

FREE FLIGHT

DOWN UNDER

NEWSLETTER OF THE AUSTRALIAN FREE FLIGHT SOCIETY INC

VOLUME 43 NUMBER 3

SPRING 2011

TRANS TASMAN SCALE CHALLENGE



ELECTRIC POWER

A VOLT FROM THE BLUE



STATE COMPETITION REPORTS

FRONT COVER: Roy Summersby (again) with one of three superb scale models at the Richmond Scale Fly-In and Trans Tasman Challenge. This one is his electric De Havilland DH 2.

Free Flight Down Under

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This edition of **Free Flight Down Under** is edited by Malcolm Campbell, 1 Rex Street, Aspley 4034 Australia
actrain@ozemail.com.au

Free Flight Down Under is the newsletter of the Australian Free Flight Society Inc, a Special Interest Group of the Model Aircraft Association of Australia. FFDU welcomes contributions in the form of articles, letters, pictures, etc on any aspect of Free Flight or related topics. Contributions can be sent to the above address or emailed to the editor. Electronically prepared material is preferred.

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INSIDE THIS ISSUE:

<i>President's Prattle.....</i>	<i>3</i>
<i>Words from the Editor.....</i>	<i>3</i>
<i>Team Selection dates.....</i>	<i>4</i>
<i>F4A Trans Tasman Challenge & F/F Scale Rally.....</i>	<i>5</i>
<i>Electric Power.....</i>	<i>12</i>
<i>Programmable timer for electric F/F.....</i>	<i>14</i>
<i>Stowe It!.....</i>	<i>18</i>
<i>Gary Odgers Scale Project.....</i>	<i>19</i>
<i>Team Trials for F1D.....</i>	<i>19</i>
<i>West Australian competition reports.....</i>	<i>20</i>
<i>Queensland competition reports.....</i>	<i>23</i>
<i>Free Flight Timers - Care and Operation.....</i>	<i>25</i>
<i>Making a Trailing Edge.....</i>	<i>27</i>
<i>To Sink or Soar?.....</i>	<i>28</i>
<i>The History of Free Flight Down Under.....</i>	<i>30</i>
<i>George Car's Second Hand Tips.....</i>	<i>31</i>
<i>Kiwi Speak.....</i>	<i>33</i>
<i>Mike Glaister's Plans of Yesteryear.....</i>	<i>34</i>
<i>56th Nationals final program of events.....</i>	<i>36</i>



WITH SPECIAL REPORTS ON



PRESIDENT'S REPORT:

..... *President's Report continues on page 46*

My apologies to Malcolm for being tardy with my prattle. Maybe not too much to report this time around, typically we are getting to the tail end of the competition season, and despite a number of competitions scheduled in recent times the weather has not been friendly. Certainly it is only in the last week or two that I have seen any postal/decentralised scores for the outstanding AFFS champs events starting to come in. I believe that there will be some events flown in Queensland in the next couple of weeks that are replacing postponed events, and the NSW State Champs at the end of October to count. Please send me any results you may have so that I can add them to the score sheets. Remember you have until the end of October to get your flights and results in.



I believe in the next issue will be a section from the FF Technical Committee Chairman Graham Maynard detailing the outcomes of business that arose at the AFFS AGM at Narrandera this year. As chairman of the FFTC, Graham is also the Australian representative on the CIAM FF technical committee.

From a Queensland perspective I would like to thank John Taylor for the work he has done as control line and more recently free flight administrator with the MAAQ. John has been involved in one way or another with the roles for about 15 years I believe. He has provided over a long period significant input to the managing of aeromodelling in Queensland, and played a pivotal but somewhat understated role in the organising and running of the Dalby Nationals this year. Hopefully now that John has slipped the bounds of his administrative role, he will be seen on the field flying more often. He is slowly expanding his FF model collection, so here's hoping.

I'll save my thoughts and comments for next year for the December edition of FFDU. Next year will be a big year of competitions with the 2013 World Champs selection trials, World Cup events in Australia and two in New Zealand (*plus another NZ WC event at MaxMen. Ed*), and of course the Nationals in Western Australia.

Till Next time, regards Ted Burfein

Narrandera is on again, over the last weekend in October!

**Day 1 F1A and C
Day 2 OzD and P-30 (fly offs)**

FROM THE EDITOR:

Wow, it gets harder as the year progresses to produce an interesting FFDU. All the big events seem to gravitate to the beginning of the year. Those who have gone before me as FFDU editor know the story. That's why reader contributions are gratefully accepted. Many of the international newsletters I peruse seem to have lots of regular contributors. And many hands make light work. Who knows, I may be able to get back to building planes!

To Tahn Stowe, Jim Christie and Gary Pope who sent articles on the Scale event at Richmond "Thank You"; and "Thanks" to Paul Rossiter with his very interesting report on Electric Power. I hope your articles bring in a few Eastern States competitors for what is currently a Sandgropers' event. Kiwi Dave Ackery talks on trailing edge construction. Jon Fletcher continues to impress with the quality of his articles and George Car produces some wonderful dusty topics from the F/F archives. Rod MacDonald's competition reports are good reading and it is hoped that all States send me stories of what goes on, from time to time. Peter Twiss poses a theory on Lift and Sink, and Vin Morgan responds. And Mike Glaister has sent in two of his excellent plans from the old days. Not a bad issue really. *Malcolm Campbell*



LETTERS TO THE EDITOR

Malcolm,

I have spent so long reading your 'FF Down Under' that I have little time to write too much as it is past my bed-time! It is a fantastic magazine, and you are to be congratulated. I am the editor for our club magazine (Bristol and West), but my efforts pale into insignificance compared to yours.

Anyway, reading up the Lost Hills account makes me quite ill with envy; providing the weather is OK, it is a wonderful place to fly. Some of my 'non flying friends' wonder why I would spend 12 days in a grotty motel in a desert truck stop, surrounded by nodding donkeys and gypsum mines, and it is a bit difficult to get through to them that is a f/f heaven.

Regards,
Peter Tribe (UK)

Malcolm,

Your last issue of FFDU was excellent, presentation and coverage of activities could not be surpassed. For me, this last one was an excellent way of keeping up with people, as I have not been to Narrandera for a long while.

Best regards, Sergio Montes



TEAM SELECTION QUALIFYING DATES - HOW IT ALL WORKS

Qualifying periods run from December 1 to November 30 of the following year. That is, the qualifying period is one year, close to a calendar year, but not January 1 to December 31 because this could lead to changing from one qualifying period to another in the middle of a Nationals. It is not good to have part of a Nats for one qualifying period and part in another and it could also happen that an event scheduled for Dec 31 was moved to Jan 1 because of weather and hence changed from one qualifying period to another – or worse, and event started on Dec 31 and was continued in the next year. The end of November is a pretty quiet time for FF so it's a good time to change periods.

The year containing the 11 months of the qualifying period is the year before the event for which a team is being selected.

For instance the current qualifying period, Dec 1, 2010 to Nov 30, 2011 is for team selection for the 2012 Trans Tasman Competition which will be held in Australia in conjunction with the 2012 AFFS at Narrandera around Easter (good practice for W/Chs team aspirants).

The next qualifying period, Dec 1, 2011 to Nov 30, 2012 will be for team selection for the 2013 World Championships to be held in France (Moncontour) between August 3 and August 10 2013. Information is at: http://f1u.org/images/stories/french2013/french_proposal.PDF

This the one you'll all be interested in and of course includes the 2012 Nats in WA. It also includes the 2012 Max Men and associated world cup events, the Vic St Chs March 10-12 and of course the Southern Cross Cup and AFFS around Easter. If you are really keen and have done badly at MM in Feb you could dash over to NZ where there will be two W/Cup events just before the SCC/AFFS.

**NSW FREE FLIGHT SOCIETY F4A TRANS TASMAN CHALLENGE
and FREE FLIGHT SCALE RALLY
2nd - 3rd JULY 2011**

report by Tahn Stowe



Antony Koerbin's magnificent BE 2e

The weather predictions were not encouraging and the Chilean volcanic ash cloud threatened to prevent our New Zealand competitors from crossing the Tasman; however what eventuated was perhaps the best Free Flight Scale event ever held at Richmond.

Thirty two Free Flight scale models made the field over the weekend and the considerable crowd of spectators and flyers alike were treated to a bonanza of free flight scale action. Antony Koerbin's BE 2e emerged as a deserving winner completing several realistic flights including an elusive take-off. Phil Mitchell, taking a break from his F1A schedule and Triathlons, campaigned his venerable Mills 1.3 powered Tiger Moth. The slow speed and steady flying characteristics including a smooth takeoff scoring highly. Maris Dislers accompanied by David Malpas, made the long trek from South Australia. Maris's CO₂ powered Eastbourne monoplane and Davids' Morane Saulnier were sheer magic.

While all this was taking place, Peter Jackson flew another sortie with the Albatross or was it the SE 5a and George Fay buzzed the crowd with his Douglas Dauntless or Curtis P 37. The action just kept coming, with Eric Holland (Fieseler Storch & Bird Dog) and Stan Hinds (Focke-Wulf Stosser and Auster) making repeated flights out across the green turf, up into the clear blue.

Flight judges Terry Isted and Reg Towell were kept busy with a constant stream of attempts coming from all points of the compass in the almost dead calm conditions. Stan Maugher and Ricky Bould were both having problems with the Monocoupe and Auster respectively with Stan earning the "Spectacular Arrival" award, and Ricky resorting to his CO₂ black Piper Cub. Tyro Walter Bolliger had his own stability problems with his Piper Cub and Robert Craine battled with his reluctant Avro Baby.

Tahn 's report continues after the next two pages of photos



Roy Summersby's rubber FW TA.152



And his electric FE 8



And his massive
1/8 scale
Messerschmitt Bf-109
(rubber powered!)



