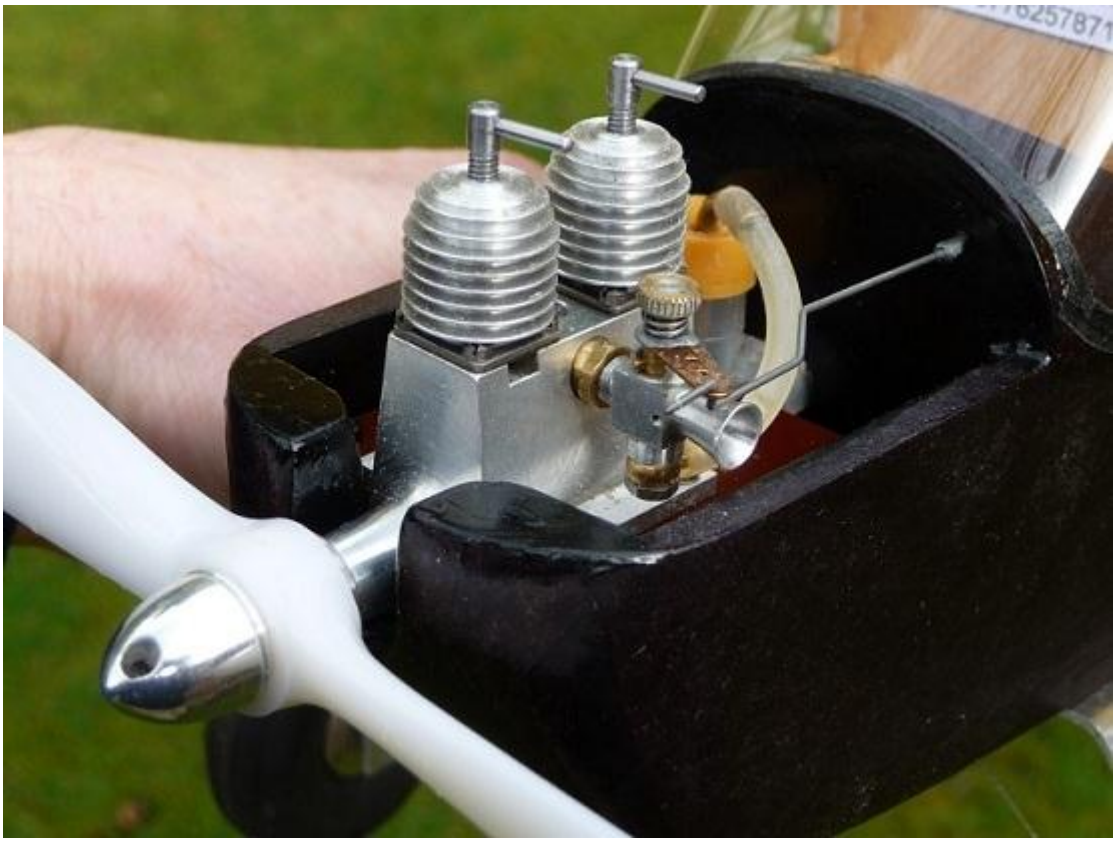
All repaired

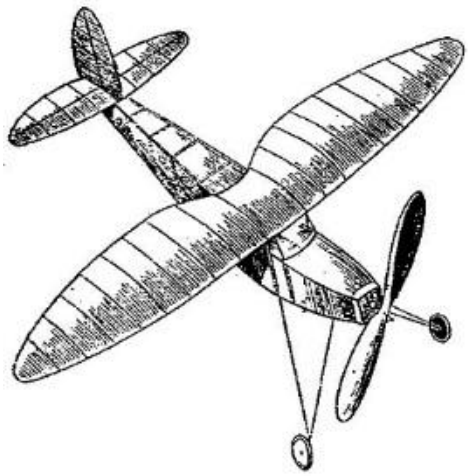
From P.Lambert Hobart Tasmania

Bryan Passey's mention of the Aeromodeller plan for the Walrus, prompts me to send a couple of pictures of my Walrus built from that plan but converted to R/C (rudder and elevator) and fitted with a bell motor. (1200 Ll-Po battery) Pictured next to a Veron RAF launch on the indoor pool at our state expo last year, it demonstrated good water handling manners, taxiing up and down the pool among the various boats being displayed . The air and water rudders gave very effective control on the water. Circumstances have not permitted any test flights so far but hopefully I'll be able to forward some in flight pictures before too long

From Andy Brough

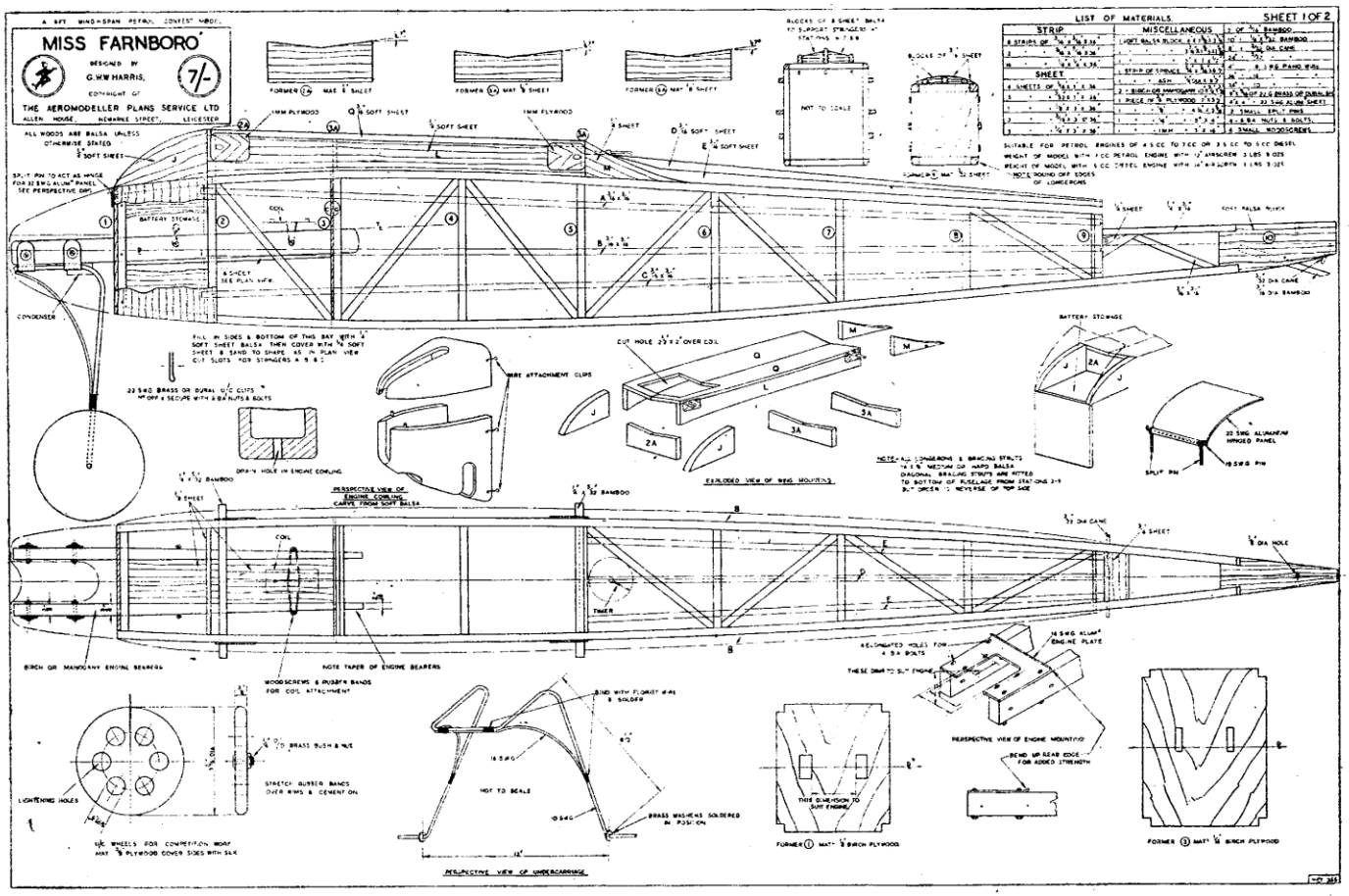
Gamine now completed and been flown several times with both the Mills Twin 0.6cc by Derek Giles and an Allouchery by Derek Colin. Model has been photographed in the air several times by Alec Whittaker and Steve Dorling so should get some press coverage. The plan will be available in the August or September RCM&E mag so look out for it. The model was designed for the twin so that is what remains in it and it runs so sweetly on a 7x4 prop. nice stable flyer as you would expect from Vic Smeed.
Let the S&T readers know of the impending plan publication if you would be so kind.

