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Editorial

The **10th Grande Coupe de Birmingham** will now take place on the 6th or 7th of December and not the November date previously advertised.

Hi Guys,

We are running out of daylight so evening trimming will no longer be an option, that is if any of you are actively pursuing our pastime. The lack of input for your magazine was not a problem this month, one or two responding to my plea and reporting on their aeromodelling activity. In events, the add for the Twiffs indoor meetings is supplemented with a piece on indoor etiquette which is a reminder for all indoor fliers and adherence will make for better meetings.

What have we in this issue?

-) I kick things off with a report on the Scale Nationals at BMFA HQ Buckminster.
-) Pylonius has a dig at international competitors from other countries who actually fly to win. He winds up with praise for the inventor of the folded paper dart.
-) Engine test is the Frog500, not the most powerful nor the lightest but they were a good workhorse, even I had one, and flew it in the Nats C/L Gold Trophy.
-) Ever present Nick Peppiatt reports, with his usual relevant pictures, on the September Trinity Indoor Meeting.
-) I have had another dig into Wikipedia for odd aircraft and come up with a very unusual seaplane. To look at it you would not think it was possible.
-) Martin Pike, our membership sec., has broken ranks to confess of a love of music and lists some of his favourites.
-) I reproduce another of my historic articles from the paperback Clarion of 2004.
-) MA 'Here and There' from 1950 reports on the Annual Dinner. Highlights the L.S.R.A. reports. Tells of possible Model Aircraft Olympics and finally stresses the importance of members not admitting that they have insurance should they cause an accident.
-) In response to my plea for NC Fodder, Paul Lovejoy knocked up a piece on his recent onslaught on his Co2 motor stock and repair exercise.
-) There are a couple of members comments on items in the last issue.
-) 'Heard at the Hangar Doors' from 1955 Aeromodeller reports on Farnborough Airshow, the dominance of the Oly Tiger engine at the world champs and a bit about L.S.R.A. and 'rate of sink' experiments.
-) I had a look at the NORCIM website and the vintage style servo tester reminded me of the experiments we did back then in the early radio days.
-) Notes from North Wales by Roger Newman is an extensive dive into Pulse Jet engines amongst other things.
-) Gavin Manion reports on the Southern Coupe League with league table update.
-) Another response to my plea for NC Fodder appears in the shape of an article by Roy Vaughn on 3D Printing.
-) Yet another response to my pleas is Gavin Manion's discourse on his two flight appearance at this year's Sculthorpe Nationals.
-) Our secretary's Notes report on the FFTC Conference at Buckminster.
-) Rogers 'Plans for the Month' wrap up this issue.

Editor

Buckminster 13th September 2025

Our membership secretary Martin Pike ferried me to the Scale Championships at the BMFA HQ Buckminster and deposited me in my new chair on the R/C flight line. OH! Boy! was it windy, but the big R/C models I saw handled it well. I had left my camera back in the car and Martin was off doing the rounds of his friends so unfortunately no pictures. It tried to rain once and the guys next to me ran for cover but thankfully one of them left me with his umbrella. The rain thankfully came to nought.

The only item I have on the comp, is the results sheet provided by Martin.

BMFA Scale Score Board Flying Only   							
Pilot to enter their R1, R2 & R3 Total Scores							
	Pilot	Model	R1	R2	R3	TOTAL	
1	RICHARD CRAPP	SUPER CUB	1341	1261	1516.5	29525	10
2	NIGEL NIXON	Ki43 OSCAR	1617.5	1617	1557	3234.5	5
3	BRIAN SEYMOUR	SATFIRE VB	1577.5	1636.5	1765	3401.5	2
4	HARALD SIMON	EMB 812 TUCANO	1544	1662.5	1672.5	3355	4
5	BRIAN WEST	TIGER MOTH	1419	1436.5	1532.5	2963	8
6	LINDSAY DICKIE	ZLIN 50 L	144	1395.5	126	1539.5	13
7	DAVID CHARLES	HANKER TYPHOON	1707.5	1744.5	1720.5	3467	1
8	ADRIAN HAYWARD	SUPER CUB	1527	1527	1600.5	3127.5	7
9	ANDREW BOYMAN	MILES SPARRHAWK	1358.5	—	1546	2891.5	9
10	MATHEN DAWSON	YAK 54	1648.5	1628	1747	3395.5	3
11	LEE SMALLEY	CORSAIR	1579	1636	1592	3228	6
12	IAN GALLISTER	SOPWITH DOLPHIN	—	—	1564.5	1564.5	12
13	EDWIN VAN DER MAAT	CESSNA 188	1405	1435.5	1419.5	2955	11
14							
15							
16	CL PROFILE						
17	MIKE WELCH	VICKERS VISCOUNT	1146.5	1192		2331.5	1
18	TONY GOODGER	MILES M20	881.5	1048		1929.5	2
19	ANDY HOUSDEN	FAIRY FIREFLY	1013	852		1865	3
20							
21	FF SUPERSCALE				STATIC		
22	MIKE SMITH	DH4 MAIL PLANE	1450	—	1895	3345	1
23	PETER FARDELL	DEWITTINE 500	1210	1170	1330	2540	2
24	MARTIN PIKE	PILATUS PC-6	920	980	1400	2380	3
25	ANDREW HEWITT	DYOTT MONOPLANE	—	—	1790	1790	

Late afternoon when the R/C comp was finished, Martin retrieved me and we went round to the Free-Flight area for the Superscale FF comp.

Martin was competing with his little Kit Scale 'Pilatus' & Superscale it was not, but Martin just wanted to fly. The model was well suited to the windy conditions as it normally dis-assembled itself on reaching terra-firma, and was readily re-assembled for the next flight. The model flew well considering the wind strength. Each launch was spectacular, the model shot up into the air and was whisked away by the wind tumbling about all over the sky until it settled into its stally flight trim and was well across the field, with Martin in hot pursuit, in a matter of seconds. The come-to-bits-ability of the model enabled him carry the model pieces back to base easily and to readily reassemble on his return and was soon ready to wind for the next flight. I think he had four competition flights

Martin was quite chuffed as his Pilatus actually scored more scale points from static judging than one of the other competitors. He finished in third place from the four competitors, but was pleased that he got all his flights in without serious damage to his model.

There was a beautiful engine powered maroon biplane with postal markings competing which on one flight flew into the line of spectators. It hit one of the folding chairs collapsing the attached table and the impact noise was horrendous, and I was spectating from the car some 60 or 70 yards away. Martin said that the damage was to one wingtip and should be readily repairable. It takes a special type of modeller to put a superscale model up in a wind as strong as it was that day.

After the event was over there was a BBQ in the hangar which Martin and I attended. There were a large number of modellers who stayed on for the bangers etc. Many more than I imagined there would be.

I sat with the same guys I had sat by at the R/C flying for a while. There was a German group dishing out free bottles of beer, so who was I to refuse. I approached their table and picked up a bottle, good stuff. I returned to my group but I noticed a modeller sat on his own so I sat down alongside him. He had brought a scale jet powered model with him but for some unfathomable reason he was not allowed to fly. Seemed very odd to me, what could be more scale than a real jet powered model jet.



The BBQ

It was a great day out for me, Thanks to Martin. Good time had by all.

John Andrews

TOPICAL TWISTS

by pylonius

NOVEMBER 1985

MODEL AIRCRAFT

Topical Twists

Getting the Works

We English are not quite so green as our landscape is painted. We like to be fair minded of course, even to outsiders, but we have had our suspicions all along, and now, at last, the appalling truth has emerged. These foreign chappies don't go to international meetings for a nice, friendly spot of mutual flag waving and parley-voing, but with the ungentlemanly intention of winning. And if this isn't a jolly, unsporting attitude to adopt, we don't know what is. Moreover, for some unaccountable reason, they have the audacity to regard model flying as a *bona fide* sport, like athletics (but, not we hope, cricket!). This we can only regard as a gross presumption, quite at variance with the modest principles of our traditional "boys with toys" approach.

To clinch our loss of faith in the un-English human animal, came the unholy success of a state sponsored works team at a recent international speed meeting. These dungaree clad heroes of the people's republic were unsporting enough to use special engines to advance the national prestige. An action which has aroused widespread indignation among our own patriots, who firmly adhere to the belief that a re-worked Dooling is a good enough toy for any boy, whatever his nationality.

Another appalling aspect of this fly-to-win element is that anyone should take advantage of the carefully avoided fact that the speed at which a model engine can be whirled around on the end of a piece of wire depends on the power of the engine. This not only destroys the sacred illusion that a speed model is a scientific work of art, in which the speed is mystically attained through ingenuity of aerodynamic layout, but is a breach of gentlemanly agreement.

When all the wailing and gnashing of teeth, and other forms of lamenting acoustics have subsided, it appears that our speed experts will be left with two possible courses to pursue; either to withdraw in humble defeat from the international field, and continue to enjoy sporty little games of rounders upon the very playing fields upon which Waterloo was reputed to have been won, or to throw themselves on the mercy of our manufacturers.

The latter course is the bolder one—and likely to yield results. A get together of manufacturers on this issue would be welcome. From it might emerge a decision to pool resources. In which case we can confidently look forward to the grandiose offer of a beginner's glider kit to the modeller making the highest time in an international event.

What's My Line

A sticky one for any B.B.C. parlour game panel would be to guess the occupation of the chap whose workaday life is spent flogging balsa wood to schools. An even stickier poser would be to fathom the educational purpose for which it is purchased.

The first answer that springs to mind is the building of model aircraft, but having had some experience of the younger generation's revulsion towards this form of sweated labour, we can dismiss this idea as wildly improbable. And, anyway, it would be unthinkable, in these enlightened times, that any modern Mr. Squeers would be allowed to inflict such inhuman practices upon his innocent charges.

One other, more feasible, use to which balsa wood might be put in the classroom is as an absorbent agent to the ravages of the posteriorly applied cane: a soft quarter grain $\frac{3}{8}$ in. stock could well prove a superior alternative to the customary exercise book. But even this possible solution must be discarded, since the cane is, now, like the speed model, a relic of a savage past; and the child, when asked to spell the name of that instrument, cannot truthfully answer, as I do towards this schoolboy puzzler: "beats me!"

Getting A-Head

I have been asked by well-wishers (and you should see the depth of that well!) if, in view of my recent achievement of placing 3rd in a chuck glider comp, I intend to apply for membership to the Size 8 Club.

The answer is, of course, no. Field achievement, even of such distinguished merit as a chuck glider third, can no longer be accepted as a qualification for membership. This decision followed a meeting of the select sub-committee, called to check the alarming inflation both of members and their cerebral attachments. Already V.I.P.'s greatly outnumber entrants in the contest areas, this being particularly noticeable in the Radio events where V.I.P.'s now congregate.

In order, therefore, to relieve congestion, it is now proposed that only Fellows of the Size 8 Society be allowed to visit the radio areas, although ordinary members will continue to enjoy certain obstructive privileges at the main control centres.

The question of the parking of members' cars also came under discussion. Cars entering areas where they would constitute a definite nuisance to competitors and officials, must in future conform to a specification now in course of preparation. Whilst little is yet known of the specification, it is expected that it will include for sports cars of not less than 3,000 c.c. capacity.

Motor cycles, on the other hand, must now be considered *infra dig*, and relegated to the Rubber Comp. and other less fashionable centres.

All members are asked to note that tele-lens attachments are now standard to all V.I.P. cameras.



Fly-Paper

Some people believe in giving the petulant child a toy trumpet in order to keep it quiet, but I find a paper model aeroplane—folded in the traditional style—an ideal means of keeping the infant threat at bay.

Turning out a flight of these from my stock of foolscap (paper not headgear) I meditated on the brilliance of the unknown genius whose primitive form of chuck glider has introduced countless generations of urchins to the noble art of model flying. That he never achieved fame was undoubtedly due to his scholastic pursuits being more concerned with folding the exam. papers than to answering them; a tradition to which we ourselves can attribute much of our blatant ignorance. He did, however, achieve something with a few cunning creases that eludes all our advanced wrinkles: a model that would fly straight off—or out of—the drawing paper, without any trimming or adjustment. But, then, he lived in an age that was blissfully unaware of the impending threat of c.g., moment arms and all the other depressing factors which keep our litter bins full.

Pylonius



Engine Tests

No 79. The Frog 500 5 c.c.

ONE of the most popular of the larger engines, not only in its native Britain, but overseas as well, is the Frog 500. Designed and built by International Model Aircraft Ltd., a subsidiary of the vast Line Bros. organisation, the Frog 500 first appeared six years ago, about two years after the advent of glowplug ignition had swept the United States. At this time, engines of 3 to 5 c.c. were still considered quite a "normal" size and anything of much less capacity was a "small" engine. The majority of C/L aerobatics enthusiasts (at that time stunt flying was at the very height of its popularity) were using 5 c.c. or larger engines and the Frog 500 undoubtedly filled a long-felt need for a reliable general purpose engine of this capacity capable of matching the performance of American engines of similar type then available.

In this respect the 500 undoubtedly succeeded and upon its introduction at the end of 1949, it immediately enjoyed a ready sale. In one small club of our acquaintance, for example, two-thirds of the membership bought Frog 500's within the first few weeks of the engine becoming available. This was due in no small measure to the very moderate price of

the unit—only £3 15s. od.—which has remained unchanged. The 500 still represents exceptional value.

The Frog 500 has, of course, been previously dealt with in the "M.A." Engine Tests series. However, as this was more than five years ago and as the present model embodies one or two improvements on the original, it was considered that a new report on the engine would be of interest to both new and old readers.

The principal modifications to the current model, both of which are recent innovations and concern the crankshaft, are the addition of a ball thrust bearing and the substitution of a new main bearing of Vandervell manufacture in place of the original phosphor-bronze bush. Another small but important improvement can be seen in the beam mounting lugs, which are thicker and stronger than on the earlier engines.

The standard engine is, of course, of the glowplug type intended for operation on alcohol base fuels. It is, however, available with

a contact-breaker (costing a further 10s.) to permit operation as a normal spark-ignition petrol engine. A test report on the spark-ignition 500 was contained in the January, 1952 issue of MODEL AIRCRAFT. The standard glowplug unit is well suited to stunt models of around 400 sq. in. wing area, to C/L scale types and to F/F models of 5 to 6 ft. span.

Specification

Type: Single cylinder, air-cooled, two-stroke cycle, glowplug or spark ignition. Shaft type rotary valve induction. Cross-scavenged, two-port cylinder with baffle piston.

Swept volume: 4.92 c.c. (0.3005 cu. in.).

Bore: 0.750 in. Stroke: 0.680 in.

Compression ratio: 7:1 approx.

Stroke/bore ratio: 0.907:1.

Weight: 7.75 oz. (complete with F/F tank).

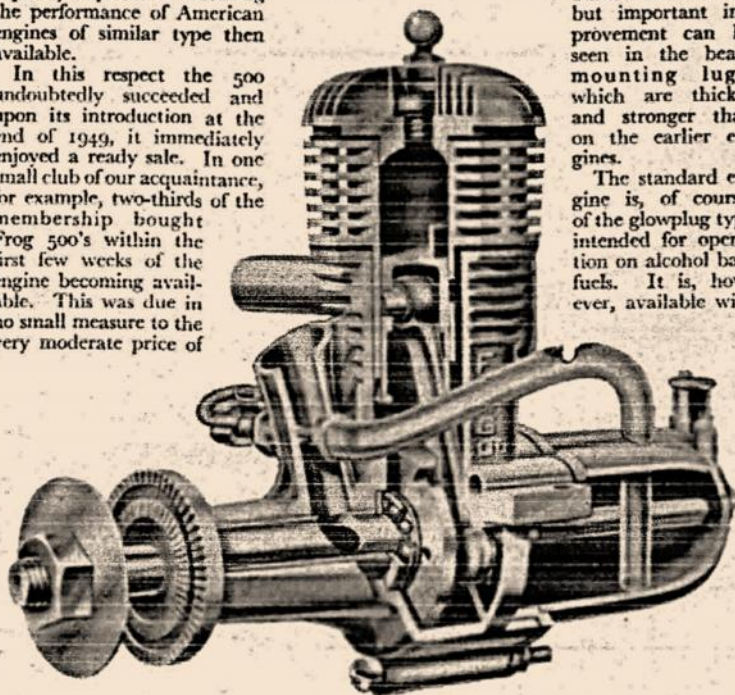
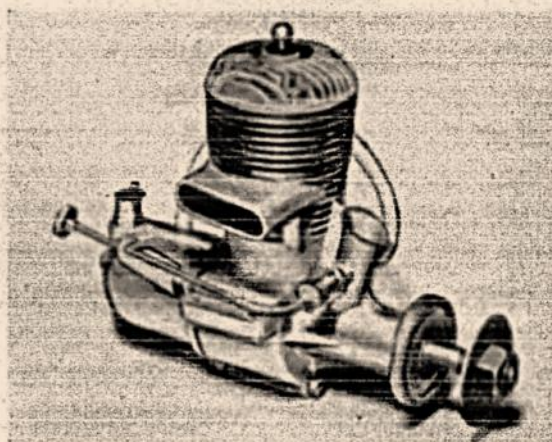
General Structural Data

Die-cast aluminium alloy crankcase with integral main bearing housing, carburettor intake, transfer and exhaust ducts. Die-cast alloy detachable rear cover. Hardened steel cylinder with integral cooling fins. Cast-iron piston, ground and lapped. Hardened steel crankshaft, ground and lapped and running in Vandervell main bearing, with ball thrust race. Forged Hiduminium RR.56 alloy connecting rod. Silver steel fully-floating gudgeon pin. Die-cast aluminium alloy cylinder head. Cylinder assembly retained by four machine screws passing through from cylinder-head and screwing into crankcase lugs. Detachable die-cast alloy fuel tank, with spring-loaded filler cap, attached to crankcase rear cover. Spraybar type needle-valve. Beam or three-point radial mounting.

Test Engine Data

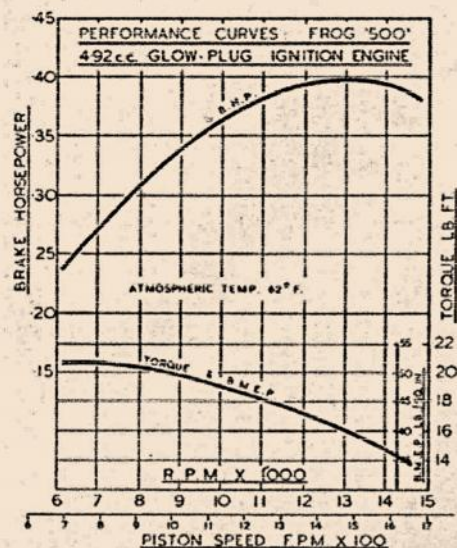
Running time prior to test: two hours.

Fuel used: 44 per cent. Power Blending Methanol, 28 per cent. 2-Nitropropane, 28 per cent. Castor-oil B.P.



NOVEMBER 1955

MODEL AIRCRAFT



Ignition equipment used: K.L.G. "Miniglow" short-reach glow plug. 1.5 volts to start.

Performance

Frog 500's are generally remarkably consistent. That is, one seldom finds any substantial variation in performance between one example and another; unlike some makes in which wide variations in power output and even in handling characteristics, exist between individual samples of the same model. The intending purchaser need have no qualms about buying an off-the-shelf 500. There will be no question of Joe Smith's 500 being "a thousand revs better than anyone else's."

The average diesel user has no difficulty when graduating to a 500. The first difference he will notice is that, despite its greater capacity, the engine is quite docile. Admittedly it makes more noise, but it is quite easy to start, has no unpleasant tricks to play on its owner (such as the knuckle-rapping habits of some diesels) and runs with less vibration than many of its smaller diesel brothers.

In starting the 500, the procedure laid down in the maker's leaflet can be relied upon. Priming the engine through the exhaust port will normally be required for a start from cold, but re-starts can be obtained quickly merely after choking the intake for a single flick. Any good methanol/castor-oil base fuel can be used and the maker's own "Red Glow" mixture is entirely satisfactory. Where higher performance is desired, a nitroparaffin content blend, such as the nitromethane formula given in the instruction leaflet, or the blend used in our test and mentioned above, can be used to advantage. Incidentally, we should here mention that the two castor base oils recommended in the manufacturer's leaflet, namely, Castrol R and Shell Super Heavy are *not*, in

fact, suitable for methanol base fuels. We would suggest Castrol M or Pratts or Duckhams Racing Castor-oil, or Castor-oil B.P. obtainable from any chemist.

The Frog 500 has an extended needle-valve control on a flexible connection and, with this, there is no risk of getting one's fingers too close to the propeller. The needle-valve stem is provided with a spring ratchet device and if the spring is properly tensioned, this gives smooth and positive control of mixture strength. The engine responds particularly well to mixture strength adjustment and can be "throttled down" satisfactorily by enriching the mixture to produce "four-stroking."

The performance of the engine on test is indicated by the accompanying performance graph giving torque/b.m.e.p. and b.h.p. curves. The maximum output of approximately 0.40 b.h.p. obtained with a 2-nitropropane content fuel developed for stunt work, is, of course, a very good figure. Similarly, the performance at 7,000/8,000 r.p.m. where 0.27/0.30 b.h.p. is available, is very useful for installations calling for larger propellers and lower shaft speeds, such as R/C models. This, of course, is due to the useful torque figure which reaches

a maximum value equivalent to a b.m.e.p. of 52 lb./sq. in.

To summarise, the Frog 500 is a robust, hard wearing unit, easy to handle and of good performance. It represents exceptional value in the larger engine groups.

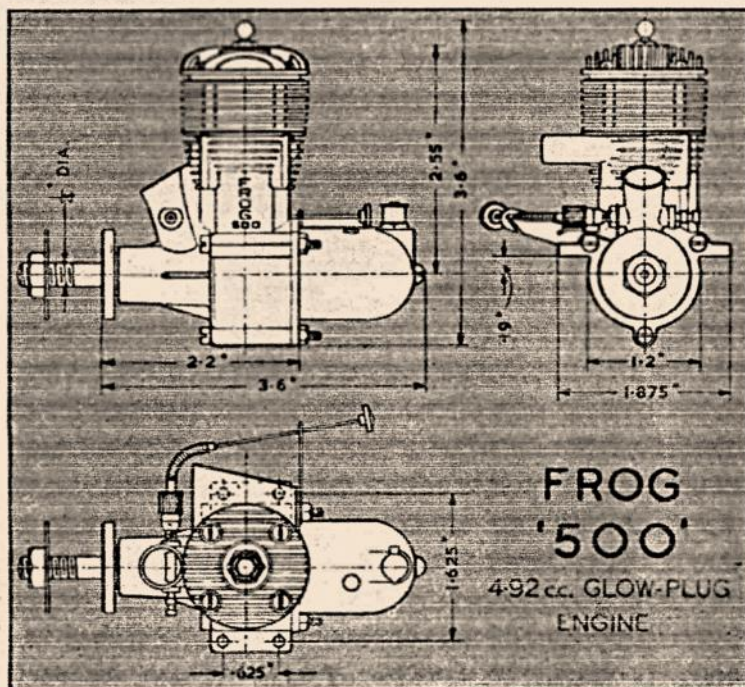
Power/weight ratio (as tested): 0.82 b.h.p./lb.