Ricky Bould's Piper J-3 Cub Co₂



Eric Holland's Cessna Bird



A Pfalzeneezer
takes to the skies



Peter Jackson's Albatross D.111



Stan Maugher's Monocoupe 113

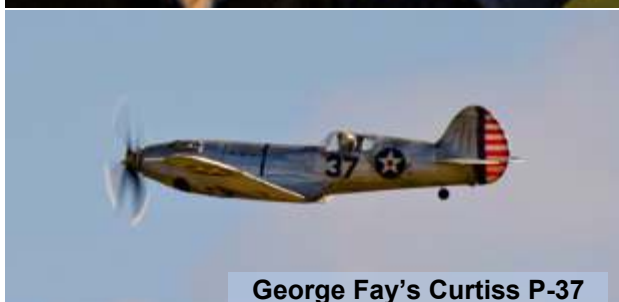


Ricky Bould launches
his Short SB.6 Seamew



Robert Craine's Avro Baby

Richmond 2011



George Fay's Curtiss P-37



Phil Warren's Buhl Sports Air Sedan



A "3 view" of a Piper Vagabond!



Eric Holland's Fieseler Storch



Phil Mitchell's BAC Drone



Stan Hind's Auster AOP Mk 5



Phil Warren's Piper J-3 Cub (rubber)



Stan's Auster again, gliding in



George Fay's Douglas Dauntless



Maris Dislers Eastbourne Monoplane CO2



Stan Hind's Focke Wulf Stosser



Phil Mitchell's beautiful De Havilland DH.82A Tiger Moth

Phil Warren's new Buhl Sports Air Sedan looked resplendent in blue and gold, but could not better his yellow J3 Piper Cub, taking out the Reg Jude Rubber Scale trophy. Roy Summersby flew 3 craft, his electric FE 8 scoring highest, although all eyes were on his 1/8th scale Me 109 which looked very impressive but failed to qualify.

Di Hannah and Liz Stowe were serving hot soup as Jim Christie and Geoff Potter got down to the task of static judging. Several hours later they had completed their work. The winners were awarded prizes at a dinner at the Hawkesbury Race Club with field owners Pauline and Charlie Salibra as guests of honour. The food was excellent and our thanks go to Nicole and Ken for making it a memorable night.

Sunday saw more flying including a Power Scramble followed by a BBQ lunch. If you were there you were lucky to have been a part of a wonderful event. If you missed it there is always next year with the F4A Trans Tasman Challenge being hosted by New Zealand in April and the FF Scale Rally on the first weekend in July at Richmond.



Peter Jackson's Albatross D.111



SE-5



Peter Jackson's little Albatross D.111

THE JUDGE'S REPORT RICHMOND SCALE COMP 2nd July 2011

report by Jim Christie

STATIC JUDGES: Jim Christie, & Geoff Potter. **FLYING JUDGES:** Terry Isted & Reg Towel

In the early dawn and a light fog, flying for the Trans-Tasman Free Flight scale competition commenced with Antony Koerbin's BE 2 E looking great in the morning air and, after a graceful take off, the model was silhouetted against the rising sun and set a standard for others to follow. After watching the increasing flying activity, Geoff and I, as static judges, were banished to a corner of the marquee to ponder upon the scale like quality of the models.

The first model presented was the BE 2 E of Antony's which set a very high standard. Other models that were of particularly high quality and noteworthy were an Eastbourne Monoplane by Maris Dislers, a Moraine Saulnier by David Malpas, and a Tiger Moth by Phil Mitchell. Luckily Geoff was quick and decisive in his judgements as the morning and early afternoon passed in a blur of allotted marks and totals. This activity was interrupted by a downpour of rain from the night before. The canvas roof had held some water in the joins was dumped on the judges and score sheets—next time we would judge alfresco in the winter sunshine.

Glenn Crouch provided all the fine photos for the FFDU article, and these can be seen on:

<http://www.flicker.com/photos/crouchy69/sets72157627112389014/>

(Glen is related to one of the New Zealand flyer's and also took very fine photos last year.)



Peter Jackson's Sopwith Pup



Antony Koerbin's BE 2e



David Malfas' Morane Saulnier Type L



Maris Dislers contemplates what might be missing on his Eastbourne Monoplane

SCALE COMP AT RICHMOND

report by Gary Pope

The quality & number of models was a very pleasant surprise. Each modeller seemed to have at least 2 models. The quality of the flying was very good as well. Phil Mitchell's Gypsy Moth was a sight to behold with excellent ROG's, a good power flight pattern and very nice glide. Peter Jackson's miniatures were also excellent, although he did suffer the misfortune of having a wing of his Albatross chewed off by Phil's Gypsy Moth on one of its ROG attempts. Murphy's Law was operating at the time, with the Gypsy choosing the model with the most complex finish (German WW1 Lozenge) as the one to be destroyed!

There were many more delicious models and many more modellers whose names I do not know. There was some very good scale flying by most. The tent & field kitchen were great & the soup was lovely.

All in all a very good Scale comp.



Peter Jackson's stable of little "Scalies"



2012 SCC and AFFS CHAMPS



Now that we have all the fly offs in the morning and get off the field at a reasonable time in the afternoon, it has been suggested that we could dispense with the rest day and spread the program out. Here is a possible new program. The Committee would appreciate your comments/suggestions.

Monday, 2 April 2012
Tuesday, 3 April 2012
Wednesday, 4 April 2012

Friday, 6 April 2012 (Good Friday)
Saturday, 7 April 2012
Sunday, 8 April 2012 (Easter Sunday)
Monday, 9 April 2012 (Easter Monday)

Southern Cross Cup: F1B, Open Power
Southern Cross Cup: F1A, F1C, O/Rubber
Southern Cross Cup: Fly offs
AFFS: Scale, O/Rubber, Open Power, HLG/CLG, AGM
Thursday, 5 April 2012 AFFS: F1G, F1H, F1J
AFFS: F1B, Combined Vintage
AFFS: F1A, C
AFFS: Scramble, P30, OzDiesel, Dinner

NSW FREE FLIGHT SOCIETY

F4A TRANS TASMAN CHALLENGE & SCALE RALLY 2011

RESULTS:

F4A. 1ST	ANTONY KOERBIN (NZ)	BE 2E	1586.5
2ND	PHILLIP MITCHELL*	TIGER MOTH	1478.0
3RD	MARIS DISLERS*	EASTBOURNE MONOPLANE	1305.5
4TH	DAVID MALPAS	MORANE SAULNIER	1155.5
5TH	ROY SUMMERSBY*	FE 8	1154.0
6TH	GEORGE FAY (NZ)	DOUGLAS DAUNTLESS	1130.0
7TH	ROBERT CRANE	AVRO BABY	1116.5
8TH	STAN HINDS*	FOCKE-WULF STOSSER	1112.5
9TH	RICKY BOULD (NZ)	PIPER CUB	1054.0
10TH	ERIC HOLLAND	FIESELER STORCH	1014.0
11TH	STAN MAUGHER (NZ)	MONOCOUE	937.0



TRANS TASMAN CHALLENGE
DAVID HOPE-CROSS TROPHY. WON BY AUSTRALIA*.

REG JUDE MEMORIAL RUBBER TROPHY.

1ST	PHIL WARREN	PIPER CUB (CLIPPED WING)	1266.0
2ND	GEORGE FAY	CURTIS WP 37	876.5

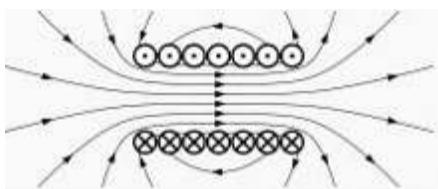
PEOPLE'S CHOICE	PETER JACKSON	ALBATROSS
SPECTACULAR ARRIVAL	STAN MAUGHER	MONOCOUE
MYSTERY FLIGHT	ERIC HOLLAND	BIRD DOG
NEXT TIME	DAVID MALPAS	HUMMING BIRD

SPECIAL THANKS, TO OUR JUDGES:

JIM CHRISTIE, GEOFF POTTER, TERRY ISTED, REG TOWELL.

OUR APPRECIATION TO PAULINE AND CHARLIE FOR THE MAGNIFICENT VENUE.

TO ROY AND DI FOR THE CATERING.



Electric Power

Report by Paul Rossiter

F1Q- An Update

In the autumn issue of FFDU I suggested a way of getting into the F1Q electric free flight class using relatively inexpensive components. Since then, CIAM have approved some amendments to the F1Q regulations, the main one being that the energy of the battery is now limited to 5 Joules per gram model weight. While this restriction may sound like something from the instruction manual for an atom splitting machine, it is in fact very easy to implement. For example, if the total weight of the airframe and battery is 300 grams, you are allowed a total of 1500 Joules of energy (i.e. 5×300). Now a Joule is just a watt-second and so, if the motor draws 100 watts of power when first started, then you are allowed a motor run of 15 seconds ($1500/100$).



The purpose of this new restriction is to create a more level playing field between the high power rocket ships (with VIT, AR, wigglers etc) and the fixed surface models like the Maverick I described last time. It is a bit early yet to see if that has in fact been achieved, but the rule doesn't seem to penalise my Maverick at all. It weighs 250 grams, draws 110 watts at start-up and so has a 11 second motor run, which is enough to get it well over 100 meters up!



**Author Paul Rossiter
launching his Maverick
in WA**

Speaking of Mavericks, there are now four in WA with another four or so in the pipeline. They fly incredibly well, with mine trimmed for a vertical climb for the first 30-40 meters then going into a slow right spiral just before the transition into the glide. The 3 min max is no problem in anything but bad sink and so we are looking forward to some fly-offs in which the motor run is progressively reduced.

We are hoping to run F1Q as a demonstration event at the WA Nationals and hope to get a few more people interested in the class.

On the following page I have included details of some of the different models.



I installed the servo inside the fuselage and wound the DT line around a peg to reduce the load on the servo.



