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- President's Message.
- Free Flight at Canowindra 2008.
- Western Australia Report.
- Control Line - Back in the 50's
- Frog 500 Engine Review.
- Tomboy - How the Poms set them up.
- Coota Cup report.
- ½A Chit Chat on props.
- Electric Oldtimer - Working out motors.
- Eastern States Gas Champs report.
- The Back Page.

**BULLETIN No. 148**

**September - October**

**2007**

#### **Worth Noting...**

Nearly another year finished and only two Oldtimer Events to go as this is written, Lithgow on 27-28 October and Muswellbrook on 17-18 November (See ad below). The first Oldtimer for 2008 is the Orange Oldtimer (Alan Brown Memorial) on 2-3 February, 2008. As already reported previously, Easter is early next year, 20th-24th March, 2008, so this might change the traditional dates for some Oldtimer events in the first half of the year. As soon as dates are known they will be circulated. Event hosts might advise their 2008 dates as soon as possible, please.

Electronic Duration Times. Rising production and postage costs are impacting on Duration Times and the proposition of changing over to an electronic version must seriously be considered by our members. The other factor is the time involved in preparing DT into a document for printing compared in preparing DT as an electronic publication is a big deterrent in recruiting future editors. Preparing DT for electronic publication only is much easier than preparing a print document. Layout is not nearly as critical and much more use of photos, plans, etc. is possible, as number of pages is far more flexible and therefore, more extensive articles etc. can be included. Pictures can be a much lower definition to that required for printing as well, so more pages do not make the document any larger than the PDF version of DT which is currently circulated, probably would be smaller. And of course the time taken to get the original to the printer, (currently an eighty kilometre round trip to take it there and then another eighty kilometers to collect it a day or so later, particularly when it is in the opposite direction to one's normal daily travel to their workplace. This may well not be a factor for some.), and the folding and stuffing of envelopes, doesn't make it attractive to a prospective future editor. Therefore it is felt that SAM 1788 should carefully consider the future of Duration Times sooner rather than later and make the move towards producing DT as an electronic newsletter.

Note: Any members who do not currently receive Duration Time by email and would like to do so only need to send an email to the Editor (email address on page 2) and they will be added to the current email list. Please note however that Duration Times is not sent out by email until around seven days after the printed copy is posted to members.

Thanks to the various contributors to this edition of Duration Times, in particular those members who manage to make it for every issue. Remember, all contributions are gratefully received and can be written or electronic.

## **Muswellbrook District Model Aero Sports Old Timer Weekend**

**Where:** Mitchellhill flying field Muswellbrook

**When:** Saturday 17th & Sunday 18th November, 2007.

**Program:** Saturday 17th - 9.30am start - Gordon Burford then Duration

**Saturday Night:** Informal Dinner at Muswellbrook Workers Club

**Sunday 18th** 9am start - ½A Texaco then Texaco

**BBQ, Drinks, Coffee and Tea at field**

**For Information Contact: Simon Bishop 02 6543 5170**

Duration Times is the official Newsletter of SAM 1788

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Email for Duration Times - [iwa@internode.on.net](mailto:iwa@internode.on.net)**UPCOMING OLDTIMER EVENTS FOR 2007-2008**

Nov	17-18	Muswellbrook Oldtimer Weekend	Muswellbrook	Simon Bishop	6543-5170.
February	2-3	Oldtimer (Alan Brown Memorial)	Orange	Peter Johnsen	6362-9410.
March	20-24	SAM 1788 Champs	Canowindra	Paul Farthing	6364-0264.

**From the President**

Greetings again. Another few months have passed and summer is nearly here, and that means Christmas again. Put your wish list in now so you don't miss out.

The Coota Cup for 2007 was well attended with competitors from NSW and Victoria. Several members opted to camp on the field but this year the weather was very mild and no camp fires were needed. A very good weekend was had by all including an excellent dinner, after a long wait, on Saturday night. A big vote of thanks to Sharon Smith for all her hard work as usual in the canteen (and her helpers) keeping us fed and watered all weekend.

Wangaratta was again the venue for the 2007 Eastern States Gas Champs held on the NSW October long-weekend. The official flying was on Saturday and Sunday while Monday it was planned by the NSW flyers run a couple of rounds of the Queenslander's Climb and Glide event. However the weather did not co-operate this year with the wind starting on Saturday afternoon and then again on Sunday morning to the extent that  $\frac{1}{2}A$  almost was blown away and Texaco abandoned altogether. Monday was totally blown away with gale force winds.

Safety: People are still mixing flesh with props. - think SAFE when starting your model. Always use the keyboard when operating your transmitter no matter what and this now includes the 2.4Ghz radios. Please always consider your fellow modellers at all times. There were two fly-aways in  $\frac{1}{2}A$  at Wangaratta directly caused by at times violent wind gusts. If you are unfortunate enough to suffer a fly-away a tracker will give you a better chance of recovery - think about it.

Canowindra - Easter 2008 (20-24 March, 2008). You need to start preparing now to be ready to do battle (and enjoy a great weekend), as Easter is early next year. I need to start preparations for the flying field at Bogwood also. We will be flying on a new field in 2008. There is an extended Free Flight and Control Line segment planned for next year so be ready for that too. Don't forget Dave Brown's great offer for a plan and partial kit for the Aeroflyte Spitfire (2008 C/L Model) if you need to get organised for the Control Line events.

Entry forms and competition program for Canowindra 2008 will be published soon and distributed with Duration Times No. 149. Time is getting short for those members planning to attend the 2008 MAAA Nationals in Perth. The 62nd MAAA National are to be hosted by NSW. As soon as we get any info re where and when we will pass it on.

The final Oldtimer for 2007 is the Oldtimer weekend at Muswellbrook on 17-18 November, 2007. This should be a great weekend as usual and hope to see some of the old faces from up that way once again. Lithgow Oldtimer may well be over by the time you read this so I hope you had a good time.

Until next time suffer great thermals and hope to see you at Muswellbrook on 17-18 November, 2007. Paul Farthing. SAM 1788 President.

P.S. Samsan, Ether and IPN are still available from SAM1788 President. Bring along your bottle.

**IS THIS YOUR XMAS PRESENT?**

the  
**MPJet Classic 040 Diesel**

- the best little 0.6cc diesel ever made for FF or RC.
- a clear FF tank, standard metal tank, spinner nut, standard propnut and washer, mounting screws, washers and nuts are all included for \$110 only.
- a machined radial mount is available as an extra.
- a Conditional Warranty applies for 6 months.
- spare parts are in stock now.

The next and last shipment of these little engines should arrive shortly. So, if you haven't already got one ordered, speak to Santa now and ask him to:

contact David Owen, OWEN ENGINES Australia  
ph: 02-4227 2699, or email [<owendc@tpg.com.au>](mailto:owendc@tpg.com.au)

# Vintage Free Flight Department.

From Peter Scott.

In view of the success of the Easter Weekend Free Flight and Tomboy events over the last couple of years, I would like to remind you that it's about time some more of you participated in this 'back to your roots' event. Don't forget, Easter is early next year and the SAM Champs Free Flight will be on 20th March, 2008.

Vintage power rules - as per MAAA rule book - ie: motor must be pre 1955 or replica, but with one small concession, any Taipan/GB plain bearing motors are allowed. Any Free Flight pre 1955 model (can be Playboy, Stomper - anything - complicated or simple. Engine must be within capacity shown on the plan. 15 second engine run; - 3 minute max.