Specific output (as tested): 81 b.h.p./litre.

Engine Materials—4

Deep Drawing. A process, allied to the drawing of seamless tubes, sometimes used in the production of aluminium fuel tanks, also engine cowings, from light gauge aluminium sheet, as an alternative to spinning.

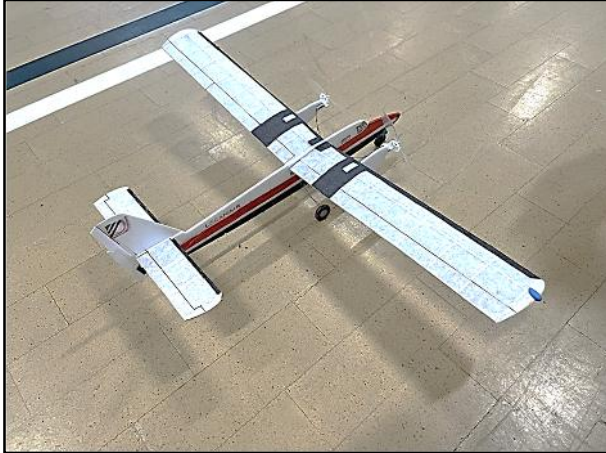
Die Casting. Light alloy diecasting is widely used in the production of crankcases, also cover plates, bearing housings, cylinder heads and, occasionally, light alloy pistons, connecting-rods and cylinder barrels. The low cost of the modern mass produced model engine can be largely attributed to this method of production, by which components can be turned out quickly and require a minimum of machining and finishing. Specifications may refer to gravity diecasting, pressure diecasting, or permanent mould casting. Gravity and pressure casting are distinctly different processes. Permanent-mould is American usage and refers to gravity diecasting. Gravity diecasting consists, essentially, of casting low melting point alloys in metal dies instead of sand, the dies usually being of iron or steel and, of course, re-usable. In pressure casting, the molten metal is injected into the mould under pressure. The latter process produces intricate castings more accurately and with better surface finishes than gravity casting, but is less favourably regarded structurally due to a tendency towards porosity in the finished product.



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Trinity Indoor 13th September 2025

I was hoping to write a report this month on the Odiham meeting that was scheduled to take place on the 14th September. However, the weather gods did not smile and the powers-that-be wisely decided to cancel. However, the day before was a regular Trinity Indoor date.



Peter Smart's profile two channel Twin Otter



Henson and Stringfellow Aerial Steam Carriage

Peter Smart has been experimenting with very lightweight RC systems from Minimum RC, which use tiny electromagnetic actuators for the control surfaces.

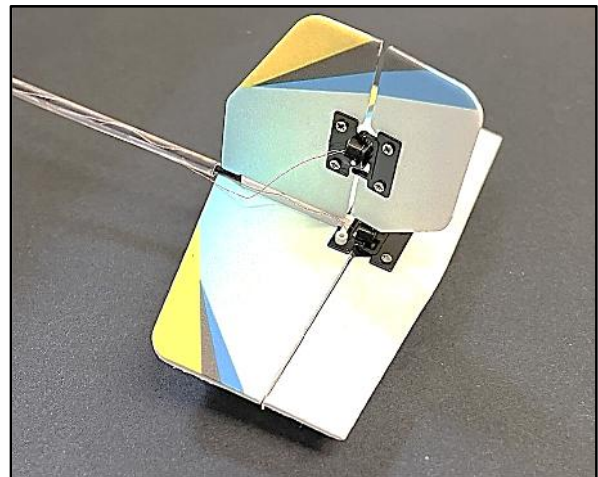
He has built a pair of twins, a profile Twin Otter and a Henson and Stringfellow Ariel from the 1840s.

The original Henson was to have been steam powered, and, of course, never flew, but is the subject of a detailed patent of 1842.

Peter's model, using only throttle and rudder control, is far more successful, but requires some development so that it can be recovered from a tight turn. There was more than one occasion when it was turning tightly one way, with full opposite rudder to no effect. The rudder is just behind the wing at the end of the fuselage pod. It appears to need either more dihedral, or a rudder further aft, or a combination of the two.



HuangFeng 220 three channel RC model of 220mm wingspan.



HF220 tail showing control surfaces and electromagnetic actuators.

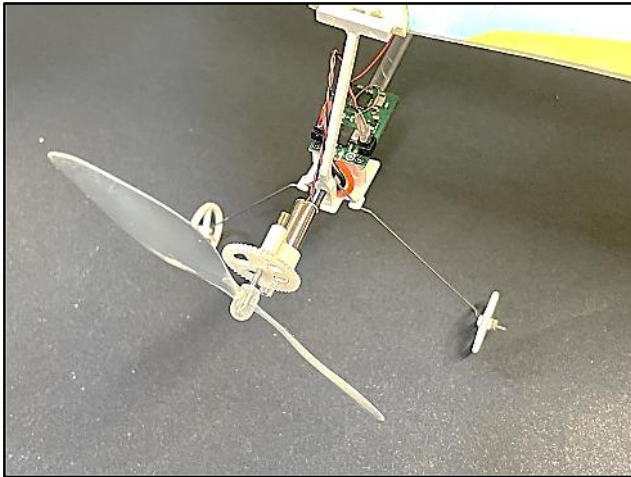
The receiver, motors and actuators of Peter's models are as used in the Chinese produced Huangfeng 220 kit.

The coreless 4x12 motor drives a 75mm diameter propeller through gears.

This amazing three channel model of 220mm wingspan weighs just 5.8g without the battery. With a 50mAh battery of 1.8g it is quite capable of indoor sorties of well over five minutes.

A little internet research shows that HuangFeng can be translated as 'Yellow Wind'.

I also discovered that there is also a Chinese class of navy missile boats called HuangFeng.



HF220 power system and radio brick.



HF220 with tiny 2.4GHz Tx.

Much of the indoor flying that takes place at Trinity uses traditional rubber power.

At some meetings competitions are organised to further enliven the proceedings.

Coming up next year are, a competition for Bostonian Knights and one for KeilKraft models built to 16" wingspan.



16" wingspan Bostonian Knights of Steve Haines (left) and Peter Brown (right).

Jerry Skrjanc designed the low wing Bostonian Knight as a Micro-X kit for maximum charisma points.

It is a rather boxy model, but can be finished most attractively as can be seen from the two examples produced by Steve Haines and Peter Brown above.

I have not got any further than looking at the plans, which John Whatmore has kindly re-drawn for the benefit of the Trinity Indoor Flyers.



Keil Kraftlets: - John Whatmore's Eaglet (left) and Peter Brown's Pixie (right).

Miniature KeilKraft models to 16" wingspan rules have also made an appearance as can be seen in the fine examples of an Eaglet by John Whatmore and a Pixie by Peter Brown, above.



Gerard Moore's Dornier Libelle with his own design Telco style CO₂ motor.

Gerard Moore can always be trusted to bring several CO₂ powered models along to these meetings.

Among his gems at this meeting was a Dornier Libelle, modified from the Walt Mooney Peanut plans. This is powered by a CO₂ motor of his own design and construction based on the Telco, which, of course, has an eccentric crankshaft bearing. This particular motor has a cylinder bore diameter of 3mm and a displacement of 18mm³ and is ideally suited to a Peanut sized model.

Coming up before Christmas at Trinity are two further competitions for rubber powered models, one for regular Bostonians on 11th October, and the usual Christmas event for KeilKraft Elves on 13th December.

Nick Peppiatt



The **Convair F2Y Sea Dart** is an American seaplane fighter aircraft that rode on twin hydro-skis during take-off and landing. It flew only as a prototype, and never entered mass production. It is the only seaplane to have exceeded the speed of sound.

It was created in the 1950s, to overcome the problems with supersonic planes taking off and landing on aircraft carriers. The program was cancelled after a series of unsatisfactory results and a tragic accident on 4 November 1954, in which test pilot Charles E. Richbourg was killed when the Sea Dart he was piloting disintegrated in mid-air. The four surviving planes were retired in 1957, but some were kept in reserve until 1962.

Development

The Sea Dart began as Convair's entry in a 1948 U.S. Navy contest for a supersonic interceptor aircraft. At the time, there was much skepticism about operating supersonic aircraft from carrier decks. In order to address this

issue, the U.S. Navy ordered many subsonic fighters. The worry had some foundation, since many supersonic designs of the time required long takeoff rolls, had high approach speeds, and were not very stable or easy to control—all factors that were troublesome on a carrier.

Ernest Stout's team at Convair's hydrodynamic research laboratory proposed to put a Delta Dagger on water skis.

Convair's proposal gained an order for two prototypes in late 1951. Twelve production aircraft were ordered before a prototype had even flown. No armament was ever fitted to any Sea Dart built, but the plan was to arm the production aircraft with four 20mm Colt Mk12 cannon and a battery of folding-fin unguided rockets. Four of this order were re-designated as service test vehicles, and an additional eight production aircraft were soon ordered as well.

F2Y Sea Dart



An F2Y Sea Dart with dual-ski configuration

General information

Type	Seaplane fighter
National origin	United States
Manufacturer	Convair
Primary user	United States Navy
Number built	5

History

First flight	14 January 1953
Retired	1957

Design

The aircraft was to be a delta-winged fighter with a watertight hull and twin retractable hydro-skis for take-off and landing. When stationary or moving slowly in the water, the Sea Dart floated with the trailing edge of the wings touching the water. The skis were not extended until the aircraft reached about 10 miles (16 km) per hour during its take-off run.

The required power was supplied by a pair of afterburning Westinghouse XJ46-WE-02 turbojets, fed from intakes mounted high above the wings to avoid ingesting spray. When these engines were not ready for the prototypes, twin Westinghouse J34-WE-32 engines of just over half the power were installed.



Ski configurations

The F2Y demonstrating its position in the water at rest

The prototype was fitted with an experimental single ski, which proved more successful than the twin-ski design of the second service test aircraft. Testing with several other experimental ski configurations continued with the prototype through 1957, after which it was placed into storage.

The US was not the only country to consider the hydroski. The Saunders-Roe company of the United Kingdom, which had already built an experimental flying boat jet fighter, first flying in 1947 the SR.A/1, tendered a design for a ski-equipped fighter, but little came of it.

Submarine carriage

In the 1950s, the US Navy considered the internal arrangements of a submarine aircraft carrier that could carry three of these aircraft. Stored in pressure chambers that would not protrude from the hull, they would be raised by a portside elevator just aft of the sail and set to take off on their own on a smooth sea but catapulted aft in a higher sea. The program only reached the "writing on a napkin" stage, for two problems were not addressed: the hole for the elevator would have seriously weakened the hull and the load of a laden elevator would also be difficult to transmit to the hull structure.

Operational history

The aircraft was built in Convair's San Diego facility at Lindbergh Field and was taken to San Diego Bay for testing in December 1952.^[4] On 14 January 1953, with E. D. "Sam" Shannon at the controls, the aircraft inadvertently made its first short flight during what was supposed to be a fast taxi run; its official maiden flight was on 9 April.

The underpowered engines made the fighter sluggish, and the hydro-skis were not as successful as hoped; they created violent vibration during take-off and landing, despite the shock-absorbing oleo legs they were extended on. Work on the skis and legs improved this situation somewhat, but they were unable to resolve the sluggish performance. The Sea Dart proved incapable of supersonic speed in level flight with the J34 engines; not helping was its pre-area rule shape, which meant higher transonic drag.

The second prototype was cancelled, so the first service test aircraft was built and flown. This was fitted with the J46 engines, which performed below specification. However, speeds in excess of Mach 1 were attained in a shallow dive with this aircraft, making it the only supersonic seaplane to date. On 4 November 1954, Sea Dart BuNo 135762 disintegrated in midair over San Diego Bay during a demonstration for naval officials and the press, killing Convair test pilot Charles E. Richbourg when he inadvertently exceeded the airframe's limitations.

Even before that, the Navy had been losing interest (problems with supersonic fighters on carrier decks having been overcome) and the crash relegated the Sea Dart program to experimental status. All production aircraft were cancelled, though the remaining three service test examples were completed. The two final prototypes never flew.

Redesignation

Despite the fact that the airplane was officially retired and had not flown since 1957, at least one F2Y was still in storage as of 1962. As a result, it was re-designated **YF-7A** under the 1962 United States Tri-Service aircraft designation system.

Operators

United States

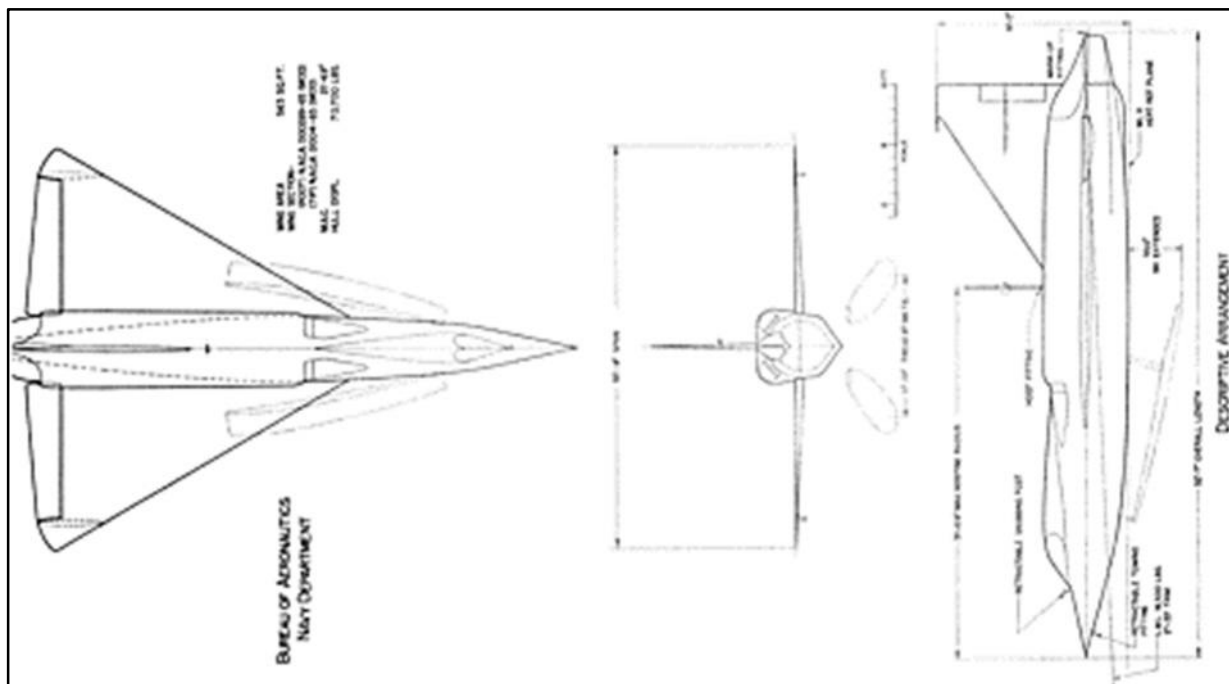
-) United States Navy

Aircraft on display

All four remaining Sea Darts survive to this day.

-) XF2Y-1 Sea Dart, Bureau Number 137634, is in bad shape due to a mistake with a crane and is awaiting restoration for the Smithsonian Institution in Washington D.C.
-) YF2Y-1 Sea Dart, Bureau Number 135763, is on display at the San Diego Air & Space Museum in Balboa Park. It is on loan from the National Museum of Naval Aviation at NAS Pensacola.
-) YF2Y-1 Sea Dart, Bureau Number 135764, is on display at the Wings of Freedom Aviation Museum at NAS Willow Grove, Pennsylvania. It is on loan from the National Museum of Naval Aviation at NAS Pensacola.
-) YF2Y-1 Sea Dart, Bureau Number 135765, is on display at the Florida Air Museum that is part of the Sun 'n Fun complex at Lakeland Linder International Airport, Florida.

Specifications (YF2Y-1 135763)



General characteristics

- J **Crew:** 1
- J **Length:** 51 ft 1.5 in (15.583 m)
- J **Wingspan:** 35 ft 4 in (10.77 m)
- J **Width:** 5 ft 5 in (1.65 m) fuselage / hull beam
- J **Draught (skis retracted):** 40 in (1,000 mm)
- J **Draught (skis extended):** 96.5 in (2,450 mm)
- J **Height:** 16 ft (4.9 m) on 3-point beaching gear
7 ft 5 in (2.26 m) aircraft in horizontal rigging position
- J **Wing area:** 568 sq ft (52.8 m²)
- J **Aspect ratio:** 1.02
- J **Airfoil:** root: NACA 0003.30-65 (mod.) 3% thickness ; tip (station 173.7): NACA 0004-65 (mod.) 4% thickness ; average thickness 3.83%
- J **Empty weight:** 16,725 lb (7,586 kg)
- J **Gross weight:** 24,373 lb (11,055 kg)
- J **Fuel capacity:** 1,000 US gal (830 imp gal; 3,800 L) usable fuel + 6.5 US gal (5.4 imp gal; 25 L) unusable fuel
- J **Powerplant:** 2 × Westinghouse J46-WE-12B afterburning turbojet engines, 4,500 lbf (20 kN) thrust each dry, 6,100 lbf (27 kN) with afterburner^[24]
XF2Y-1 137634 2x Westinghouse J34-WE-32 3,400 lbf (15,000 N) (dry only)

Performance

- J **Maximum speed:** 695 mph (1,118 km/h, 604 kn) at 8,000 ft (2,400 m)
825 mph (717 kn; 1,328 km/h) at 36,000 ft (11,000 m)
- J **Maximum speed:** Mach 1.25
- J **Range:** 513 mi (826 km, 446 nmi)
- J **Rate of climb:** 17,100 ft/min (87 m/s)
- J **Time to altitude:** 35,000 ft (11,000 m) in 1 minute 42 seconds
- J **Wing loading:** 29 lb/sq ft (140 kg/m²)
- J **Thrust/weight:** 0.56 (max. loaded); 0.96 (empty)
- J **Take-off run:** 5,500 ft (1,700 m)
- J **Landing run:** 1,500 ft (460 m)
- J **Take-off time in calm air:** 35 seconds
- J **Landing speed at 20° alpha:** 130 mph (113 kn; 209 km/h) in landing configuration with 10% fuel

Armament

- J **Guns:** 4x fixed forward-firing 20 mm (0.787 in) Colt Mk 12 cannon (production aircraft)
- J **Rockets:** Fin-Folding Aerial Rockets (production aircraft)
- J **Missiles:** 2 × air-to-air missiles (production aircraft)

See also

Related development

- J Convair XF-92
- J F-102 Delta Dagger
- J F-106 Delta Dart

Alternative hobbies

In addition to aeromodelling I REALLY like listening to music. I know almost nothing about it how it is made, or play an instrument. However I have the benefit of a Hi-Fi and a room to use it in.

My son suggests that I could have paid for many years of subscription to a streaming service instead of buying CD and vinyl records. This is true, but such services were not available when I started accruing music in the 1990s. Anyway; where would I get the album art and inlay details from? I like to hold something in my hands.

I enjoy listening to a variety of artists. May I subject you to a list of what I consider to be great albums (and occasionally tracks)?

Deliberately in no particular order:

Tubular Bells, Mike Oldfield - one of the first CDs I ever bought (in 1989 I think), still often played, I never get tired of it, despite what my friends say. Known at 'Tubular Smells' in my family, it is too repetitive they say - pah - so is Beethoven!

Blizzard of Oz, Ozzy Osbourne - Especially Crazy Train. Pity about the death of Randy Rhodes in a light plane incident.

Road Father, Woody Herman - the only album of his I can recommend, brilliant, funky, outstanding. Much of his other stuff is so...type two or type three jazz (Type one = 'hot', type two = 'cool', type three = 'When does the tune start?' - from The Beiderbecke Connection TV series with Barbara Flynn (sigh). I'm a Bix Beiderbecke fan too)

Trespass, Genesis - Okay, I could include many 1970's Genesis albums.

Water from an Ancient Well, Abdullah Ibrahim - Sublime, especially the title track. I saw them play in Bristol once, brilliant (if you avoid Ibrahim's poetry).

Toccata and Fugue in D minor, BWV 565, JS Bach - one to play loud when everyone is out; if your chest does not vibrate with the bass, turn it up!

Fulfillingness' First Finale, Stevie Wonder - Especially 'Heaven is 10 Zillion Light Years Away'. I may wholly disagree with the theological lyrics, but it grooves.

Chris Barber's Jazz Band with Ottilie Patterson, Decca 1964 (a compilation) - I have my father's original vinyl of this. My father is...an arse, but the record is fabulous, one from my childhood.

Children of the World, Stan Getz - Another artist with a brief peak, but what a peak.

Time Out, The Dave Brubeck Quartet - Again, I've the vinyl as well as a CD of this. Out of sight; fantastic piano and double bass...etc.

Brandenburg Gate: Revisited, The Dave Brubeck Quartet - The CD version of this really brings out the music. My vinyl version is paltry.

Equinoxe, Jean Michel Jarre - I became aware of this music in the mid 1980s, a continuation of the multitasking that Mike Oldfield had started with TB. I only regret I did not see him live.

Sloe Gin, Joe Bonamassa - Way to go, he even came to Llandudno once, a good live performer.

Dark Side of the Moon, Pink Floyd - If you only have one album in the whole world...get this.

Tantalizing with the Blues, John Lee Hooker - one of the rare compilations I recommend (1965-71), but the first JLH album I had.

Kayleigh, Marillion - Very much of my coming of age time, the 1980s. They may have been ripping Genesis off, but they are great - especially 'Grendel'.