I mounted the battery in the pylon



while Chris had his in the side of the fuselage



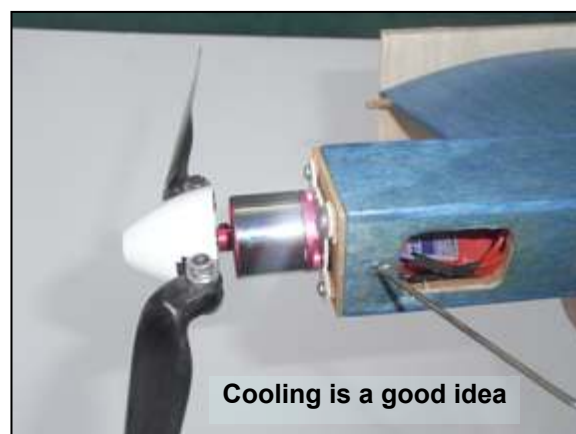
Another (and possibly better) approach used by Rod McDonald and Chris Behr is to use a release lever:



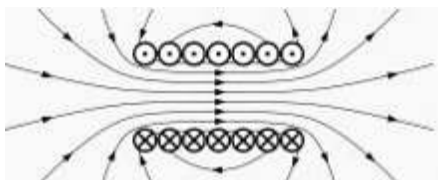
and Rod had it under the fuselage



Rod MacDonald's electric Maverick



Cooling is a good idea



Electric Power

Report by Paul Rossiter

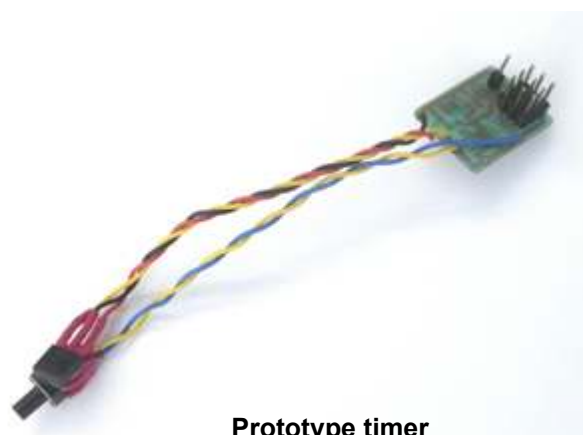
A Programmable Timer for Electric Free Flight

A number of people have mentioned that some of the timers currently available for electric free flight models are difficult to program, requiring counting beeps or flashes of leds as you step through many options, while others have complicated programmers which might be OK for seasoned electronic F1A fliers but can be a bit daunting to others. All come from overseas with the associated hassles. To address this problem I have designed and will make available a simple timer and programmer (that uses normal English!) designed specifically for the purpose. I can supply them for AU\$45 for the timer and AU\$115 for the programmer, plus postage etc. I can be contacted at kathymay@ozemail.com.au or (08) 9316 0250 and payment could be made by cheque, direct bank transfer or credit card using Paypal. If you are interested, please contact me to make the necessary arrangements.

This timer can be used to provide outputs for up to three servos or up to two servos and an electric motor speed controller. It will be supplied to suit a particular application (e.g. D/T servo and motor controller) but can be re-configured for other applications. The configuration being demonstrated here is for an F1Q model and in this case the motor run time, motor power, D/T time and D/T servo set and release positions are all programmable using a hand held programmer that uses an infra-red link to transfer data to the timer. The timer is powered from the BEC in the motor speed controller and weighs about 3.2g and is 18mm x 30mm in size, including a protective heat shrink covering. It is fitted with 3 sockets to suit standard servo leads and has 2 other leads attached, one to the START switch and one to the infra-red SENSOR. This allows maximum flexibility in installing the timer into an airframe and optimum placement of the switch and sensor.

The timer should be installed so that the START switch can be held in prior to launching and released automatically as the model is released. The infra-red SENSOR just needs to be located in the side of the fuselage or pylon somewhere. In the photo below, the black dot in the side of the fuselage is the START switch and is held in by the thumb prior to launching and the black dot on the side of the pylon is the infra-red SENSOR for programming the timer. The timer itself is inside the pylon.

Continues on next page.....



Prototype timer



Maverick nose. Note downthrust



Chris Behr's Maverick

In use:

1. The motor battery is plugged in (or switched on if a power switch is used).
2. This enables the timer and the D/T servo moves to the set position.
3. Nothing then happens until the motor START switch is held in continuously for 2 seconds. Accidentally pushing it in for a shorter time while handling the model will thus not cause the motor to start causing possible injury.
4. After the START switch is held in continuously for 2 seconds the motor will slowly ramp up to the desired power setting and hold there.
5. When the model is launched, the START button is released and this starts both the motor run and the D/T timers.
6. After the designated motor run time the motor stops, preferably using the brake function in the speed controller to ensure that the prop doesn't keep free-wheeling.
7. After the designated D/T time the D/T servo moves to the release position and the timer goes into a sleep mode. The motor can then only be restarted by turning the power off and on again (e.g. by unplugging the battery and plugging it in again) as required by F1Q rules. This prevents somebody finding a model and accidentally starting up the motor causing possible injury.
8. With most motor speed controllers, the motor will issue beeps a few seconds after the D/T time has expired, assisting in location of the model.
9. If you want to stop the motor after it has started but before the model is launched, you simply release the START switch for a second or so and then push it in again. This stops the motor and resets the timer.

The various functions (motor run time, motor power, D/T time and D/T servo set and release positions, in this example) are fully adjustable and programmed into the timer using the infra-red programmer, shown below in prototype form. It is powered by a standard 9v battery held in a compartment at the rear.



Prototype infra-red programmer



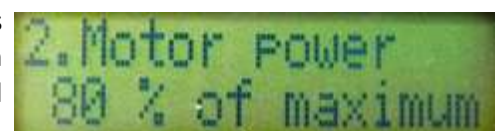
Battery compartment

In Use:

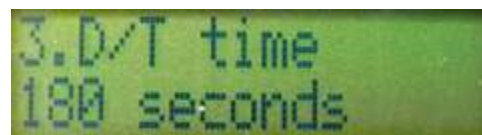
1. When it is switched on the LCD screen shows the first programming option: the motor run time.
2. The motor run time can be adjusted from 1 sec to 25 sec in 1 second steps by pushing the DEC(rease) or INC(rease) buttons. Holding them down steps through the available times automatically.



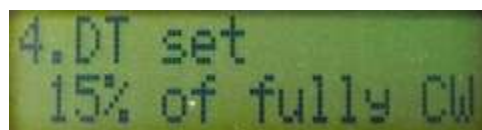
3. Pushing the NEXT button brings up the next option: motor power. This has been provided to allow for any motor power setting and is again adjusted as a percentage of the maximum in 10% steps using the INC and DEC buttons.



4. Pushing the NEXT button again brings up the D/T time option, which can be set from 5 sec to 180 sec in 5 second steps.



5. Pushing NEXT again brings up the D/T set screen which is the position of the servo when it is holding down the stab and this can be set anywhere from 0% to 100% of the fully clockwise position in 5% steps



6. Another push of NEXT brings up the D/T servo release position which can similarly be set anywhere from 0% to 100% of the fully clockwise position in 5% steps. This completes the selection of the various parameters.



7. Pushing NEXT again brings up the prompt to get the model ready to receive the data and send it. Don't push the Next button yet!

8. Before pushing the NEXT button to send the data, the timer in the model must be made ready to receive the data. This is done by pushing in the START switch before the motor battery is connected and holding it in while the battery is connected. It is then released and, with most motor speed controllers, the motor will issue beeps indicating that the timer is in programming mode. As a backup indicator, the D/T servo will also chatter slightly while in the programming mode.



9. When the timer is ready, the infra-red transmitter located in the end of the programmer should be pointed towards the infra-red SENSOR on the model and the NEXT button pushed. After a short while the screen on the programmer will indicate that the data has been sent. The timer checks that the data has been received properly and will then stop the motor from beeping (and servo chattering), indicating that the data has been received. If this doesn't happen the data should be sent again holding the programmer closer to the infra-red SENSOR.

10. After sending the data the programmer reverts to the first data entry screen.

11. The motor battery then needs to be disconnected again so that the timer in the model can reset to the operating mode.

12. All the data is stored in the programmer after it is switched off and will reappear as the default options when it is switched on again. Thus if just one parameter needs adjustment (e.g. the D/T time) you can rapidly scroll through the unwanted options, just change the relevant one and send the data to the timer.

As mentioned above, the timer and programmer are supplied to suit a particular application such as F1Q (hence the max D/T time of 180 secs in the above example). However, both can be reconfigured to suit other applications which might include:

- ☺ Provision for RCDT using a cheap 2.4g receiver by connecting one of the three servo connections on the timer to a servo output of the receiver and activating it with a cheap 2.4g transmitter.
- ☺ 3- servo operation for a rubber model or glider (using a small 2S LiPo and adaptor lead)
- ☺ Possibly motor speed, rudder (or ailerons) and retract for a scale electric model
- ☺ Longer D/T times
- ☺ And so on.

The actual configuration is stored on a semiconductor chip inside the programmer so that if you would like to use the one programmer for a number of different applications, the chip can simply be swapped over accordingly. The chip is mounted on a plug-in socket inside the programmer and is easily accessible by removing the back cover (remove the 4 screws on the back, two of which are inside the battery compartment).). Alternatively the programmer

can be reprogrammed for a different configuration. Similarly, a timer can also be reprogrammed for a different configuration, if desired.

I would be happy to discuss any of these applications and set up the timer and programmer accordingly or set up and provide the replacement chips.

*Paul Rossiter
July 2011*



I flew my Maverick with an altimeter attached and attach the resultant flight profile. As you can see it made 120m on the F1Q legal motor run and, with that glide slope, would have made over 7 minutes (though I had it timed to DT at 60 secs)!!

The great thing about a class such as this is that local rules can apply. (e.g. Limit motor run to a percentage of the F1Q maximum).

ED: And no noise, no oily hands, no grubby models and no unhappy neighbours!

Ole is the Pastor of the local Norwegian Lutheran Church and Pastor Sven is the minister of the Swedish Covenant Church across the road.