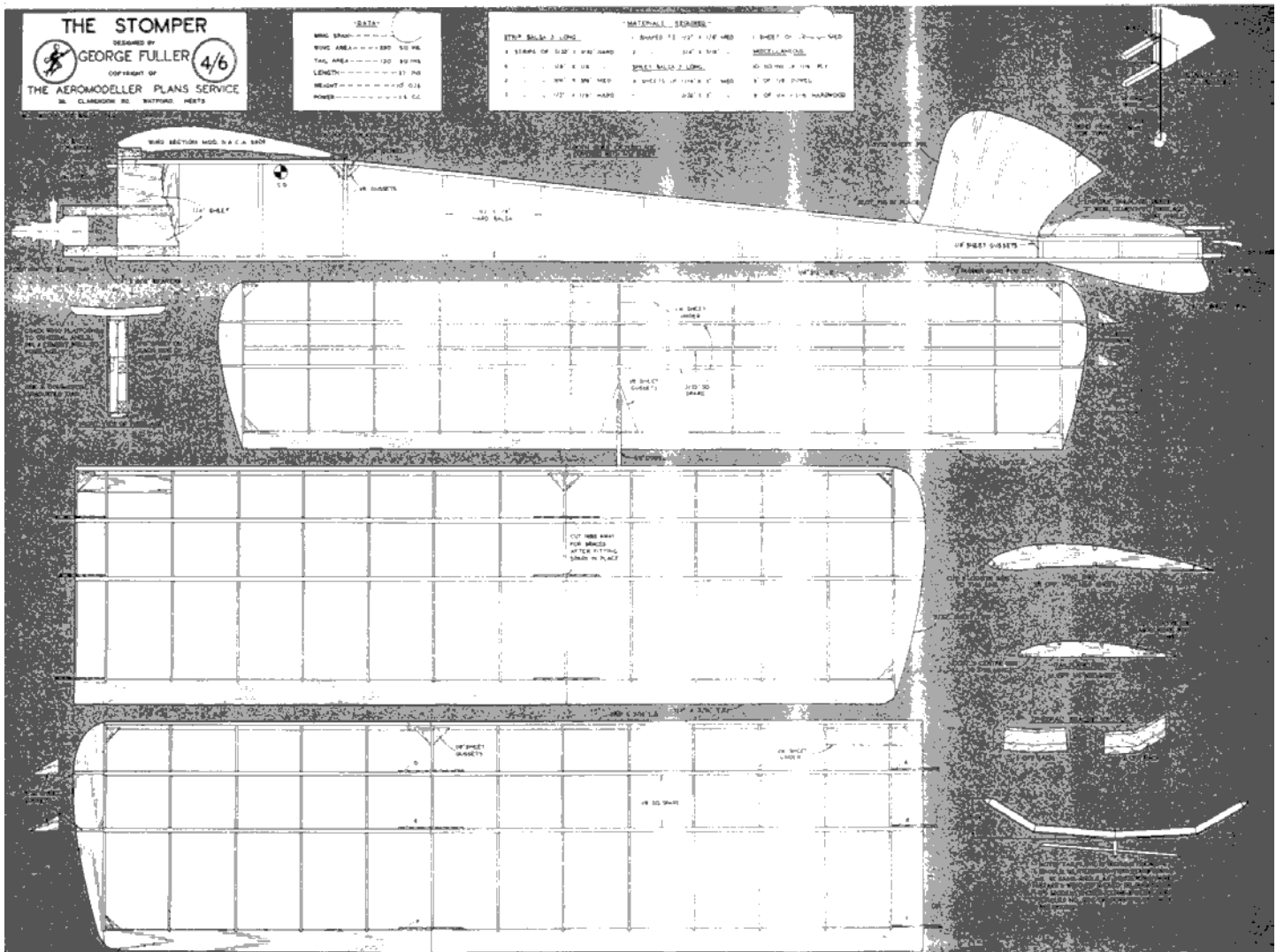
Now, can you remember how to trim a Free Flight power model? Any questions 'phone Peter Scott (02 9624-1262) or Basil Healy (02 4341-7292) for advice. If you haven't a timer, again 'phone Peter Scott or John Fletcher.

Anyone can build a Stomper in a weekend - plans and kit available from Brownie. He also has same for Slick Stick 2.5 to 3.5cc. Why not an Eliminator? Top model with a 1.5cc motor in it.

We will lend trackers and run a retrieval service on the day if required.

First place winner will receive a new free flight kit from the past (N.O.S.)The Free Flight Tomboy event will be a power ratio event as last year. (The smart modeller would build a Tomboy to do Vintage Power and the power ratio event). First prize will be a new Cox 049 engine. The Radio Tomboy event will also be a power ratio event, but as you made trimming your model easier, the winner will only receive a diploma!

Basil Healy's Stomper is away! - Canowindra



## Western Australia Report - from Paul Baartz.

### The W.A. 2007 TOMBOY Challenge

The Tomboy Challenge was held on Sunday 9<sup>th</sup> September at Mundijong in almost ideal conditions with a fine cool day and a light, mainly southerly breeze.

Fourteen flyers entered the event and a great range of different engines was used with diesels, especially the Mills and PAW engines being the most popular. For those unaware of the Tomboy it is a free-flight design from the early 1950's and the challenge event uses this design only, there are a few options such as two different wing and tailplane sizes but the basic design remains the same. To modernise things a bit two channel radio control is used, as one pundit stated this allows the model to be crashed closer to the flyer. Engines of 1cc and less are allowed and the aim is to achieve the longest possible flight using the allocated measure of fuel for each of three flights. The best single flight counts as the contestant's score.

Only one enthusiast attempted to use an electric powered model, which is allowed, with motor run times scaled to suit, however although the power was reasonable the model would just not behave and glide respectably.

There is no maximum flight time and quite a few really good flights were achieved on the day with at least four being over the twelve minute mark. Several of these flights were not recorded as in one case the model landed outside of the designated landing area and sadly, Rod McDonalds model went out of sight vertically at about the ten minute mark of its flight, which would certainly have been the best of the day had he not been so unlucky.

A magnificent trophy which consists of a rejuvenated 1950's trophy originating from an American club, restored and donated by Ian Dixon was presented to the winner Greg McLure and a number of prizes given out to the placer-getters.

### RESULTS: (score in seconds)

1. Greg McLure	PAW 1cc	856
2. Ken Wansborough	Mills 0.75cc	686
3. Les Isitt	Norvel 1cc	478
4. Gary Dickens	Mills 0.75cc	441
5. Kevin Hooper	PAW 0.8cc	432
6. Andrew Isitt	Norvel 1cc	423
7. Adrian Dyson	PAW 0.8cc	308
8. Ian Dixon	PAW 1cc	250
9. Alan Trott	G-Mark1cc	245
10. Peter White	PAW 1cc	159
11. Rod McDonald	DC Dart 0.5cc	155
12. Paul Baartz	Mills 0.75cc	152
13. Graeme Cooke	ED Bee 1cc	126
14. Charlie Coles	Electric	93



Left: Club President Glenn Milliken presenting Tomboy Challenge Trophy to the winner Greg McLure.

Above: Ian Dixon in religious pose addressing model.

Right: Well known Scale modeller Greg McClure, winner of the 2007 Tomboy Challenge with the Tomboy Challenge Trophy.



2007 Aeromodellers W.A. State Championships - Old Timer Texaco

This event was held on Sunday 16<sup>th</sup> September at Mundijong. The field was a bit lush so several volunteers manned the club mower and cleared a lovely take-off and landing area. The weather was fine, although showers were threatened, with a cool variable but mostly southwesterly breeze and about 50% cloud cover.

Eleven flyers took part and before proceedings started Ray Sherburn somehow managed to put his Flamingo into a tree, he got it down to earth in one piece but then a tree branch fell onto the tail-plane and crushed it. Ray effected repairs and flew in the contest as if nothing had happened. This tree must have been magnetic as during the contest Kevin Hooper also landed his model in it and likewise repaired the damage and flew on to the end.