Deep Purple in Rock, Deep Purple (obviously) - Recorded in Portland Place, London, the street where I sat my professional exams, (the building is now an embassy). I'm an early Purple fan, but this is the best. It must have sounded so radical in 1970 (I was only minus two).

The Musical Version of War of the Worlds, Jeff Wayne - I don't know why, it always strikes a chord.

Led Zeppelin I - 1969, another album from before my birth, but which I discovered as a schoolchild.

Performance - Rockin' the Fillmore, Humble Pie - A youth group leader used to lend me albums to record. I listened to this until (and after) the tape stretched. Their version of 'I walk on Gilded Splinters' is much better than the Dr John original.

A Night at the Opera, Queen - it is very difficult to choose just one Queen album, but I do enjoy 'I'm in Love with My Car'. It was apparently based on a roadie's attachment to a Triumph TR4, I always feel it should have been something more exotic - a de Tomaso Pantera for example.

Ma Kelly's Greasy Spoon, Status Quo - What is not to love about early Quo?

Black Rain, Ozzy Osbourne - In my opinion, Ozzy was a bit of a pratt, but he really pulled out the stops to produce great music in Black Sabbath as well as in his 'solo' albums especially the early and late offerings.

Too Old to Rock and Roll: Too Young to Die, Jethro Tull - again, which of the great JT albums can I choose?

Killing Me Softly, Roberta Flack - The covers of the title track were never close to the original.

Super Trouper, ABBA - surely you have heard this?

Fate for Breakfast: Doubt for Dessert, Art Garfunkel - justifiably excellent music with Paul Simon, this 'solo' album is a peach.

I do not suggest you (or anyone) might share my varied taste in music, my wife and family certainly do not. The list above is only a small selection of my 'collection' or what I have acquired. Much as I hate to admit it, streaming services such as Amazon Prime and Spotify do allow one to dip in to music without having to commit to buying an album (I decry buying tracks; so very Generation Z). I only suggest you might try a few of the albums above - and you might find something you like.

By the way I do have some Cleo Laine albums and a Brenda Lee album (in good condition) from my father that I would be glad to be rid of.

Do apply to members@sam1066.org.

Martin Pike

John Andrews at Grantham & Luffenham

Early in July I received a call from Peter Spalding inviting me to an open day and Bar-B-Q at the Grantham club's farmers fields flying site. Wednesday 14th July and I was on my way, past Barkstone and down some country lanes and a farm track into a flying site similar in layout to Old Warden but somewhat larger. The field is a good trimming site and large enough for rally's of some sort or other.

I settled down near the Bar-b, I don't like to be too far away from food. It was more than a little breezy but I was there so I was going to fly. Before I assembled any models I visited the ever present John Hook and, after buying a fuel bottle, I finally remembered to get myself some thinners. I came away with a whiskey bottle full, some guys must have thought I was still on the meths.

I assembled my Stomper and prepared for a short trim flight. I had decided to attempt to straighten out the climb a bit and had fitted a couple of thin washers under the engine lugs to give a little left side thrust. I fired up the motor and launched with about a 4 second engine run. I had straightened out the climb alright, straight up into the wind and over the top. The motor cut when the model was upside down, but the model had just started to roll and I watched with ever tightening cheeks of my bottom as the descent and the roll carried on. Thankfully the roll just beat the descent and the Stomper was almost level when terra-firma arrived, no harm done apart from my blood pressure.

That was enough of that for me, out with the spanners, out with the washers and back to factory settings with the thrust-line. Next attempt, back to normal on the climb but the glide was all over the place and Stomper appeared to be pushed into the floor by some giant hand. The penny dropped, the field was bounded on the upwind side by a huge stand of trees and the very strong wind was boiling over the top creating phenomenal turbulence way down the field.

Stomper was back in the box in short order whilst still in one piece and I thought I would try my rubber model 36-4 which was supposed to be for windy weather. I put quite a few turns on to give enough power to clear the turbulence but not enough. Up goes 36-4, whips round the corner, wallows all over the place and is finally pushed into the ground. John boy does not give up though, more turns try again, same result only higher to start with. Still stubborn, I try even more turns, even higher but same result. This time the prop folded but, with no sign of a glide, 36-4 was pushed into the ground yet again. The balsa and bamboo cabane wing mount did not survive this time and most of it was removed by a wing down arrival on terra firma.

I gave it best and sat in the boot of the estate and cynoed all the bits back together, then off to the bar-b-q. Great stuff, we even had a posh glass of wine to wash it all down, that's what aeromodelling should be like thinks I.

About now I noticed numerous chaps wandering about with Gaz Lanterns and packs of Gaz cylinders, it transpires that Rod Brigginshaw was

emptying out some closed down factory's abandoned stock. I missed the boat as usual. Rod made a couple of attempts to fly his large open electric, but although he went off well down wind to launch, he still was hooked up with the turbulence and any thoughts of trimming soon vanished and he, Bert Whitehead and myself slipped into conversation mode. We moaned about the weather men's mistaken prediction of dropping winds later in the day. As it was about 4 o'clock by this time and Rod had to go back down the A1 to London whilst I had to tangle with the A14, we both would hit the rush hour traffic so we decide to carry on chatting until the roads cleared a bit. What the three of us found to talk about for the best part of the next three hours I still don't remember but all of a sudden about 7 o'clock the wind died and it went dead still. We had an hour of superb trimming conditions and I found I needed 1/16th packing under the tail to get 36-4 to glide again, no wonder it would not climb in the earlier wind. Finally, those of us who had hung on had a good time although we had had to wait until the death. John Hook was still there, flying one of his folding wing catapult gliders, John's gliders are available to all at about £2 a pop, at least they were when I bought my bundle for the grand children a couple of years ago.



John Wingate winds his ITZME III Wakefield for his one and only flight at Luffenham

My next three outings were to the delightful bomb site by the name of North Luffenham, the home of cratered runways and waist high grasses that not only hide models but modellers as well. I was returning through the jungle after one check flight when I came across a clearing of beaten down grass containing non other than Ray Monks.

My next door neighbour, the Coup flyer, had been making his competition flights and was picking lift quite well using the two streamers. I had been taking quite an interest in them myself and felt that even I might be able to pick a bit of good air, all I had to do was not launch if the streamers were down.

I have always used 30 grams of rubber in my Hep-Cat, made up using 10 strands of 3/16th. I put about 900 turns on these motors as a normal run of the mill wind and 950 if I am pushing it. These motors give me a near vertical climb for the first 50 feet or so at a fair old rate of knots, that's the way I like it. The only draw back to this power approach seems to be that my model is quite sensitive to side thrust adjustment. The thickness of a business card of side thrust will make the Hep-Cat spin round in two flat circles before climbing away, particularly if I launch a little flat out of wind.

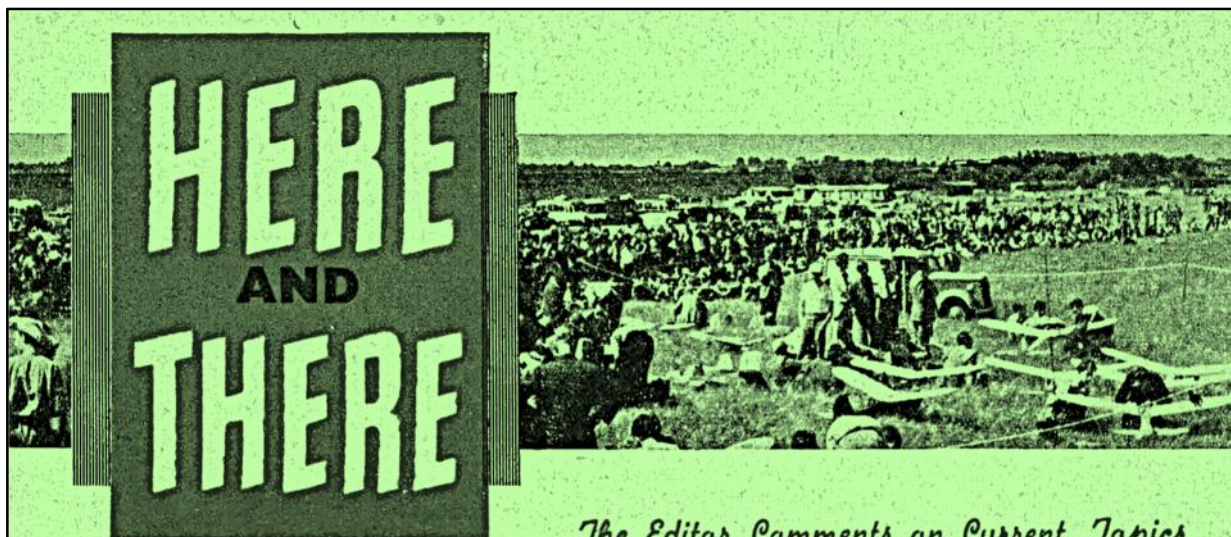


Author's ageing Hep-Cat

Where was I, back to the comp. The maximum for the day was 2-30 and when I wound up for the first flight the motor seemed to go a little tight at about 850 turns so I left it at that. With my newly found confidence in somebody's streamer, I waited. The mylar rose level with the top of the pole and I put the Hep-Cat straight up in a boomer. The model was still rising when it D/T'd, John boy was on a roll. Recovery from the edge of the field was no problem, apart from the complaints from my somewhat elderly knees. I then proceeded to repeat the exercise twice, I was in the fly-off.

The fly-off was not so good, 4 minutes or so, but I was there. I'll be back next time with my 3 day exploits at the 2004 B.M.F.A. Nationals.

John Andrews, Clarion 2004



The Editor Comments on Current Topics

THE S.M.A.E. ANNUAL DINNER

Following the scheme which has been adopted by the S.M.A.E. for some years past, the annual dinner and prize-giving will be held on the evening preceeding the annual general meeting, namely, November 4th, 1950, so keep this date open and apply for your tickets early, as the number available are limited.

This year the dinner will be held at the Normandie Hotel, Knightsbridge, London, S.W.7, and the price of the tickets will be 15s. per head. This is less than the actual cost of the function but the society is meeting the difference from general funds, in order not to render the evening prohibitively expensive for those who attend.

The prizes won during the year will, of course, be presented to the winners as usual, and a dance has been arranged to wind up the evening's entertainment. The speeches will be kept to a minimum, and will be very short.

Application for tickets should be made without delay to:—H. W. Barker, 14, Mayfair Avenue, Lincoln.

Needless to say, the applications must be accompanied by the necessary cheque or postal order.

TEAM RACING

Having witnessed several of the leading team racing events of the season and listened to the reactions of the onlookers we have come to the conclusion that this type of contest has definitely come to stay.

It induces a spirit of eager endeavour and excitement amongst the participants and as a spectacle it is far more interesting than the monotonous circuiting of the pure speed model and the almost equally monotonous repetition of the flight pattern schedule of the aerobatic event.

In team racing the unexpected happens and co-ordination between the members of the team is of high importance. General organisation and a good refuelling technique are, of course, important, but

easy engine starting is of primary importance so that engine handling technique is being rapidly improved.

With teams of three or four operating in the circle together interest for the spectators is at a high level and we can visualise that many who have condemned control-line flying as a nuisance will find enjoyment in team racing when they have been introduced to it.

It has, of course, the further advantage that it can be held in a large hall as it does not need the same height as stunting. This was found useful at the recent Southern Counties Rally at Thorney Island when, owing to the gale conditions prevailing, the team racing event was held in the blitzed roofless hangar with complete success.

L.S.A.R.A. REPORTS

After an enforced silence the L.S.A.R.A. have been able to issue a formidable pile of reports covering a number of subjects of interest to aeromodellers of all tastes. We mention this in case anyone was under the impression that this useful body was inactive. Experiments take both time and money and a liberal amount of both is required for successful investigation of our problems. Unfortunately the L.S.A.R.A., like all other model aeronautical institutions, are short of both and are thus greatly handicapped.

The reports issued range from the performance of a torque bar, to two channel proportional radio control for model aircraft and they are a useful contribution to our knowledge of model behaviour.

The largest report of the release is that on the performance of model propellers for power driven models which covers no less than 38 pages including the diagrams and graphs. The co-authors are P. R. Payne and N. K. Walker, who need no introduction, and they throw some interesting light on this aspect of model design. This is report No. 40.

P. R. Payne contributes a solo effort of four pages under Technical Note No. 4 on the estimation of pitch and activity factor which should save the aeromodeller some time and headaches.

November 1950

MODEL AIRCRAFT

Report No. 38 of ten pages deals with the Theory and Performance of Torque Bars and paves the way to accurate determination of the power of engines in a simple manner which should help in settling many arguments concerning the performance of different engines beyond question. This is a joint contribution by P. R. Payne, N. K. Walker and F. E. Deudney.

Report No. 43 by S. B. Pfeiffer and F. Youngren deals with the results of some glide tests with model aerofoils which adds some useful data to our all too meagre store of knowledge on this complicated subject. It is largely tabular and occupies eight pages.

Some comparative tests of Dunlop and T-56 rubber form the subject of report No. 41, the author being H. R. Jex.

Notes on a simple two channel proportional control transmitter constitute report No. 39, and this should be of intense interest to radio-control fans.

There is no doubt that the "full on" and "full off" relay system, at present in general use, leaves a lot to be desired and that proportional control must be our ultimate goal. When this is fully developed we shall be able to control our models with a miniature joy-stick in precisely the same way as a full-sized aircraft.

We commend a study of these reports for all who are interested in knowing the "why and wherefore" of model performance, and in keeping pace with the latest knowledge on the subject.

THE MODEL AIRCRAFT OLYMPICS PROPOSAL

At a recent S.M.A.E. Council meeting it was suggested that it is time to request the F.A.I. to inaugurate a Model Aeroplane Olympics or World Championship meeting where the four championship contests proposed at the last meeting held by the F.A.I., in Stockholm, can be held.

The main idea behind this is to avoid excessive travelling time and expense, and while the idea has some good points it also has some difficult aspects which must be taken into consideration, not the least of which is finance.

If this scheme is brought into operation who is going to finance it? If the F.A.I. are expected to do so, it will undoubtedly require an additional and substantial fee from each of the National Aero Clubs. On the other hand, if the National Aero Clubs are to meet the cost when the Olympic is held in their country, then the number of nations likely to hold the event will be very small and the basic idea of the event travelling round the world will be defeated.

Then again, the question of housing the competitors becomes a major problem, particularly when one remembers the ninety or so competitors which had to be accommodated for the Wakefield at Cranfield. The number of places which would be found to house two to three times this number are extremely few, and since four contests instead of one will be involved, this number can quite well be expected.

It is also questionable if the scheme is conducive towards the greatest amount of international flying for the largest number of competitors, because the nations far away from the scene of the Olympics will in all probability be unable to send a team, or teams, in view of the travelling time and cost involved. Thus, some of the nations will not be able to take part in the World Championships for several years at a time if the Olympics are staged in a country remote from their own, for a number of years in succession.

On the other hand, by running the four World Championships separately, as suggested by the F.A.I., they can be more evenly spread over the map each year and the majority of countries will be able to attend at least one world championship event each year if not more. The cost of running the events will also be spread and this is an important matter under present day conditions.

There is yet another very important aspect to be taken into account and that is the possible effect on prestige of a well established international contest like the Wakefield Trophy event, for instance, if it was inter-mixed with several others—even though they may be for a different class of model. Would this grouping of contests increase these contests' individual popularity? We think not! We would go further and state emphatically that we are dead against any scheme to run the Wakefield in conjunction with other contests. Over the past twenty-two years this event has gained world-wide recognition as the premier international model aircraft contest and we must see that it retains this proud position.

Certainly this "Olympics" proposal demands very careful consideration before the S.M.A.E. Council finally decides to submit it to the 1951 F.A.I. Conference.

INSURANCE, AN IMPORTANT POINT

We still hear from time to time of model aeroplane fliers who are sufficiently foolish to admit to an injured party that they are insured. In some cases they have even stated that the damage will be covered by their insurance.

Now it is the very first principle of insurance that *under no circumstances must you convey to anyone making a claim against you, or proposing to make a claim, that you are covered by insurance*, statements of this nature are entirely prejudicial to your case and may cause the insurance company to repudiate their liability.

You must never admit or give the slightest indication that you are covered by insurance. Give the person making the complaint your name and address, expressing due regret for any damage or injury you may have caused, and *wait until you receive a claim from them*, then send it immediately to the insurance company with a complete statement of the occurrence and the damage involved.

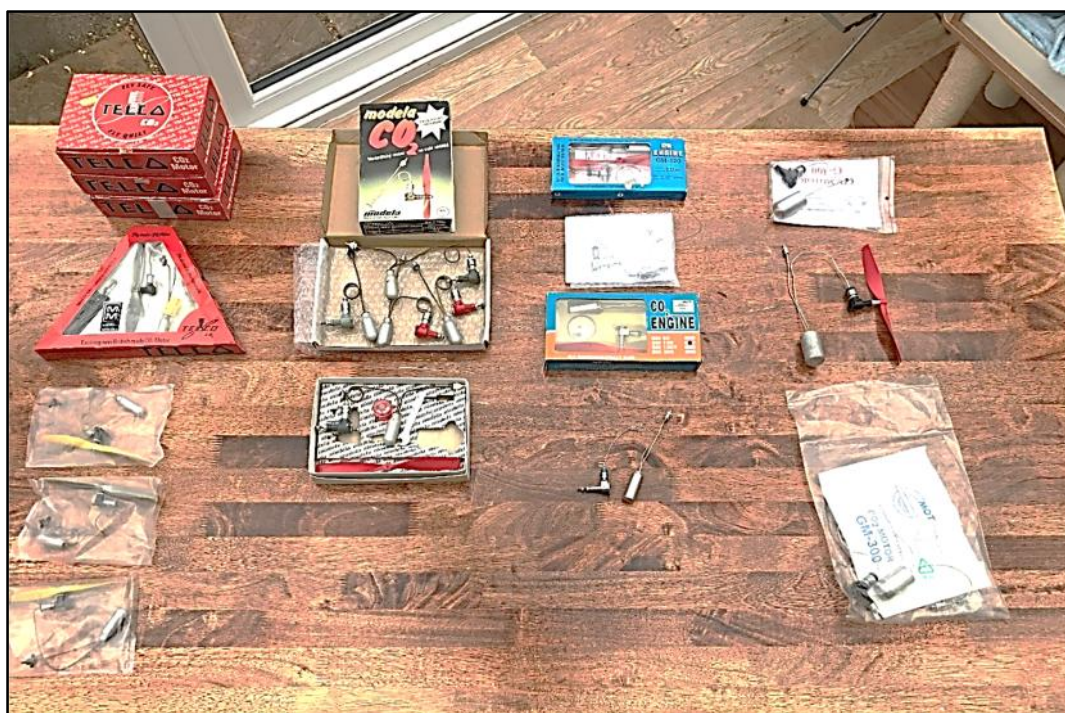
Do not, on any account, try to handle the matter yourself, and, better still, if you anticipate that a claim will be lodged against you inform your insurance company before the claim is laid against you.

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I'm No Expert

We shall not speak of the recent Curious Incident of the Cardinal in the Tree, except to say that it was retrieved thanks to Dave Etherton's roach pole fitted with Tony Shepherd's ingenious hook attachment. Nor of the Bi-Bi Bye Bye episode, when I idiotically decided to trim my latest build (see NC 0625) on a hot windless day before fitting a d/t, with entirely predictable results. Instead, I'll return to my interest in CO2 motors

When Storm Amy was forecast, I decided to use a wet and windy weekend as an opportunity to get ahead for the winter. I have a few CO2 projects in the build / conversion queue, so this seemed a good opportunity to dig out and test my stock of motors. I was vaguely aware that I had a "few" spare and that some did not run quite as they should. So Step 1 was an inventory check, which produced the rather embarrassing display shown.



Where did they all come from? From left to right: Telcos, Modelas, GM 120s and GM 300s.

Turning first to the 7 (!) spare Telcos, the key source is Gareth Evans' "Telco Tutorial" article, published in the June 2019 *Aeromodeller* and available as a free resource on the excellent Facebook Group "CO2 Motors for Model Aeroplanes". Telcos are ideal for indoor and small outdoor models but have a reputation for being temperamental. The good news is that:

- (1) they are plentiful and therefore cheap,
- (2) nearly all the parts required for refurbishment are readily available and
- (3) once sorted they can run astonishingly well. My best Telcos will run for a minute, with a run of 30 seconds being easily achievable.

Start by checking for leaks. This is easily done by charging the motor then immersing the filler nozzle, tank and (if you must) motor in turn in a bowl of water. In addition, hold the piston at top dead centre: if gas is escaping past the piston then there's your problem.

Working through my stock, the usual issues presented themselves. Firstly, leaky filling nozzles. This probably accounts for 80% of problems encountered. There should be either a 3/32" steel ball or a short slug of rubber inside the nozzle.

I tend to standardise on balls as the slugs can harden and lose their sealing properties with age, but I have at least one motor in which the slug seems to seal better than a ball.

In addition, almost certainly the nitrile o-ring will have hardened. A 3 x 1.0mm replacement (where the first number represents the internal diameter and the second represents the ring thickness) will help, but even then the screw thread is often leaky. A length of PTFE tape cut to width sorts this. Some say that PTFE tape alone will replace the o-ring, but I prefer to do both.

If there is still a leak, the 1mm OD copper tube will need to be re-soldered. So strip off the o-ring and/or PTFE tape, use a wooden clothes peg as a vice and use de-soldering wick to remove the old solder (very satisfying). Once free (patience will be required), clean up the pipe and fitting with fine steel wool and re-solder. It's a racing certainty that the new solder will wick down through the fitting and block the end of the pipe, so insert a length of steel wire (20 SWG does the job) while soldering to prevent this problem.

At this point you are probably sorted. If a leak reveals itself at the tank (very rare in my experience), the o-ring (4.1 x 1.6mm this time) / PTFE / re-solder sequence will again be required. Or you might need to attend to the cylinder head (another 3/32" ball, and this time a 3 x 1.2mm o-ring. The challenge lies in separating the head from the barrel, since they will almost inevitably unscrew as a unit from the crankcase. When this happens, a length of 14SWG wire through the cylinder ports serves as a tommy bar while unscrewing the head.

If it still won't go, things get trickier. The cylinder head ball seat may be damaged or the piston lip may be allowing gas past, and neither component has been available new for decades. Gareth Evans describes fixes for both eventualities, but I tend to dive into my spares box for stripped-down non-runners (usually old Turbotank units). The plastic crankcase often develops a split above the backplate and this rarely has any effect on performance, but after my last renovation the motor still would not run. So back to the spares box for a rare un-split crankcase, and all was fine.