One day they are seen pounding a sign into the ground, which said:

***"DA END ISS NEAR!
TURN YERSELF AROUND NOW
BAFOR IT ISS TOO LATE!"***

As a car speeds past them, the driver leans out his window and yells,
"Leave people alone, you Skandihoovian religious nuts!"

From the curve they heard screeching tires and a big splash.

Shakin' his head, Rev. Ole says *"Dat's da terd one dis mornin'."*

"Yaa," Pastor Sven agrees, then asks, *"Do ya tink maybe da sign should yust say, 'Bridge Out?'"*

STOWE IT!

Words from our Foreign Correspondent

Internet connection is not always possible and I am a very lazy correspondent. Perhaps my most recent comp in Croatia could be of some interest.

The Siscia Cup which is run by the Sisak Aero Club was a different experience for a flyer from OZ. Firstly finding the field proved to be problematic and then the actual launch area was the most congested and constrained, I had seen.

The village of Greda Sunjska contains some of the oldest surviving timber structures with their dovetailed corners and morticed joists, low doorways and fretwork barge boards. All fascinating but without any signage, where was the field? A couple of enquiries to the locals none of who spoke any English soon had one gentleman motioning us through a gate between houses and down a rough track. At the bottom of the track, the trees thinned to reveal a flat area of a few hundred acres, nothing like Narrandera or even Springhurst , but flyable.

Being Friday before the comp we were surprised to be the only ones on the paddock. We spent the night in the middle of the field and were woken at midnight by a violent thunderstorm that had us wondering about being struck by lightning. Instead we drifted back into sleep as the storm moved off and woke to a clear calm day with cows surrounding the van their swishing tails thudding the sides of the camper.

Eventually at about 7.30 competitors and officials started to arrive, and I was perplexed at the choice of flight line position, until I was informed of the "limitations" of the field. Firstly the east was bounded by a river, the other three sides by woods which contained land mines! The actual line was marked with orange cones (9) each with a timekeeper , chair and umbrella, however they were 4 metres apart and aligned along a drainage ditch facing a mown area of 40mtrs x 80 mtrs which was bordered by blade grass and gorse bushes above waist high.

The launch area was further compromised by cracked earth under the grass, which resembled crazy paving with cracks up to 100mm wide, I saw several competitors limping and some wearing leg braces or strapping. With four flyers per pole traffic in the small upwind rectangle was unavoidable and line crosses, tangles and dorked models were evident in most rounds. The normal tactic would have been to launch in the box and head down wind ,however with models taking several minutes to land after DT and drifting towards the woods with thorny Acacias and land mines, most chose to chance the traffic in the forward box .

Of the 36 who flew 11 were juniors, and 2 of those were girls (both straight towing). As for my performance, I fell foul of the traffic (line cross) with an aggressive flyer, then a trip in the cracked ground, to record 112 in the second round, spoiling an otherwise good day, finishing 12th overall.

The organizers had a laptop and printer attached to a 12 volt car battery via an inverter and surge protected power board, and were uploading the results round by round and providing a print out after the seventh round. Lunch of meat soup bread and sausages were supplied as part of the 35Euro entry fee. Not much there for a couple of Vego's.

When asked what I thought of their field I responded that given the lack of wind it was OK, however it made me realize how amazing our fields are in OZ.

Tahn took a fleet of his latest flying carpets and Kanga proved very popular. It is possible that sales of his amusing piece of Australiana may pay for his overseasjaunt?



GARY ODGERS NEW SCALE PROJECT

No project is too big for Gary Odgers. Vin Morgan reports Gary's latest project is an Hungarian Phönix D.I. Gary's model is 48" span and weighs 43 oz (Gary hasn't gone metric yet). It is powered by an ED 2.46cc Racer turning an 11 x 4 prop (for flying). Gary says *"The original aircraft was powered by a 200HP Hiero (Hieronymus) engine and considered quite advanced for its time. Very robust and easy to fly but a little too stable to throw about as a fighter."*
ED: I look forward to learning more about this project for the December edition of FFDU.

From Wikipedia, the free encyclopedia

Phönix D.I, D.II, and D.III



Phönix D.I	
Role	Biplane fighter
National origin	Austria-Hungary
Manufacturer	Phönix Flugzeug-Werke
First Flight	1917
Primary user	KuKLFT
Number built	158

The **Phönix D.I** was an [Austro-Hungarian](#) First World War biplane fighter built by the Phönix Flugzeug-Werke and based on the [Hansa-Brandenburg D.I](#).

Development

The Phönix D.I was the second design developed by the Phönix Flugzeug-Werke based on Hansa-Brandenburg designs which it has produced under licence. The D.I was a single-seat biplane fighter with improvements over the original Hansa-Brandenburg design which included more efficient wings, a more powerful engine and structural improvements. A prototype was first flown in 1917 and proved to be fast but difficult to handle but because of the urgent need for fighters the D.I entered production. To improve the problems a modified variant, the **D.II** was introduced with balanced elevators and balanced ailerons on the upper wings. A further development was the **D.III** which had balanced ailerons on both wings and a more powerful 230 hp (172 kW) Hiero in-line engine. The last of 158 aircraft of all three types was delivered on 4 November 1918.

TEAM TRIALS FOR F1D & VIC. STATE CHAMPS F1D, F1L

For the first time in over 15 year F1D Team Trials will be held to select a team of three to represent Australia at the 2012 World Championship to be held in Belgrade, Serbia

This trial is a once only competition and will be held at the Manningham Indoor Sports Centre, Springvale Road, Donvale. (Melway ref. 48F4). The site is a category 1 hall and the trial is being run in conjunction with the F1D and F1L Victorian State Championships, by the Victorian Free Flight Society inc.

These events will take place on Sunday, December 18th 2011 from 9.30a.m. to 4.30p.m. and will be run according to the F.A.I. Sporting Code and to M.A.A.A. rules. These include, amongst others, that classification will be according to sum of the best of two of six flights.

Practice will be from 9.30a.m. to 11.00a.m. Competitions flights will be taken from 11.00a.m. to 4.30p.m.

Entry fees shall be a hall fee of \$10.00 plus a fee of \$7.00 per event entered. The Contest Director will be Darien Cassidy.

For further information contact him on (03)9899 0322, e. mail: joybdes1@bigpond.com or by post, 29 Russell Street, Surrey Hills, VIC. 3127. The Jury for the day will be Peter Lloyd and Don Boughton

WESTERN AUSTRALIAN COMPETITION RESULTS

As is usual over here we have suffered from unflyable weather in the early part of the year and have had to postpone several events, including the F1A State championships and team trial. Since we have to travel 130km or so from Perth to fly we tend to be fairly choosy about conditions before we set out and as a consequence weather on the three days we have managed to fly were pretty good.

We are seeing a decline in interest in FAI events with most people being discouraged by the expense and complexity of the models involved and the degree of dedication necessary to be competitive. In most events we struggle to attract sufficient numbers to hold a State event, however what we lack in quantity we more than make up in quality with Paul Rossiter, Neil Murray and Colin Crowley all participating in one or more world championship teams culminating with Paul's 9th place in F1B this year in Argentina. On the other hand participation in the non-FAI power classes is on the increase probably resulting from the interest created by the Dixielander event a few years ago. Open and Slow Open Power are now by far our most popular events.

Scramble, Handlaunch and Fuller events Sunday May 1 2011

State Championships for hand launch glider and power scramble plus a power duration competition for models designed in the fifties and sixties by George Fuller were held at Meckering on Sunday May 1st. Weather conditions were excellent with mild temperatures and light winds. The field, however was completely bare of grass and the dry, dusty conditions probably contributed to some of the engine problems experienced. As it turned out this was the only free flight event actually flown during the period, two others were scheduled but had to be abandoned due to weather. Ian Dixon was the big winner on the day, taking out both the Fuller and Power Scramble events.

Power Scramble



There were four entries in the event; all powered by one or other of the many Mills 0.75 replicas available. Ian Dixon and Troy Latto flew "Hatchet Mans", Ian's flew steadily in tight circles with multiple short flights in the 20-60 second range in order to minimise retrieval distances, resulting in a total flying time of around 12 minutes out of the available hour, just ahead of Greg McLure. Greg flew an enlarged Vic Smeed "Bug" originally designed for CO₂ power and provided lots of amusement with the model's unusual appearance and flying antics. Adrian Dyson was unlucky to break the Pylon on his "Dubloon" in a heavy landing early in the comp and Troy simply could not get enough power from his Mills to keep the model above ground.

Results:	Total
Ian Dixon	708
Greg McLure	685
Adrian Dyson	340
Troy Latto	279

Photos:

1. Adrian Dyson preparing to launch his "Dubloon"
2. Troy Latto refuels the Mills for another attempt
3. Greg McLure launching "Big Bug"
4. Ian Dixon does some running repairs

Hand Launch Glider

Only three flew in this event and the results were disappointing. Troy Latto won with a total of 109 seconds for the best three flights out of the six allowed. Greg McLure had the distinction of scoring the only 60 second max of the event, but didn't do nearly as well on his other attempts

Results:	1	2	3	Total
Troy Latto	30	40	39	109
Greg McLure	21	60	17	98
Ian Dixon	22	20	33	75

George Fuller Power Duration

The competition started with eight entries all flying "Dixielanders" powered by a variety of motors, however attrition was unusually high for this event and in the end only four competitors completed all five flights. Garry Dickens could not get his AM25 diesel to run despite successful testing the previous day, Greg lost his model on his second consecutive max and Mark Sherburn crashed in the first round. My "Silver Swallow" diesel was difficult to start in the first two rounds and totally refused to run after that. Phil Letchford looked a certain winner going into the final round but a poor launch on his final flight resulted in a time of only 45 seconds and a total one second less than the winner Ian Dixon. Chris Behr looked good after a first round max but several short engine runs put paid to his chances of winning.