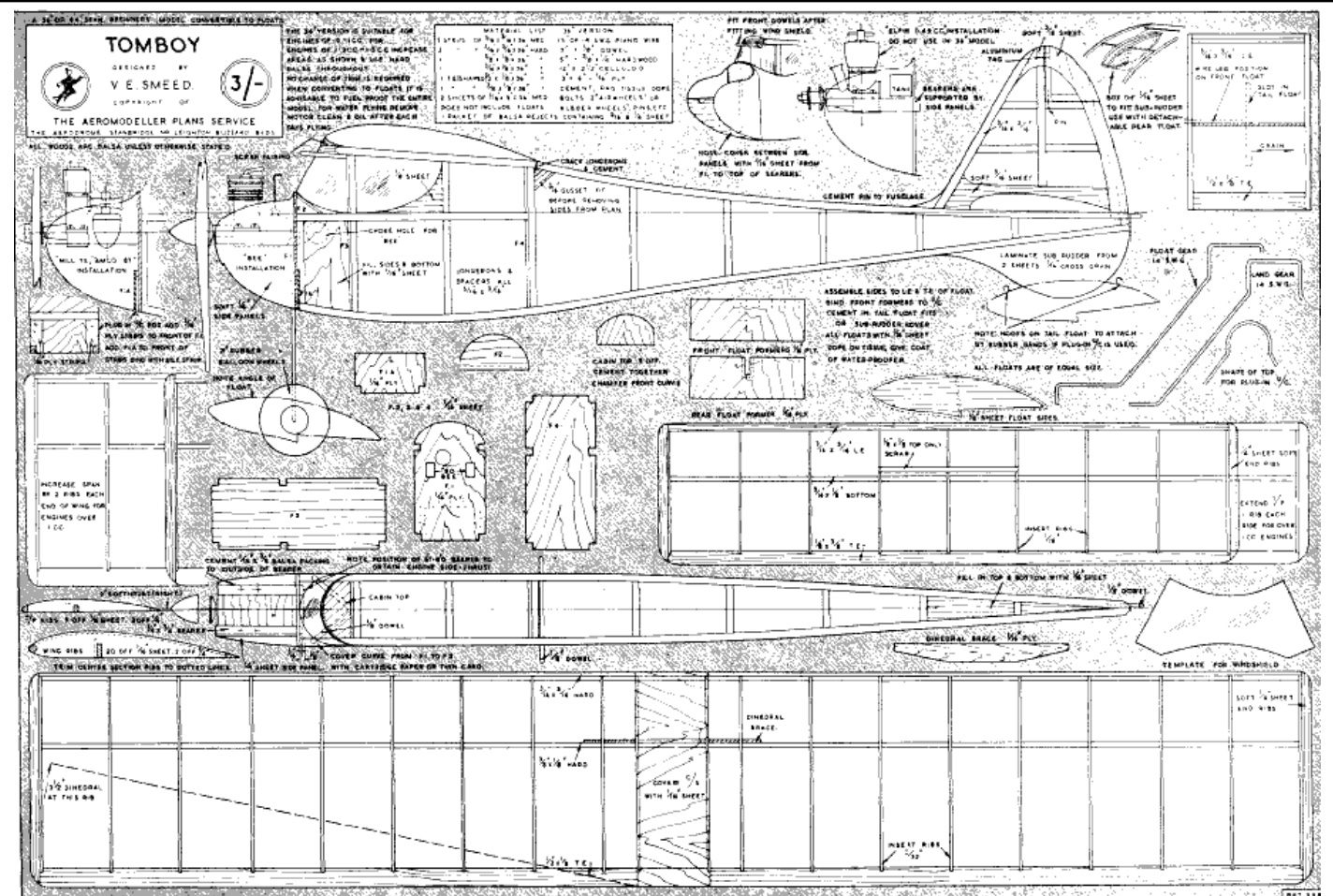
Four qualified for the fly-off, which was almost a replay of last year's dramatic event. Mark Sherburn's model got tangled with Mark on take-off and so ruined his flight, Alan Trott's engine suffered an early cut out and left him struggling to make a good flight. This left Paul Baartz and Ray Sherburn to fight out for first place and the lighter weight of the Bomber provided a bit better glide giving Paul the win.

The event was flown with 2.5cc per pound fuel allocation and probably because of the great conditions the maximum flight time of ten minutes was achieved at least once by almost all of the competitors. Once again the Magnum/ASP .61fs engine was the most popular and performed really well with some getting up to a three minute engine run, admittedly using a 14 inch prop and throttled back a fair bit.

The much coveted wooden spoon trophy was presented to Gary Dickens who battled manfully but could not coax any reasonable amount of power from his engine. Gary holds this magnificent artwork in the form of an aircraft made from tinplate and bearing very faint resemblance to a real flying machine, until next years Texaco event.

Oldtimer Texaco RESULTS:

1. Paul Baartz	85% Bomber /OS.40fs	1800	531	7. Les Isitt	85%Bomber/Magnum.61fs	1402
2. Ray Sherburn	Flamingo/Magnum.61fs	1800	469	8. Andrew Isitt	Flamingo/Magnum.61fs	1360
3. Alan Trott	85% Bomber/ASP .61f	1800	277	9. Kevin Hooper	75%Bomber/OS.48fs	1227
4. Mark Sherburn	85% Bomber/Magnum.61fs	1800		10. Glenn Milliken	Buccaneer/Magnum.61fs	983
5. Rob Rowson	Miss America/OS.60fs	1749		11. Gary Dickens	Trenton Terror/OS.40fs	10
6. Ian Dixon	Anderson Pylon/OS.60fs	1602				



## BACK IN THE '50s

From David Owen.

When Ian mentioned that he was doing an article on the Frog 500 this month, I thought it would be a good idea to re-visit the era when this engine was an all-time favorite on the Australian modeling scene. The 500 was first released in 1950 and by late 1951 over 20,000 had been sold, such was the demand for this powerful, easy starting engine. Although fitted with a nice, backplate mounted free-flight tank, most of which were immediately discarded, the Frog 500 powered countless Demons, Ringmasters, Stunt Queens and similar large (for the day) stunters, and was rarely seen in a F/F model.



Frog 500 Ignition

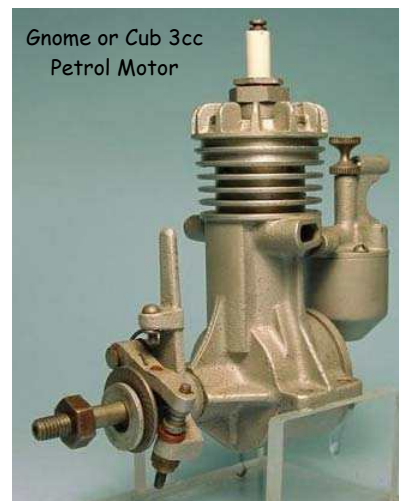
'The Model Dockyard' in Swanston Street, Melbourne, listed the Frog 500 for the first time in their 1950 Catalogue, priced at £5/15/-. Using the Reserve Bank inflation index, this is the equivalent of \$238.51 today. Given the fact that, today, one can purchase a similar size engine of vastly superior performance and durability for \$100-120, relative engine prices would seem to have halved in the intervening 50 plus years!

What else was available from Model Dockyard in 1950? I'll quote the price corrected for inflation in brackets, just as a matter of interest:

There were a number of Australian engines from an earlier era still listed, few of which would have compared in any way with the newer engines, such as the

Frog 500, now being imported from England.

The "Cub 3cc Petrol Motor" was described as a 'high speed engine' and came complete with a 'Coil, a Condenser and a miniature 3/8" Sparking Plug' for £8/10/- (\$352.58). For those of limited means, the Cub could be made from a casting set, supplied complete with 'detailed blue prints' for 32/6 (\$67.40).



Gnome or Cub 3cc  
Petrol Motor



MD 5cc Vanguard Pup

The nominally 5cc "Vanguard Pup" was a more advanced front rotary valve design than the Cub and sold in both assembled and casting form for the same prices. It was not so loosely-based on the pre-war Baby Cyclone, so it was hardly a robust competitor for the Frog 500.

The two big guns in the Model Dockyard line-up were firstly the very popular "Whirlwind ¼ h.p. Petrol Motor", which sold for £7/15/- (\$321.47) complete with all ignition equipment. The Whirlwind was a pre-war design, based on the Dennykite, and originally produced by a brilliant Melbourne engineer, Cliff McGuinness. McGuinness went on to build the first ball-point pen production machinery in Australia, and his Whirlwinds were beautifully made. Many others were produced for sale through the Model Dockyard (in both finished and casting kit form) by a number of firms in Melbourne, and there are several and confusing models.

The casting kit sold for 35/- (\$72.59) and I'm sure some thousand or more of these were purchased in this form over a period of probably 20 years, as would-be machinists attempted to produce a working and flyable engine. Few were successfully completed, in my opinion.

The other popular engine was the 10cc "HURRICANE (Hornet Pattern) Super Petrol Motor 25,000 rpm", which was supplied in casting form for 40/- (\$82.96). This was a more successful engine than the others mentioned, and many were successfully completed by somewhat more competent amateurs, many of who probably worked in small engineering concerns. The Hurricanes powered many early Australian tether cars and were designed to run on methanol fuels, claiming an output of .89 h.p. The Hurricane would still be a useful engine in a '38 Antique model, though none have been seen.

Also in the Model Dockyard catalogue for 1950 were less well-



MD Whirl wind

known and out-dated spark ignition engines such as:

"Vanguard Junior", a large 12cc 2-stroke at 30/- (\$62.22) in casting form with blue-print. This engine was 'designed by a prominent firm of English engineers for model speedboat work' and is 'capable of high-revolutions'. The 'working drawings are complete and very clear, and any amateur should be able to construct a satisfactory engine from them'. Yes.....well, good luck!

"GRAYSON Pattern O.H.V. 25cc (four cycle) ENGINE" in casting form again for 30/-. A great lump of an engine weighing 4lb 2 oz (1.86kg).

"GRAYSPEC Pattern Engine", a 15cc 2-stroke based, as is the Grayson, on earlier English designs. This one was available as a finished engine, complete with ignition components and carburetor, for £12/10/- (\$518.50). It had a float-style carburetor, buyers being assured that it 'can run in an inverted position, called for in model aircraft practice'!