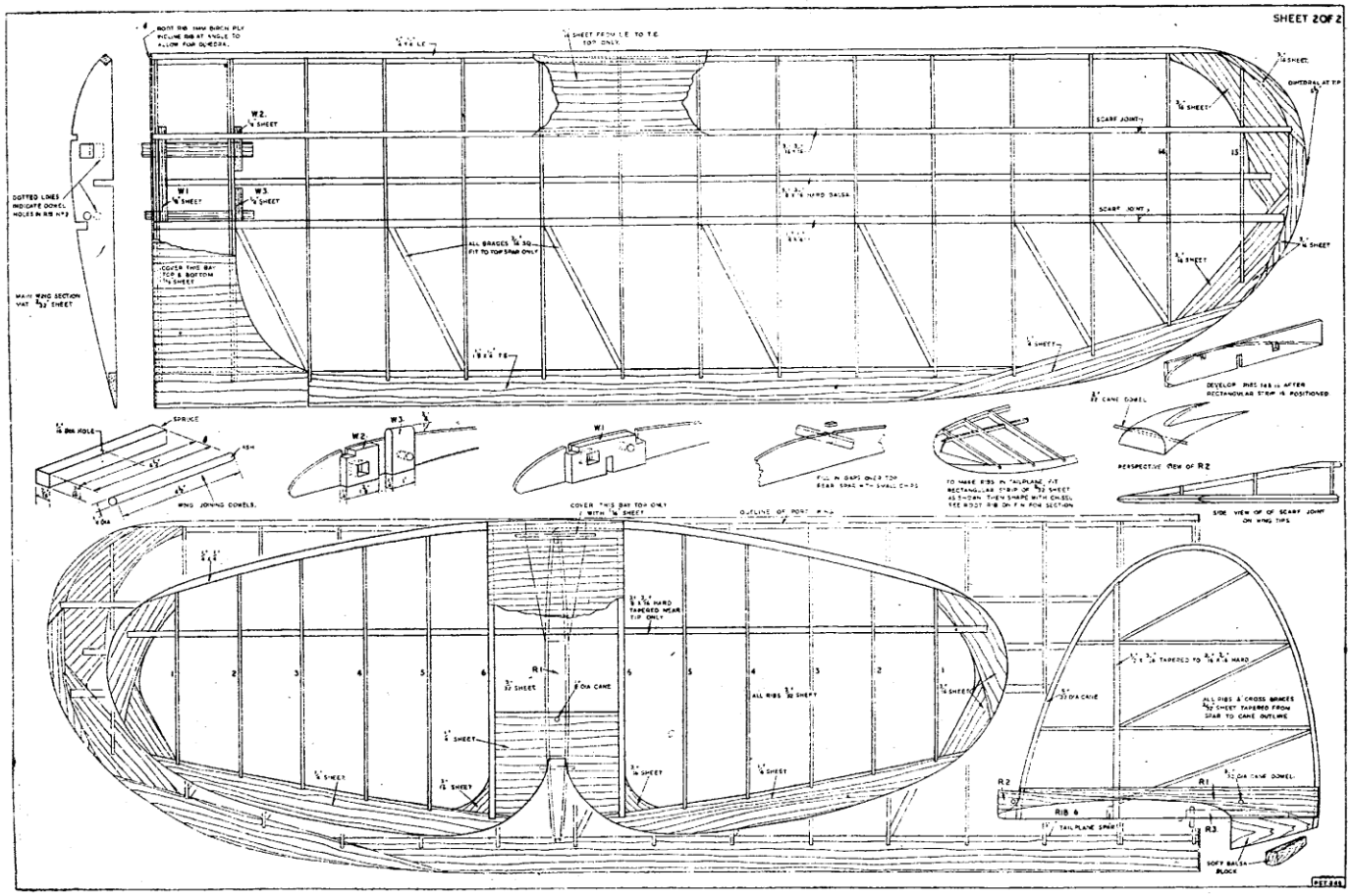




Some photos sent in by Derek Foxwell of Old School Model Aeroplane factory

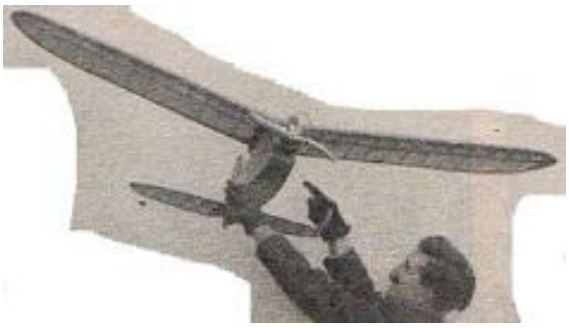
"Many thanks for the spinner you sent by post, reference our telephone conversation. Attached pictures of my Wee Snifter in Doug Mchards colour scheme. Regards Chris Richards"





Miss Farnboro by G W W Harris from Aeromodeller July 1947

The original model made its maiden flight the night before the 1945 " Hamley." At this time it was being flown with a 4.5 c.c. engine, which was changed later on in the season for a Super Tiger 7 c.c. engine. Fitted with a 4.5 c.c. engine, the take-off run on full power in still air is 15 feet, followed by a steady climbing circle to the left (150 feet diameter). The glide is what you make it: for contests such as the Bowden we must make sure of the take-off, which means the use of more power than is really wanted, causing the model, once airborne, to gain considerable altitude, and in order to bring it down again within the stipulated time it is best to fly the model under-elevated.



With the larger engine the performance can be spectacular. I see no reason why a 9 c.c. engine should not be fitted: there is plenty of stability and strength. On one occasion "Miss Farnboro" glided into a high tension cable, then dropped to the ground some 40 feet below—the only damage sustained was a broken wing-joining dowel and a bent engine bearer plate. Unfortunately the latter was not noticed until the model was flown in the 1945 Bowden Competition . . . Yes, there's a moral in that! Spend an evening by the fire browsing over the plans: it won't be wasted. Although I hate doing it, I find for convenience it is best to cut out the various portions of a large drawing so that they may be pinned direct onto a reasonable size building board.

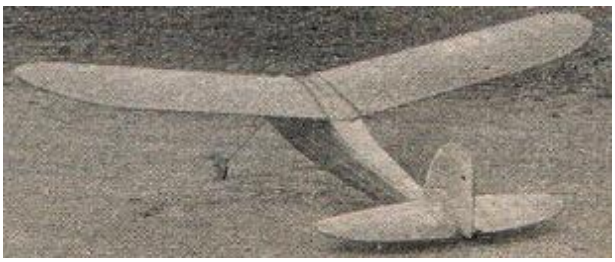
Fuselage. Pin down the fuselage drawing onto your board. Now select four lengths of 1/4 x 1/4 in. balsa of even quality and bendability; the design allows for the use of medium grade if you have no hard balsa. To prevent the structure sticking to the drawing obtain a cake of soap and rub over all joints with it. Now lay the top and bottom longerons on this drawing and set in position with joiner's pins. Cut the vertical struts off to dead size and cement in place, then fit in the diagonals. Fit in a temporary strut between the tail and extremities.

When the cement has hardened, re move the job carefully from the board and proceed with the other side; while this is setting, cut out formers Nos. 1, 3 and 9, also the tail block. The fuselage sides are next mounted onto formers Nos. 1 and 3—use plenty of cement and stretch rubber bands over to pull the sides well in place while drying; pull the tail ends together and fit in former No. 9 and again use rubber bands to assist. Next, check formers for squareness on plan view and proceed to fit cross struts top and bottom, followed by the diagonals. Remove temporary struts and fit tail block. Shape up the engine bearers to the dimensions given and fit them into position; use bags of cement for this job, applying successive thin coats, allowing each coat to harden off. The bearers should be checked for alignment with two straight edges laid across them. Now cement on the 1/8 in. sheet balsa to the underside of the bearers at bay No. 2. Fill in sides and bottom of bay No. 1 with 1/4 in. sheet balsa, then fit the two side 1/4in. sheets and slot them ready for the stringers. Cut out formers 2A, 3A and 5A and cement them in position, fit the side panels L, M and J. Bevel off the top edges of panels L and fit the 3/16 in. sheets Q. Now go ahead and fit the stringers, wing dowels and tail skid. –

Undercarriage. This is very easy to make and fit. The method of mounting is unusual but successful. It can, if really necessary, be detached for transport purposes. The wheels detailed in the plans may offend the eyes of many from the appearance point of view, but nevertheless I recommend them for the following reasons:- (a) their tractive resistance is low, thus assisting the aircraft to get airborne quickly and reducing the tendency of the aircraft to pitch over when landing, (b) drag in the air is reasonably low, (c) cheap to produce. I make no apologies for the undercarriage; it was designed for a purpose and it does it. To mount the engine, cut out from 16 s.w.g. aluminium a plate similar to the one in Fig. 1M. By slotting the holes a little it will be possible to vary the alignment of the engine. Having made sure your engine fits in and lines up O.K., remove and carry on with fitting the coil, timer, and wiring, soldering all joints. Booster

connections can be fitted on panel J. Give the fuselage a good clean up with medium and fine sandpaper, removing all sharp edges on the longerons and stringers.