Results:	1	2	3	4	5	Total
Ian Dixon	112	127	167	147	61	614
Phil Letchford	180	67	141	180	45	613
Chris Behr	180	97	122	132	58	589
Adrian Dyson	123	112	77	180	67	559
Greg McLure	180	180				360
Rod McDonald	107	180				287
Mark Sherburn	33					33
Gary Dickens						-



Troy Latto's ex Mike Beilby
Dixielander climbs away



Mark Sherburn starting his Dixielander



Greg McLure preparing to launch his Dream Weaver

ESCARGOT TROPHY SUNDAY JUNE 26TH

This event is run to the Slow Open power rules ie. Plain bearing motors 3.5cc or less capacity and fixed flying surfaces. Weather on the day was near perfect and, as a result of recent rain, the field even had enough grass cover to keep the dust down. There were nine entries initially but this was reduced to eight when Paul Rossiter discovered he had left his Dixielander's tailplane at home and wisely decided not to fly. As usual, most entrants were flying Dixielanders, only two, Greg McLure with a PAW 1.49 powered Dream Weaver and myself with an OS 20 powered model were flying anything else. At times the air seemed to be filled with Dixielanders performing all sorts of strange aerobatics and demonstrating the design's uncanny ability to survive even when severely out of trim.

The winner was Phil Letchford flying an OS10 powered Dixielander which although not quite flying up to it's usual standard, managed to rack up enough time to win. Troy Latto, competing for the first time in this event, was

particularly unlucky to have his timer give up the ghost just before his final flight when he was in a good position to win flying his ex Mike Beilby Dixielander. Two notable absentees because of ill health were Mike Beilby and Chris Behr. Hopefully we will see both of them at the field in the near future. Paul Rossiter did the honours as CD in Mike's absence.

Results:

Phil Letchford	125	180	161	145	72	683
Rod McDonald	104	92	180	151	131	658
Greg McClure	64	44	114	180	180	582
Ian Dixon	50	71	89	171	180	561
Troy Latto	90	151	133	180	-	554
Mark Sherburn	81	31	180	148	107	547
Ryan Sherburn	123	82	65	180	24	474
Adrian Dyson	176	65	69	110	48	468

Paul Rossiter has been promoting an electric free flight event based on the Maverick 1/2A design and generally in accordance with the FAI F1Q rules. By coincidence both Paul and I brought our newly constructed versions for trimming after the power event. I was quite amazed at the performance of these little models after a couple of trimming flights and it appeared that they would be quite competitive against ic powered models on the same motor run. Both models used the same power train – 450mah 3S Lipos powering a small 15A outrunner motor drawing about 12A turning 9x5 folding props and using home brew timers. Paul's model had the edge in performance on this occasion, probably because he had read the trimming instructions that came with the plan. The main downside for free flighters used to unmuffled motors, is the lack of noise, Ian Dixon reckoned that they sound like a flying kitchen appliance. Nevertheless there does seem to be quite a bit of interest in the event and a number of people are currently building models.

F1B and F1C State Championship and Team Trials, Saturday July 23

These events were scheduled to be held on Saturday 23rd and Sunday 24th but to avoid the high winds forecast for Sunday, were both held on Saturday. As it turned out we made the right decision for a change and the weather was perfect all day to the extent that most of us stayed on after the competitions to trim for other events. Although both events contributed to selection for Australian teams there were only three entries in F1B (FAI Rubber or Wakefield) and two in F1C (FAI Power) as a result only in F1B was the State championship awarded, there being insufficient entries in F1C.

Nevertheless results in both events counted for team selection and the best performance of the day was put up by Colin Crowley with a perfect score in F1C. Paul Rossiter was unlucky to hit massive sink on his third flight to fall short of 180seconds but maxed out on the remaining six flights to register his usual win in this event. Neil Murray was close behind in second.



Results:



F1B									Total
Paul Rossiter	180	180	151	180	180	180	180	180	1231
Neil Murray	180	180	166	122	180	180	180	180	1148
Rod McDonald	180	119	162	121	167				749
F1C									Total
Colin Crowley	180	180	180	180	180	180	180	180	1260
Chris Behr	58	58							116

QUEENSLAND COMPETITION RESULTS

F1G STATE CHAMPIONSHIPS



After a couple of postponements due to adverse weather we at last scored a day with a clear sky and light winds. This year we had 13 competitors and a few visitors such as Allen Thomas and Ian McEldowney from the coast that ably assisted with timekeeping duties. I can't remember seeing so much diversity in model design ranging from high tech Russian inspired designs to basic designs resembling sports models. The one thing in common however was the friendly atmosphere that prevailed throughout the day.

The contest began 30 minutes late mainly due to the variable wind direction making it hard to establish the upwind position for the start line. 5 maxes were scored in the first round. In Ben's case it was his first flight with his new model. Father John, William, Dale and Albert were the other successful competitors. The second round produced seven maxes with George and Brian joining the first round five. Round 3 saw Graham and Ted with a max apiece however Brian dropped off the pace and William withdrew with front end problems. At this stage Ben, John Dale and Albert were all on a full house with two rounds to go. Round 4 saw John pick some poor air to drop out of contention however George and Brian were keeping the pressure on with a max a piece.

With a potential flyoff looming the pressure was on the remaining 3 with 4 maxes to make the last one. Albert was looking very good for an easy fifth max, until his model hit a tree. Ironically Ben who had DTed well up on his previous 4 flights was looking like he would just max when he also hit a tree 11 seconds short. Dale flying a no frills style of model made no such mistake to convincingly max and win the contest. Brian Taylor finished in fine style gaining massive height eventually touching down at 5 minutes 49 seconds. Graham was not so lucky losing his model with no tracker on board. Des also maxed his last flight taking out the most improved contestant of the day. This was one of those great free flight days where everyone was in good spirits regardless of placing.

Perhaps it was the sausage sizzle provided by John Taylor who arrived too late for the start of the contest due to a flat battery. Had John arrived a little earlier he along with Van who had some trimming difficulties could have made it a contest of 15. With such good weather the scores for the minor placings were tight with Ben one second ahead of John for second and third with Albert 4th and George 5th.

And straight after lunch we backed up with the F1H State Champs. What a great day!



NAME	R1	R2	R3	R4	R5	Total
Dale Jones	120	120	120	120	120	600
Ben Lewis	120	120	120	120	109	589
John Lewis	120	120	120	108	120	588
Albert Fathers	120	120	120	120	89	569
George Baynes	105	120	120	120	78	543
Ted Burfein	77	101	120	98	120	506
Brian Taylor	110	120	95	120	120	455
Graham Maynard	57	97	120	120		394
Ron Munden	72	94	62	75	79	382
Des Slattery	31	53	69	96	120	369
Dianne Richard-Smith	53	65	51	77	23	269
William Jones	120	120				240
Malcolm Campbell	105					105





A good roll up for the F1G/F1H day at Coominya

F1H STATE CHAMPIONSHIPS

As with the F1G event we had suffered a couple of postponements with F1H due to adverse weather and decided to add F1H after the F1G contest. This as it turned out was in the main a good decision with many flyers being able to fly both events on the one day, although a few may have needed to leave before the event finished. The wind picked up a little after lunch so we moved to the opposite end of the field (near the old farm house) as far away as possible from the lake and the unfriendly neighbour. Although the wind direction at times blew towards the road the drift took models parallel to the road. Later in the day a few models used the full length of the field with one landing over the fence of the property but still a hundred meters short of the lake.

Round 1 began after 1pm with Malcolm, Albert and Ron maxing. Surprisingly no maxes were recorded in round 2. With only Malcolm cracking the 100 sec mark. Ben's model was towing right on the launch killing the launches, John was having stalling problems and hit a fence breaking his best model. After damaging his best model during testing Albert, after a low scoring flight with his Aiglet in round two, decided it was time to leave. Des after two low scoring flights with his Little Hinney retired that model and changed to his Asteroid gaining a max in round 3. Ben after making a rudder adjustment easily maxed round 3 after gaining massive height from his launch. John, however was all over the place trying to circle his reserve zooming model finally returning a poor score.

Malcolm was also having trimming problems with a warped wing. By round 4 the field of nine was down to 5 with Ben once again producing a good launch to produce another max. John also managed a half reasonable launch and with some helpful air also maxed this round. Round 5 (with only 4 flyers remaining) produced 3 maxes. All four models seem to find good air with Malcolm's model landing 30 seconds short but covering a similar distance to the maxing models. Apart from his first two flights Ben was in a class of his own and deserved to win. John and Malcolm were second and third both with models out of trim.

Perhaps we all need to do some practice before a contest day but with the recent weather and the limited access to our flying site it's not always easy to get the opportunity. However, regardless of the scores it was heartening to see 9 competitors prepared to back up after the morning event to fly late into the afternoon. As with the F1G contest everyone enjoyed the flying or was it John's cooking that made it such a great day?

NAME	Rd 1	Rd2	Rd3	Rd4	Rd5
Ben Lewis	113	85	120	120	120
John Lewis	75	84	64	120	120
Malcolm Campbell	120	108	77	52	90
Des Slattery	59	48	120	44	120
Ron Munden	120	74			
Albert Fathers	120	31			
Van Richard-Smith	46	11	53		
Brian Taylor	43	46			
Ted Burfein					



Ben Lewis hunts for good air



FREE FLIGHT TIMERS – CARE AND OPERATION

by Jon Fletcher

1. General

If there is one thing on a Free Flight model that has to operate without failure or erratic behaviour then it is the timer. This article describes cleaning and lubrication notes for operating clockwork mechanism timers. If well cared for a clockwork timer can last for decades and outlive many models. The following are processes I have developed over forty years of working with clockwork timers.

2. Tools and materials

Lanox aerosol from Super Cheap Auto. Singer Sewing Machine oil from Home Hardware. Methylated spirits or methyl alcohol (methanol) ½" bristle brush. Two 250 ml. glass jam jars with lids. Small instrument screw drivers for both slotted and Philips head screws. Hard surface to work on, I use a 6mm glass bench top. About 600mm square of fine cotton substantially lint free cloth. 3" focal length eye glass. 100 W task lamp. No. 11 bladed scalpel. Cocktail sticks. Roll of paper towel. Very small paint brush with the group of bristles about 1/16" dia. by about ¼" long. 5" long stainless steel tweezers from eBay, about \$6 delivered. Pack of 100mm x 125mm Zip lock polythene bags. Selleys Aquahere.