Early Whirlwind

The Grayspec was also offered in casting form at 30/-. 'All castings are in light alloy, cast from perfect patterns and modelled so that all parts can be worked in the usual manner on a 3" lathe'. However, the Grayspec casting kit did not include the 'float-feed carburettor', which could be purchased as an additional casting/blueprint set for 4/6 (\$9.33), or as a finished component 'weighing only 1 oz', for the sum of 45/- (\$93.33).



MD Hurricane

It must be remembered that these ignition engines (with the exception of the Hurricane) were out-dated designs. Now we run ignition on re-chargeable batteries, but in those days dry cells were used. These were relatively expensive, had a short life and did not result in a particularly reliable ignition system.

By 1950, there was a great variety of more modern engines similar to the Frog 500 on the market, in both diesel and glow form. We'll continue with a look at these in the next Duration Times.

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### Ku-Ring-Gai C/L All British Day.

From Peter Scott

Peter Scott, Roy Summersby and Reg Towell made the best of the day by making many flights with a Mercury Monitor powered by an Amco 35bb motor.

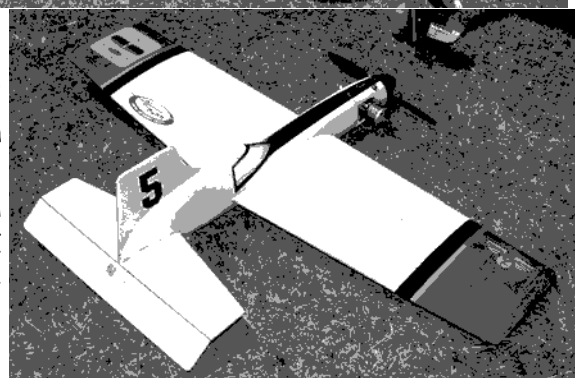
The British day theme also included appropriate attire. Suits, ties, knotted hankies, pith helmets Union Jack tee shirts, bowler hats etc complimented the amazing



collection of Pommie control line models, which took me way back in time. Some of these I'd only ever seen 'photo's of!

I let an avid team race wallah fly one of my Mercury Midgets with an Elfin in it as I wasn't prepared to spend the rest of my day feeling crook! Inevitably the tail came off on landing.

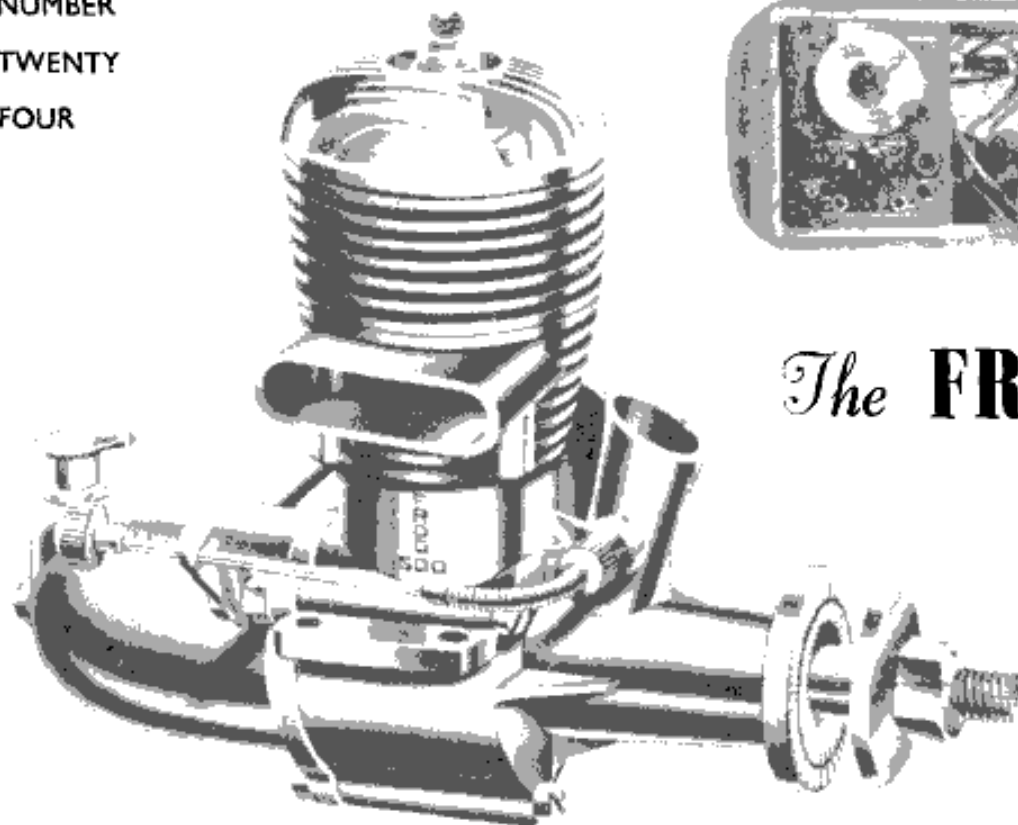
A great day out - complete with cucumber sandwiches!



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NUMBER  
TWENTY  
FOUR



## The FROG "500"

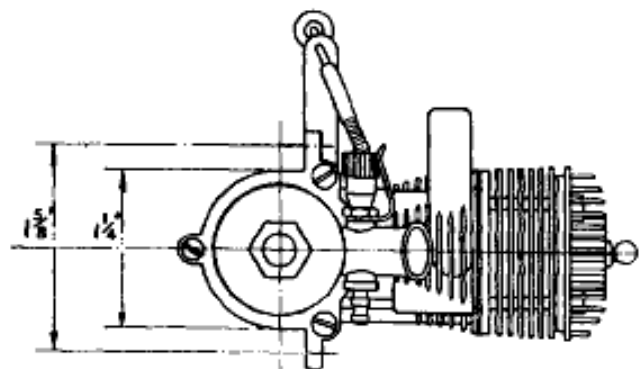
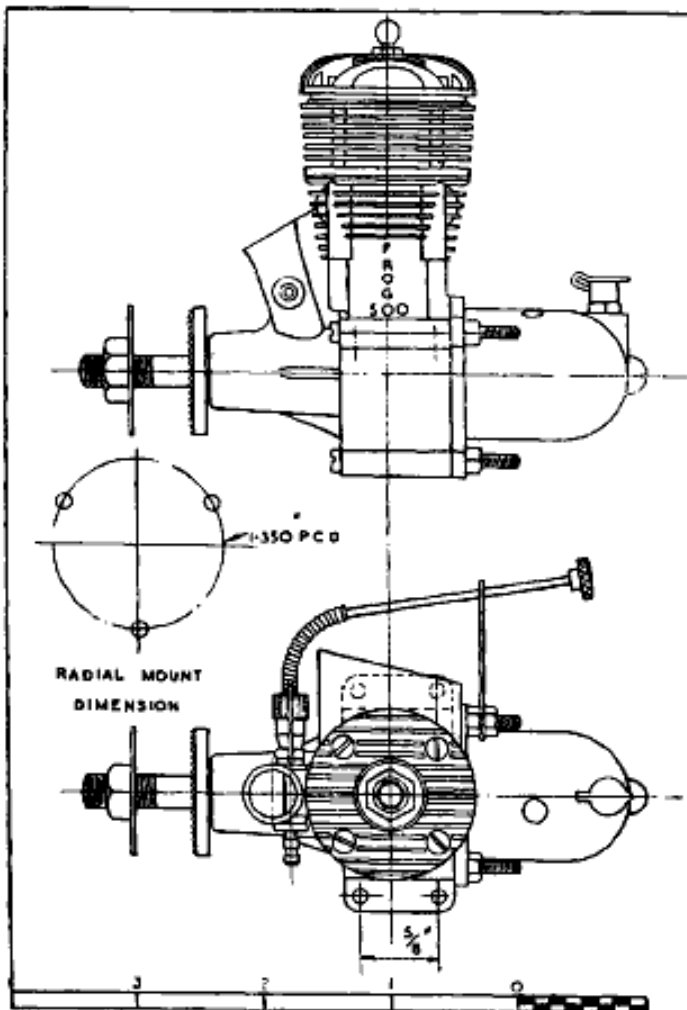
**I**N common with the other engines of the Frog range which I have tested, the "500" was a very nice engine to handle on the test stand. This manufacturer has an unflinching knack of making engines which run smoothly and evenly over a large range of speeds, and even when pushed above the 15,000 r.p.m. mark — with the b.h.p. falling rapidly — it purred with the same confidence as it did at 6,000 r.p.m. This provides ideal

conditions for a test, because with an engine which runs in bursts, and requires constant throttle attention, taking accurate torque and rev. readings becomes a most difficult process.