The Mainplanes. Begin by making a plywood or metal template of the main ribs. Lay the template on a sheet of 3/32 in. balsa and cut round it with a razor blade until you have 30 off. Lay the bottom spar on the drawing, supporting it on either side with long pins, and cement the ribs in position. It will be noticed that ribs 1 and 2 are two-ply—cement these together firmly. For the moment do not bother about ribs 14 and 15. With a sharp chisel or plane taper off the trailing edge, slot it and offer it up to the ribs, using plenty of cement. Carry on now, and fit the leading edge, top spars and wing tip. Note the joints in the top spars. Make up the ribs 14 and 15 as shown on the plan. The holes for the wing panel joining dowels are best made undersize in the root ribs before the ribs are fitted, then when both wing panels have been constructed the final fitting can be made more easily and accurately with the aid of square and round files. The blocks W3 project through the top surface to facilitate joining up and pulling the wing panels apart. Fit the leading edge sheeting and the centre section sheeting, the diagonal struts, and, lastly, the root rib reinforcing sheets of 1 mm. birch plywood. 'It will be noticed that the square joining dowel has a 1/16 in. diameter hole drilled through its centre; this serves two purposes, firstly by pushing a length of wire or a pin through the hole one can be sure that when the wing panels are pushed together the dowel is centralised; secondly, in the event of a nasty prang the 1/16 in. holes ensure the dowel will fracture at its centre, thus preventing damage to the wing roots. This practice works very well.



Tail Unit. Steam the leading edge to shape, likewise the cane outline of the fin. The fin is integral with the tailplane for speed of construction; if for reasons of transport you want to make the fin detachable you could adopt the same scheme as used on my "Dude,", described in September, 1945, issue of the AERO MODELLER.

Covering and Finish. My own machine was covered with red silk and clear doped. I gave the silk on the fuselage five coats of full strength dope, the main-plane three coats and the tail unit two. I would impress the necessity of clamping down the wing panels and tail unit while each coat of dope is drying.

Preparing for Flight. Fit the engine, connect it up, check your timer and see you have a spark. Fit the wings and check for general alignment; correct obvious errors but try not to alter incidence angles. With a battery in the nose stowage, check the C.G. If the model is a reasonably faithful reproduction of the plans it should balance close to the position shown. If tail-heavy, fit the timer up forward near the battery stowage; if nose-heavy fit the timer behind the mainplane centre section. The final weight adjustment can be embodied in the engine cowling, if required. The model can now be hand-launched to check the glide; this should be straight and flat. Get the engine running, give it time to get warm, and adjust the contact breaker until you feel you are about half power (7 c.c. engine), face the model into wind, set timer for 10 seconds (not less), and let it go. It should raise its tail immediately and get airborne in about 15 to 20 feet and climb steadily. When the motor cuts, the nose should drop gently until the model has found its gliding speed. The model must not be allowed to glide in a wavy line. Now try another flight—this time setting the timer to 20 seconds and adjusting your motor for three-quarter power. The model should leap off the deck and climb steeply in a left-hand spiral until the motor cuts, when the glide should be fairly straight. If you have trimmed for the best gliding angle you will find yourself let in for quite a walk. For precision contests such as the Hamley and the Bowden this glide is too good and will have to be spoilt. I find this can be done by adding one or two ounces of ballast to

the nose of the model (modelling clay in the battery stowage will do) and slipping a strip of 1/32. in. balsa under the leading edge of the tailplane. These adjustments bring the model down fairly quickly without, however, any fear of an upset. You will remember we slotted the engine mounting plate this was done so that the engine could be turned a few degrees left or right. The engine should be offset to the right until the circle is not less than 150 feet. Additionally, the left wing can be pushed forward about 3/8in.; which will increase the turning circle diameter and give a right hand gliding circle. In a tight turn this model does not tend to push its nose down. -
Full-size Plans may be obtained as usual from Aeromodeller Plans Service, Allen House, Newarke Street, Leicester, price 7/— post free.

(Has anyone buil;t one of these and entered into the Bowden trophy with it. If yes please send in the photos. JP)

From Michael Burke

MODELS ON DISPLAY AT THE NATIONAL AEROSPACE LIBRARY
By Martyn Pressnell

"A" Frame Pusher rubber powered

The Fairey Delta Mk I, static model

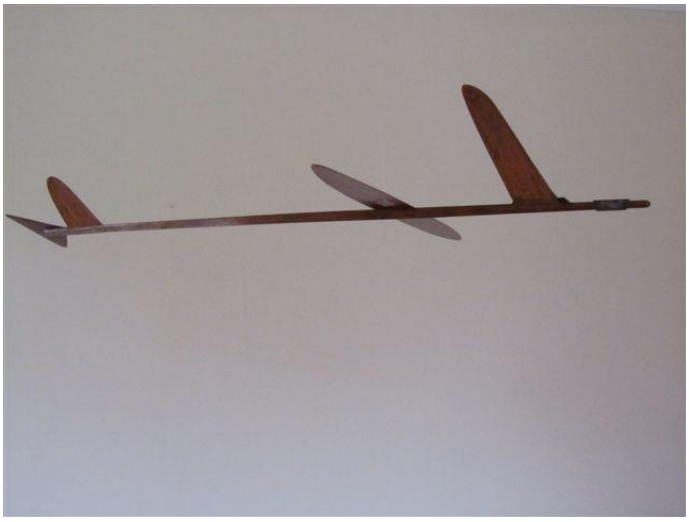
The National Aerospace Library (NAL) is located at Farnborough in the location of the original Royal Aircraft Establishment (RAE). The buildings remaining have been well restored, and the original airship shed is preserved close by. The Library is a facility of the Royal Aeronautical Society (RAeS), its headquarters being in London. The library is for the use of society members wishing to study or research the aeronautical sciences or history. However members of the public can visit during normal opening hours to browse this fine collection of media. A full collection of Aeromodellers have been bound and sit on the shelves of the library with much else of interest to model builders and flyers.

Some months ago the NAL let it be known that they would welcome historic model aircraft for display alongside their books and technical data. Indeed some historic models were already hanging there. As some modellers may know I have been restoring Wakefield models for some years and as a member of the RAeS for more than fifty years, it seemed that I was well placed to offer assistance in their project. The NAL are in touch with Roy Tiller and Roger Newman so that magazines and books can be shared with the David Baker Heritage Collection of aeromodelling material. As a personal task I have undertaken restoration of

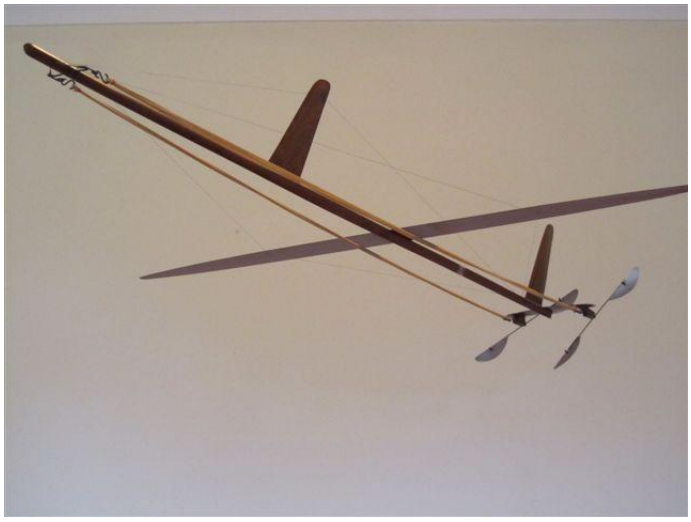
Lanchester's original experimental models of 1894 and presented models to illustrate the early history of the Wakefield Cup.