3. SEELIG TIMERS

These fall into two basic family groups, large and small. The large ones are used for F1C and bigger open class models and are of four or five function. The smaller ones are used for F1A and F1H gliders and multi function ones in ½ A and F1J power and F1G and F1B rubber models. The escapements used are either an air vane on early timers or rattler mechanism on later ones.

3.1 Cleaning

Immerse the whole timer in clean Shellite, use the ½" bristle brush to remove stubborn dirt. If contaminated with castor oil a 50/50 mixture of ethyl or methyl alcohol and acetone will dissolve this. Shake the mechanism dry and proceed immediately to the next step to avoid corrosion.

3.2 Inspection

Using the task lamp and eye glass check for missing screws and bearing bushes, worn parts and loose gear wheels and corrosion. If you find anything substantial you could try your local watch maker, or me if you don't mind the long wait. Rusting in gear and pinion teeth can usually be removed with the cocktail sticks.

3.3 Lubrication and Rust Prevention

Clean the glass and drop some Singer oil to one side. Using the scalpel blade tip pick up a little oil and oil every bearing bush. Also oil the release arm pivots. Do not oil the gears and pinions. Wipe up the oil with the paper towel and spray a little Lanox onto the glass. Pick some up with the brush and lightly brush all the ferrous parts, but not the gear or pinion teeth. Include the chemi blacked steel release arm hinges, outer ends of the stop pin, disc stack and main shafts.

3.4 Test

Fully wind and test run the timer multiple times to ensure that all of the scroll is always run off. Make sure there is no hang up of the stop pin and the timer always starts and stops. Make sure that the release arms always come free of the discs and scroll end. Immediately after applying lubrication and rust preventative to the timer, store in a

clean, new zip lock polythene bag. When fitting to a model make sure the fuselage aperture is clean and dust free. If balsa, dope it to prevent dust ingress into the timer.

4. TATONE AND KSB TIMERS

4.1 Dismantling

Unlike the Seelig timers the KSB and Tatone timers are cased so the mechanism needs to be removed or at least the case back removed for cleaning and lubrication. First cautionary note is that the later KSB DT timers have a clear polystyrene "L" shaped spacer between the face plate and the top movement plate. As both Shellite and acetone readily attack polystyrene the disc has to be removed and then the face plate. Before dismantling the main shaft nut and tiny face plate screws, lay the cloth down over the bench top and smooth it out. The main shaft dome nut is either hexagon or knurled. For the hexagon nut use a 4mm A/F nut runner, "C" spanner or a small adjustable wrench carefully snugged up on the hex flats. Nut unscrews counter clockwise. For the knurled type I started by using a pair of mini "linesman" type pliers matching the serrated jaws to the straight knurl. Now I use a "T" wrench tool I made with a delrin socket that is tapered and internally knurled which doesn't mar the nuts chrome plating.

After removing the disc place nut and disc in the jam jar lid. Early DT timers had a faceplate stop for the disc, later ones have an internal stop. You will see three small screws, early ones are slotted head, later ones are Philips.

Select a screw driver that fits the screw recesses exactly. Hold the screw driver at 90 degrees to the timer case back, push down fairly hard then apply counter clockwise

torque. Immediately place the loose screws in the lid. Lift off the case back and watch for two tubular brass spacers that got fitted to the screws of early versions. You can use the tweezers to pick up the screws but remember tweezers are springy whilst finger tips are not so used inappropriately can cast a tiny part into the furthest recesses of the modelling room never to be seen again. So when using the tweezers apply just enough force to hold the part and no more. When you drop the screws they will not bounce on the cloth surface.

Unscrew the three face plate screws and lift off the faceplate to reveal the movement. The timer will start and run until the mainspring presses hard against the movements brass pillars unless it is a later type DT timer with internal stop. With great care tease the "L" shaped plastic spacer loose with the scalpel blade tip then lift off and place in the lid. When you break this part you can repair it by taping some siliconised baking paper to the bench top and then laying the broken halves down weighted with say two prop. nuts. Drop some pink Zap on the glass and pick up a pin head sized amount with the scalpel tip and apply to the break. Leave for some minutes to cure or fog some Zip Kicker over the top from say 1 ½ ft above. The solvents in Zip Kicker will attack the styrene if applied directly. Carefully lift the cured part off the baking paper and place in the lid.

The procedure for removing the engine timer mechanism is the same except that there is no "L" shaped styrene spacer. After removing the main shaft nut and faceplate the mainspring will run down until it presses hard against the movement pillars.

4.2 Cleaning

Immerse the whole movement in the jam jar in Shellite, brush the movement clean. Remove the movement and shake dry.

4.3 Inspection

Using the task lamp and eye glass check for worn pivot bearings and loose gear wheels and corrosion. If you find anything substantial you could try your local Watchmaker or me if you don't mind the long wait. Rusting in gear and pinion teeth can usually be removed with the cocktail sticks.

4.4 Lubrication

I find the following method gives me the best results. Using the second jam jar mix up a solution of 5% Singer oil in 95% Shellite, dip the whole movement in this solutions and shake dry. Leave the movement on the cleaned glass surface for the Shellite to evaporate. Fit the disc or squeeze off arm and nut temporarily and wind the mainspring fully. Then fit the case back with spacers if any. Tighten the screws carefully then apply a drop of the Aquahere to the glass and picking up a match head sized amount with the scalpel tip, apply to the screw heads and case back. This locks the screws but can be removed later for service. Place in a Zip lock bag left open until the Aquahere dries and goes clear. Next fit the "L" shaped spacer on the DT timer then fit the face plate and three screws. Wind the timer fully then run off just enough to fit the disc or arm such that the main spring does no go coil bound before the maximum engine run point or DT duration point is reached then fit and fully tighten the main shaft nut. I chose not to lock these nuts but

remember when tightening that the nut and shaft were brass on early timers and not as strong as the later steel ones.

4.5 Test

Test run the timer multiple times. Usually the engine timers are very reliable but the DT timers can sometimes stop during the run. I have worked on DT timers that were prone to stopping by very fine Arkansas stoning the faces of the escapement pawl and its meshing wheel and optimising the meshing centre distance. However I have to say that I have never found a definitive cause for DT timers prone to stop. If you have one you might like to give your local Watchmaker a challenge.

5 UKRAINIAN AND POLISH TIMERS

Treat these timers the same as for the Seelig timers. However pay special attention to the first and fourth gears in the train for loose wheels. In this movement design, which reputation has is made for Russian hand grenades, some gear wheels are just pressed on the tips of the pinion teeth. These can readily come loose and the timer runs down very fast (pretty disastrous for the grenade thrower and the forensic evidence would be blown up with him/her). I have repaired these timers by removing the gear wheel, machining down the pinion shaft and press fitting in a new piece with OD a press fit into the wheel but this is a tricky operation requiring great accuracy.

Any suggestions on clockwork timers would be appreciated.

Jon Fletcher



*Technical articles. We need technical articles.
Please send them in and I will publish them.*

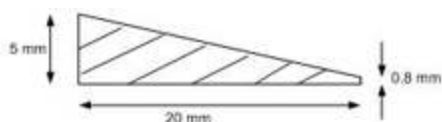
MAKING A TRAILING EDGE

Notes by David Ackery

The trailing edge is a very important part of a wing; it needs to be straight and true over the lifetime of the model, and strong enough to do this without being overly heavy.

The best way to make trailing edge is to use carbon, either strip or rod, but sometimes you will want or need to use a wooden trailing edge. You could try to buy what you need ready made, but it is much more satisfying to make it yourself, and you can get exactly what you want.

First decide the dimensions that you need, the size and shape, this is one that I made recently.

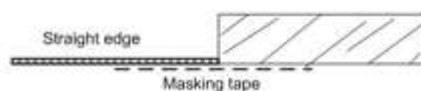


Select a sheet of balsa to use. The prime quality that you want is that it needs to be stable, ie it will not twist, warp or bend when built into a wing. I look for wood that is medium / hard, and has an even consistent grain without defects or inconsistencies; quarter grain is nice but not essential. Sight

down the sheet to check if the grain is parallel to the edge, if not make it so. Then face off the edge of the sheet to make it straight and square. Use a long straight edge to see how good it is, then a loooong sanding bar to adjust. This will be the reference edge.

Cut off the strip you need, if you like you can make it 5-10% wider than the final required width. Check it is straight, use that long straight edge. It is likely that it will be bowed. Bend it to correct this, in an extreme case you will have to retrim to correct this.

Tape the strip of wood to your straight edge with masking tape. This will help to control it and hold it straight while you work on it.



Shaping the TE is just the same as making a chuckglider wing. To shape the strip start with a razor plane with a sharp blade. I use a 'David' plane that I bought about 30 years ago; I sharpen the blade with an oil stone as required. It only takes few minutes.

Go slowly and take your time to sneak up on where you want to be, once you take material off you can't put it back. Set a minimum thickness for the back edge of about 1 mm, don't try for razor thin, this is not an indoor model.



Try to do as much work as possible with the plane first before you start sanding. Set the back edge about 10mm away from the side of the bench to maintain the minimum thickness. Use sharp new sandpaper and a long sanding bar to go lengthways. Let the sandpaper do the work, you should not have to lean hard on it. If there are local high areas you can also work on these with a short block across the grain. When you are happy that you have finished the top, then pull it off the straight edge and check it out. It will likely be bowed upwards due to the stresses and pressures of the sanding. Turn it over and sand the bottom to relieve and equalise the stress and get bring it back to flat.