In the last "Engine Analysis" I touched upon the matter of improved appearance due to the increasing use of high-class die castings. The Frog "500" certainly typifies this trend: in fact, all the visible parts of this unit are die cast. This naturally gives the engine a neat and clean appearance, besides accounting for the low price at which this engine is marketed. The design is compact and pleasing.

Following latest practice, this is a short stroke engine, with a bore of .750 in. and a stroke of .680 in., but no roughness of running is noticeable on this account. Inlet is by rotary shaft valve, as in other Frog models, and a single exhaust port is retained. This is, however, of large size, and seems adequate for the purpose. A large area exhaust pipe forms part of the diecast cylinder and crankcase.

Throttle control is excellent, and the needle is fitted with a spring extension so that it may be bent backwards and





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hooked into a clip attached to the crankcase. This brings the control knob to the rear of the engine, and the fingers of the operator are well away from the spinning airscrew. Needle setting does not seem to be over critical, so that the slight "sponginess" usually associated with spring connections becomes no handicap.

As is usual with glow-plug engines, starting is good, the engine will start and run even if the needle control is badly out of adjustment.

The engine is supplied complete with fuel tank attached to the rear cover of the crankcase. By releasing one bolt, the tank may be rotated should it be desired to run inverted or upon its side. An unusual feature is that the fuel tank has no nipple to which the flexible petrol tubing may be attached. The tube is simply pushed into a hole in the tank, and forms a tight-fitting connection, which is neat and efficient.

#### TEST

**Engine:** Frog "500" "Red Glow": 4.92 c.c. glowplug.

**Fuel:** Frog "Red Glow" glowplug fuel.

**Starting:** Pulley and cord for convenience of test, but experimentally hand-started from time to time. Excellent at all times and in all conditions.

**Running:** This engine is remarkable for its extreme flexibility, as it ran smoothly and evenly at all speeds from 4,500 to 15,000 r.p.m.

**B.H.P.:** The engine shows an extremely good performance as it will be noted that a maximum b.h.p. of almost 400 was attained. Actual figure was 381 b.h.p. at the very useful speed of 13,300 r.p.m. Further increase in speed lowers the output, until at 14,300 it is down to 340 b.h.p. Beyond this the output falls rapidly, so that at 15,000 r.p.m. the b.h.p. is only 130. The graph shows that the efficient range of speeds lies between 12 and 14,000 r.p.m.; a drop from maximum of only 0.20 b.h.p. is experienced between these points.

**Checked Weight:** 7.5 ozs. with tank.

**Power/Weight Ratio:** 320 b.h.p./lb.

**Remarks:** The engine was purchased at random from a retail shop, and was run-in for 1/2 hour at 4,000 r.p.m. No trouble or mechanical failure was experienced throughout the tests. It should be noted that the manufacturers state that the weight of the engine is 7.75 ozs.

#### GENERAL STRUCTURAL DATA

**Name:** Frog 500.

**Manufacturers:** International Model Aircraft Ltd., Morden Road, Merton, London, S.W.19.

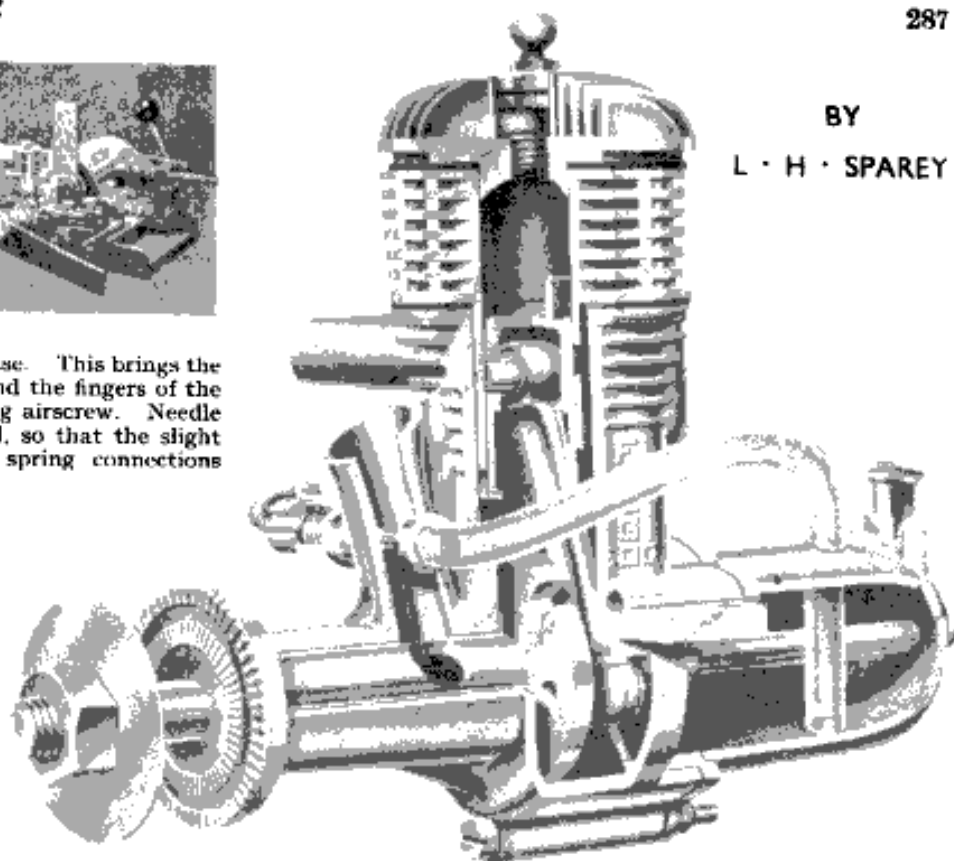
**Retail Price:** 75/-.

**Delivery:** ex-stock.

**Spares:** ex-stock.

**Type:** Glowplug.

**Specified Fuel:** Frog "Redglow".



BY  
L. H. SPAREY

**Capacity:** 4.92 c.c., .30 cu ins. **Weight:** 7.75 ozs. including tank. **Compression Ratio:** 8:1.

**Mounting:** Beam or Radial, upright or inverted.

**Recommended Airscrews:** Free Flight: 10x6 ins., 11x5 ins., 11x6 ins. Control Line: 9x6 ins., 10x6 ins.

**Flywheel:** 2x7/16 ins., 5 ozs. weight.

**Tank:** Detachable, universal mounting.

**Bore:** .750 ins. **Stroke:** .680 ins.

**Cylinder:** Hardened steel. Retained by 4 6B.A. screws deep spigotted to crankcase. 1 transfer port, 1 exhaust port.

**Cylinder Head:** Diecast Aluminium. Retained by 4 screws to cylinder. **Crankcase:** Diecast Aluminium.

**Piston:** Mechanite. Deflector type. No rings.

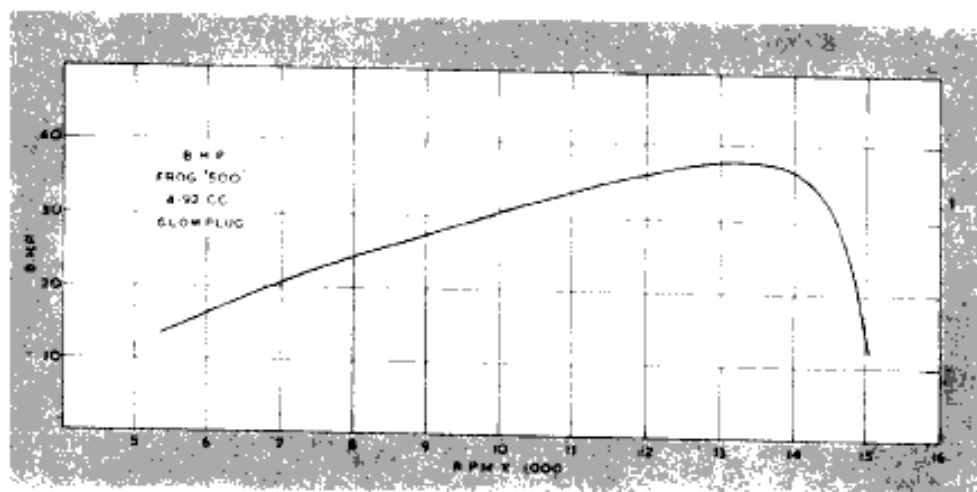
**Connecting Rod:** Forged Hyduminium, R.R.56.