All 7 Telcos now run well. The next step is to replace the pipework on a couple of more heavily used motors, which is not something I've yet been brave enough to attempt. Perhaps my efforts will feature in a future article.

Turning next to the 5 Modelas, these are mostly similar to Telcos and with similar fixes required. I have converted all but one of mine to accept the later piston, which seals against the cylinder wall using an o-ring rather than a lip. Converted motors (or later production examples) can be identified by the smaller cylinder ports and are almost comparable in performance to the slightly larger capacity Gasparin G-300. They remain a bit more agricultural than Gasparins, and adjusting revs requires an awareness that the cylinder head feed pipe does not swivel freely as does the Gasparin.

With Gasparins, I find that replacing one or more o-rings usually solves any problem. This time it's 3 x 1.0mm for the tank, and a very fiddly 2.2 x 0.9mm for the filler (beware as modern fillers are smaller than their older counterparts). One additional problem occurs where the pipe exits from the filler nozzle or tank. Two issues work against replacing pipes here: Gasparin pipes are stainless steel (so forget soldering), also the pipe ends inside the fittings are flanged (my DIY skills don't extend to replicating this). An inelegant, but generally successful, fix is to seal the existing pipe with a dab of epoxy as it exits the fitting. I find this is usually needed on the filler nozzle, more rarely on the tank and never in my experience at the cylinder head. This is just as well, as it wouldn't then swivel when adjusting revs. The giveaways for this (apart from a leak test) are that the pipe rotates in the nozzle and/or the small epoxy fillet from initial manufacture slides up and down the pipe.

The great benefit of Gasparins (apart from their superb performance) is that spare parts and indeed new motors are still available from Jiri Lenka in the Czech Republic.

Check out Jiri's website at

<http://www.old-engine-model.com/en/>

Some buyers have reported difficulties in communicating with Jiri and that orders may take a few weeks to arrive. I understand that, following some bad experiences with non-payment, Jiri now makes sure that payment from a new customer arrives and is verified by his bank before he ships the goods. Once he recognises a repeat customer's details, things move much more swiftly. I have to say this fits my experience and repeat orders (eg for Sodastream adapters) now usually arrive in a few days.

The bottom line is that, thanks to Storm Amy, I now have a full count of properly-functioning CO2 motors. I suppose I'd better get building.

Paul Lovejoy

Readers' Comments

-

Bill Dennis, Gordon Hannah

Editor: readers' comments on the model box & Swordfish items in last issue.

Bill Dennis:

Hi John

I was amused by the Dave Posner Model Box. Perhaps it was a thing then.

I remember in the early 1960s Ted Prince had:

"For Christ' sake don't sit on this box"

Regards

Bill Dennis

Gordon Hannah: via Martin Pike.

Hi Martin,

Another splendid Clarion

The article on the Fairey Swordfish produced a memory which your readers may like to share.

Some years ago (about 15) I was in charge of hosting a group of visitors from Kiel in Germany.

These were quite senior people and included an admiral - one Otto Ciliax.

They were from a Rotary club in Kiel and were responding to an invitation from my club in Cambridge. Clearly, a 'must do' on their visit was to go to Duxford.

Whilst walking round we had paused by the Swordfish and beside me was an old friend Jack Barton, who flew in Swordfishes in the war and whose squadron was the unfortunate group involved in the attempt to stop the three German battleships doing the 'Channel Dash' from Brittany to the North Sea.

Jack was very lucky not to be selected to participate. (you are probably aware that the three battleships got through and in the process shot down all 9 of the attacking Swordfishes).

Anyway I quietly mentioned to Otto that Jack flew in Swordfishes.

Otto responded by saying he must talk to Jack, thereupon he introduced himself by saying,

"My father was the captain of the Scharnhorst !".

Needless to say they got on like a house on fire!

Just a snippet

Best wishes

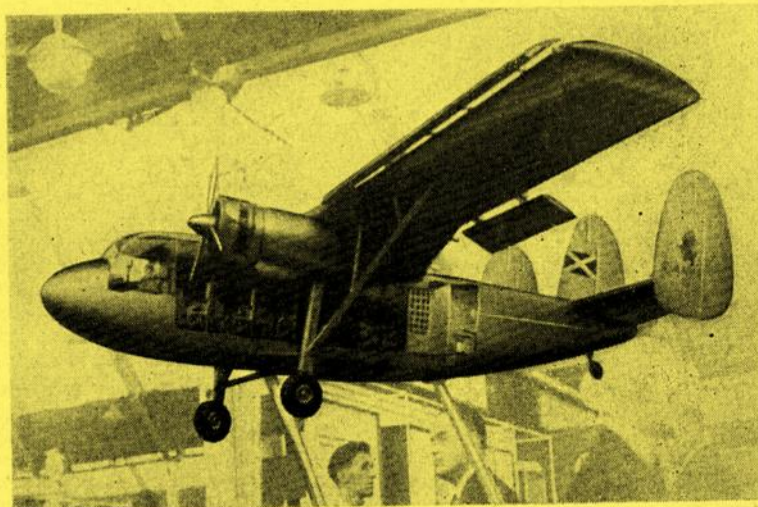
Gordon Hannah

AERO
MODELLER

574

November, 1955

Heard at the HANGAR DOORS



Farnborough—'55

THIS YEAR'S annual display organised by the Society of British Aircraft Constructors at Farnborough was, as ever, abounding with aeronautical interest. The needle-nosed Fairey F.D.2 research delta, appealed to us with its near flatplate wing and almost undetectable fin/rudder joint. The aerobatics of Zurkowski in the Avro Canada CF.100 defied description, and the Olympus Canberra displayed a vertical climb that would be the envy of all power modellers. Most of all, we were impressed by the effectiveness of slots and flaps as fitted to the Scottish Aviation Ltd., Twin-Pioneer. The way this 16-seater passenger transport left the ground in 80 yards and landed back in much the same distance, was truly marvelous, and we were particularly pleased to find the company's display model exhibited with all slow speed aids "fully out".

As will be seen in the heading photo, this was a particularly fine effort at the semi-transparent form of display model, and it was finished most accurately in the same colours as the real aircraft out on the runway. Made by Westway Models, the Twin-Pioneer tent was one of many used in the vast exhibitors tent to illustrate existing and future products of the various aircraft manufacturers.

We are told that Westway produced 68 special models for this year's display, among them being the magnificent Bristol 171 Helicopter, which was our "Model of the Month" in September issue, and which was probably the finest piece of model-making in the whole show.

Our "Model" Cover

Centre of (photographic) attraction at the recent World Championships were two extremely chic ladies who accompanied the Swedish contingent to Weisbaden. Mrs. Maud Larssen, seen on our cover this month holding one of the Gamen (Norkopping) club entries, was accompanied by a younger compatriot who revelled in the intriguing name of Nono,

and their presence certainly enlivened the scene. To those readers who have been asking for a "model cover" once in a while, here is our answer in double measure!

We recall with amusement the handsome and ardent young aeromodeler who shadowed Miss Nono diligently, presumably with the earnest intention of making her change her mind.

Official debatings

The following items of interest are culled from recent meetings of the S.M.A.E., and should be carefully noted, particularly by contest men.

- (a) *S.M.A.E. Rule Book page 8, Rule 30(b)* — clarified to read, "the model must be capable of standing on three points unassisted in still air; and held when launching in such a manner that its natural position on the ground is in no way affected."
- (b) *Speed Record Claims.*—In future the engine and/or complete model shall be impounded *immediately* after the flight by the *timekeepers*, who shall submit same to the Technical Secretary for check purposes.
- (c) A resolution from the Northern Area that future International Teams be selected from duplicate Trials meetings held in both North and South was defeated by 9 votes to 2.
- (d) It is stressed that the 2.5 c.c. engine limit for F.A.I. events applies *only to World Championship events*, of which there are at present only two, the annual Free-flight and Speed Championships. Radio control enthusiasts who have had qualms on this point may rest assured that the limit does not apply to them.

Where's that Tiger?

The overwhelming superiority of the British Oliver Tiger engine was amply demonstrated at the 1955 Championships, a very large number of competitors using this popular make. In fact, two of the

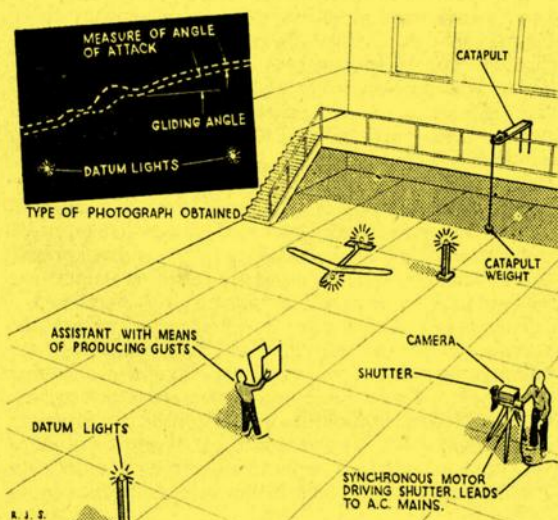
top three men employed Tigers, and it is interesting to record that before they left for home, the entire American contingent had put in orders for the Championship winner. We hope that this firm lead over the Torp 15, which swept the board in 1953/4, will be further consolidated in other events, and congratulate John Oliver on the excellence of his hand-made products which has brought such prestige to Great Britain. Those modellers who have yet to place firm orders for this engine need to be even more patient, for we can visualise that the flood of orders resulting from the current success will exercise the Oliver production line to the limit.

Photographing rate of sink

On Page 245 of our May issue, we illustrated a method of measuring glide angle and rate of sink as employed in Germany, by use of small lights on the fuselage and fin of a glider. D. W. Allen, Director of Research for the Low Speed Aerodynamics Association, gives further information on the subject.

The technique has been used very successfully in the United States by Prof. Auguste Raspet of State College, Miss., and consists of photographing the model from the flank with a camera having a rotating shutter in front of its lens. In addition to the two lights on the model, there are two fixed lights forming a base line and providing the scale. The arrangements is as shown in the sketch below. From the resulting photograph and a knowledge of the shutter speed, it is possible to obtain measures of the forward speed, rate of sink, gliding angle and angle of attack of the model, also, if the model is disturbed by an artificially produced gust (an assistant clapping two large sheets of card together for instance) it is possible to measure the frequency and damping of the resulting weathercock oscillation.

L.S.A.R.A. will be interested in hearing from anyone considering developing this testing method. Little equipment is required, the main drawback being the need for a large hall.



**Watch
for
this
Colour
Cover**



Aeromodeller Christmas Issue

This annual feast of succulent model material is recognisable as always by a full colour cover by modelling artist C. Rupert Moore, A.R.C.A. We believe it is one of his most outstanding paintings, showing that wonderful old aeroplane the Hannibal coming in for a landing at Croydon airport in the early 'thirties. The Hannibal also features within the book as a flying scale model, both free flight and control line! (anyone lend me a motor?). Other designs include "Duckfoot" the nifty little amphibian that won this year's Bowden Trophy, and "Monsieur Valentin" a flying scale model of the famous French Birdman. You will never guess who designed the latter? Or will you! It could be nobody else other than Ray Malmstrom.

Two free plans size 23 x 36 are included with every copy, and this year we feature power models. Firstly, a flying scale model of that delightful ultra lightplane the Turbulent. This for .5 c.c. to .8 c.c. diesels, cooked up by our Assistant Editor Ron Moulton. Secondly, we have a typical Vic Smeed Sport Power model with very pleasing lines, and consequently known as "Mam'selle". They are both top rate performers, and will, we are sure, provide thousands of readers with many happy flying hours.

Other features include G.A. drawings of the free flight World Championship models, including full descriptions of both models and their fliers. There is also an interesting report of the East European Championships, again with G.A. drawings. Humour and even fiction are catered for by first class articles, and the popular regular features such as "Gadget Review", "World News", "Especially for the Beginner", etc., are there for your enjoyment.

Full scale fans will find a 1/36th scale drawing of the Turbulent and 1/72nd scale drawings of the sensational Fairey Delta with descriptions by George Cull and John Enoch to match.

All in all we reckon to give our readers one of the finest "two and sixpence worth" yet.

A DIY SERVO TESTER - COSTING LESS THAN £2 FOR PARTS

Space Engineers, Don Mathes and Doug Spreng, over 50 years ago, developed a unique electric motor Servo.

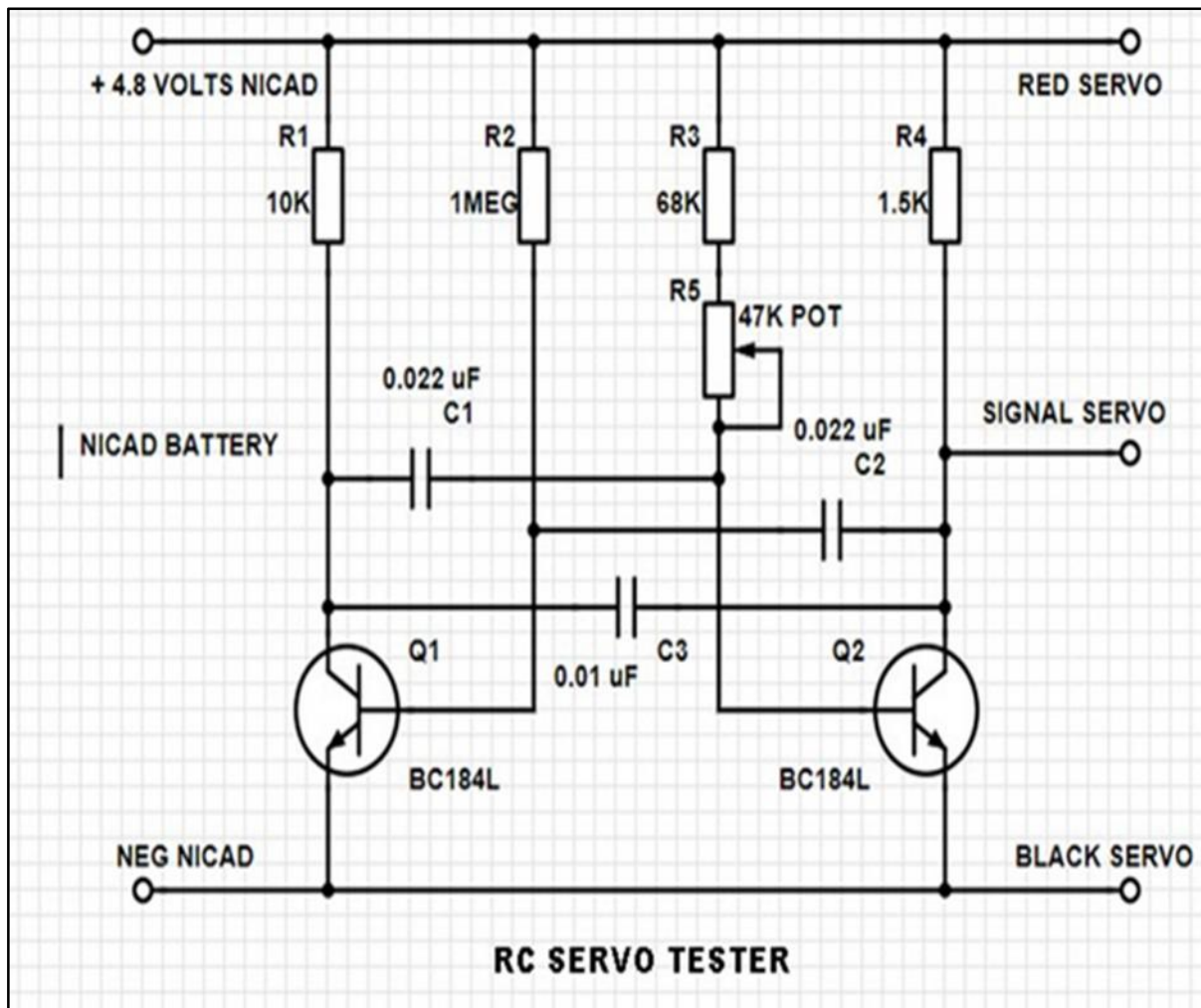
The output arm followed perfectly the width of repetitive input Pulse.

This was a historic invention by these two Guys. The servos that we are all still using with our new 2.4MHz Systems still work in the same way.

THE FOLLOWING CIRCUIT PRODUCES REPETITIVE INPUT PULSES that can be proportionally varied in width via a control knob to drive any RC servo clockwise and anti-clockwise to test smoothness of operation and any dithering or dead spots.

Any RC battery pack can be plugged-in on the left hand input of the circuit and the servo to be tested plugged-in to the right hand of the circuit.

A practical layout is shown later using standard battery and servo type [plugs](#).

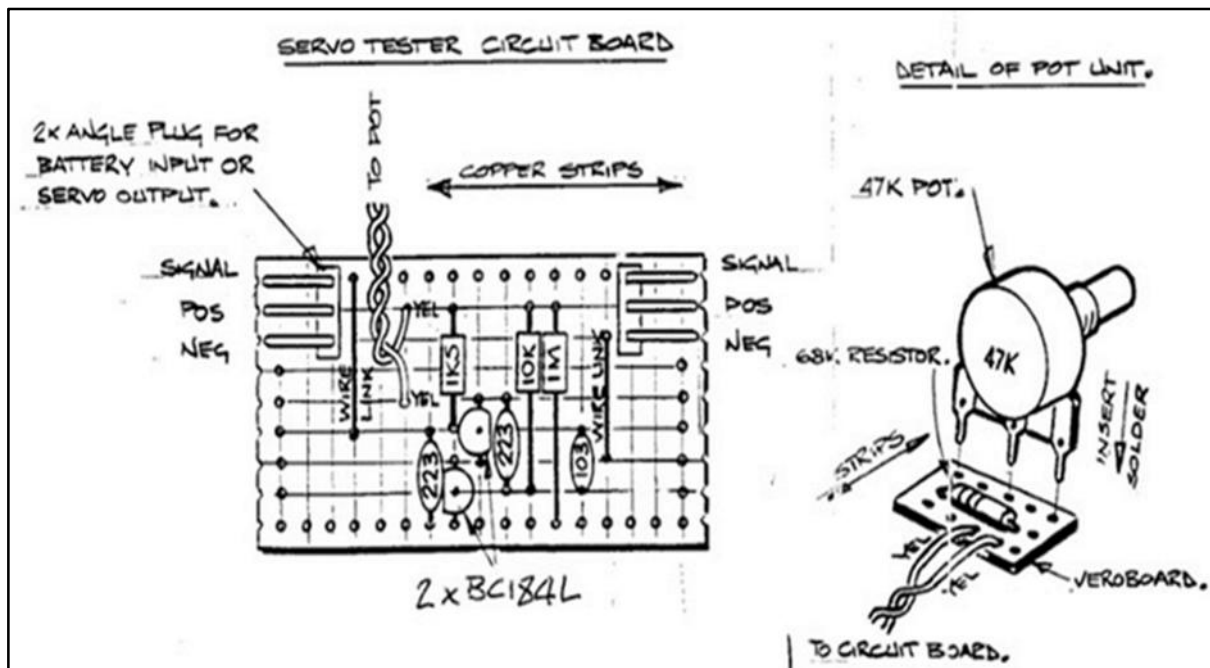


The circuit is a text book transistor Multivibrator using two transistors Q1 and Q2 cycling at around 60 cycles per second. The 47K variable resistor (R5) proportionally adjusts the output pulse width between 1 millisecond to 2 millisecond wide. This is the required standard for RC servos to go from one side to the other.

C3 is an extra component which slows down the circuit. This allows it to be happy with higher current servos which snatch at the battery supply and trigger the circuits timing.

If substituting the transistors pick high gain types (250+) at low milliamps.

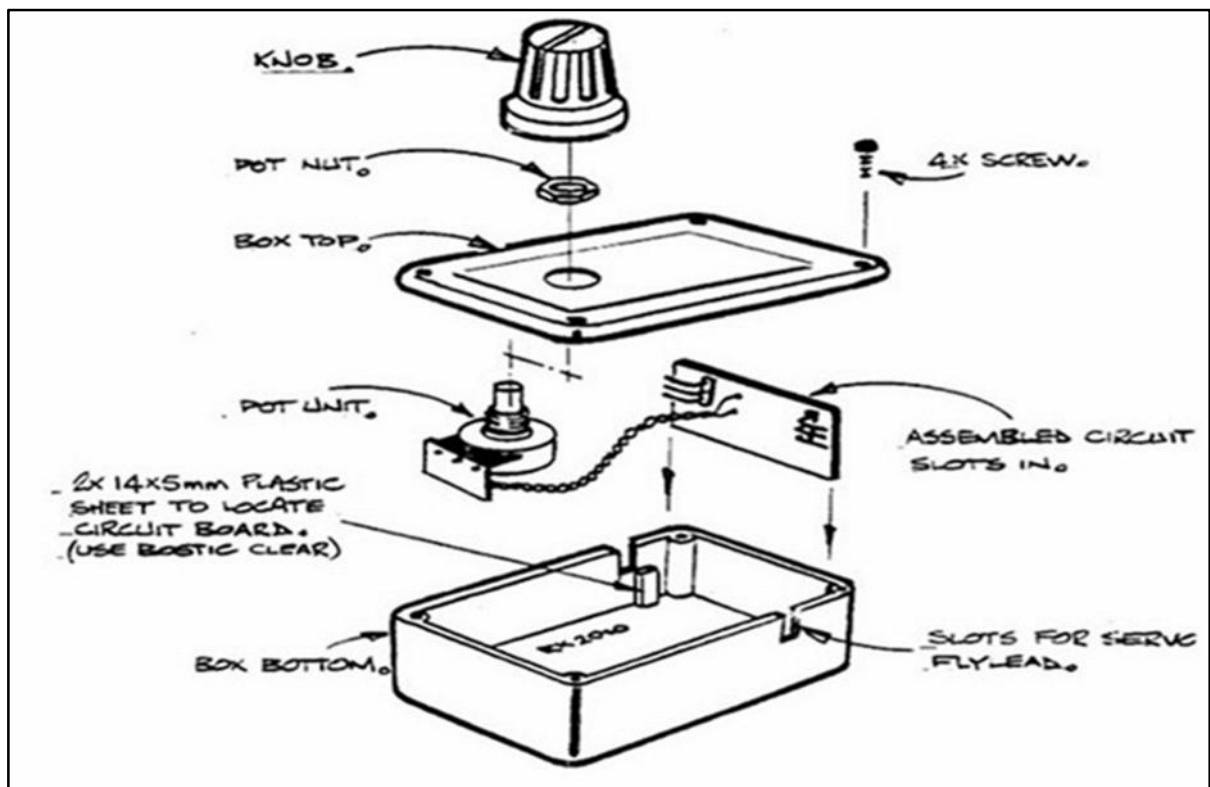
The circuit is shown above which can be assembled on Veroboard. The LT Spice trace shows the circuit producing the positive going servo pulses at around 60 per second. The trace shows both minimum and maximum pulse width superimposed. The 47K control pot provides smooth variation of the servo between these two positions.