At the moment I am seeking a Jaguar Wakefield as designed by E.W.Evans and flown by Roy Chesterton to win the Wakefield Cup in 1948 for Great Britain. Should anyone be able to donate a Jaguar in reasonable condition I will be pleased to undertake its restoration to exhibition standard. The reason for seeking a Jaguar is that 1948 was the last occasion that GB won the Wakefield Cup outright. There is very little further space for models to be hung, however if any truly historic models are to hand I am sure they will be welcomed at NAL. The following photographs and notes summarise the models that I have restored and which are now on display.

Dr Frederick W. Lanchester FRS HonFRAeS (1868 – 1946)



Lanchester's glider



Lanchester's Rubber Model

Lanchester was a major contributor to the theory and practice of automobile engineering, designing and building the first British automobile and he established a production factory. In the field of aeronautics he recognised the need to achieve stability as a prerequisite for sustained flight. He embarked on a theory of dynamic stability which aimed at shaping the aircraft and controlling its mass distribution, such that it may safely respond to any moderate disturbance encountered in flight, without assistance from the pilot. This fundamental line of enquiry involved a mathematical step of great complexity only finally negotiated by Professor G. H. Bryan in 1911. Lanchester is credited also with the identification of the phugoid oscillation, its name adopted by him and manifestly demonstrated by his experimental flying machines.

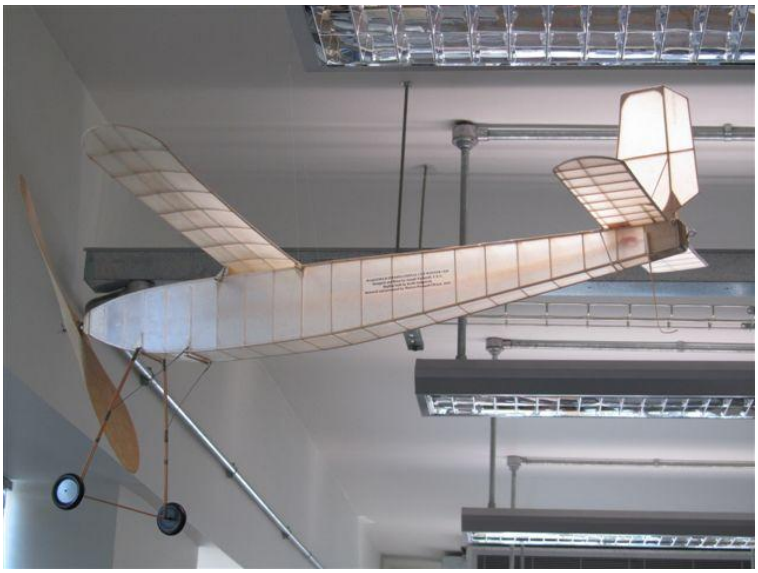
Soon after the Wright's first flights, Lanchester published his remarkable vortex theory of the aerodynamic lift and drag of wings, in his book Aerial Flight Vol. I Aerodynamics, of 1907. This proved too revolutionary to be credited until many years later. It stemmed from his discovery of induced drag and its prediction, of considerable influence on future aircraft design. It seems remarkable and significant that Lanchester's wings were of an elliptical plan form as flown in 1894. Lanchester's theory, improved by Professor Prantl in 1914, is universally accepted now. Prandl went on to show that an elliptical lift distribution results in the minimum induced drag of a wing.

Lanchester described his flying machines and his experiments with them in his book entitled Aerial Flight Vol. II Aerodonetics, of 1908. In this the experimental machines were called 'Aerodrones' or 'Aerodromes'. A half dozen machines were made in all, ranging up to 3 ft in wingspan and 7 ft in length. His rubber driven models used twin motors driving contra-rotating, fully feathering propellers. Two of these models remain in the care of theRAeS. Also preserved was a single wing of 36 in. span, probably being a wind tunnel model tested at Gottingen in 1913. The wind tunnel wing was certified as giving a lift/drag ratio of 17:1 compared with the best previously recorded value of 15:1.

The purpose of the experiments was directed at observing the stability of the Aerodones along their flight paths. They were launched by elastic catapult from an upstairs window, about 15 ft above ground level at Lanchester's house in Olton, Warwickshire, at speeds from 50 to 60 mph and traversed the back garden and a public road, some landing in open ground beyond. Flight distances were up to 290 yards demonstrating an undulating and swerving flight path, some in strong wind conditions.

Both machines had been made with considerable craftsmanship, being carved from pine. However, the wing tips and trailing edges were very thin and had suffered extensively. The purpose of the restoration was to present two undamaged machines, constructed from Lanchester's original components, suitable for display at the NAL. This was achieved by fitting the wind tunnel wing to the rubber powered machine and shaping a new wing for the glider from the damaged rubber model wing. The original glider wing, beyond repair, was used as a header to a display board.

Joseph Earhardt - Wakefield Cup winner 1930, USA



The model is a replica of the 1930 winner of the Wakefield International Cup designed and flown by Joseph Earhardt aged 18, of St Louis, Missouri. The competition, for free-flight rubber driven model aircraft was staged at Halton, England on Saturday 19 July 1930. This was the third such event and the first time the cup was won by an overseas entrant. The following year Joseph Earhardt convincingly won the cup again, that time held in the U.S.A.

The first gold cup presented by Lord Wakefield in 1911 was lost in the ensuing war years. However a new cup was presented in 1928 when it was used for the International Championships for free-flight rubber driven models. The same cup is used to the present day when the championships are held as a biennial event.

The original 1930 model and this replica were constructed from balsa wood with some cane, plywood and steel wire components. The covering is doped tissue paper, enabling it to be flown at about 4 ounces AUW, gaining a marked advantage over the heavier concurrent models constructed in hardwoods. The rubber motor could take more than 1000 turns and rotated the 17 inch propeller by direct drive. When the power run was complete the model continued to glide with the propeller free-wheeling. It was required to take-off from the ground in the 1930 event. The replica was constructed by the late Keith Sedgwick of Wolverhampton.

Albert Judge - Wakefield Cup winner 1936, Great Britain

The model displayed is a replica of the 1936 winner of the Wakefield International Cup designed and flown by Albert Judge, then aged 19. The British team had travelled to New York aboard the SS Aquitania and were received with a civic reception, a gala dinner and a flight over the skyscrapers of New York in the new Boeing 247 airliner. The competition, for free-flight rubber driven models, was staged at Wayne County Airport, Michigan. The July weather conditions were very hot, humid and calm. Six international teams competed and eventually Albert Judge was declared individual winner for Great Britain, with an average flight time of 250 seconds.

The rules, at that time, required models to have an AUW of at least 4 ounces; a wing area not more than 200 sq in, with the tail area not more than 1/3 of the wing. A minimum fuselage cross-section rule required an area ($A=length^2/100$) which accounted for the short, squat appearance of the models. Take-off from the ground was mandatory. The mode's construction is mainly balsa-wood with cane reinforcing and piano wire mechanisms. The covering is doped tissue paper. The propeller hub contains a clutch to disengage the propeller from the motor, enabling free-wheeling during the gliding descent. Also a spring stop was incorporated in the original to retain some turns on the elastic motor so that it could not become slack in the body, potentially moving the centre of gravity. The airframe weight is 3.3 ounces and the flying weight is about 5.7 ounces.
Bert Judge subsequently became a designer and production engineer with International Model Aircraft Ltd. who produced the FROG range of flying models before WWII. During the war years the company produced target drones and pioneered applications of rocket propulsion. Post war Bert Judge specialised in model engine development producing the FROG range of engines. He continued to pioneer the development of plastic moulding techniques for models and later applied these techniques to aircraft interiors with the Metair Company of Dartford.

Bert's interest in flying models continued and in 2006, at the age of 89, he was able to fly his replica model at RAF Barkston Heath in the 70th anniversary event of his World Championship success. The model on display was constructed by Peter Michel of Epsom, a very experienced model flying competitor. He willingly gave the model for restoration and eventual display at the National Aviation Library, Farnborough.

Flying Minutes - The 1937 Wakefield of Norman Lees and Len Stott

The 1939 Wakefield Championship was the last to be held until it was staged again in 1948, after the war years. The eliminating trials were held at Fairey's Aerodrome (now Heathrow) with a record number of 427 pre-entries. It proved to be a fine May day, with a very strong and boisterous wind in evidence, causing many fine machines to be written off. Some 314 entrants recorded flights. The six British team members selected with their average score from three flights (seconds) were as follows: Allman (North Kent) 230 , Lees (Halifax) 220, Copland (Northern Heights) 186, Parham (Edgeware) 180, Stott (Halifax) 175 and Hill (Bournemouth) 172.