**Crankpin Bearing:** Plain. Drilled for con. rod retaining pin. **Crankshaft:** Hardened steel, ground and honed.

**Main Bearing:** Phosphor Bronze honed.

**Little End Bearing:** Plain. **Glowplug:** 1/4 in. short reach, K.L.G. "Miniglow"

**Special Features:** Flexibility, with high power output. All parts machined to fine limits to ensure interchangeability. Contact breaker assembly available shortly for spark ignition.



## Tomboy 3s

The Tomboy 3s competitions, originally devised by David Boddington and held at various flying events over the past 18 months, have turned out to be very popular. The number of entries has increased at every event and the last one, held at the Cocklebarrow Farm vintage meeting in October 2006, had 10 models in the flyoff! These high enjoyment and low cost competitions are to continue in 2007

### Basic Rules

A Vic Smeed 36" Span Tomboy is required powered with any type of Mills .75 with the standard 3cc tank fitted and 2 channel R/C on the elevator and rudder. A throttle or fuel cutout can also be used. The competition consists of a number of preliminary flights [the number decided on the day] with normally a 4 minute max. and if required a mass flyoff to decide the winner.

As a Tomboy flyer I have been asked by a number of modellers for my opinion on the best covering materials, servos, batteries etc to use and if any structural mods are required. I have detailed my ideas as follows:-

### Engines

I have used both the original [Mk2] Mills and the Irvine Mills. The Irvine generally is faster revving than the normal Mills with a little over 8000 rpm using a 7X5 Master or APC prop. The normal Mills seems to be happy with a 8X4 Master or even a 7X6 APC. The Mills normally revs at about 7000 rpm. The Indian Mills with careful setting up is on par. with the Irvine. The fuel I have been using with the Irvine Mills is a 50/50 mix of Model Technics D1000 and D2000. As a matter of interest it has been found that some of the Indian Mills fuel tanks have a capacity of a little over 2cc as have some of the early mills, certainly worth checking. Engine runs are normally 2mins.20secs.+ with 3cc of fuel. It does pay to get the engine to full temperature before launching.

### Radio and Servos

I use the Webra Nano S6 and the Hitec 04MG receivers, these weigh 19 grams and have proved very reliable. There are available now a good selection of mini/micro servos and I have used Hitec HS 55s and also Tower Pro 9 gram Micro Servos.

### Battery

Recently I have been using 400mA Nmh cells manufactured by Overlander and also a company new to me called Strikalite. These batteries are carefully cycled before use. These are known as KAN cells and weigh approx 18 grammes. It is possible to use smaller capacity /lighter cells but normally with the Tomboy I find I can have a full days flying without charging the batteries. [Nothing worse than being in a flyoff not knowing if the batteries will last]

### Airframe.

As the wing has to be built as per the plan with only a bottom spar I laminate a length of 1/8" sq. spruce to the top edge of the 1/8"X 3/8" hard balsa wing spar using cyano. The ribs are then slotted deeper to take the spar. I extend the dihedral brace by 1/2" each side and also fit small gussets at the wing tips to the L/E and T/E. Other methods I have seen are a carbon fibre tows cyanoed to the spar and also the spar being replaced by spruce. I modify the tailplane and fin R/C using approx 50% of the fin for the rudder and reducing the tailplane chord to enable a 1/4"x 1/8" T/E with a 3/4" x 1/8" elevator. Variations I have seen are an all moving tail and on one Tomboy the rudder was on the subfin. The main criteria does seem to be that the elevator needs to

be powerful enough to get out of strong lift. Incidentally I attach my fin/rudder to the tailplane which is retained by rubber bands, some fliers fit the whole assembly permanently to the fuselage which can be a problem if an incidence change is required.

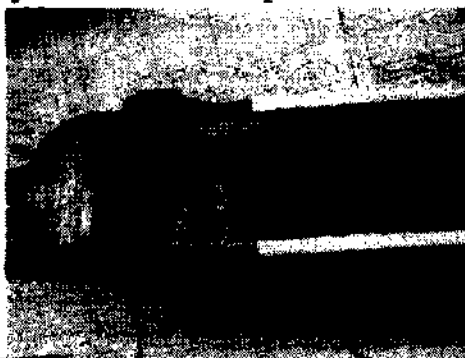
The fuselage needs very little alteration. I have replaced the former F3 [under wing L/E] with a 1/16" ply former with two large cut outs to allow the battery to be moved forward directly behind the front bulkhead F1. I have replaced F4 [under T/E ]with a 1/16" ply former the centre being cut right out to leave approx 5/16" around the edges. I also fitted two 1/8" sheet gussets between F4 and the bottom longerons. Some modellers [including myself] carry the side sheeting back an extra bay to give a little more protection to the RX and Servos. A modification I have found necessary was to reduce the wing incidence by packing up the T/E, in my case by 3/32". This improved penetration in windy conditions. I intend to increase the height of F4 on my next Tomboy with a very slight change in the top longeron curve.

### Covering

The covering method I am presently using is Esaki Lite Flite Tissue over 5 micron Mylar. This needs very little dope and gives a very strong structure. Other coverings I have seen used are Starspan, Polyspan, and Litespan these can be obtained from Free Flight Supplies and Flighthook.

### Installation

Most model have the RX and servos as far forward as possible. I mount my RX on soft foam tight up against F3 and the battery. The servos are mounted directly above on a removable ply plate. I am using lightweight snakes from the servos to the control horns attached to the fuselage spacers with thread and a drop of cyano. Other popular systems used are push rods and closed loop [closed loop is possibly the lightest]



### Thrust line/ C/G and weight

I use the thrust settings as shown on the plan and my C/G is 2 1/4" back from the L/E, both seem to be OK. Tomboys normally weigh between 11 and 16 ounces, mine both weigh around 13 ounces.

I am happy to help if you have any queries and can be contacted on  
02086413505 email [pjt2.alt2@btinternet.com](mailto:pjt2.alt2@btinternet.com)

Tony Tomlin

Suppliers. Freeflight supplies 01603 457754 <http://freeflightsupplies.co.uk>  
Flighthook 02380 861541 email [flitehook@talktalk.net](mailto:flitehook@talktalk.net)  
Overlander 01524 793328 email [sales@overlander.co.uk](mailto:sales@overlander.co.uk)  
Strikealite 01543 683122

# COOTA CUP OLDTIMER 8-9 SEPTEMBER, 2007 - RESULTS.

From Dave Brown.

## Gordon Burford Event

Peter	SCOTT	1953 Jaided Maid	Taipan BB	900	494
Peter R.	SMITH	Ollie	Taipan PB	900	456
Paul	FARTHING	110% Pencil Jr	Taipan PB	900	446
Robert	RUTLEDGE	1953 Spacer	Taipan PB	900	443
Peter J.	SMITH	Faison	Taipan PB	900	441
Ian	CONNELL	1953 Spacer	Taipan PB	900	422
Basil	HEALY	Dixielander	Taipan PB	900	412
Don	SOUTHWELL	Zoot Suit	Taipan PB	900	377
Grahame	MITCHELL	1956 Dream Weaver	Taipan PB	900	374
Grant	MANWARING	Spacer	Taipan PB	900	369
Dave	BROWN	1953 Cresendo	Taipan PB	900	
Bob	MARSHALL	1941 Lil Diamond	Taipan PB	885	
Geoff	POTTER	1952 Eliminator	Taipan PB	858	

## Duration

Peter J.	SMITH	1941 Playboy Cabin	McCoy 60	1260	927
Robert	RUTLEDGE	1941 Playboy	Saito 62 4/	1260	889
Paul	FARTHING	1941 Playboy 115%	McCoy 60 spk	1260	802
Brian	PAYNE	1941 Playboy	Saito 62 4/	1260	781
Basil	HEALY	Feather Merchant	YS 53 4/	1260	666
Grant	MANWARING	1941 Playboy	YS 53 4/	1260	622
Dave	BROWN	1938 Bomber 85%	Saito 56 4/	1260	395
Don	SOUTHWELL	1938 Bomber 85%	Dubb Jett 40	1219	
Barry	BARTON	1936 RC1	OS 46 FX	1209	
Grahame	MITCHELL	1941 Playboy	Super Tiger 34	1174	
George	CAR	1941 Playboy 112%	Nordic 60	1158	
Steve	WHITE	1941 Playboy	YS 53 4/	1070	
Peter	SCOTT	Blitz Buggy	Saito 65 4/	840	
Ian	AVERY	1941 ES Gas Champ	O.S.32 2/	729	
John	DIDUSZKO	1942 Buzz B'shell	OS 40 2/	690	
Geoff	POTTER	1942 Swoose	Enya 53 4/	274	