SMS Codes for Seniors

ATD.....At the Doctor's
 BFF.....Best Friends Funeral
 BTW.....Bring the Wheelchair
 CBM.....Covered by Medicare
 CUATSC....See You at the Senior Center
 DWI.....Driving While Incontinent
 FWBB.....Friend with Beta Blockers
 FWIW.....Forgot Where I Was
 FYI.....Found Your Insulin
 GGPBL.....Gotta Go, Pacemaker Battery Low
 GHA.....Got Heartburn Again
 HGBM.....Had Good Bowel Movement
 IMHO..... Is My Hearing-Aid On?
 LBL.....Light Bladder Leakage

LMDO.....Laughing My Dentures Out
 OMMR.....On My Massage Recliner
 OMSG.....Oh My! Sorry, Gas
 PKMU.....Prostate Keeping Me Up
 ROFLCGU..Rolling on the Floor Laughing...
 Can't get Up!
 TTYL.....Talk to You Louder
 WAITT.....Who Am I Talking To?
 WMBG.....Where're My Bloody Glasses
 WTFA.....Wet the Furniture Again
 WTP.....Where's the Prunes
 WWNO.....Walker Wheels Need Oil
 GGLKI.....Gotta Go, Laxative Kickin' in!

TO SOAR OR SINK *by Peter Twiss*



I returned to free-flight early in 1969 after 25 years doing other things. Only later did I realise that I had missed what was surely a golden era of free flight.

As I worked my way into FIA, B and C I came to realize how carefully structured and balanced were tow line length, rubber weight, engine run, minimum weights and the elusive 180 sec max. One simply did not max without finding lift, and one didn't reach a fly-off without doing so on seven successive flights. The so-called "neutral air" was not enough-despite claims by various designers. I really admired the CIAM and FAI for getting the rules so right.

All this has changed in the last decade or so with advances in design, materials and technique. There surely can be little doubt that the modern F1 A, B and C flown by a competent modeller will easily exceed the same old 180 sec max without thermal assistance, and this is the real change from earlier days. So why do we see pretty much the same contest results now as we did 30 or 40 years ago?

I've not ploughed through contest results, but a casual reading of modelling magazines-particularly Free Flight News-over many years leads me to the belief that roughly as many competent flyers in major events get through to the fly-off nowadays as has always been the case. Something like 10% to 30% of the field will get through to the fly-off-you provide your own figures, but they will certainly be less than 50%. Why should this be? Remember that "pre-modern" flyers had to find a thermal on every flight, now they don't. Even allowing for the inevitable unpredictable behaviour of models and modellers during a tense contest, there is something of a paradox here and the explanation should be found.

It's my contention that the answer may be found in the common behaviour of all contestants, and the lack of knowledge of the air we fly in: we all look for thermals, and much study has gone into their nature, development and the means of predicting and discerning them. This was understandable in "pre-modern" times, but not today. The figures above show that, despite our greater knowledge of thermals, we really are not much better at picking useful ones than we've always been. Launching a modern model into what we think is a thermal is apparently little better than it's always been. It would seem that all the



means we use to try and find useful thermals are not very good. So it seems to me that contestants with modern models should forget about thermals and concentrate on avoiding sink or downdrafts.

Remember, every contestant now has a model which does not need a thermal to max, and the figures would indicate that chasing them is going to lead more than half the field into something they hadn't bargained on and certainly don't want!

So with modern models we need a sink detector not a thermal detector: avoid sink and you'll be in the fly-off and you'll probably make the 5-min. and 7-min. flights without a thermal. Here is a whole new world of atmospheric research for modellers to explore, but I think the amount of information available is probably fairly limited. I fear we'll just go on believing that the thermal is our saviour when, in fact, it appears it could be our nemesis.

We no longer need them, but we do need a means of avoiding what inevitably goes with them, viz., SINK.

And this is Vin Morgan's reply to this constant challenge to free flighters the world over:

Peter has a good point – up and down air is the reason, but I think avoiding sink is the same as picking a thermal. If there are thermals around the air must be going down nearby to fill the space.

It is like this.

FF models sink at about 1 foot (30 cm) per second. But when you put one in a thermal it will climb quite fast – much faster than the sink rate – so obviously most thermals rise at much more than 30 cm/sec. Apparently thermals relatively close to the ground – where we fly – might rise at 1-4 m/sec., Just occasionally a model gets into air that will just allow it to maintain height – a very weak thermals rising at 30 cm/s

Thermals are relatively narrow; the surrounding air covers a larger area. An image obtained with acoustic radar (see FFDU 2009-4) suggests that in the middle of the day the rising air might occupy 20% of the area. Another way is to consider that at one place on a day with a bit of a breeze thermals might come by at intervals of about 5 minutes and take about 30 seconds to pass i.e. the thermals occupy 10% of the time and thus 10% of the space. So to take some really rough figures to illustrate



the point, if the thermals are rising at 2 m/sec and occupy between 10 and 20% of the area, the surrounding sink, on average, must be coming down at $2/7.5 = 0.26$ m/sec - about the same as the models normal sink rate.

If you launch your glider that has a sink rate in still air of 30 cm/min and normally does 4 minutes, into air that is sinking at 26 cm/min it will turn in a time of only a little more than 2 minutes. Even if it could do 5 minutes in still air that sink, which is only as fast as the weakest thermal, would make it a 2 ½ minute model. The point is, if you launch into sink, the model will not max even if it has intrinsically very good performance. That is not to say performance does not count at all. In the non-thermal early morning you need performance to get the extended max and of course you need performance for flyoffs whether in the morning or evening. And performance is useful if you launch into a thermal that dies or the model falls out and does 179 seconds. Just one second more of performance and you might get into the flyoff!@#%&*^*().

The thing is, in thermal conditions you have to pick lift, or avoid sink which is very close to the same thing in order to max and apparently our thermal picking ability has not improved all that much over the years. A few

people are now using reasonably sophisticated "thermistor" sets and these few do seem to be amongst the more successful flyers.

Of course in F1B and F1C rule changes have affected model performance. Reducing the rubber weight from 40 to 30 gm. is a big change and so is cutting the motor run from 10 to 5 sec. I think the improvements in model design, propellers, winding technique, gears etc. have probably just about equalled the loss in performance from these rule changes.

For glider the rules have not been changed for a long time so we would expect modern glider design together with zoom and bunt launches would have increased performance. I think this is probably true. In the "olden" days glider tended to have the least performance of the three events but now the max out rate is similar (I have actually looked these up for when I was arguing that it would be fair for teams to be made up of people flying different classes in the Trans-Tasman comp).

Who else would like to have their say on this challenging topic? Email your reply to me at actrain@ozemail.com.au in time for the December edition of FFDU. Editor



Argh, those were the days!

Anyone else got some embarrassing photos they'd like to send in?

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*new members (U.S.), or members who've lapsed for 12 months or more. International dues: \$37.50; Youth dues (18 and under): \$9. Expires 1/1/13.

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FREE FLIGHT DOWN UNDER

Free Flight Down Under has been the voice of Australian free flight since its first issue in October 1969. In the first issue, the editor, Alan Edwards commented that Free Flight printed matter in Australia is practically non-existent and that FFDU hoped to help cure the situation. In this it has undoubtedly been successful. Over the subsequent 41 years, 169 issues have provided results and reports of events, plans of models, technical articles, notices of upcoming competitions, how to do it articles and commentaries. All the information a modeller needs to keep up to date, get to competitions and have input to the aeromodelling organization.

The magazine has always been called Free Flight Down Under however it has had a variety of sub-titles. The first issues were edited by Alan Edwards and published by Southern Cross Model Airplane Club. Alan was assisted by Barry and Margaret Lee from Vol 3, No. 4 July 1971 and this partnership continued for 12 years. From June 1972 (Vol 4 No. 3) it was the Southern Cross Model Airplane Club Newsletter. In 1974 (Vol 6 No. 1) it became 'A National Free Flight Digest'. In 1976 the Australian Free Flight Society (AFFS) was established with Alan Edwards as chairman and FFDU began carrying AFFS news. In December 1983 (Vol. 15, No. 3) Dave and Jan Thomas took over as editors of FFDU and in 1984 they also became the convenors of the AFFS. This meant FFDU effectively became the AFFS Newsletter although it was not until January 1996 that "The News Sheet of the Australian Free Flight Society" appeared on the cover page.

Adrian Bryant had taken over as editor from Dave and Jan in January 1996 and while his first issue had "you mean they fly without radio?" on the cover his next one had "Australian Free Flight Society News". Adrian was editor until Feb 1999 when, following pleas for relief, the editorship was taken over by Vin Morgan and Sergio Montes and the sub-title became "Newsletter of the Australian Free Flight Society". Adrian had changed FFDU from a corner stapled news-sheet to a saddle-stitched format which greatly increased readability. This format has generally been maintained. In 2001 Sergio left to do Free Flight Quarterly. Vin Morgan continued as editor until April 2004.

Jeremy Woolley was the editor of two issues in 2004 and then George Car took over until V 39, No. 2, spring

2009. Vin Morgan edited 2007 and then Bill and Pauline East did 2008/2009. George and Vin put together issues in 2009 and then Malcolm Campbell took over from issue 2010/1. In 2009 the membership was surveyed and as a result about ¾ of the issue is now emailed to the members and subscribers (although some who initially chose the electronic version are now requesting a paper one as well presumably because it is easier to read over breakfast or in the bath). The e-version saves a lot of money and allows coloured pictures and more pages. Malcolm's recent issues make full use of the abilities of desktop publishing and emailing with an uncluttered layout and a lot of large pictures. The readership seems pleased.

Roy Summersby, who has subscribed to every issue, wrote *"Being asked to write about FFDU I found I had to go to the cupboard and take them out, yes I have every issue that has been printed. On opening Vol 1. No. 1 there I was, flying a FAI Viking. Perhaps this is why I don't throw any issues of the magazine away. Many names from the past were there. Steve Rothwell, now a very good friend winning the NSW state champs scramble and Neal Murray from South Africa winning the Strat-O-Bats postal A2 competition. Neal now lives in Australia and flew F1A in the Croatia W/Chs. Alan Edwards, Barry and Margaret Lee must have put in a tremendous amount of work into FFDU in the early days; no computers, just a typewriter. Print on a gestetner machine and staple ready to post."*

Between 1957 and 1965 Australian Model News, a commercial model magazine printed results of Free Flight and Control line competitions along with photos and articles on building. After this FFDU took over as the national Australian FF magazine. Since 1969 FFDU has had a few editors, all have been good and each with their own style. Now when it arrives on your computer at home you get to enjoy a great selection of coloured photos which, back in 1969 Alan and Barry could only have dreamed about".