The team made the Atlantic crossing from Southampton aboard Aquitania. In New York the temperatures were soaring up to 100 degrees F. Time permitted some visits including to the World's Fair, the Empire State Building and a flight over New York in a 'blimp'. The Championship flights were made from a golf course adjacent to an overgrown airfield, the countries sending a team to compete included: USA, Canada, France, Great Britain and South Africa. It was evident that the British approach was very different to the Americans'. They favoured short, thick motors which literally tore the models up, whilst the British had longer motors and steadier climbs, their flights showing up very favourably. Korda's model (USA) on its first flight was carried upwards by a thermal to more than a thousand feet, eventually scoring 43 minutes and 29 seconds. He won the event on the strength of this first flight and bettered Bob Copland's World Record at the same time. This type of success was later ruled out by the introduction of a maximum flight score.

In 2006 a *Flying Minutes* was received, it was badly in need of restoration although the airframe was reasonably intact. It had been kept and preserved in its well made wooden transport box for very many years. The model was amongst a collection of very old models (some dating to pre-war) built by Mr F. J. Philbrock of Victoria Terrace, Hove. Unfortunately it has not been possible to trace any record of Mr. Philbrock.

All these models had been seriously flown, the *Flying Minutes* showing signs of repair and modification. By comparing the model to its original plan published in 1939, the model was seen to comply in nearly all respects, with no visible means of dethermalising. Balsa was scarce during the war years and extensive use was made of rosewood, being used as inlays in the furniture trade. The adhesive was rubbery and on cutting some away it proved soft and durable unlike balsa cement, it may have been 'Croid'. The most evident modification was the addition of 1/32nd balsa sheet covering of the wing leading edges. The original tissue was hard in nature, although not over-doped. It had become brittle and may not have been the original covering. The new covering used (black and red Airspan) is a modern heat-shrink film which, although a

little heavier than the original doped tissue, provides resistance to colour fading making it suitable for exhibition purposes.

David Kinsella's Column

Raynes Park MAC

Evenings in the much-decorated clubhouse are always good fun, regulars - Mike, Barry, John, Reg, Adrian, David, Tom, Geoff, Malcolm, Gerry and other stalwarts - enjoying three or four hours away from the cares of the world. Always welcome is Ian Russell from Ealing, sometimes bringing with him an engine or two or the crankcases for a new Oliver and other repro. Usually sitting with Patrick, Mike No 2, Geoff and Tom, subjects cover everything yet concentrate on nothing - just as Oscar advised. Arriving early there's a movie to enjoy, a book to read or that old Aero Modeller to check up on. RPMAC. The club you can trust_in conditions you can't. Tomboy enthusiast Tony continues with his good works.

Strange Brews

Measuring 210ft x 100f t with a glazed barrel lid to boot, the National Hall at Olympia was the perfect place to augment racing motors in anger. A while ago now the PAW run by David Harle and Alan Jupp trailed ear splitting sounds and could hardly be seen. Fuels were one secret — 80 laps on one tank and the only team to do so — it was said that different brews were used to prime, warm—up and race. Much later another source confirmed that several 1.49 PAWs were seen in bits as a sure—fire winning motor was put together.
In the middle of David and Alan stands RPMAC's Ted Horne who supervised every race over the nine days of the nine days of the of the MEE. Messrs Waterland, Miles, Gedge and many more took part but the lads seen here hoisted the Model Tecimics Trophy. MT laid on fuel but the winners chose their own juice. Paul Eisner put in a relaxed 127mph to please the crowd — again great sound but you couldn't see the model at all. Wisely strong netting protected amazed watchers from these furious beasties.

Arch Of Ages

Euston, we have a problem. In 1960 it was to get rid of the great stone arch which stood in front of London's oldest operating station. Stone Stephenson, who stood at the foot of the great stairs, was already safe in York. Quickly the Euston Arch went into the Thames in east London. Now there's a move to erect the arch. once more. Unreliable diesels was not the only consequence of the hasty flight from steam power.

It's Norman's

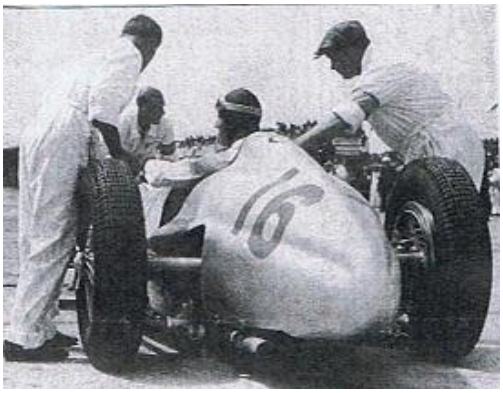
On Raynes Park's stand at the MEE (why don't more clubs take advantage of the publicity?) one of the many visitors said that a painting at home was possibly by P E Norman himself. Framed in Epsom, the subject aviation, it sounded good to me. Of great and varied talents, Percival Edward Norman carved murals for the liner Queen Elizabeth, taught sculpture, exhibited at the Royal Academy, built Scale at a prodigious rate, made his own Diesel and glow engines, developed ducted fan propulsion, worked in silver and other metals, flew shirtless on Epsom Dawns and was married to Phyllis. Interest kicking off in 1925 with visits to Lympe, big brothers were both RFC pilots. Then, of course, there was the matter of pendulum control. Yet another great aeromodeller leaving a mighty legacy. Ooops, nearly forgot the musical instruments he made and also played.

Books For Us

Tom, Chris, John and Justin man Motor Books (020 7836 5376) near Leicester Square. All the essential stuff is there in depth, the second hand area expanding rapidly. 45,000 books fill the database. Fouuded in the

1940s, chums gather at the outfit with gravitas and atmosphere. And Bob models in Gauge One and so knows his onions on the railway front. One of London's joys

Arrow Pilot



Apart from racing numbers in red, it's mostly a black and white scene as Dick Seaman has a word before giving the 200mph Mercedes a go. Not getting on with Mays even though he drove an ERA, Dick bought two Delages and tons of spares from Earl Howe, he of the famous cheesecutter. Thanks to Ramponi a better Delage emerged and — like the great Moss with the 250F the other side of the war — Neubauer offered the tall Englishman a drive. Big stuff on the banked Avus in Berlin, second at Long Island, dune and palm-1ined curves at Tripoli taken at 180. Staggering for the crowds who came and went in 70mph wheezers, water and fire at Spa ended it for the young man from Ennismore Gardens. He was 26. Ramponi had a works in London.

Deamon Tweaks

A second saved here and there can swing it in serious competition. To cut drag by ingesting air for cooling, the G20 Super Tigre machine that placed third at the World Champs one year was said to be oil cooled! Don Haworth fitted special carbs to his ETA Elites. A famous figure in Class A, Dick Edmonds at Telford Way, High Wycombe, would give you a faster and more economical Mk II Elite for £8 9s (£8.45). Most firms offered a tuning service, and Paul Bugl made sure that the carefully sorted best engines went to the best teams in Team Racing. Arriving in a wooden box with tools after a wait of eighteen months and more, the 2.5 Bugl was complex but delivered scorching performance to 26,000rpm. At a Hayes shake-down one weekend I saw a Bugl racer go straight through a slower model, the shredded pieces fluttering down over a wide area. Repro Bugle made in the Ukraine cost £175 ten years ago, but it might take £900 or more to prise an original from its cabinet. Paul died a young man but during his motor's reign the first 4, 5 and even 6 places were his in the big events. Some motor

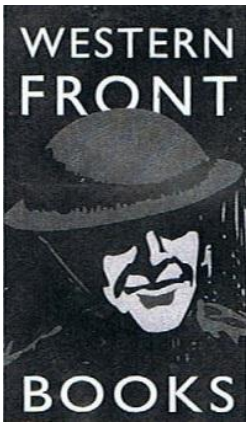
Valve Uplift

Determined to bring the USA into serious road racing when most looked no further than the oval, millionaire sportsman Briggs Swift Cunningham leant cars to his friends and the first Watkins Glen event took place in 1948. Starting with a Caddy-engined Healey, the Cunningham sports car project took shape at West Palm Beach. But elsewhere Zora Arkus-Duntov was building the USA's first sports car for Chevrolet. And before the Corvette there was his standout Ardun unit which converted the ford V8 side vale into an ohv of twice the power (many believe that the Ardun was copied by another firm in the industry). To fully test his engine Arkus-Duntov bought a J2 Allard. Later he worked for Allard in London and drove in the 1953 Le Mans team. Discovered by chance, friends Tom and Charlie restored the J2 and here is Zora at the wheel in North America.