## 1/2a Texaco

Dave	BROWN	1942 Stardust Spec	1080	1916
Ian	CONNELL	1941 Lil Diamond	1080	1666
Peter	SCOTT	1942 Stardust Spec	1080	1511
George	CAR	1941 Lil Diamond	1080	920
Peter J.	SMITH	1942 Stardust Spec	1080	733
Peter R.	SMITH	1941 Lil Diamond	1080	674
Robert	RUTLEDGE	1942 Kerswap	1080	554
Basil	HEALY	Megow Chief	1080	553
Don	SOUTHWELL	1942 Stardust Spec	1080	514
Ross	AVERY	1936 MG	1080	499
Brian	PAYNE	1936 RC1	1080	462
Barry	BARTON	1942 Stardust Spec	1080	381
Grant	MANWARRING	1941 Lil Diamond	1040	
John	DIDUSZKO	1942 Buzz Bombshell	1027	
Paul	FARTHING	1938 Lanzo Bomber	1019	
David	BEAKE	1942 Stardust Spec	919	
Robert	SMITH	1941 Lil Diamond	782	
Geoffrey	MALONE	Lanzo Racer	397	
Geoff	POTTER	1938 Bomber	39	



Top Right: 1. Basil Healy with his latest Burford model - the Dixielander. 2. Returnee to O/T David Beake with his Stardust Special. David last flew as a Junior more than twenty years ago! 3. Mexican Barry Barton gets ready for 1/2A Texaco. 4. SAM 1788 Treasurer Gail Scott keeps time for George Car in Duration. Left: Robert Rutledge about to go with his new Playboy Cabin in Duration.



**Texaco**

Barry	BARTON	1938 And'son Pylon	OS 60 4/	1800	908
Grant	MANWARING	1938 Bomber	OS 60 4/	1800	890
John	DIDUSZKO	1938 Bomber	TT 53 4/	1800	819
Peter J.	SMITH	1938 Bomber	OS 60 4/	1800	792
Paul	FARTHING	1938 Lanzo Bomber	OS 60 4/	1800	711
David	BEAKE	1938 Bomber	OS 60 4/	1800	657
Peter R.	SMITH	1938 Lanzo Bomber	OS 60 4/	1800	626
Dave	BROWN	1937 Lanzo Stick	Madewell 49	1800	619
Basil	HEALY	1937 Lanzo Stick	Enya 60 4/	1800	593
Robert	SMITH	1938 Lanzo Bomber	OS 60 4/	1800	584
George	CAR	1938 Bomber	OS 60 4/	1800	321
Bob	MARSHALL	1938 Bomber	OS 61 4/	1800	
Geoffrey	MALONE	1936 Dallaire	O.S. 60 4/	1731	
Ian	AVERY	1936 Gasbird 125%	OS 40 4/	1730	
Grahame	MITCHELL	1936 Dallaire	Enya 60 4/	1676	
Geoff	POTTER	1938 Lanzo Bomber	Enya 60 4/	1610	
Robert	RUTLEDGE	1938 Lanzo Bomber	Enya 60 4/	1594	
Peter	SCOTT	1938 Bomber 85%	Orwick 64	1266	
Ian	CONNELL	1937 L'Stick 66%	OS 20 4/	1260	
Steve	WHITE	1937 L'Stick	OS 61 4/	600	



Top Gun,  
Peter (Condo) SMITH

John Diduszko from Orange was a happy flyer after achieving 3rd place in Texaco.

**1/2 A Chit-Chat on SAMTalk.**

**From:** Evan Evans   **To:** SAMTalk\_Forum@yahoogroups.com   **Subject:** 1/2 A Texaco Prop

Hi All. Can anyone tell me the secret of running a Cox Texaco on the APC 8x6 electric. Mine running on 10% nitro & 18% Cool power will turn a Cox grey 7x3.5 at over 9000 but on the APC 8x6 it is only getting just over 4000 and sounds very unhappy? Evan Evans SAM 84 Webmaster

Sounds like you are getting there..... Put another shim (or two) in the head to lower the compression, reduce your nitro content and you should have a smoother running engine. I use an APC 9x4 (not legal in the US) and a mix of 0-5% nitro, 5% castor oil and get around 4400 rpm - just a nice tick-over to give me a run of around 5-6 minutes on the smaller 5cc tank. The adjustment is rather sensitive though, takes awhile to react at the low rpm. Mark Venter. mventer@xtra.co.nz

Thanks Mark. I will give that a try. By the way I had heard that use of the COX muffler also extended run time so I tried that. With the COX 7x3.5 it ran about 1000 revs less but got 4 minutes instead of 3 on the 5cc. I needed to close the needle a full turn to tune it. Evan

Thanks. Can't remember when last I read the SAM rules for 1/2A Tex (in fact I don't even have a copy of the rules - are they on the website for downloading?) but I somehow did not think mufflers were allowed. No idea why I had that impression. Although I have one somewhere I got with a bunch of stuff I have never used it. With the larger props and lower revs the Cox just purrs along sweet as a sewing machine. I should give it a try though to see if I can drop my revs down to around 4000 from the 4400 it is currently doing. By the way, I also use the standard COX plug with this configuration else I find it cools down too much if I use the 5 finned one.

Mark. Christchurch Model Aero Club on the Web. <http://www.cmac.net.nz>

Hi Mark. Bought a new APC prop the yesterday thought I was buying a 9x4.5 but found when I got home it was another 8x6, it is different to the others though blade shape very much like a Graupner cam prop, hub is the same size as the ordinary APC and the blade root is much stronger than the others I have. I put 2 shims under the head of the engine and with the same 5 fin head and fuel it ran steadily and gave 4700 for 5:30. Got a reading of 5000 rpm briefly, before it settled down properly. Will try a standard head as I feel that could be an improvement and will go back for that 9x4.5. Thanks for the tips, I really feel I am getting there now. Evan

Evan, Forgot to mention - make sure you get/use one of the cylinders with the two "slits" for ports.

5:30 is pretty good, but you want to try and get the revs down to around 4k....

Yes - the "e" or electric APC prop has a different shape to the standard one. Mark.

## Electric Old Timer - Lou Amadio

### Electric Motor Constants

If you fly electric powered model aeroplanes, sooner or later you will come across the motor constants commonly used to specify the suitability of a motor for a specific task. When I first came across the terms, I was more than a little confused as there was no readily available explanation of their significance.

The motor constants are:

- K<sub>v</sub>**, the Speed Constant - RPM/volt
- R<sub>a</sub>**, the winding resistance - milliohms
- I<sub>o</sub>**, the no-load current - amps

### Speed Constant (K<sub>v</sub>)

The Speed Constant is generally the most readily available info on an electric motor and quite often the only one of the three found in advertising or spec sheets. K<sub>v</sub> also happens to be the most important spec of a motor. So what does it mean?

Electric motors and IC engines do basically the same thing in a model aeroplane - they turn the propeller. You are probably familiar with the RPM of your IC (gas) engine when turning a certain size propeller. With an electric motor, you would probably want to turn the same prop at around the same RPM if you were seeking the same sort of performance.

An electric motor responds to the *voltage* of the battery it is connected to - the higher the voltage, the faster a given motor wants to turn. Complications arise from the fact that electric motors come with different "winds" which respond to the battery in a different way.

To determine the voltage that is available for a motor we need the following rule of thumb: assume that a Ni battery will hold around 1.1 volt per cell and a Li battery will hold around 3.3 volts per cell under a normal current load.

Next, let's assume that our target propeller RPM is 10,000:

Example 1: Using a 3 cell LiPo pack,  $10,000\text{rpm}/(3 \times 3.3)\text{volts} = 1,010\text{ rpm/volt}$ .  
 Example 2: Using a 2 cell LiPo pack,  $10,000\text{rpm}/(2 \times 3.3)\text{volts} = 1,515\text{ rpm/volt}$ .  
 Example 3: Using a 7 cell Ni pack,  $10,000\text{rpm}/(7 \times 1.1)\text{volts} = 1,299\text{ rpm/volt}$ .

In practice, we might choose a standard motor with a K<sub>v</sub> close to our target rpm/volt remembering that the motor will slow down slightly when turning a prop.

Now, if you wanted to use a 2 cell LiPo pack, you can now see that a motor with a K<sub>v</sub> = 1,000 rpm/volt would not be suitable in this example as the resulting RPM would be too low. ( $1000\text{rpm/volt} \times 2 \times 3.3\text{v} = 6,600\text{rpm}$ )

Similarly, if you had a 3 cell LiPo pack, you can see that a motor with a K<sub>v</sub> = 1,500 rpm/volt would not be suitable in this example as the resulting RPM would be too high. ( $1500\text{rpm/volt} \times 3 \times 3.3\text{v} = 14,850\text{rpm}$ ).