Possible circuit layout using Veroboard. (the pot could be included on the main board?)

Notes- With the layout above, the battery can be plugged in to either of the angled plugs and the servo into the remaining plug.

Do not use flux or chemicals on the veroboard. (it will change the timings of the circuit). Use only electronic cored solder.



Assembly in S.L.M box.

Occasional Notes from North Wales: Nov 2025

Whilst thinking about what to provide as a contribution this month in response to an anguished appeal from our Hon Editor, the theme of pulse jets re-occurred from the brief mention in last month's offering. A bit of digging in my electronic archives & the web quickly uncovered a few snippets, that in a roundabout way, could be of interest to our more senior readers to whom the name of C E Bowden may strike a chord.

The following is an extract from Wikipedia:

*Lieutenant Colonel **Claude Evelyn Bowden** (11 October 1897 - 9 October 1984) was a British military officer, RFC pilot and one of the most well-known aeromodellers in the 1920s to 1950s.*

Bowden was born on 11 October 1897, the son of Rev. H. A. Bowden. He went to Radley College, a boarding school in rural Oxfordshire, entering in Summer Term 1910 and leaving to enter military service in 1914. At Radley he set up a model aeroplane club; all the members of this club went on to serve with the Royal Flying Corps in the Great War.

He entered service in 1914, serving in France and Palestine during the Great War retired as lieutenant colonel in 1946. His military career included time at RAF College Cranwell where he was a contemporary of Edgar Westbury, Frank Whittle and T E Laurence (Laurence of Arabia)

In aeromodelling circles he was well known as C E Bowden. Percival Marshall (of publishing fame) said of him:

My friend Capt. Bowden has done more than any other man in the world to popularize and develop interest in petrol-driven model aircraft. His work is known throughout the world, and he will go down in posterity as the man who demonstrated the practicability of model aircraft powered by tiny internal combustion engines.

—Foreword, Bowden's book *Petrol Engined Model Aeroplanes*, Percival Marshall & Co. Ltd, London, 1937.

He achieved successful powered flight with a model using E T Westbury's Atom Minor engine: His association with the late Edgar Westbury had considerable influence on petrol engine design, notably in the Atom series, and it was with the Atom II that he established a new duration record in 1932, comfortably exceeding Stranger's record which had stood since 1912. —"Smoke Rings", Obituary, *Model Engineer*, No. 3472, 7 December 1984.

He went on to establish internal-combustion-powered model flight duration records, initially of seventy-one seconds in 1932 with Kanga and in 1936 with his Blue Dragon, also powered by Atom Minor. The same powerplant was used in the hydroplane Jildi Junior to set the 15cc Class C hydroplane record in 1934. In 1937 he achieved the first officially observed "rise off water" flight in Great Britain with a model petrol-powered flying boat.

Following the Second World War, he pioneered radio-controlled flight and also made significant innovations with radio-controlled boats and the design of both model and full-size yachts. He wrote prolifically on these subjects.

In 1943 he was appointed Vice-President of the SMAE (Society of Model Aeronautical Engineers) which later became the British Model Flying Association. Other past vice-presidents included Lord Brabazon.

One of his many publications was *Model Jet Reaction Engines: With Notes for Suitable Models for Jet Engines*, published by Percival Marshall & Co. Ltd., London, in 1948. I have an electronic copy (pdf format) in my digital archives. Essentially it comprises two parts, part 1 being concerned with "the principles of jet reaction engines & those suitable for model work" and

the 2nd part with "models for jet engines" based primarily on personal experiences of C E Bowden. The following extracts are taken from this very interesting little book, written well before the Health & Safety mantra of the modern age! You may well see the linkage to my previously stated youthful memories of pulse jets at RAF Waterbeach!

Two well-known American Pulse Jet Engines.

The two commercial jet engines mentioned above are the "Minijet" which was the first in the field, and the "Dynajet" which followed on with a slightly more powerful engine.

Both have proved themselves and are really scientific achievements. Our American friends must have carried out a lot of experimental work to produce these satisfactory engines, for there is a great deal in the correct relationship between various component parts in this type of jet engine as will be realized when reading the description of the engine. The make-up is simple, but the design is not. For this reason, amateur constructors will naturally be attracted to this type of jet, but there may be disappointments. I have tried making a small example but am not entirely satisfied with its performance at the time of writing. The flap valve appears to be the trouble for high pulse rates.

Part 1 includes descriptive text on the Dyna-Jet & Mini-Jet

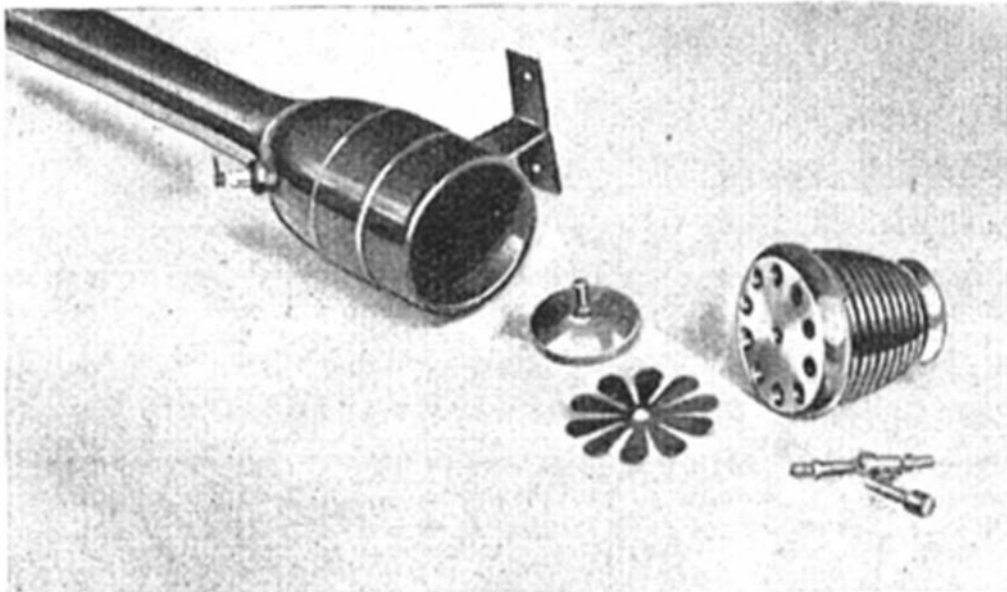


Fig. 14—The Components of the "Dynajet" with nose piece removed. Note the position of the sparking plug situated in the jet tube casing so as to face the incoming charge of gas.

FIG.17. STARTING SET UP FOR THE "MINIJET".
 APPLIES TO ALL "FLUTTER VALVE" JETS .

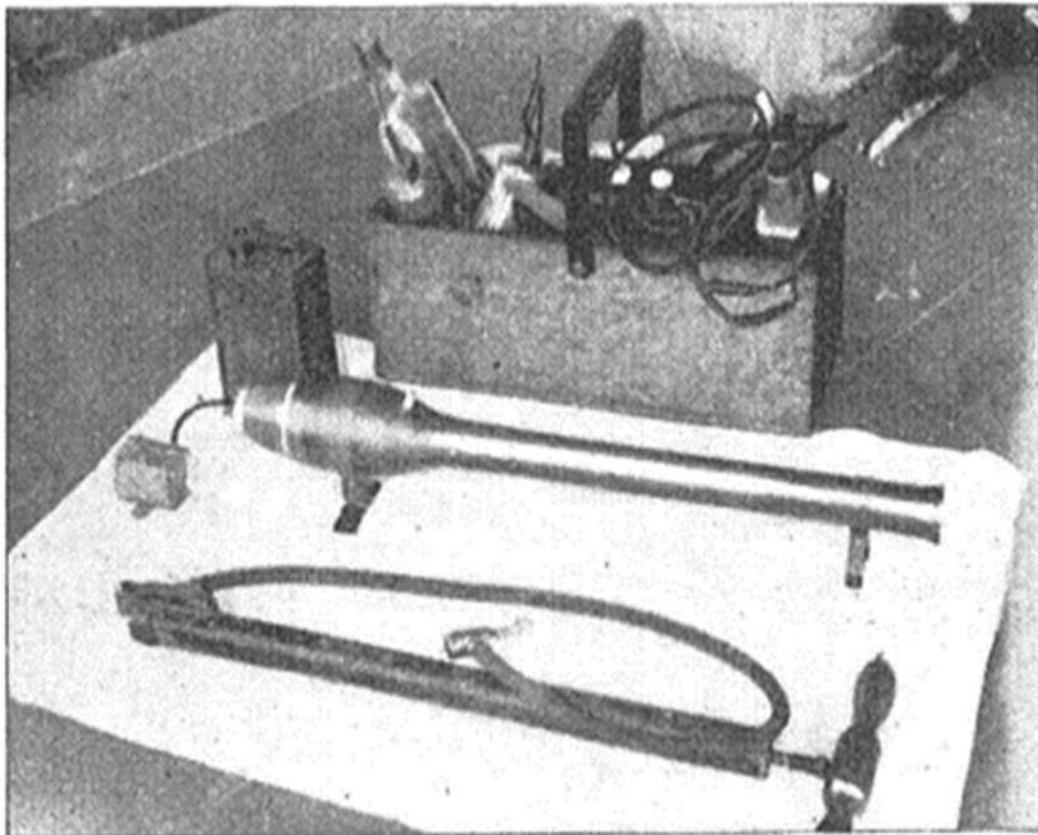
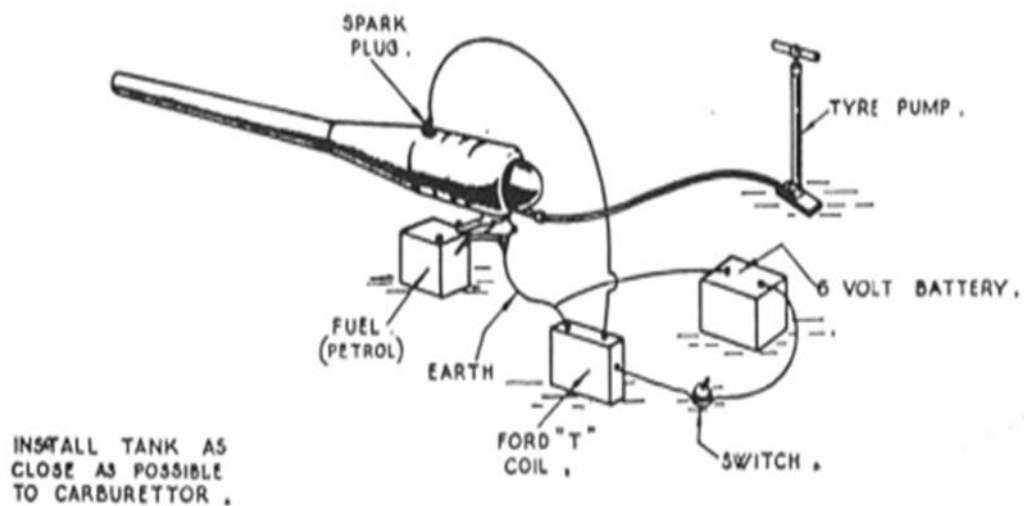


Fig. 15—The starting equipment for a Pulse Jet Engine.

Part 2 concerned with models, in particular his flying boat, control line & free flight models & racing hydroplanes.

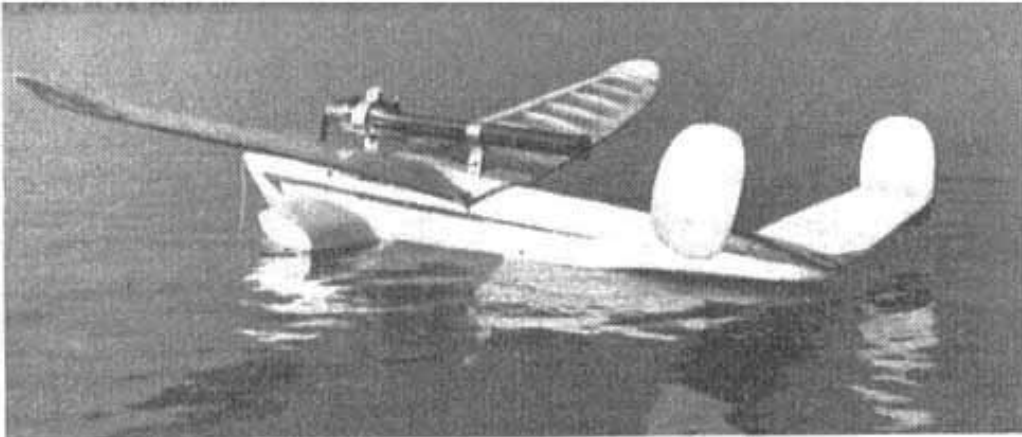


Fig.20 —The author's jet-engined model flying boat is a cleaned up version of his old record holder which was fitted with a diesel motor. There is no torque reaction to worry about when using a jet engine. The engine is a Dynajet.



The latest Dynajet control-line racing model with solid balsa wings and metal tailplane. Note that in this model the tail fins are made from sheet metal and the unit is clipped on to the jet engine units tailpiece.

The flying boat and float plane.

This type of model aircraft is peculiarly suitable for jet propulsion, because the jet has no torque reaction. The model flying boat has always been a particular interest of mine.

The Control line model.

One of the most obvious uses for the model jet motor is for control-line flying, and indeed it has already set up some high speeds in America and in this country. The Pulse Jet was used in America in control line models before any other type of jet engine.

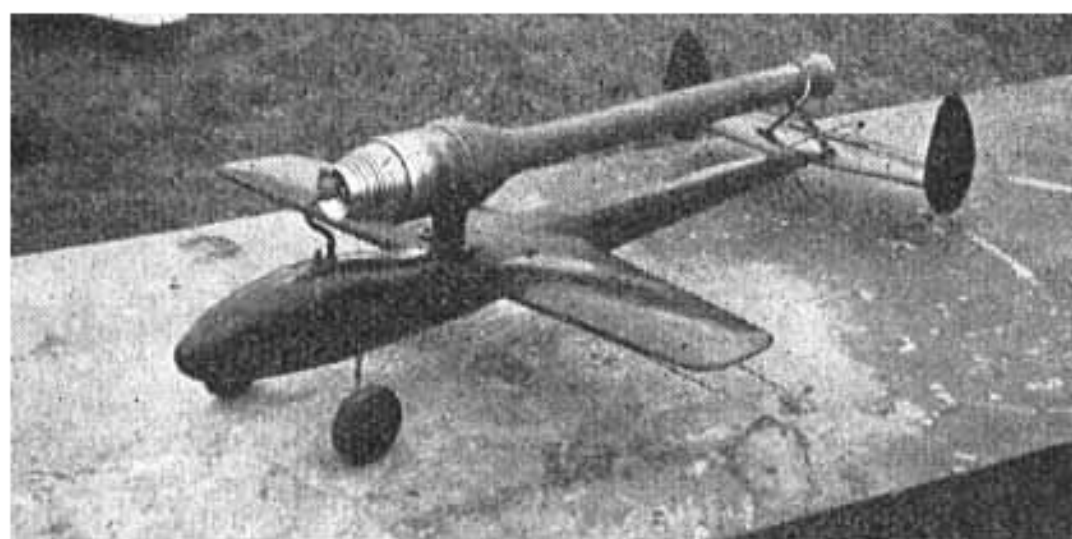


Fig. 22—Mr. M. Guest's Dynajet-powered control line racer which has clocked 128 m.p.h. The control wires can be seen protruding from the left hand wing tip.

Free Flight Models.

Lateral stability of the free-flight model when fitted with a propeller petrol or diesel engine, is usually controlled by a fairly generous dihedral angle, and careful balancing of the side areas fore and aft, taking into consideration the side area shown up forward by the dihedral angle. The troublesome torque reaction of the propeller is dealt with by a combination of down thrust and offset of thrust. The difficulty is always in making a suitable compromise, for as the engine speed rises the torque reaction and also longitudinal variations of trim also increase.

The Jet engine simplifies the problem, for there is no torque reaction to increase or even occur, and if the

motor is mounted just above the wing its high-set thrust as speed rises, will tend to keep the nose down and prevent a stall. The only point that appears to be against the jet at present is the excessive power of existing jet motors which demand a large model, and therefore can only appeal to a limited number of modellers with the facilities of transport to and from the flying field. Care must obviously be taken not to fly an open flaming tube into private property.

The flying wing tailless type is much simplified by jet propulsion because this type of model is particularly affected by torque reaction adversely upsetting its rather tricky spiral stability.

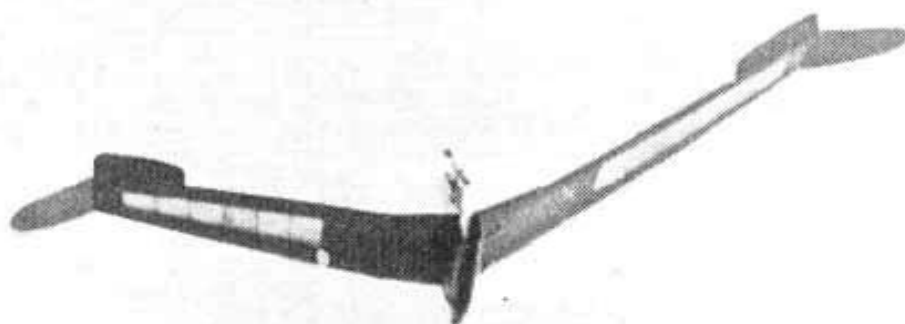


Fig. 24—This is a tailless model made by the author and now powered by a jet motor which relieves spiral stability problems considerably. The wing-span is 8 feet 10 inches.

The racing Hydroplane, and Speed Boat.

The racing hydroplane becomes a really simple and quickly made affair if a jet reaction engine is clapped on top of the hull. There is again no upsetting torque reaction from a water propeller, and the difficult propeller and its shaft and universal drive are cut out.



Fig. 25—Mr. L. Radermacher is launching his pulse jet hydroplane for round the pole racing.

The question is whether the model racing fraternity will take kindly to, or even allow, the jet reaction engine to enter their racing events. I leave the matter to them, and content myself with showing my readers, some of whom may by now be a little restive at my propeller observations, a jet engined model hydroplane in action in Chicago. A number of these machines are in use over there.

Finally he moves on to the "new" Jetex motor of Wilmot Mansour fame.

The Small Jet Propelled Model.

I was recently shown an interesting British model jet motor now emerging from the experimental stage into the production stage. The motor has great possibilities and is known as the "Jetex." It is made by Wilmot Mansour & Co., Ltd. Strictly speaking, this type of motor comes under the heading of rocket but its adaptation is very different from the quick and sudden rush of momentary power which we have come to consider synonymous with a rocket.

The little "Jetex" motors burn evenly and produce a constant thrust over period of about thirty seconds. Larger units can be provided for longer period, but the units I saw in operation at the factory were designed for a motor run of around the thirty second mark. A properly designed model aeroplane provided with an even and effective thrust of thirty seconds will produce a flight of over a minute, which is all that one requires in the average flying space available. If a model is designed for soaring, then a thirty second motor run

may end up in a flight of many minutes. I was impressed by the even and constant power output of these little jet motors. There was none of that usual quick roar of a rocket so soon finished and none of the impression of danger associated with the use of rockets in the hands of the average modeller. The "Jetex" motors are controlled model jets of a small size which at present are most useful to power small jet aircraft, boats and cars. I saw a model car rush around a circular track at high speed, and a model aeroplane take off and fly around a pole to a good landing. I then saw a number of flights made by a model "flying wing" reminiscent of the De Havilland full-size machine. The model flew around in a number of circles gaining height followed by a good glide to earth. The stability of this type of aircraft is often difficult to achieve with a propeller engine, but in this case the stability was good as there were no torque troubles.

The jet engines we have discussed in this book have

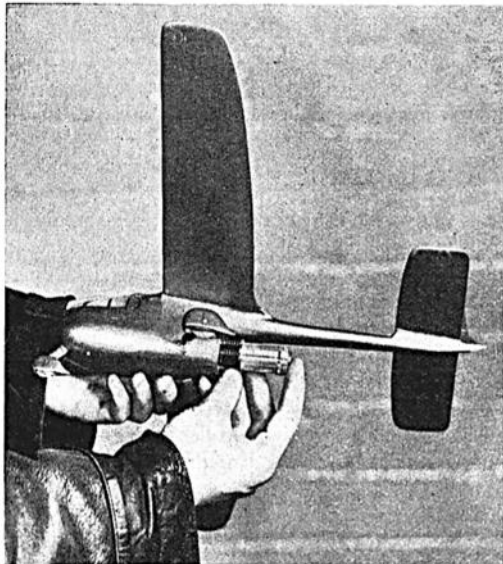


Fig. 28—A "Jetex" engine is being fitted into its carrier in the aeroplane for free flight. The spring tensioning clips can be seen at the forward end, and the operator's forefinger is seen over the jet orifice at the rear.

"breathed" in the necessary oxygen from the air to sustain combustion. The "Jetex" creates its own oxygen supply through chemical action. These motors are small cylinders with a constricted jet orifice at one end. At the other end, there is a detachable cap kept in position by four spring-loaded catches. The spring-loaded base can therefore also act as a safety valve in the event of too much pressure being attained.

Guanidine nitrate pellet charges of slow and even burning composition can be inserted into the jet engine tube in a few moments, together with a short length of fuse which when ignited by a cigarette or a match cause expansion of gases which provide the power. The combustible material is produced by I.C.I. and is absolutely safe. I examined a graph showing the very even and constant thrust output of two different motors. The combustion may be likened to the steady controlled burning of a cigarette.