Magnificent Biplanes

The days of coal-fired battleships have always been a blessing for the artist. Roger Middlebrook's picture of HMS Iron Duke on patrol, her spotter Camels in the air, clouds of smoke drifting to port, is magnificent. To be seen at the Guild Exhibition in July, just five minutes west of Trafalgar Square, Roger also gives us

Goering, Udet and Gabriel in their DVIIs; a DH9a being closed by a yellow-nosed DVII; FE bombers taking off for the Front and RNAS flying boats low over the sea. And then there's a mighty Gotha bomber. The super show for everyone interested in aviation. It starts on 18 July.



Tin Hat Action

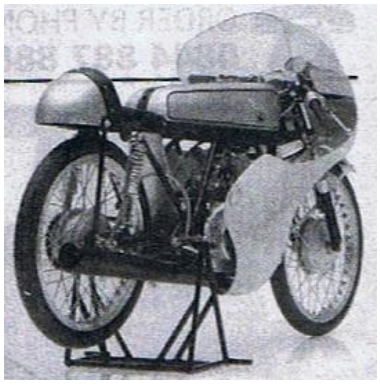
Western Front Books (01920 466668) only stock the best. But rest assured there's lots of it on aviation, wars at sea, land battles famous and not so. This gem of a shop is in the High Street at Ware, Hertfordshire, forty minutes north of London. There's a pub and the river nearby, the very spot on a sunny day for a detailed examination of that rarity on the Raj or one of hundreds on Horatio Nelson.

Defiant Boater

And on the above river I discovered that narrowboats are no longer the freedom machines beloved by Tom Rolt (S&T January). Rules and regs, slipping every four years (£450), jobsworths in silly hats, clipboards and biros ready. In fact, my boater told me, he's seen a sign warning of the dangers of conkers!

Job Done

My piece VTR 2000 is written and ready for the new Year Book. Thanks to Ron Moulton, Phil Smith (who won it) and fliers front West Essex, the 1950 Brighton meeting caused Team Racing to zoom in the 1950s and '60s. Soon a key discipline in the aeromodelling scene with big meetings around the country and abroad (40 heats at the Nats in 1953, 50 teams at the World Champs in 1964, 3 teams from the UK) the high profile of the RAF and its involvement, front runners like Mercury and Keil Kraft and Veron, active clubs fliers willing to travel by bike or train (cheap tickets on. a big network) combined to place Team Racing centre stage in a great hobby that was itself centre stage. Even the smallest village had a model shop.



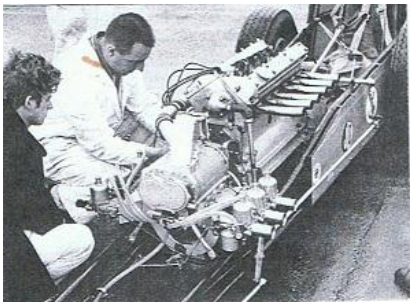
Cabinet Time

Famous Grand Prix Legends of Guildford (0844 887 8888) offer quality and quantity. Strong on bikes, their model of the watch-like 50cc Honda ticks more than all the boxes. Big at 1:10 scale with all the detail, this dinky racer could be wound up to 125mph on fast circuits. Loads of gears and just 8bhp was enough to take the flag. Recordings of bike and car action were made by Stanley Schofield, big hairies at volume causing bangs on the wall from next door. Racers like the little Honda feature. Fit earplugs.

Three Decker

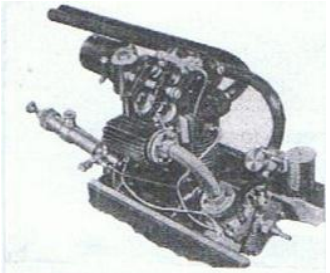
Here's an interesting view of life aboard R100, the great airship scrapped when R101 went down in France. Tables are set in the passenger area between mainframes 5 and 6. Engines aft between frames 9 and 12 meant that the Rolls-Royce Condor III petrol engines spinning 16ft and 14ft props of wood could not be heard to any extent. A big stride forward for Wallìs, fine tuning and improvements would have made R100 a far better airship. A new cover of linen and cotton, doped in pace like Zeppelin practice, would have had a monocoque effect and so stiffened the whole structure. After all the huge gas bags, lined with skins of animals, were made in Germany where lived several chaps who knew their stuff. Built with R101 and others to come to link the British Empire, American gas would have removed any risk of an explosion. All who saw them and Hindenburg too, seemingly scraping London's chimney pots, never really got over the experience. Pace out 800ft and add a bit more and you'll understand why. A Zeppelin was 804ft.

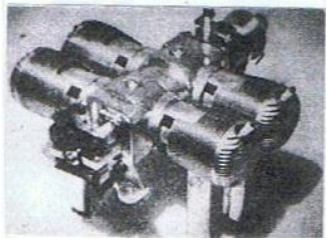
UK Power Shortage



The big problem for would-be dragster drivers in the early 1960s was the lack of a good power unit. V8s were in short supply unless you had contacts at a USAF base in the UK or toured scrapyards for a crashed Caddy or Chrysler or followed a crash story in the papers (as a friend did). An answer of sorts was to soup the famous Jaguar XK six. Seen at Blackbushe during one of the early Drag Festivals, here the ohc unit has stub exhausts, a Wade supercharger and no less that six SU carburettors. Evident too is the dire shortage of proper slicks for the rear wheels. This outfit ran quite well but stood no chance against the junbo V8's brought over by the Americans. On two wheels though, the Brits did much better. Ashwell, Brown and Hago. charged the quarter-mile is style, Brown's Vincent Super Nero clocking 146mph and 10.3 seconds. Quick too was Clive Waye's blown VW bike which set 11.1 seconds.

Big Multis



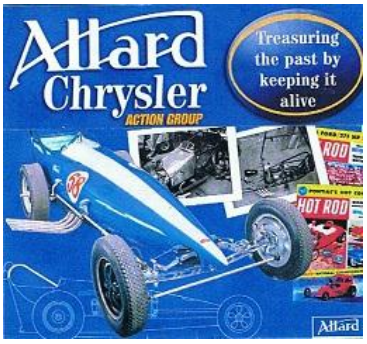


And now for a couple of crackers from Basil C Miles of Ewell, Surrey. Shots could be better, but the general layouts are clear. The ohc twin, is supercharged and may well have been built for a boat, Basil a very keen model boat man. The bigger 4-cylinder, not seen by me during my visits, may have been destined for a target drone. As well as his considerable ED input when the works was by VP Wine in Kingston, Basil made a number of big singles in the 20 to 30cc class. Basil also did work for the Bird's Custard family and received Christmas cards from them. Basil had a large worksbop at the back of his house, big motor bike. engines made there too. I saw one but Godzilla's had gone before I arrived on the scene.

Barton Model Products

But these days there's no shortage of model engines at all. John Goodall (01283 713715) always carries a healthy stock and if your motors require a spot of TLC Mike Crisp (01473 737393) will work wonders at modest cost. I saw Mike at the MEE, he busy with a model boat restoration.

Stirring Sounds



Always a supporter of newsletters and facts on paper for future reference, I gave Chapter 17 of my Allard history to Sydney's 1960 dragster, the first proper dragster in Europe. Held at Beaulìeu for several years, an action group formed in 2008 and headed by Nick Masan of Pink Floyd is getting the big machine ready for quarter-mile demonstrations, no doubt reminding those who saw it at Brighton, Debden, Silverstone and elsewhere of methanol and mighty sounds. The blown device first appeared at Brands Hatch in July 1961.

Selecting Gordon

The utter myth of free banking and ghastly shirts that only look good under cellophane should be treated with disdain. Life should not concern itself with such rubbish. Instead take succour from a choice volume erect and ready on the aeromodelling shelf. Gordon Rae's opus bulges with drawings and info, too much by far to read at one go. An hour or two at a time is ideal, as I discovered the other evening. Gordon's interest in Team Racing was fired by the spectacle of Messrs Moulton, Dean and Booth flying control line at the MEE in London in 1947. Within days Gordon's trainer with 1.3 Mills was in the air and, as they say, the rest is history. December's S&T carries detail on Gordon Rae's 260 page must-read.