The above discussion assumes direct drive motor to propeller. If you are using a gearbox, the motor must turn faster by the ratio of the gearbox.

Next time we will discuss the significance of the other motor constants. R<sub>a</sub> in particular affects both power and efficiency. Meanwhile, if you want to try a PC simulation of electric motor performance, I can recommend ElectricCalc, a program I use regularly to "test" motor/battery/prop setups in my model aeroplanes. The program allows quick power system comparisons and even attempts to predict model climb rate and climb angle.

<http://www.slkelectronics.com/ecalc/index.htm>.

**Right:** "Electric motors come in lots of different sizes. An understanding of motor constants will help you select the best motor for a given task"



**2007 EASTERN STATES GAS CHAMPS - WANGARATTA - Dave Brown**

Gooday All, Weather was fine and dry, but windy and getting progressively worse. Friendly atmosphere, and no drama as a result. 1/2A Texaco, was very windy, and had 2 fly-aways, but the comp was on and nobody seemed to mind. Texaco abandoned due to very high wind. Will on again next year. More later, Brownly.

38 Antique

Paul	FARTHING	1938 Flamingo	Contester 60	1800
Ian	AVERY	1936 Flying Quaker	Madewell 49	1775
Peter J.	SMITH	1936 RC1	Super Cyclone spk	1574
Grant	MANWARING	Yankee Clipper	Burford 5cc d	1492
Chris	LAWSON	Miss Arpiem	Amco 3.5 d	311

Gordon Burford Event

Paul	FARTHING	110% Pencil Jr	Taipan PB	900	923
Dave	BROWN	1953 Cresendo	Taipan PB	900	844
Robert	TAYLOR	FAIson	Taipan BB	900	760
Brian	LAUGHTON	Dixielander	Taipan PB	900	730
Peter J.	SMITH	Faison	Taipan PB	900	714
Peter R.	SMITH	Ollie	Taipan PB	900	662
Steven	GULLOCK	1941 Lil Diamond	Taipan PB	900	468
Chris	LAWSON	Jimp	Taipan PB	900	372
Grant	MANWARING	Spacer	Taipan PB	900	189
David	BEAKE	Dreamweaver	Taipan PB	857	
Geoff	POTTER	1952 Eliminator	Taipan PB	799	
Barry	BARTON	Dixielander	Taipan PB	250	

Duration

Paul	FARTHING	1941 Playboy 115%	McCoy 60 spk	1260	846
Brian	LAUGHTON	1941 Playboy	Irvine 36	1260	758
Peter J.	SMITH	1941 Playboy Cabin	McCoy 60	1260	739
Steven	GULLOCK	1936 75% Dallaire	OS 52 4/	1260	723
Chris	LAWSON	Lanzo Racer	OS 40 2/	1260	684
Robert	TAYLOR	92% Cumulus	YS 63 4/	1260	670
Lyn	CLIFFORD	1938 Cumulus	YS 63	1260	666
Dave	BROWN	1938 Bomber 85%	Saito 56 4/	1260	604
David	BEAKE	1939 Bomber 85%	Saito 56 4/	1260	582
Don	SOUTHWELL	1938 Bomber 70%	Enya 53 4/	1260	531
Brenden	TAYLOR	1941 110% Playboy	Dubjet 46	1260	437
Barry	BARTON	1936 RC1	OS 46 FX	1260	260
Grant	MANWARING	1941 Playboy	YS 53 4/	1260	
Ian	AVERY	1941 E S Gas Champ	O.S.32 2/	125	
John	DIDUSZKO	1942 Buzz Bombshell	OS 40 2/	1025	
Brian	DOWIE	1941 Playboy	OS 40 2/	819	
Steve	WHITE	1941Playboy	YS 53 4/	629	

1/2a Texaco

Peter R.	SMITH	1941 Lil Diamond	1080	283
David	BEAKE	1942 Stardust Spl	1080	255
Barry	BARTON	1942 Stardust Special	1080	218
Peter J.	SMITH	1942 Stardust Special	1080	211
Robert	TAYLOR	1942 Stardust Special	1080	210
Paul	FARTHING	1938 Lanzo Bomber	1054	
Dave	BROWN	1942 Stardust Special	1019	
Brian	LAUGHTON	Red Ripper	1000	
Don	SOUTHWELL	1942 Stardust Special	998	
Chris	LAWSON	Lanzo Racer	955	
Grant	MANWARING	1941 Lil Diamond	950	
Ian	AVERY	1940 Playboy Cabin	950	
Geoffrey	MALONE	Lanzo Racer	948	
John	DIDUSZKO	1942 Buzzard B'shell	806	
Steven	GULLOCK	60% Bomber	787	

Top Gun Paul Farthing



From the Top: 1. Grant Manwaring assisted by David Beake prepares for a Burford flight. 2. Burford winners and grinners. 3. Mexicans in action! - Brian Laughton and his RC1 in Duration, assisted by Barry Barton. 4. Duration winners.

# ~~ THE BACK PAGE ~~

## From Trevor Boundy



My model was a standard size RC1, three piece wing as in picture.

I took two engines, Anderson 65 spark and backup OK Super 60 spark. RC1 was a two-piece body, full flying tail

plane and plug in undercarriage, removable moving part of rudder to keep the height of fuselage down.

Attached is picture of my box at LA airport.

My box was 32" x 16" x 14" kindly made by the master wood worker Fred Stebbing, complete with finger jointed corners. I must say the beautifully crafted boxes were very roughly treated by baggage handlers despite the signage fragile, handle with care, etc. In the picture, just sitting on top of my box, is Kevin Fryer's box.

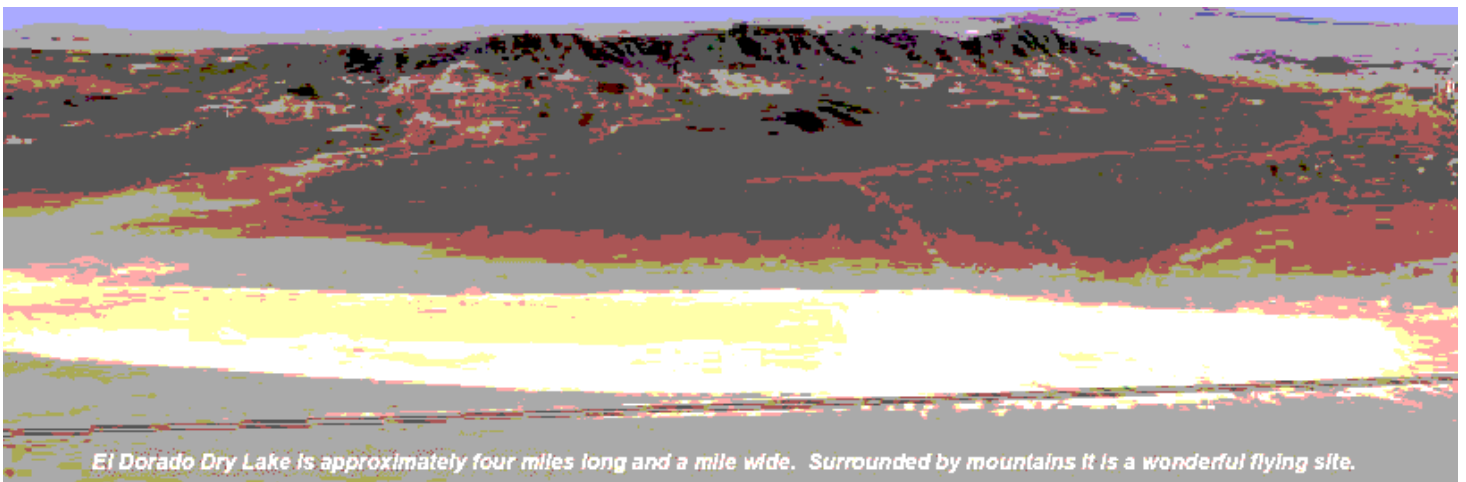
Brian Laughton had this brilliant idea to take the three boxes to the banquet on Friday night, plus felt marker pen to get a few important signatures on the boxes - well they just fell over themselves to oblige, so look closely at my box and you should recognize a few names.

Our hosts were very welcoming and fell over backwards to help including (Key Crawford) giving me enough wood, covering and iron, etc., to rebuild my model on the second day, very, very helpful.

The events I entered were:

Class C ignition LER, Texaco ignition, Pure Antique and Classic Texaco.

I got a third in Texaco Ignition (I think this was the event) 20 cc of fuel for a 5 (SAM) lb model.



El Dorado Dry Lake is approximately four miles long and a mile wide. Surrounded by mountains it is a wonderful flying site.