There is a faint smoke trail left as the model flies and this adds to its realism. The jet is quiet and there are simple and effective fixing clips obtainable with the motor. The motor sells at a reasonable price and the cost per flight of the pellet refills is only a penny or two for the small size engines. An intriguing feature is the practicability of fitting up a twin- or even four-engined model aircraft for free flight, and there is of course no torque reaction for a single engine operation.

At present the engines are made in small sizes suitable for small models only, but there is no reason why larger engines should not be produced in the future if desired. There are three sizes to be made available in the near future.

- No. 1 "Jetex" 100 Weight 10 drams plus $\frac{1}{4}$ oz. for charge. Length $2\frac{1}{4}$ in. Thrust 1 oz.
- No. 2 "Jetex" 200 Weight 18 drams plus $\frac{1}{2}$ oz. for charge. Length $2\frac{7}{8}$ ins. Thrust 2 oz. Duration, 20 to 40 seconds.
- No. 3 "Jetex" 350 Weight $2\frac{1}{2}$ oz., plus 1 oz. for charge. Length $4\frac{1}{2}$ ins. Thrust 3 to 4 oz.

If any reader would like a pdf copy of this publication, just drop me an email at rogerknewman@yahoo.com

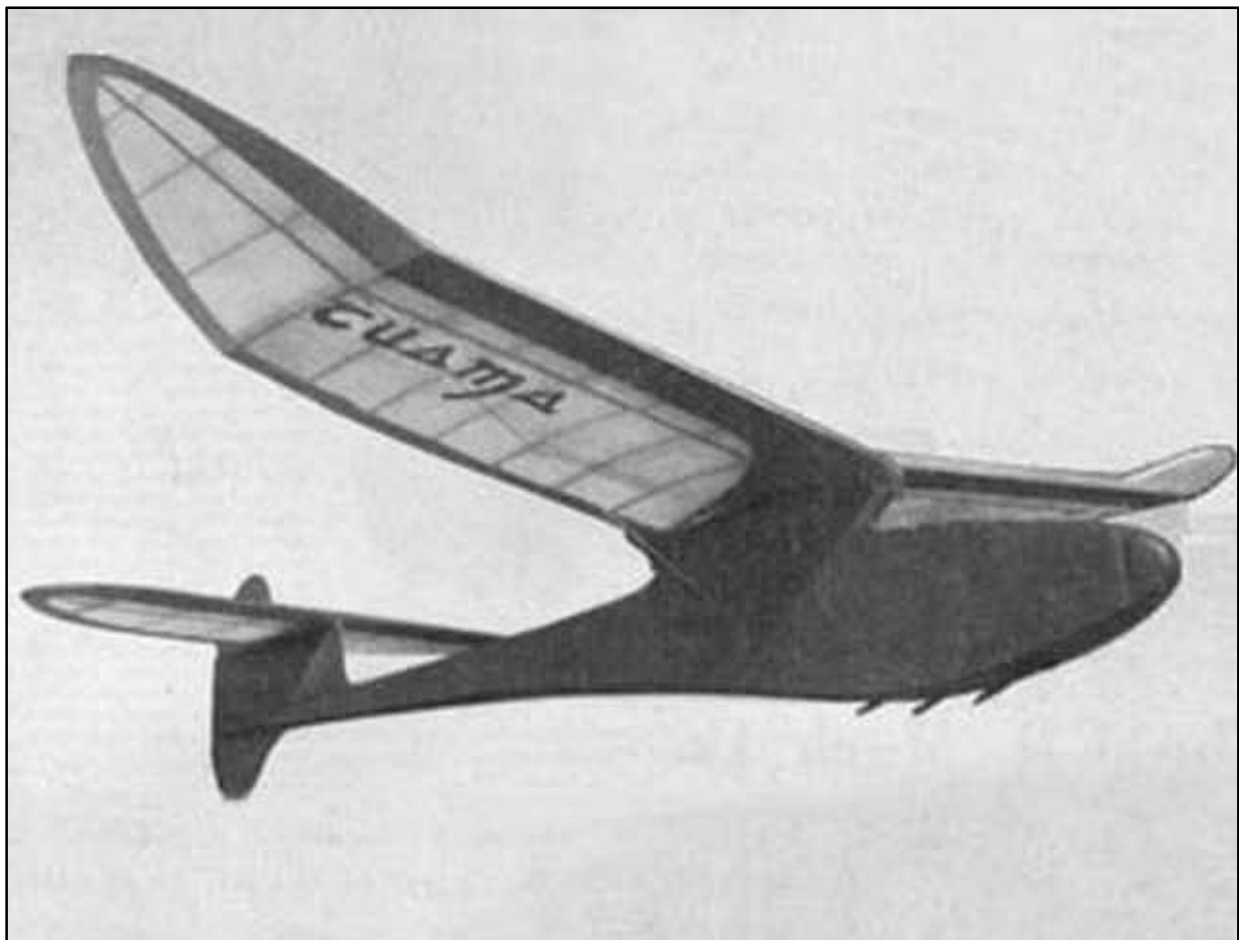
On vintage chuck gliders - notwithstanding recent comments & admiral information from Geoff Smith regarding the subject matter, there remains a lot of interesting material to look at & absorb in support of a dwindling aspect of our hobby that Gavin is trying to promote.

There was a Nostalgia Hand Launch Glider list published some time ago, presumably by the Nostalgia Free Flight body in the USA that lists over 140 models from the early 1940's through to the mid 1950's. The list has models in alpha order by name, designer, date & span. That's fine provided one has the necessary back up info accessible in digital form - some I do & some I don't. Anyway, there looks to be few further candidates for Gavin's comp which need a little investigation.

Engine collectors note - there is another BMFA engine auction to be held over three days - the 7th to 9th November. With close on 1000 lots up for sale, there must be something for everyone who is desirous of acquiring yet another engine! Go to the BMFA website & you can download catalogues, one for each day!

It's the BMFA AGM on 1st Nov. Associated documents can be downloaded from the BMFA website for those who are interested. Subs go up another £2 to £49 per annum.

Bad weather struck again, this time causing cancellation of the planned Crookham/SAM 1066 meet on Salisbury Plain - blame Storm Amy.



Happiness is a BIG glider

Roger Newman

Southern Coupe League update 20th October

It has, as they say, been a funny old year. In the absence of a BMFA contest calendar for Coupe, (with the notable exception of the Nats) the league for this year fell to various and scattered privateer events. These have suffered from the vagaries of a pretty poor year for weather and the lack of flying sites at crucial periods.

Of an initial eight events two have been lost, the Croydon Coupe due to weather and the Birmingham Classic which was first postponed due to weather and now cancelled for this year because of the non-availability of Luffenham.

The recently flown Oxford Autumn Duration had also been rescheduled because of bad weather.

All of this has brought uncertainty and personal scheduling problems for fliers and has, I'm sure, contributed to the general lack of competitors this year.

Southern Coupe League 2025 Current Standings

Entrant	Croydon Cagnerata	Crookham Gala	BMFA Nationals	Oxford Duration	Buckminster Gala	Coupe de Birmingham	Total to Date
Gavin Manion	12	12	8	9			41
Chris Redrup	9	9					18
Roy Vaughn	9	8					17
Ray Elliott		6		7			13
Bill Dennis				12			12
Pete Woodhouse			12				12
Phil Ball			9				9
Chris Brainwood				8			8
Alan Brocklehurst		7					7
Simon Richardson			7				7
Mark Benns			6				6
Jim Paton		5					5

The scoring system is as last year, 12 points for 1st place then 9 for 2nd down to 1 for 10th...

all regardless of the number of entries. Best 3 from 6 events to count.

In the event of a tie then the number of 1st, 2nd etc. places to decide

The remaining events are:

Buckminster Gala 15th or 16th November OR 13th or 14th December (not as FFTC calendar).

Coupe de Brum 6th or 7th December, MOD North Luffenham.

To reflect the loss of events the **best three results from six will count** towards the league for this year, so there's still plenty of reason to fly.

I really hope that the newly proposed FFTC calendar for next year will give more opportunity and reason to fly Coupes at Area Venues. This will expand the number of qualifying SCL events to nearer a dozen in contrast to the six of this year.

3D Printing

Eighteen months ago a Men's Shed opened just around the corner from home. You probably know that the Men's Shed movement provides meeting places with workshop and tea-making facilities. Equipment varies from shed to shed. Ours is primarily set up for woodworking but one of the committee saw the possibilities of 3D printing and bought a Flashforge printer. Although I was aware of 3D printing at the time, and even had a crankcase printed in aluminium by a Chinese company, I hadn't thought about printing in plastic. Out of curiosity and because I already had the CAD files for it, I ran a couple of copies of the crankcase on the Shed printer just to see what the printer could do. They came out well.



Illustration 1:
Sugden Special crankcase
3D printed in aluminium

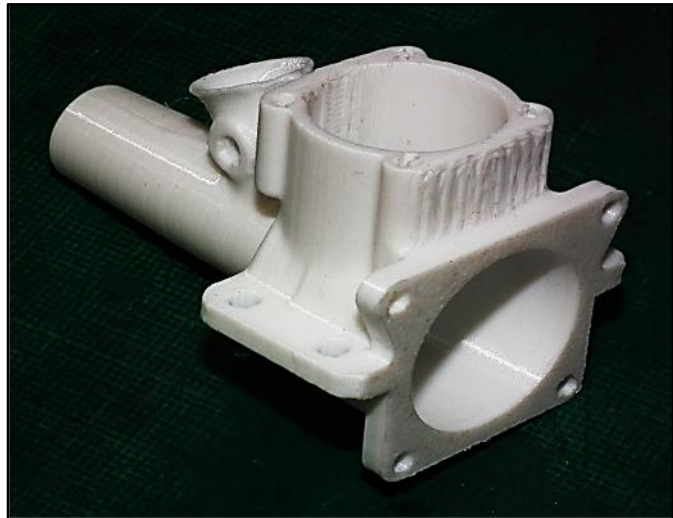


Illustration 2:
Plastic version of the crankcase

For those that may not have come across 3D printing, the printer works by building up the part layer by layer from melted plastic extruded from the moving nozzle. The component is designed on computer to create a 3D model of the part. This model is then put through another program, a "slicer", which produces a file of instructions for the printer to execute. On our type of printer, the plastic is extruded in layers which build up to form a solid shape.

Now although there is a multitude of existing designs out there on the Internet which can simply be downloaded and run without any prior knowledge of the design process, to get full value out of the technology you need to be able to design parts yourself. This means learning how to drive one of the many 3D CAD packages available. Of course, I had to do this for the crankcase project - it's no small investment in time and concentration I can tell you - but it gave me a flying start at the Shed. The printer has turned out to be a versatile tool and there has been a stream of requests from Shed members to make all sorts of things including:

- a replacement wheel for a toy car
- a key fob to hold a 20p piece
- a knob for the end of the brake lever on a 2CV-based special
- connectors for a dust extractors
- parts to hold the active elements in a satellite radio antenna
- hub caps for the wheels on a suitcase.

Between times I've also printed a couple of components for my milling machine.

The rough finish that you can see on the car wheel is a characteristic of these very small and intricate parts as printed by me. Better quality may well be achievable on this particular printer by adjusting some of the very many parameters used to control the printing process but this requires a depth of understanding of the printing process which I don't have. In this case the wheel was judged by the "customer" to be good enough for the application so that's how we left it.



Illustration 3: Miscellaneous car and workshop parts

That's all very well, but what about applications to model aircraft? Complete airframes are out as far as I am concerned, certainly for the types of model that non-R/C flyers build. The plastics compatible with the type of printer I've been using don't have the strength-to-weight or stiffness properties for complete airframes, least of all free flight models. So what can we use them for? Answer: model components and building aids. So far I have made two model



components, a mounting for a timer start button, and an adapter for an electronic timer board.

The requirement for the button mount came about because I wanted to replace the rubbishy push buttons hitherto used on my electronic timers with something more durable but without the faff of building fancy rugged magnetic ones. I've been impressed by the tiny (6mm square) push buttons, intended for mounting on printed circuit boards, which I've used on my timer programming handsets. The issue is, how to mount them in the model? They could be glued directly on the outside of the fuselage or the faceplate and this might be adequate for light duty, e.g. a small electric model perhaps. But I want to use them in power models, a much harsher environment when direct exposure to vibration, oil and heavy handling is unlikely to help reliability. So the question was, how best to mount the device inside the fuselage, and, in particular, inside the round carbon fuselage of an F1J?

One possibility would be to mount it to a small fragment of PCB or Veroboard and devise a structure to hold that. I wanted to use an intermediate pusher rod to activate the button so this too would need support, the whole thing would get very complicated and hard to build using traditional techniques and materials. So the thought occurred, rather than mess about with a fiddly fabricated structure, why not 3D print something which combined all the requirements in a single unit?

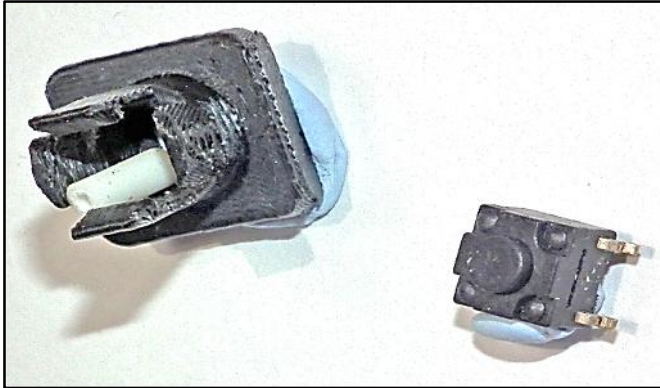


Illustration 4:
Start button components
housing with pusher and push button itself



Illustration 5:
Assembled start button
note curve to fit tubular fuselage

The end result of this is small, very light (0.6 gram) assembly. It took a lot of experimenting with the design to achieve this result. Our printer is only capable of tolerances of about 0.3mm so small components like this are somewhat pot-luck. Fortunately the inaccuracies tend to be fairly repeatable so it's usually possible to iterate to a usable set of final dimensions. Another factor which has to be taken into account is the orientation of the part in the printer. Layer to layer adhesion and strength can make thin parts very fragile. This design relies on flexibility in the prongs which retain the body of the button so the orientation when printing and the material had to be chosen carefully. The result of all the experimentation was about a dozen failed versions before a usable print was achieved. This sort of experimentation seems to be common amongst 3D printing projects (though I managed the luggage wheel caps first go, which impressed the Shed, but it was just luck!).

The other part recently off the printer is part of a new timer project that we are working on. The requirement is for a timer which can handle electric models up to and including F1Q, i.e. able to support multiple servo functions, an ESC and an energy limiter. The device is being built around a cheap microcontroller, i.e. a small computer, which can accept inputs from and generate control outputs to attached devices. The "internet of things" is built round such microcontrollers. Microcontroller chips have to be mounted to a PCB so that it can be connected to external devices.

We are using an Arduino micro, you can see the connection pads round the periphery of the board. Most of these pads are for connection of signal lines, e.g. for servo control, but they also supply power to external devices through power and ground lines. The latter give rise to a design issue because the power and ground lines typically have to be routed to multiple devices but there is only a single solder pad for each on the PCB. In our design for the timer the ground line must go to all attached devices and the power line to the ESC, servo and RDT unit.

To cut a long story short, for the immediate purpose of building a flyable unit for further experimentation, I decided to make all external connections through R/C servo style connectors attached to the end of the microcontroller board. A small PCB large enough to hold the 7 rows of three pins is connected to the main board with a 3D printed adapter. Something that allowed the boards to be simply clipped together looked like an attractive solution, an idea application for 3D printing.

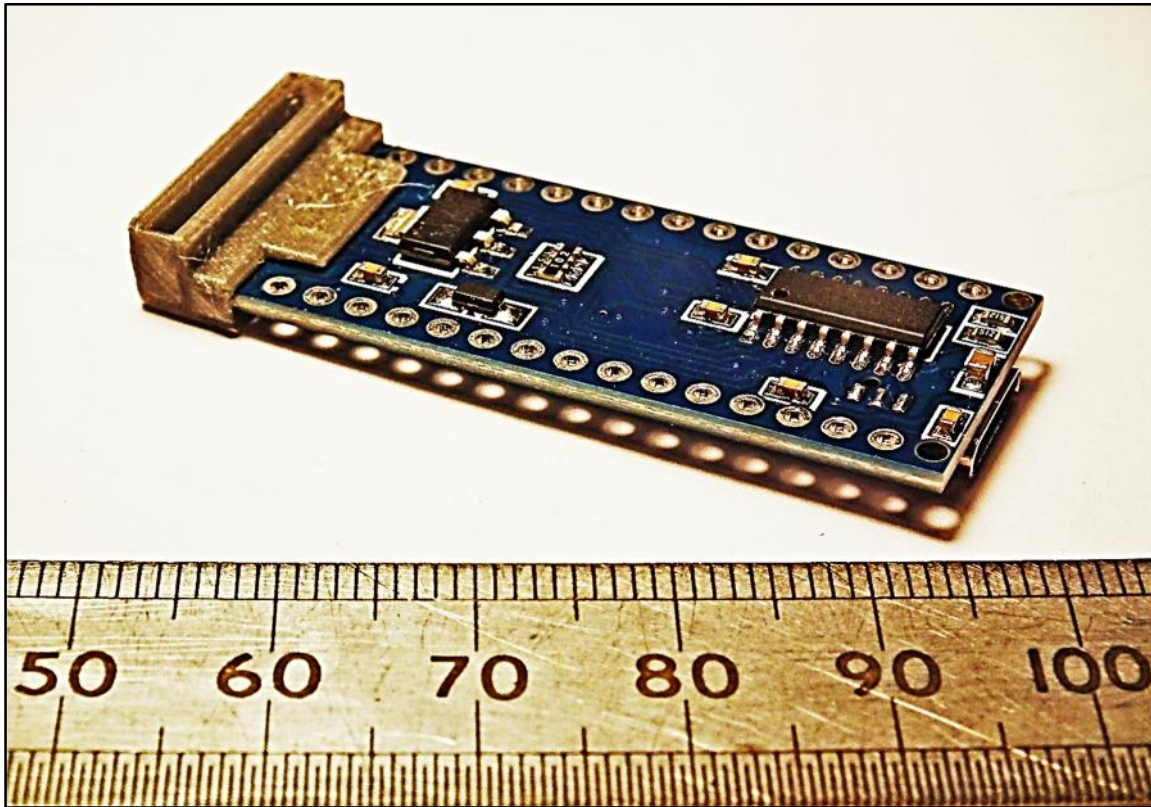


Illustration 6:
PCB adapter clipped to the end of the microcontroller board but not yet wired in

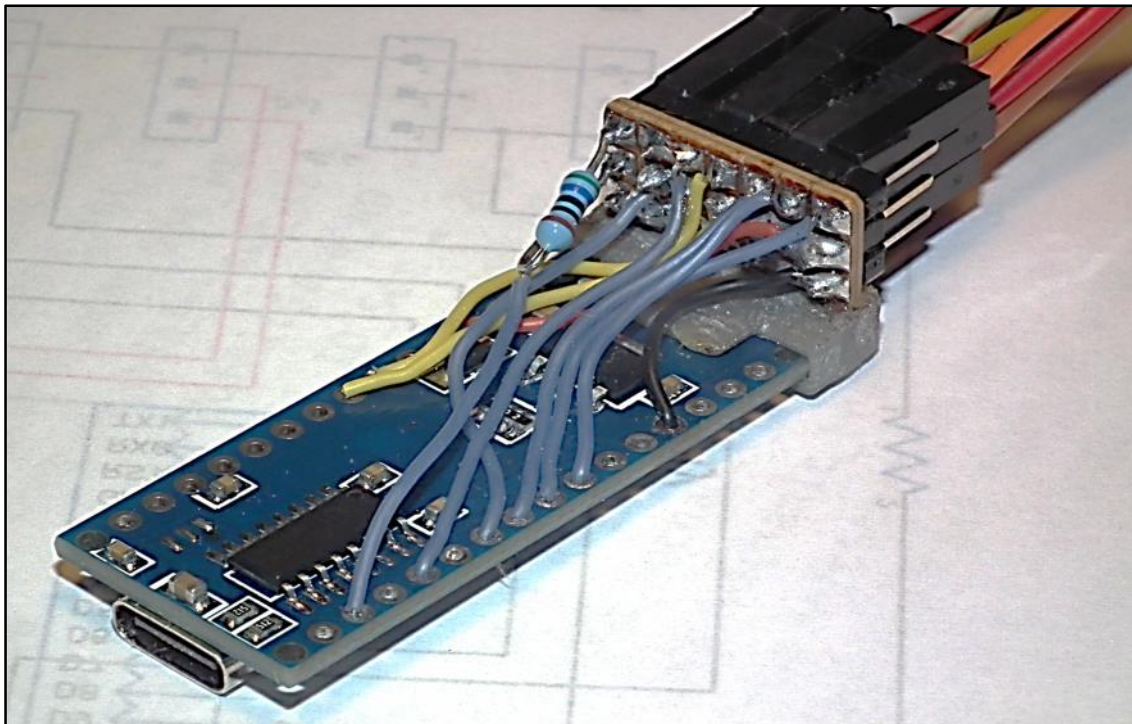


Illustration 7:
3D printed connector supporting timer's external connections

Now both these parts are tiny, almost not worth the mention, but how could their functions be satisfied in other ways? They could be fabricated, fiddly and time-consuming. In contrast, all I need to do if I need another one is wander round to the Shed, 5 minutes, load the printer and 5 minutes later I have it, maybe a bit longer with a cup of tea and a chat. This is a big win in my book.

Other model parts which could be manufactured this way include things like:

- custom mounts for motors, timers, even flying surfaces
- thrust or incidences wedges and packing
- prop hub components for rubber models.

Off the airframe possibilities include:

- on-the-field ancillaries for model holding, winding, etc
- construction jigs, fixtures and moulds.

I've been surprised at the range of applications for 3D printing which have shown up in the last year. It's not a high precision process at small scales but when "good-enough" will do, it can be a quick and easy way to solve some construction problems. The downside, for we of great age, is the effort needed to learn a whole bunch of new tricks.

Roy Vaughn

My F1G Nationals

-

Gavin Manion

In praise of GPS retrieval

Last month our dear Editor asked me to write of my experiences at this year's Nationals at MOD Sculthorpe. When I protested that I'd only been there one day and then only done two flights he responded that he'd no one else to write and so could I at least write something. So...