Wheels Within Wheels

In the good old days races along public roads took place, as here where a Lagonda stays ahead of the LNER, painted by Eric Bottomley. Bentley was with Lagonda by 1935 and drew up the fabled V12 for owner Alan Good, a dash of his Cricklewood cars reflected. Later Good sold to David Brown and Bentley engines were soon powering Aston Martins up to 1968. Often the choice of Sopwith and others, rotary Bentleys saw mighty action over the Western Front. I spoke to W O Bentley at a Goodwood rally in the 1960s, he a keen supporter of the Bentley Drivers Club. Eric's art appeared in a 4-page special in Best of British for July 2009.

A Mighty B?

With a 2ft prop it's certainly not a VTR B. This beautiful model of quality, is the latest sensation from Alan Walker's wondrous workship. Spanning 7ft and hauled by a 58cc MVVS Special (only 200 made) this Jeep racer is finished in cream trimmed in green, What a cracker!

And Finally

Loved the info from Ken Croft on the 2011 scene in tethered car action. Control line on the ground and linked in every way with aeromodelling - fuel, motors, materials, construction, design, beautiful finish too as well as an interesting history - several have these models. Mike Crisp and John Goodall are noted enthusiasts and a good number came up at the huge two-part sale (London and Reading) in 2004 along with photo albums, books, mags, boxes, kits and bits in great volume. The catalogue was beautiful and sold out quickly.

Home From Africa

And we sign off with an excellent Middlebrook showing HP42 Heracles over Croydon, London's airport after dangerous Hounslow closed in 1920. Opened by the Marquess of Londonderry, the world famous aerodrome ran on to 1959. One of the greats of the silver biplane era, John Cunningham - the famous Cat's Eyes, ace and De Havilland test pilot - is pictured examining a fine model on the cover of an Aero Modeller of the 1950s. The main Croydon tower and building are well worth a visit to remind us of the heady days when only the rich flew and the USA was a distant place known mainly to sailors. Pilots in Imperial uniform were often ex RFC or RAF, and picture cards of them were sold around the network, Powell and Leleu and one-eyed Hinchcliffe popular.

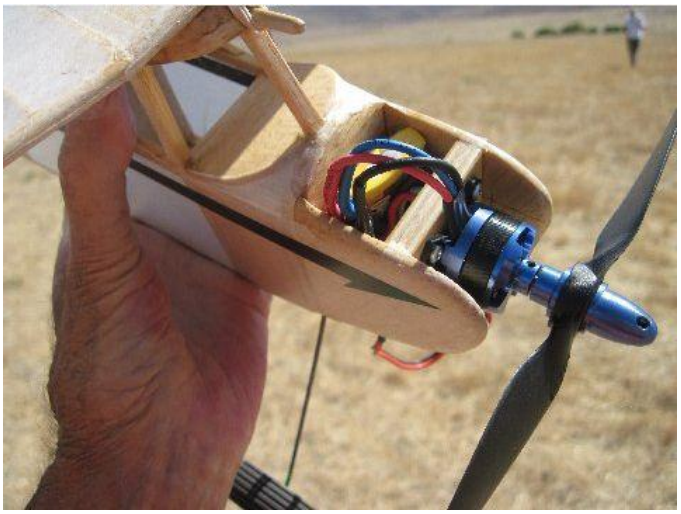
From Bob Pickernell

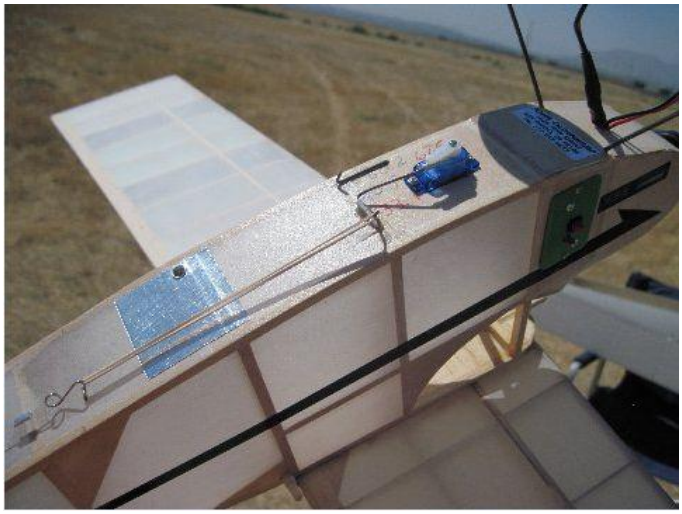
I see in S&T 53 pages19-21 that you have featured the Laurie Ellis Sea King plan and building/flying instructions. I thought you might be interested in 'one I made earlier' As can be seen on the plan this is quite an interesting building project that really hoovers up the balsa wood. I glass clothed the hull and covered in film with a view to flying off water. The model proved quite stable afloat in the garden pond but I have never actually flown off water. It is powered by a Russian Elfin149 ABC repro(see S&T passim on rusty engines!)

It is very quick and stable in flight with a surprisingly good rate of climb. However ..... when the engine stops the only way this thing is going to go is down, there is no way this design needs a DT!

The following has kindly been sent on by Peter Michel

Charlie Yost and John Oldenkamp down in San Diego are promoting an Electric FF Tomboy event, which will be flown at this year's SAM Champs.
Vic's venerable Tomboy design is getting yet another lease on life and is providing pleasure for modelers going on into what is now its seventh decade. I might even say 8th decade if I knew that it had flown in '49--but I know that 2010 marked the start of its 7th decade.
Mike, John Oldenkamp with his Electric Tomboy returning from 1st flight, Otay Mesa, 6-19-11.
Flys like a Mills powered one would.
Just like a Tomboy should.....Charlie





Tomboy League Results From Tony Tomlin

TOMBOY 3 LEAGUE 2011

Results *[NB best 5 scores to count]*

Event / Name	MW 24.4.11	MW 8.5.11	WB 22.5.11	StA 4.6.11	CF 19.6.11	NB 10.7.11	CF 14.8.11	MW 28.8.11	CF 9.10.11	Tot	Pos
Jeff Fellows	9	C	C	-	9						
Tom Airey	8	A	A	4	7						
Tony Tomlin	7	N	N	-	8						
Stephen Powell	6	C	C	3	6						
Paul Netton	5	E	E	-	-						
James Collis	4	L	L	-	2						
Tony Overton	3	L	L	2	-						
John Strutt	2	E	E	-	-						
Dave Stock	1	D	D	-	-						
Brian Ball	-	-	-	1	4						
Brian Brundell	-	-	-	-	5						
George Ford	-	-	-	-	3						
Derek Etheridge	-	-	-	-	0						

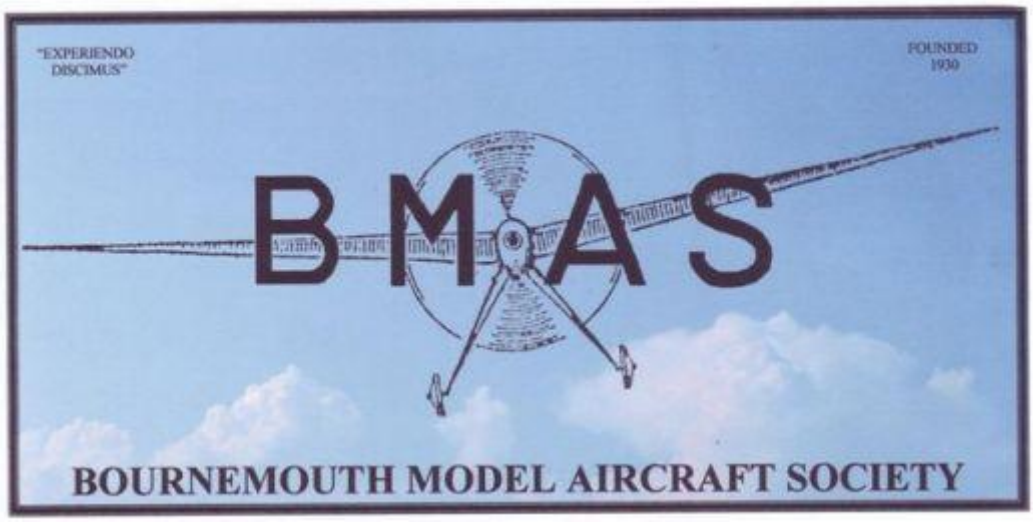
TOMBOY SENIOR LEAGUE 2011

Results *[NB best 5 scores to count]*

Event / Name	MW 24.4.11	MW 8.5.11	WB 22.5.11	StA 4.6.11	CF 19.6.11	NB 10.7.11	CF 14.8.11	MW 28.8.11	CF 9.10.11	Tot	Pos
Andrew Fellows	5	C	C	-	6						
Tom Airey	6	A	A	4	5						
Tony Tomlin	2	N	N	-	2						
Stephen Powell	1	C	C	1	3						
Tony Overton	-	L	L	3	-						
Brian Ball	-	L	L	2	4						
Derek Collin	4	E	E	-	1						
James Parry	3	D	D	-	-						

Adverts events etc

This Sunday 3 July there is a control line meeting at Wimborne MAC flying site at Cashmoor. http://www.wimbornemac.org/ That is on the A354 between Blandford Forum and Salisbury very near Gussage St Andrew. More details from me James Parry. Whilst no competitions just sport flying some of us will be recording our Wessex Mini Speed times for July. You don't have to live in Dorset to join in see http://www.wessexaml.co.uk/
Also on the website is details of our fantastic 600RES glider competition, Wessex League Tomboy and Bill Longley's Power Duration.