I went solely to fly F1G in the hope of picking up some Southern Coupe League points and, who knows, having a pop at the 308 Trophy. An 06:00 start from home got me to the flight line just after 10.00 to discover a day which was bright, promised to be warm but already breezy and forecast to be more so as the day progressed. We were all flying into long grass which didn't promise easy retrievals.

My coupes have all had BMK brand GPS beacons fitted for maybe the last 4 years and I have to say that in that time I've not misplaced a model despite flying a lot on Salisbury plain often in windy conditions. That's not to say that, like many others, I haven't had frustrations with them. They're particularly discouraging when you first power up the system when very often the hand-held display unit (MFD) will point in some random direction and indicate your model is e.g. 78,345m in that direction. Now this is unlikely since you're standing next to the model in it's winding jig. Going through the menu and selecting "nearest beacon" will usually make it see sense and "kissing" aerals with the beacon plus a settling period means that you're soon actively tracking so allow time for the Beacon and Receiver to get to know each other before you fly.

My first flight was text book, a max and a 700m retrieve into the long grass ably guided by my GPS though of course a radio tracker would probably have been just as effective.

But the second flight was into a boomer. Ruth Foster lost it, DT'd but still going up, at about 4 minutes.

The GPS lost it at about 6 minutes still at 80+metres altitude. Hmmm...gone, probably down but how far downwind?

The very best thing that a BMK GPS system does is produce a QR Code for the last received location (remember that bit) of the model which you can scan with your phone. It seamlessly reads directly to Google Maps and the SatNav style driving instructions to get to it. How good is that?

So I did all that and drove off the airfield guided by the trusty Google Maps.

However when I got to where it was supposed to be I couldn't get to within 700m of the model and the very private looking farmland didn't encourage me to set off hiking "over there".

After about half an hour the penny dropped and I realised that the GPS was receiving an up to date position for the model (about 700m from where it first lost signal) and that there would be a new updated QR code available. When I uploaded that code into my mobile the Google Maps display was as shown below.

I followed instructions to where it said, just off London Lane, over the hedge between two trees. I'm no digital whizz kid, so if I can do this anyone can.

I was back at the flight line maybe an hour after I left. I think I would probably have found it with a radio tracker but it would have needed a lucky guess to how far downwind to search and some map reading to keep a line when the model was lost to sight after only a few minutes.

The reason I didn't fly again was because the terrain downwind was very wooded and there was the small matter of the Solar Farm on the downwind edge of Sculthorpe which I'd clearly overflown. I reasoned I couldn't be that lucky twice.

I suppose another lesson learned is that just because Google says there's a road it might not be one you can drive on. That part of prosperous rural North Norfolk is full of estates and corporate farms.

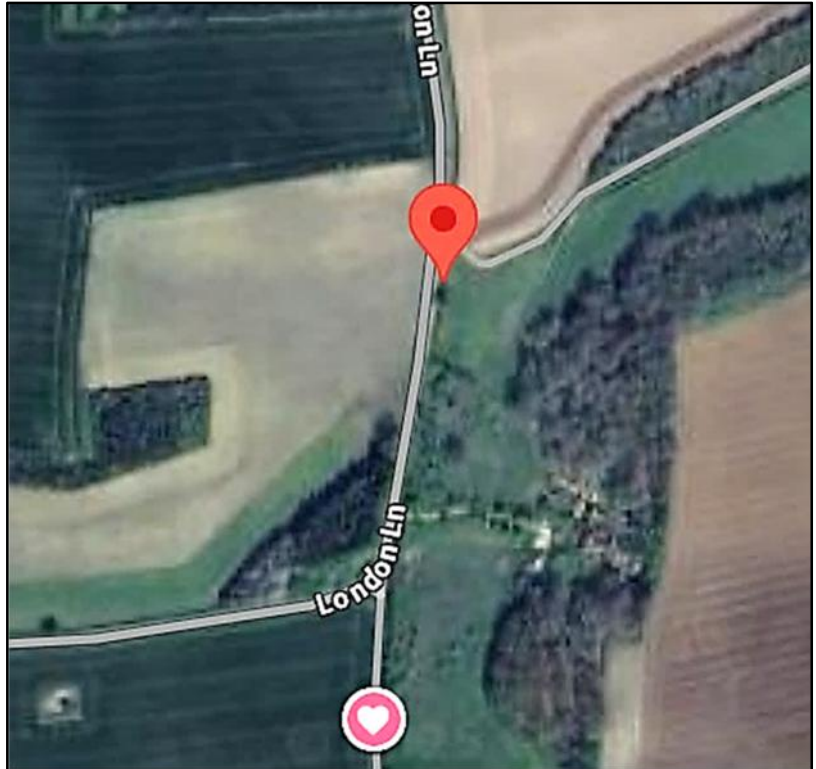
Many of the tracks are marked so as to make it very clear you will not be welcome to drive on them.

The first time I'd used the BMK derived QR code was to help Bob Garner find his SLOW model after an over-run oos upwards at Luffenham a couple of years ago. Google Maps had it clearly in open farmland a couple or three miles downwind, it needed a bit of interpretation/experimentation to drive the closest we could. When parked up we walked across a field as directed by the arrow with the distance off reducing by a couple of metres every few steps we took. So we went effectively straight to it, and we'd no real idea from visual observation on the flightline where it was or where to start looking.

It can be a faff to set up and there's batteries and stuff and it's not cheap and...and I wouldn't be without GPS and need to do a bit of work to make sure it's on all my models not just coupes.

There you are John, I said I'd got nothing to write about the Nats!

gavin.manion84@gmail.com



Gavin Manion

November 2025

I attended the FFTC Conference held at BMFA Buckminster on Sunday 19th October to discuss the proposals for Contest Classes and Calendar for 2026. These proposals were circulated to BMFA Members prior to the meeting in FFTC NEWS issue138 and, for the benefit of readers, are shown below.

2026 Programme Classes, organized by category:

Combined Groups:

- Combined Glider
- Combined Rubber
- Combined Power
- Combined Electric

Combinations:

- Classic Glider / Vintage Glider
- Classic Rubber Power / Vintage Rubber Power / SLOP
- BMFA 1/2A / F1J (10 seconds motor run for 1/2A)
- F1G Coupe d'hiver / F1H A1
- CO2 / E30 / P30 (50 seconds motor run for E30)

Singles:

- F1A
- F1B
- F1C
- F1Q
- E36 (10 secs motor run reduced to 5 secs for Fly-Off)
- Mini Vintage (R/G/P)
- HLG / CLG
- Tailless

Proposed 2026 Contest Calendar

Date	Venue	Event	Classes
1st March	Area	1st Area	CR(Gamage), CG, CP, F1Q, F1G/F1H, CRP/VRP/SLOP, CLG/HLG
22nd March	Area	2nd Area	CR, CG(Team Model Engineer), CE, F1C(Halifax), 1/2A/F1J, ClassG/VintG, E36
3rd April (Friday)	North Luffenham	Northern Gala	CR(Caton), CG(CMA), CP(Hamley), MV, E36, 1/2A/F1J, F1g/F1H, HLG/CLG, Club Champs CR,CG,CP
26th April	Area	3rd Area	CR, CE, CP, F1A(SMAE), Co2/E30/P30, CRP/VRP/SLOP,(Frog Senior SLOP), MV
9th, 10th May	Saisbury Plain	Team Selection	F1A, F1B, F1C, F1Q
23rd May	Salisbury Plain	London Gala	CG(Pilcher Cup), CR, CP, CE, MV, HLG/CLG

23/ 24th May	Salisbury Plain	London Gala	ClassG/VintG/SLOP, CRP/VRP/SLOP(Falcons SLOP), 1/2A/F1J, F1G/F1H, Co2/E30/P30, E36
7th June	Area	4th Area	CE, CG, CP(WHITE), F1B(Gutteridge) , F1G/F1H, 1/2A/F1J , HLG/CLG
28th June	Area	5th Area	CR, CG, CP(Team Keil) , F1Q, MV, ClassG/VintG , E36, Tailless
26th July	Area	6th Area	CR(Team Farrow) , CG, CE, F1C(Buskel), 1/2A/F1J, Co2/E30/P30 , CRP/VRP/SLOP
16th August	Area	7th Area	CR, CE, CP, F1A(K&MAA) , F1G/F1H , E36 , HLG/CLG
29th, 30th, 31st August	Sculthorpe	Nationals	See Separate list of events
12th September	Sculthorpe	Stonehenge Cup	F1A, F1B, F1C, F1Q
13th September	Sculthorpe	Equinox Cup	F1A, F1B, F1C, F1Q
20th September	Sculthorpe	East Anglian Gala	CG, CR, CP, CE, ClassG/VintG, CRP/VRP/SLOP, Co2/E30/P30, MV, Tailless
19th, 20th September	Sculthorpe	Team Selection Reserve date	F1A, F1B, F1C, F1Q
4th October	Area	8th Area	CE, CP, CG, F1B(Duce), MV , Co2/E30/ P30 , ClassG/VintG
24th October (Saturday)	North Luffenham	Midland Gala	ClassG/VintG, MV, 1/2A/F1J, Co2/E30/P30, F1G/F1H, E36, HLG/CLG

Notes: Plugge events highlighted in **red** Trophies Highlighted in **Blue**

Rule Change Proposals

FFTC News issue 138 includes 16 proposals for rule changes. In the interests of brevity, I have not included them here but the key points from the discussions are summarised below.

Outcomes

Those present agreed by a large majority that the proposed classes and calendar should be adopted for 2026.

With regards to the proposed rule changes the following points were noted.

1. The current F1Q UK rules will remain unchanged except that the maximum energy allowance will be reduced to 2J/g and the maximum motor run to 20 seconds.
For contests run to FAI rules (Stonehenge and Equinox Cups and Team Trials) models must be fitted with certified energy limiters. The maximum energy allowance will be 2J/g and the maximum motor run to 20 seconds.
It is not clear what the maximum energy allowance and motor run will be for an F1Q flown in Combined Electric. Should it be the same as for the individual class or will it be something else eg like E36 which in Combined Electric has a motor run of 15 seconds.
2. All other proposed rule changes were accepted or rejected as per the voting by the FFTC.

I may have missed some relatively minor points, but I think I have got the gist of the meeting. Hopefully this will point people in the right direction for next year.

The official record of the meeting will no doubt be circulated by the FFTC in due course.

Not for the first time we have had to cancel a Croydon / SAM1066 Contest.

This time it was due to the untimely arrival of Storm Amy.

Unfortunately, there are no free weekends the rest of this year on which to reorganise it.

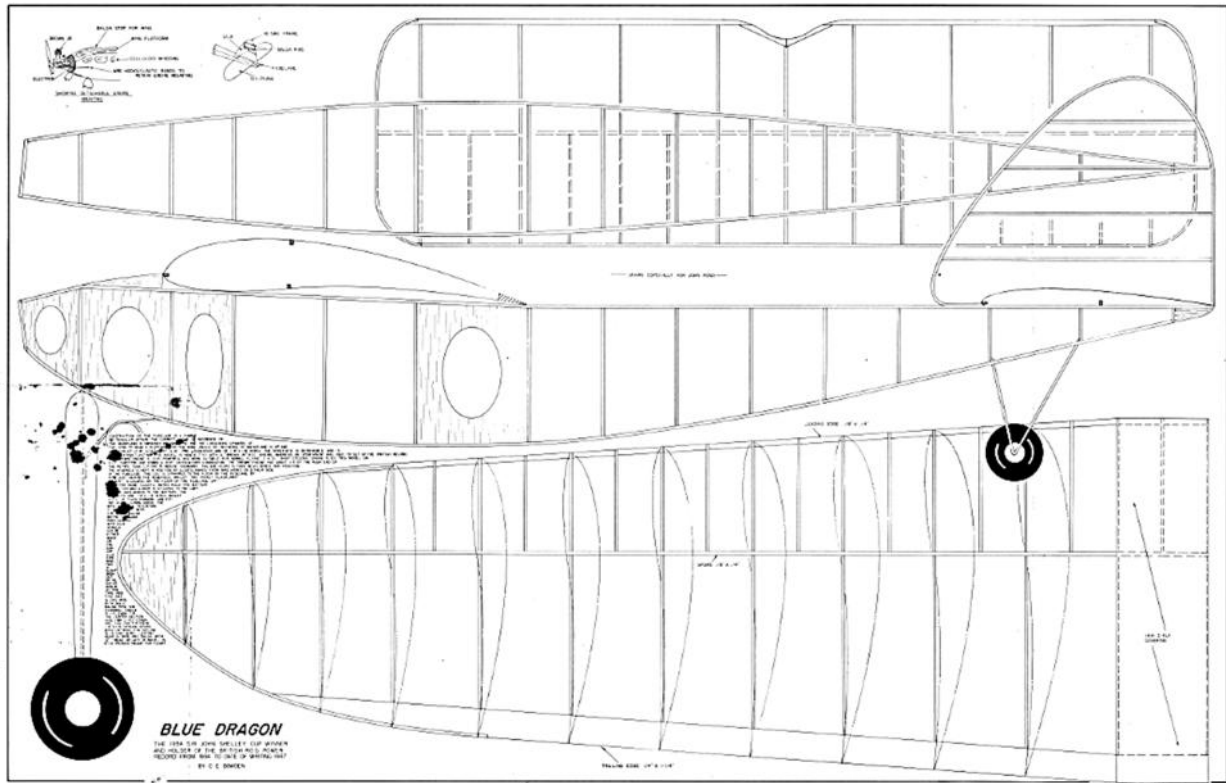
We will endeavour to run two events next year, probably in May and late September/early October. The first one is likely to include a Cagnarata event whilst the later one will be the usual Coupe Europa plus Classic, Vintage and A1 glider, Classic/Vintage power, and Mini Vintage. Further information in due course.

Ray Elliott

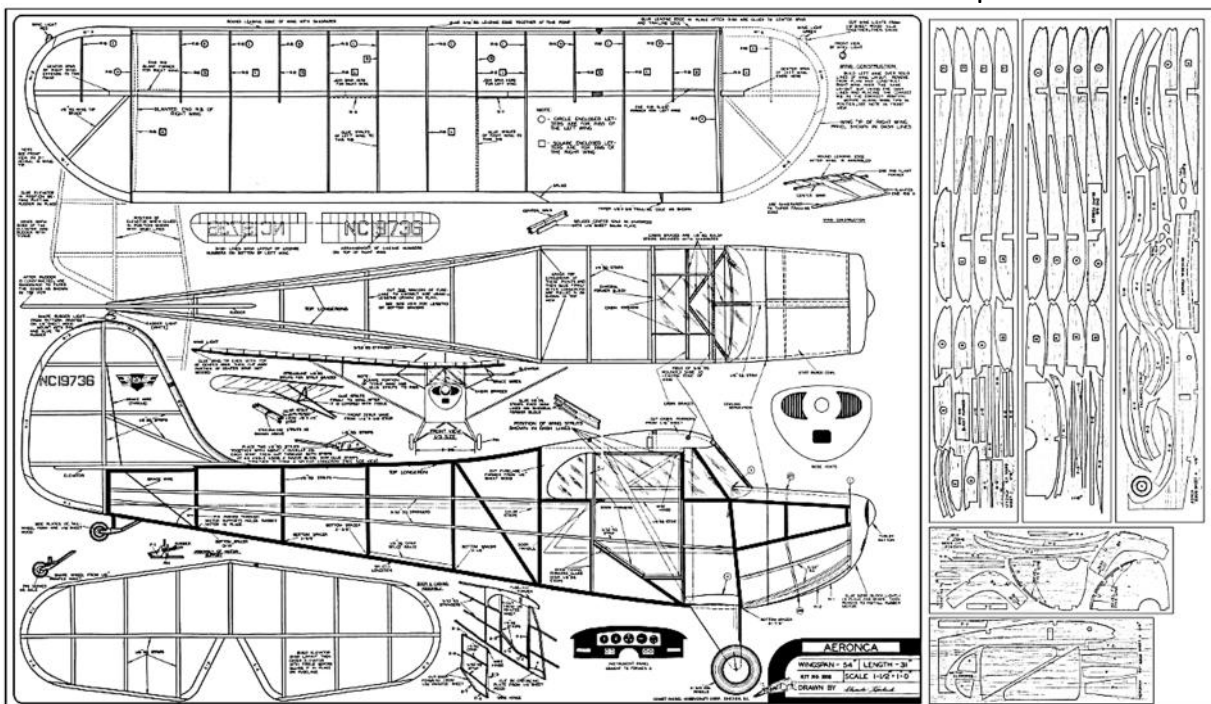
Plans for the Month

Roger Newman

Power: has to be a C E Bowden design - Blue Dragon, 1934 record holder

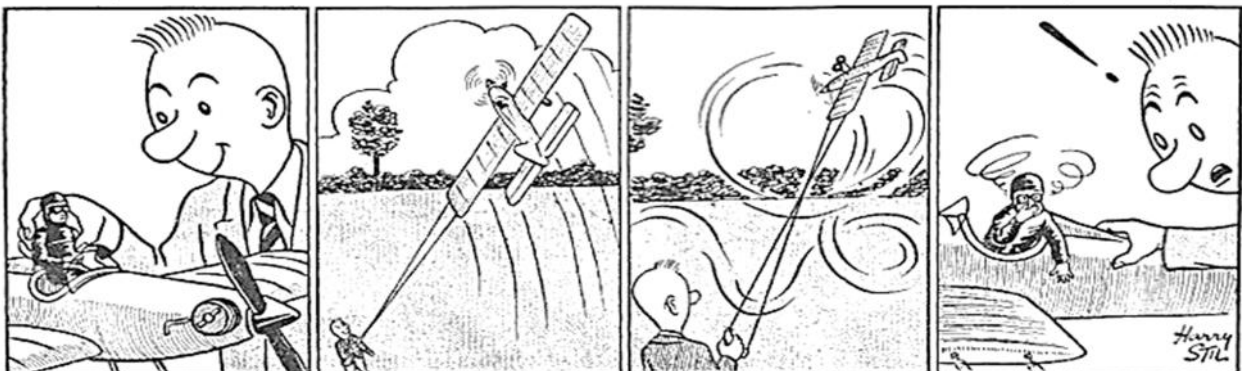


Rubber: Giant rubber from Comet - Aeronca Chief, 54" span



Glider: AM-40. 11 ft wing span Italian giant, needs a truck load of balsa!

By Harry Stil



Events and Notices

Southern Coupe League 2025

Provisional list of qualifying events as at 21/4/25

Now that the FFTC calendar for 2025 is settled the following events are (reasonably) confirmed and form the list of qualifying events for 2025.

1	Croydon Cagnarata	14 th or 15 th June	Salisbury	ray.elliott8@btinternet.com
2	Crookham Gala	28 th or 29 th June	Salisbury	chrisredrup@yahoo.com
3	BMFA Nationals	25 th August (3 rd day?)	Sculthorpe	Check day
4	Oxford Duration	30 th August 09.30–13.30	Portmeadow	gmlaw7@btinternet.com
5	Birmingham Classic	20 th or 21 st September	Luffenham	gavin.manion84@gmail.com
6	Coupe Europa	4 th or 5 th October	Salisbury	ray.elliott8@btinternet.com
7	Coupe de Brum	1 st or 2 nd November	Luffenham	gavin.manion84@gmail.com
8	Buckminster Gala	15 th or 16 th November	Buckminster	stuardarmonf1a@yahoo.com

The scoring system is as last year, 12 points for 1st place then 9 for 2nd down to 1 for 10th, all regardless of the number of entries.

Best 5 from 8 events to count, in the event of a tie at the end of the season then the number of 1st, 2nd etc. places will be used to resolve.

Additional events may become available as the year progresses and any other "privateer" events which people may choose to hold will be notified as they become available.

BUCKMINSTER FF GALA 2025

This year's Buckminster Gala will be held at
BMFA National centre on
EITHER 15th. or 16th November,
 starting 10 AM. Decision will be made on Nov. 13th
 and posted on FFTC & BMFA website- check before
 travelling. Fallback dates are 22nd / 23rd if needed.

Classes will be;

Combined P30/ Coupe d'Hiver - Classic A1 Glider

BMFA Classic Glider (50m. line) - E36 (5 sec. run)

Mini- Vintage - *Vintage HLG/ CLG (see below))*

HLG/ CLG has not been popular at Buckminster, so in the spirit of this event, we're trying something different this year. Eligible models are any hand- launched glider published before Jan.1951, which if desired may be fitted with a catapult hook, small finger grip and appropriate DT. All other rules as per BMFA HLG/ CLG. Further info from:

gavin.manion84@gmail.com

Certificates and prizes to 3rd place in all classes
 (including genuine Champagne for top VHLG/CLG)

Contact Stuart Darmon:
 Tel. 01858882057 - stuardarmonf1a@yahoo.com

La 10^{ème} Grande Coupe de Birmingham

A qualifying event for the 2025 Southern Coupe League

Pending field availability this event will take place at MOD North Luffenham at 10.00 on Saturday 6th OR Sunday 7th December 2025

F1G for the Aeromodeller Trophy

2 flights between 10:00 & 12:00 then 3 rounds to published timetable.

Pre 1970 Coupe 3 flights (no rounds) start 10:00.

Within this event models which meet our pre 1958 cut-off date will fly as Vintage Coupes.

Pre 1970 Coupe may double up with F1G as at previous events.

Contacts below for details if unsure.

Both events finish at 14.45 followed by fly-offs as required (Not DT!)

Maxes will be determined by conditions on the day.

Prizes for 1,2 & 3 in F1G and Pre 1970 Coupe. The winner of F1G will be awarded the Aeromodeller Trophy and the top placed Vintage Coupe the Vintage Plate.

Entry Fee £10 covers both events (includes £5 FFTC field fee for ALL competitors).

The organisers will determine which of the two days of that weekend are likely to have best weather and will email potential attendees on the evening of Thursday 4th December to confirm the chosen day.

Will all potential fliers please email gavin.manion84@gmail.com ahead of time so that they are included in that confirmation email.

Single registrations on behalf of a group of fliers would be very welcome.

For further information contact: -

Gavin Manion at gavin.manion84@gmail.com tel 01543 422509

Or Stuart Darmon at stuardarmonf1a@yahoo.com tel 01858 882057

Permits for Salisbury Plain & North Luffenham

There is a tab on the free Flight Technical Committee website Where you can apply and buy the permit that you require on line

The costs are:

£30 for Salisbury Plain - £35 for North Luffenham

The details of the Conditions of Issue

And Code of Conduct are included with the application

And must be strictly followed

Options for Flying on Salisbury Plain, Area 8

The flying of competitive events on Salisbury Plain occasionally requires the launch site to be changed from the usual trimming field to the north east side of the airstrip. This is often problematic as in the past access has proved difficult but a new route has now been found which has proved to be much easier, even after wet weather. The image below shows the route.

It is hoped that on competition days organisers will place their entrance marker flags in whichever entry to Area 8 is appropriate to the location of the day's launch point.



Chasetown Indoors

I have secured an indoor flying venue at ;
Chase Terrace Academy,
Bridge Cross Road
BURNTWOOD,
WS72DB

**Flying 10am till 3pm
Saturdays**

**18th.Oct - 29th. Nov
20th.Dec - 17th.Jan**

Enter the school at Wych Elm end
for car park

Costs

£10 for flyers & **£2** for spectators, children free.

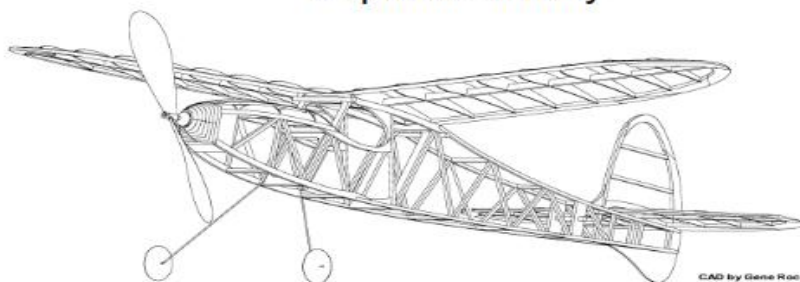
Can you bring your BMFA + contact details
& write them down in the supplied book please.

Contact: peter.thompson7406@gmail.com

INDOOR MODEL FLYING IN BANGOR

Brailsford Centre, Ffriddoedd Road,
Bangor LL57 2EH,
what3words : ///drizzly.chained.neck

Regular flying meetings in a 22x20x9m hall,
September-May



CAD by Gene Rock

Dates

**5.10.2025, Sunday, 1500-1700
2.11.2025, Sunday, 1500-1800
7.12.2025, Sunday, 1500-1800
4.1.2026, Sunday, 1500-1700**

More dates pending, first Sunday of each month to May.

Fees £15/2hr £20/3hr session

Contact: members@sam1066.org

Beginners Welcome

TWIFF

(Totton West Indoor Free Flyers)

(Free flight only)

Electric and rubber all styles **Sundays**, from 12:00-15:00

Admission for flyers £15.00 Free for spectators and helpers

2025

21st September

19th October

16th November

28th December

The West Totton Centre is a good-sized hall, three badminton courts with no obstruction on the wall or ceiling. There is plenty of parking, although there are a lot of people coming and going at Vaccination times.

There is a Tesco Local nearby for coffee and snacks.



Location :- Hazel Farm Road, Totton, Hampshire, SO40 8WU

www.google.com/maps/place/West+Totton+Centre/@50.9103094,-1.5097122,15.5

Or, if you like, car park entrance at ///playroom.pump.dorm

Contact Ken Brown 02380578866 or 07913814492 brown53hh@gmail.com

Indoor etiquette.

Please keep the centre of the floor clear - for other fliers.

Launch from the outside of your expected flight pattern, and leave the centre open for other flights.

Walk round the hall rather than across.

Retrieve from the nearest edge - even if a long walk is involved. You get to see everyone's hanger that way.

Please walk slowly. Just the draft is enough to upset a flight. (This especially applies to children. Please try to calm their (understandable) excitement.) If anyone treads on a labour of love it is upsetting, and it can, and does, happen by accident, but should not happen through thoughtlessness.

Look out for other planes at all times and especially whilst launching - shooting down is not funny, and especially not when it is easily avoided.

Most important of all. - Have FUN, and help the others have FUN too.

SUPERLIGHT CARBON E-20 AND HLG BOOMS

New stock just in.

First come, first served.

**Carbon rod blanks, ideal for E-20s
and hand or catapult-launched
gliders. Long enough for two booms.**

**97cms long, 4mm diameter tapering
to 1.5mm. 3.4 grams, but some wet-
and-dry action will lower this figure.**

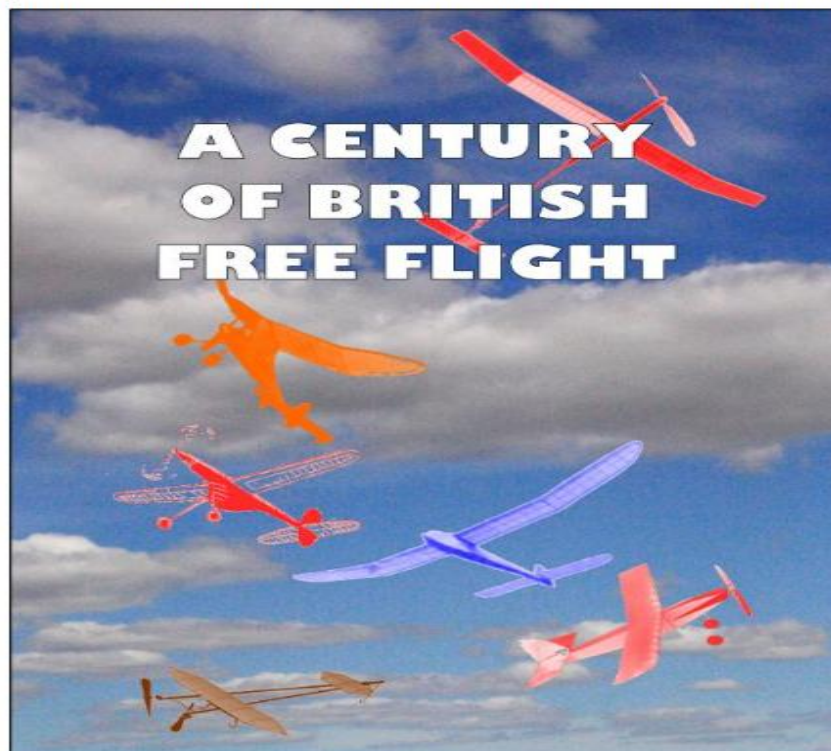
**£8.00 each + postage from Martin
Dilly on +44 (0)208 7775533 or
martindilly20@gmail.com.**

A CENTURY OF BRITISH FREE FLIGHT

A new book, A Century of British Free Flight, has just been published to mark the BMFA's centenary. 155 pages of text, plans and photographs in colour and black and white trace the development and history of free flight from before Bleriot crossed the Channel to the present day. Nine authors have pooled their talents to cover everything from the rise of the Vintage movement to electronic timers and GPS tracking.

The histories of gliders, scale, rubber, electrics, power models and indoor are all explored by people who've spent most of their lives flying their classes. Although there's no 2022 Free Flight Forum Report we think A Century of British Free Flight will more than fill the gap. All proceeds will go towards defraying the expenses of those representing the United Kingdom in teams competing at the World and European Free-Flight Championships.

The UK price is £20.00 on the flying field or £22.00 by mail; to Europe it's £25.00 and anywhere else it's £28.00. Cheques should be payable to 'BMFA F/F Team Support Fund' in pounds sterling, drawn on a bank with a UK branch; you may also order by credit card, which is a lot easier (and cheaper).



Copies are available from:

Martin Dilly, 20, Links Road, West Wickham, Kent BR4 0QW
or by phone: (44) + (0)20-8777-5533,
or by e-mail to martindilly20@gmail.com.

E30/RDT/BMK/E20 Batteries

The 75mAh lipo's which I sell for E30 now come with Micro JST plugs which make them suitable for BMK timers etc. Since they do not have the current limiter, they work well with the Band Burner and can also be used as lightweight E20 batteries. Just send me £10 and I will put 4 in a Jiffy bag
Ron Marking, Pros Kairon, Pennance Road, Lanner, Redruth TR16 5TF. Alternatively, use PayPal but e-mail me your address. ron.marking@btinternet.com

DILLY JAP IS BACK -AGAIN

Well, that seventh roll of tissue went pretty fast, 300 yards in a bit under three years. I've just received a new roll; almost inevitably there's a slight price rise but it's still only £15 for a five yard roll a yard wide, or £17 by mail to the UK, folded. I normally sell it in rolls at contests, but if you want yours mailed in a roll let me know and I'll sort out a length of plastic pipe and find a courier price. Doing the sums, there's now well over a mile of Dilly Jap covering models all over the world.

To re-cap on the details, it's 12 gm/M² and has a strong unidirectional grain. It's white and low absorbency, so remains very light when doped. For those of you old enough to remember, it's identical to the Harry York tissue sold at his South London model shop in the 1950s.

I'm on 0208-7775533 or e-mail: martindillv20@gmail.com

INDEPENDENT REVIEW OF DILLY JAPANESE TISSUE

The following appeared on the Hip Pocket Aeronautics Builders' Forum. Nine different tissues were tested, doped and un-doped.

"I am really impressed with how well this tissue performed. Dilly Jap tissue with 2 coats of thinned nitrate dope is around 8% stronger than the old 00 Silkspan with 2 coats of dope, yet Dilly Jap is 0.09 grams per square foot lighter. Here are the test results:

Test#	Tissue Type	gm/sqft	Avg Ten Str lb	Spec Str lb/gm
9a	Dilly tissue (UD)	1.20	14.74	12.28
9b	Dilly Jap Tissue (D)	2.04	19.70	9.66

So far, the Dilly Jap tissue has the highest specific strength of all the tissues and Silk-spans tested. Doped Dilly Jap has nearly double the strength of doped Japanese Esaki tissue and yet doped Dilly Jap weighs 0.1 grams per square foot less than doped Esaki. Dilly Jap can't be beat for weight critical contest models requiring the torsional rigidity afforded by tissue papers!"

FREE FLIGHT FORUM REPORT 2021

Indoor Duration - A Challenge To Conventional Design - Tony Webb
 Cooped In A Box - Gerni Mancini
 Building Other People's Models - Stuart Darnon
 The Making Of Ray Models - Simon Dixon
 Simulated 3D Flight Dynamics - An Approach To Gain Insight For
 Trimming Aircraft Development - Peter Martin
 Building Dummies - Phil Ball
 Time Your Fly And Related Thoughts - Mike Woodhouse
 What Next For A Lady Flyer - Sue Johnson
 F3 Res - Res For The Aging Free Flyer - Andy Sefton
 From Nicotina To Robin II - Mike Farthing
 Further Thoughts On Custom Simmed Things For Fly - Stuart Darnon
 Gee Forcing And Electronic Stability - John Emmell

The UK price is £13 including postage; to the rest of Europe
 its £16 and everywhere else its £20. Forum Report sales help
 to defray the heavy expenses of those who represent Great
 Britain at World and European Free Flight Championships.
 Cheques should be payable to: UMFA FF Team Support Fund
 in pounds sterling and drawn on a bank with a UK branch.
 You can also pay by credit card, which is far easier (and
 cheaper).

Copies are available from: Martin Dilly, 20, Links Road, West Wickham, Kent BR4 0QW
 Or by phone: +44(0)2057775533 Or e-mail: martindilly20@gmail.com



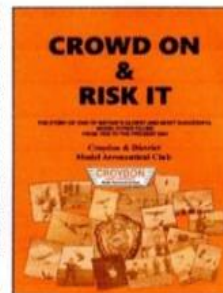
CROWD ON & RISK IT

This is the story of one of Britain's oldest and most successful model flying clubs, Croydon & District MAC, from 1936 onwards. The club contributed much to aviation, both model and full-size, and the late Keith Miller compiled its history till around 1960. Now, this up-dated 73 page version of the club's history, copiously illustrated with many previously unpublished photos, takes the Croydon saga up to the present. Contributions by past and present members vividly capture the atmosphere of the heyday of free-flight, with almost weekly contests at Chobham or Basingstoke.

53 designs by Croydon members have been published in the model press and 24 of its members have represented Great Britain in World and European Championship teams. Several have gone on to notable careers in aerospace. Crowd On & Risk It covers all this and more.

Just £10 by PayPal or cheque

Contact Martin Dilly (martindilly20@gmail.com), phone/fax 020 8777 5533
 or write to 20, Links Road, West Wickham, Kent BR4 0QW for your copy.



FREE FLIGHT SUPPLIES

MICHAEL J. WOODHOUSE

12 MARSTON LANE, EATON, NORWICH
 NORFOLK, NR4 6LZ, U.K.

Tel/Fax: (01603) 457754 International Tel +44-1603-457754

e-mail: mike@freeflightsupplies.co.uk.

Web site: <http://www.freeflightsupplies.co.uk>.

Face book <https://www.facebook.com/groups/266212470107073/>

I supply items, which are needed by the free flight modeller, or any other modeller, items that cannot be readily obtained through the normal model shop outlets. I also believe in the builder of the model principal so what you will find, on my list, are components, plans and kits etc. Although I am not a shop, if you are passing through Norwich, you are welcome to call in, a quick telephone call first to check that I'm at home will save a wasted diversion.

ORDERS and PAYMENT

Place your order by telephone, by e-mail, CASH, DIRECT TO FREE FLIGHT SUPPLIES BANK ACCOUNT, CREDIT/DEBIT CARD, MORE!

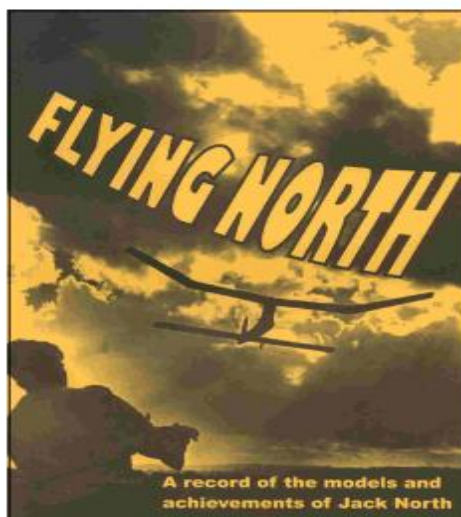
WESTERN UNION, PAYPAL

AVAILABLE

LIGHTWEIGHT COVERING MATERIALS - HI-TECH MATERIALS - FIXINGS - RUBBER - RUBBER MODEL PROPELLERS - TIMERS - KP AERO MODELS - TOOLS - PLANS - KITS - "HOW TO DO IT" PUBLICATIONS - BOOKS.

Full details of the above items are on
 the Free Flight Supplies Web site.

THIRD RE-PRINT JUST ARRIVED



FLYING NORTH A goldmine for vintage and nostalgia model flyers -

FLYING NORTH traces the model flying career of Jack North, one of only three people to represent the UK on all three outdoor free flight teams, - Wakefield, Power and Glider. It covers his flying and models from 1938 onwards and includes no less than 24 of his previously-unpublished designs.

FLYING NORTH was compiled and edited by two of Jack's Croydon clubmates, David Beales and Martin Dilly, who had access to Jack's extensive notebooks, photographs, drawings and his original models.

FLYING NORTH is a fascinating 163 page book and includes 130 photographs, reminiscences by colleagues, re-prints of all Jack's published plans and articles, including his later extensive work on thermal detection, and an outline of the professional career that also made him such a respected name in high-speed aerodynamics.

FLYING NORTH proceeds go towards the costs of the national teams representing the UK at World and European Free-Flight Championships.

READERS' FEEDBACK

"... no other modeller's life and times can ever have been so comprehensively covered"

"I hope it becomes a classic."

"I am glad I bought Flying North. such a huge chunk of nostalgia"

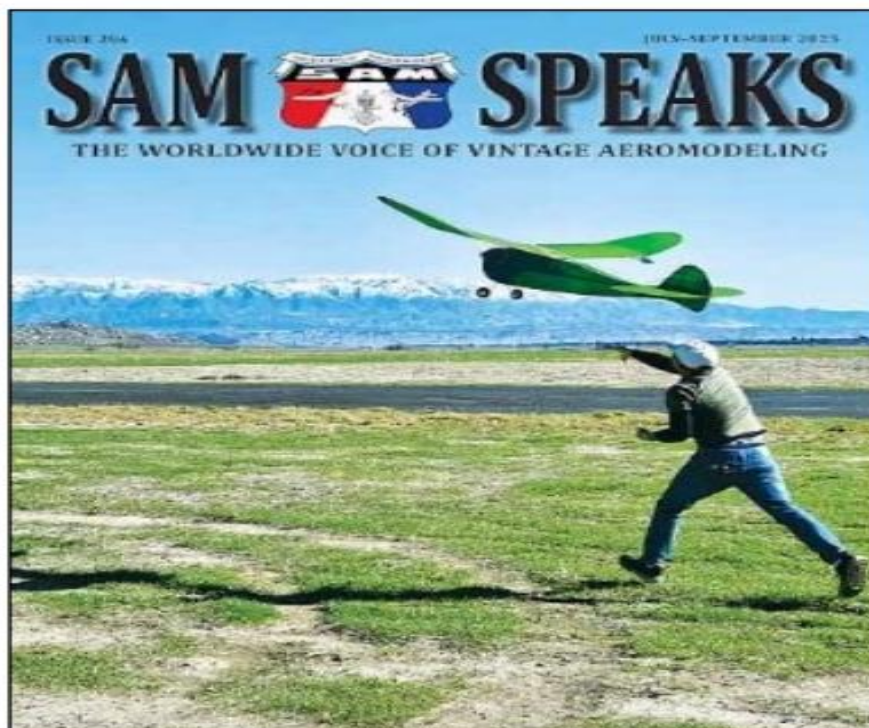
"... am immensely impressed. A splendid effort"

"A fitting memorial to an unforgettable personality. I am sure the book will become an instant classic, treasured by aeromodellers all over the world"

"A very balanced record of Jack's modelling and professional activities"

"The best aeromodeling book since the Zaic Yearbooks"

Price £22.00 in the UK, £26 airmail to Europe and £32 elsewhere.
Contact Martin Dilly on +44 (0)208-7775533 or e-mail martindilly20@gmail.com



This bi monthly emagazine can be obtained from the
Society of Antique Modellers. Web site
<http://www.antiquemodeler.org/>
for the modest cost of \$30 pa.
Quite a few UK people already belong,
but a few more might help our Parent Body!

Provisional Events Calendar 2025

With competitions for Vintage and/or Classic models
All competitions are provisional. **Check websites before attending**

February 22 nd or February 23 rd	Saturday Sunday	Coupe De Brum, Luffenham
March 9 th March 23 rd	Sunday Sunday	BMFA 1st Area BMFA 2 nd Area
April 6 th April 18 th or April 19 th	Sunday Friday Saturday	BMFA 3 rd Area Northern Gala, Luffenham
May 4 th May 24 th or May 25 th	Sunday Saturday Sunday	BMFA 4 th Area London Gala, Salisbury Plain
June 1 st June 14 th or June 15 th June 28 th or June 29 th	Sunday Saturday Sunday Saturday Sunday	BMFA 5 th Area Croydon, & 1066, Salisbury Plain Crookham Gala, Salisbury Plain
July 6 th July 26 th or July 27 th	Sunday Saturday Sunday	BMFA 6 th Area Southern Gala, Salisbury Plain
August 9 th or August 10 th August 23 rd August 24 th August 25 th	Saturday Sunday Saturday Sunday Monday	East Anglian Gala, Sculthorpe FF Nationals , Sculthorpe FF Nationals , Sculthorpe FF Nationals , Sculthorpe
September 7 th September 13 th & September 14 th September 14 th September 20 th or September 21 st	Sunday Saturday Sunday Sunday Saturday Sunday	BMFA 7 th Area Stonehenge & Equinox cups, Sculthorpe Southern Area BMFA Gala, Odiham Birmingham Classic, Luffenham
October 4 th or October 5 th October 12 th October 25 th or October 26 th	Saturday Sunday Sunday Saturday Sunday	Croydon & 1066, Salisbury Plain BMFA 8 th Area Midland Gala, Luffenham
November 15 th /16 th or November 22 nd /23 rd	Sat or Sun Sat or Sun	BMFA Mini Gala, Buckminster
December 6 th or December 7 th	Saturday Sunday	Coupe de Brum, Luffenham

Please check before travelling to any of these events.

Access to MOD property can be withdrawn at very short notice!

For up-to-date details of SAM 1066 events at Salisbury Plain check the Website

www.SAM1066.org

For up-to-date details of all BMFA Free Flight events check the websites

www.freeflightuk.org or www.BMFA.org

For up-to-date details of SAM 35 events refer to SAM SPEAKS or check website

www.SAM35.org

Useful Websites

SAM 1066	-	www.sam1066.org
Mike Woodhouse	-	www.freeflightsupplies.co.uk
BMFA	-	www.bmfa.org
SAM 35	-	www.sam35.org
National Free Flight society (USA)	-	www.freeflight.org
Ray Alban	-	www.vintagemodelairplane.com
Belair Kit's	-	www.belairkit's.com
Wessex Aeromodellers	-	www.wessexaml.co.uk
US SAM website	-	www.antiquemodeler.org
Peterborough MFC	-	www.peterboroughmfc.org
Outerzone -free plans	-	www.outerzone.co.uk
Model Flying New Zealand	-	www.modelflyingnz.org
Raynes Park MAC	-	www.raynesparkmac.c1.biz
Sweden, PatrikGertsson	-	www.modellvänner.se
Magazine downloads	-	www.rclibrary.co.uk
South Bristol MAC	-	www.southbristolmac.co.uk
Vintage Model Co.	-	www.vintagemodelcompany.com
Norcim	-	http://norcimradiocontrol.scienceontheweb.net/
David Caudrey	-	https://davidcaudrey.me.uk/
John Andrews		www.johnandrewsaeromodeller.webs.com

control/left click to go to sites

Are You Getting Yours? - Membership secretary

As most of you know, we send out an email each month letting you know about the posting of the latest edition of the New Clarion on the website. Invariably, a few emails get bounced back, so if you're suddenly not hearing from us, could it be you've changed your email address and not told us? To get back on track, email membership@sam1066.org to let us know your new cyber address (snailmail address too, if that's changed as well).

P.S.

I always need articles/letters/anecdotes to keep the New Clarion going, please pen at least one piece. I can handle any media down to hand written if that's where you're at. Pictures can be jpeg or photo's or scans of photos. I just want your input. Members really are interested in your experiences even though you may think them insignificant.

**If I fail to use any of your submissions it will be due to an oversight,
please feel free to advise and/or chastise**

Your editor

John Andrews