Tuesday 25th October 2011
Bournemouth MAS Indoor Flying Meeting at the Allendale Centre, Hanham Rd, Wimborne, Dorset, BH21 1AS, 7.00p.m. to 10.00p.m. Free Flight only. Competitions including Gyminnie Cricket League. Flitehook normally in attendance. Free parking in public car park in Allendale Road. Contacts John Taylor Tel. No. 01202 511502 and Roy Tiller e-mail roy.tiller@ntlworld.com

Tuesday 22nd November 2011
Bournemouth MAS Indoor Flying Meeting at the Allendale Centre, Hanham Rd, Wimborne, Dorset, BH21 1AS, 7.00p.m. to 10.00p.m. Free Flight only. Competitions including Gyminnie Cricket League. Flitehook normally in attendance. Free parking in public car park in Allendale Road. Contacts John Taylor Tel. No. 01202 511502 and Roy Tiller e-mail roy.tiller@ntlworld.com

Tuesday 13th December 2011
Bournemouth MAS Indoor Flying Meeting at the Allendale Centre, Hanham Rd, Wimborne, Dorset, BH21 1AS, 7.00p.m. to 10.00p.m. Free Flight only. Competitions including Gyminnie Cricket League. Flitehook normally in attendance. Free parking in public car park in Allendale Road. Contacts John Taylor Tel. No. 01202 511502 and Roy Tiller e-mail roy.tiller@ntlworld.com

Reminder Radio Vintage and Tomboy 10.07.2011

The North Berks Radio Model Aircraft Society are hosting a Radio Vintage and Tomboy competition on Sunday 10.07.2011. This is at their excellent Landmead flying site, and will help fill the gap left by the loss of the R/C Vintage weekend at Old Warden. The club is making visitors very welcome and there will be a BBQ during the day. There is plenty of parking close to the pits.
Directions:
From the South: On A338 via Wantage, about 3 miles past East Hanney, turn right adjacent to a 50MPH sign onto a concrete Bridal Path [If you see Venn Mill you have passed your turning 200yds back.]
From the North: On M40 Exit at Junction 9 onto A34 exit at Abingdon onto A415 through Marcham and turn left at the "T" junction onto A338, after about 3 miles turn left onto Bridal Path 200 yards past Venn Mill.
From the West: On A420 just past Faringdon turn right onto the A417 to Wantage, at Wantage take A338 to East Hanney and follow direction as from the South.
From the East: On M40 exit Junction 7 turn left on A329 to Little Milton and Stadhampton, at Stadhampton turn right onto B4015 to Clifton Hampton. At Clifton Hampden take A415 to Abingdon then follow route as from the North.
For Drivers using Tom Tom the reference is N 51deg. 38 mins 56.41
W 1 deg 22 mins 54.80.
For further information contact:
Tony Tomlin 02086413505 pjt2.alt2@btinternet.com
Paul Goddard 01235203073 p.goddard47@ntlworld.com

P B Models

Dave Bishop was raving over PB Models at the Telford Show recently where he was commentating so I asked him for a few details. There is a website which I took a look at and the models being kitted date back to the 70's. Not S&T but I'm sure many readers will recall the designs and some even be tempted? I must admit there are a few designs from that period and 60's which I would consider building and I'm sure there will be no shortage of buyers for these kits. http://www.pbmodels.co.uk/
"No problem at all with putting my details in, my main job is UK manager for Graupner so please keep that in mind as well as I would like to start to push some of their Kits .
The Saturn models Skydancer is a Brian Austin design that Cliff produced whilst at Saturn. I am soon to release some Formula 1 racers that Sid King used to produce, I also now have permission to re do the Barrie Lever warrior 40.
Attached is my current leaflet. Many Thanks Paul."

Crescent Bullet 50" (£109)

Originally designed in the mid 70's the bullet turned out to be a true legend. It redefined the club sports model. The model can be very fast yet smooth to fly and very aerobatic although not 3d style of flying. The model has won many club aerobatic events as well as touch n goes, spins, etc. The bullet is an aircraft to truly remind you how good it is to build and fly your own model and get back to some great flying experiences

Tornado (£149)

Tornado is back and better than before! These models were taken to the top of F3A Aerobatics in the 70's by Clive Weller and Ken Binks. Kit has selected balsa and ply parts which are CNC cut for accuracy, foam veneered wing panels and tail plane, moulded clear canopy, instruction set. The basic construction techniques required ensure a very quick assembly time. Just for the nostalgia factor! The original kit review in Radio Modeller by Clive Weller in 1976 is in our Media gallery section.

Skyliner (£99)

The Skyliner is a sleek racey looking aircraft with superb handling at either high speed or landing speed and is very aerobatic. Originally designed in the mid 70s by Brian Austin of Austin Air. With a 54" wingspan of foam wing pre profiled wing tip blocks balsa fuselage clear canopy pre bent u/c legs. It comes with instruction booklet showing sketches of building sequence; very simple construction ideal for the first time builder.

Skydancer (£99)

The Skydancer as marketed by Saturn models in the 70's is being brought back courtesy of PB models. Pictured here on the cover of the March 74 Radio Modeller in which it was featured. This is the latest model to be added to the ever growing range of models being brought back to you by PB Models.

Funfighters (£74.99)

These are traditionally built kits with skinned foam wings. They all have a wingspan of about 43" and are roughly 1:10 scale. The engine range is from a 25 up to a 36 if you dare! The current list of models available is:
Mustang P-51
Spitfire
Messerschmitt ME 109
Focke-Wulf FW-190
Kawasaki Ki-61 Hien "Toni" (£79.99)

RETRO FLY IN August the 14th at Sleap airfield in north Shropshire , Bring along your models and equipment from the 60's to the 80's and show them off to everyone . It will be £1.00 to fly for the day , this will be excused if you turn up in period dress and vehicle. The club will be providing a BBQ and there are toilets and a cafe in the tower. Please contact me via the website to let me know you are intending on coming .

DEREK FOXWELL

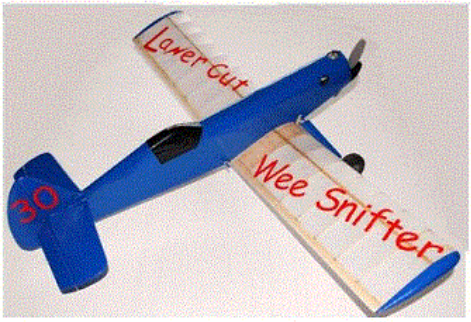
OLD SCHOOL MODEL AEROPLANE FACTORY

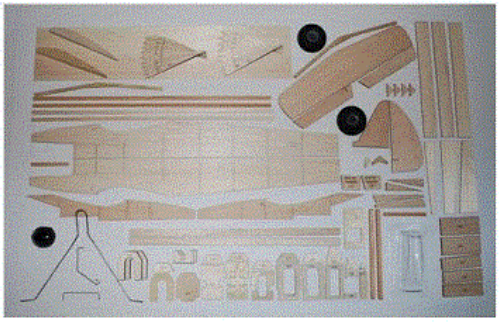
6 Clarice Way, Wallington, Surrey, SM6 9LD

E-mail: derekfoxwell@btinternet.com

Tel: 0208 647 1033

Vintage Wee Snifter 30" Span Sports Monoplane





This classic 1960's Doug McHard's design is a joy to build and fly. It can be built in R/C version or F/F for .6cc to .75cc diesel engines. The kit is complete with over 100 laser cut and pre-formed parts, including wheels, spinner, undercarriage and canopy, and a full size digitalised plan. A must for the enthusiast.

Price £45.95

Post & Packing £8.00 England

£15.00 Overseas

Prices subject to change

Ref: Updated 1/1/11