Vin Morgan
16/6/2010



An Old Product Back, a Conspiracy against Aeromodellers and some second hand tips



George Car has been bashing some balsa.....

Moving to Darwin has meant having to build new control-line models (the old ones having been disposed – good opportunity to get rid of old junk...) meant a trip to the local model shop for some basic supplies, the previous stock of accumulated tubing, wire etc having been left behind.

First - very pleasant – surprise, Balsa cement is back! It was announced only a few years ago that no more balsa cement would be made (declining sales?). However, for us tissue and dope addicts, Balsa cement is useful in repairing tissue tears as well as joining balsa. Secondly, dope is in stock! Indeed, the local model supply (Yee's Hobbies) is excellently supplied – one of the very best I have seen. Gary Yee the proprietor now runs the business that his father and mother established, and though he doesn't fly FF models, treasures a Leeson rubber stripper bought at a Nats over a decade ago, in a burst of enthusiasm seeing indoor FF. As you can imagine, his turnover is largely the electric RTF RC models, with helicopters a specialty, but he does stock a large variety of goodies for the model builder, too.



Good balsa cement available again – the middle

Armed with some brass tube and piano wire, it was off to the supermarket to get a tin for sheet to solder up a tank. Well, two supermarket visits later, I must report a conspiracy against aeromodellers (among other modelers...) – tin manufacturers have purposefully thwarted our activities – by ribbing all the tins they now use for food packaging! Yes indeed, gone are the days when a large tin of instant coffee would supply the needs for all the tanks you could make in 6 months! I was followed around one supermarket by a security guard, suspiciously eyeing me running my fingers down the sides of the cans of all their different lines of tinned food – alas, all ribbed (I have no idea what he thought...). Eventually, I did find an imported product in flat sided tins, and



The tank and brass tube – solder adheres to tin alright, but not the brass tube.....Quite a puzzle trying to get the tube soldered in – until it was noticed the brass simply did not adhere, no matter how clean and well prepared.



The 'metal work' solder – that does not adhere to brass at all.....lead-free it may be, but is also free-of-use for aeromodellers as well.....no indication on packaging that it has no affinity for brass.



All tin cans in two supermarkets checked were ribbed – useless for making tanks Saved by an imported product – tinned mushrooms, here we come.....

with easily removed paper labels - though in very small sizes – and have since developed a taste for tinned mushrooms. But really, what is this fashion for ribbed cans? I would like to think there is actually an engineering reason for it.

Then off to the hardware shop for some solder. Now I suspect a second conspiracy against users of brass! Have you ever heard of low temperature soft solder that does not adhere to brass? Well, I soldered up the sides of the tin tank alright (though the solder seemed to me a lot more difficult to use than previous – it doesn't run into the joints at all well, even though you get the very well cleaned tin up to the right temperature for the solder to melt). With

the sides done, I punched the holes for the tubing, and fiddled about for a long time –till I realized the solder just doesn't adhere to brass, no matter how brightly cleaned. A real puzzle. Eventually, I found a small reel of flux cored solder in a \$2 shop that actually did adhere to brass (and is coincidentally not lead-free), and the Aeroflyte Demon, powered by a Glow-Chief 29 is now flying.....

A visit to Vin and Leigh Morgan last year yielded a very useful tip – Vin says his use of epoxy has improved since taking the trouble to weight out equal quantities using a balance. Well, digital balances that go down to 0.01g cost between \$10 and \$20 when bought on the web – and that is with postage, too. I have started using it and do you know – Vin is right! (No wonder the sly old fox does so well in contests.....). The epoxy mixed in the correct proportions now sets very hard - not the somewhat rubbery stuff mine use to set as in the past.....and a real blessing when using a watery –consistency epoxy I obtained for adhering fibreglass cloth as that required mixing in the ratio of 2 parts to 3.

DIESEL FUEL

George Car re-invents the wheel....



After 6 months in Darwin, not being able to fly my diesel powered models was getting a bit too much – some creative thought was necessary. The problem is our daily temps (30 to 33C every day) is very close to ether boiling point (diethyl ether boils at 34), probably for which reason I just couldn't source any up here. The chaps at the model clubs are very nice, but none flies diesels, most haven't heard of them (let's face it, one day we'll all be flying electrics, I guess). But what to do? While in the auto shop one day, I did notice an aerosol product ("Aerostart") that contained a mix of ether and 'distillates'. (There is also a product called "Start you Bastard", with which sentiment I can sympathise).

I'm sure I'm just reinventing the wheel, but anyway it's new to me, and it works. I put 100 ml of kero in a bottle and left it in the deep freeze overnight to get cold. Using the nozzle tube that comes with the Aerostart, I put the end of the tube just under the

surface of the cold kero, and squirted the Aerostart in. The propellant is carbon dioxide, so it fizzed off and within a minute or so it settled down and I had increased the volume in the bottle to 160ml (the bottle was graduated). I left the bottle in the fridge (to warm up to 4C), and then added castor to a final volume of 200ml, to give my usual diesel mix proportions.

Instant success, it flew my Tomboy just fine. The motor started OK but was very touchy to tune and required about ¼ turn more compression than was the usual setting on that motor, and does go off song while in the air sometimes. The fuel became easier to use when I increased the Aerostart mix proportion to 40%kero, 40% Aerostart, 20% castor. That is probably because Aerostart contains an unspecified amount of 'distillate' as well as ether. The fuel would be a lot better with some diesel ignition improver (which I also haven't been able to source as yet). It also ends up hellish expensive, so I wouldn't run C/L models or big motors on it. But, hey, it flies the small ones OK.

So, if you haven't any fuel and are desperate to fly, bear it in mind.

(PS – I did eventually find a bottle of DII (diesel ignition improver) amongst my modelling gear, put in 1% into the fuel – and it makes a lot of difference, easier to tune and now stays on song alright. For my purposes, I back the rpm down and run it as lean as I can, for which it works fine, compression setting is back to 'normal' – ie, the setting as it used to be before using 'Aerostart'.)

Like to write a report for FFDU? What kind? Well, a competition report or technical report would be nice, or just have your say on free flight in general. Send it in electronic format (Microsoft Word) to Malcolm Campbell (actrain@ozemail.com.au) Photos should be sent separately, as JPEGs, and should be at least 400 Kbytes each. I look forward to a full mailbox!

**TRANS TASMAN TOO HARD TO WIN BACK?
NOT ANY MORE. LEARN THE LINGO SO YOU CAN EAVESDROP
ON KIWI TACTICAL PLANNING SESSIONS ON THE FIELD.**

How to speak like a New Zullander

Milburn - capital of Victoria

Peck - to fill a suitcase

Pissed aside - chemical which kills insects

Pigs - for hanging washing with

Pump - to act as an agent for prostitute

Pug - a large animal with curly tail

Nin tin dough - computer game

Munner Stroney - type of soup

Min - male of the species

Mess Kara - eye makeup

McKennock - person who fixes cars

Mere - Mayor

Leather - foam produced from soap

Lift - departed

Kitttle crusps - potato chips

Ken's - Cairns

Inner me - enemy

Fush - marine creatures

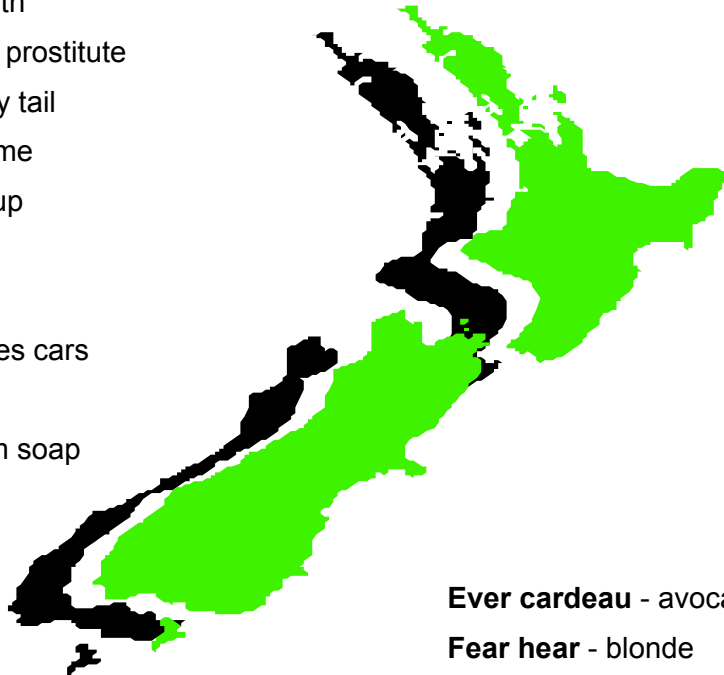
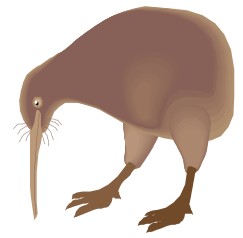
Kiri Pecker - famous Australian businessman

Jungle Bills - Christmas carol

Guess - vapour

Jumbo - pet name for someone called Jim

Fitter Cheney - type of pasta



Ever cardeau - avocado

Fear hear - blonde

Ear - mix of nitrogen and oxygen

Duffy cult - not easy

Amejen - visualise

Chully bun - Esky

Bug hut - popular recording

Day old chuck - very young poultry

Bun button - been bitten by insect

Sex - less than sivven (seven)

Iggs Ecktly - precisely

Beggage Chucken - place to leave your suitcase at the airport

Beard - a place to sleep

Sucks Peck - half a dozen beers

Ear New Zulland - an extinct airline

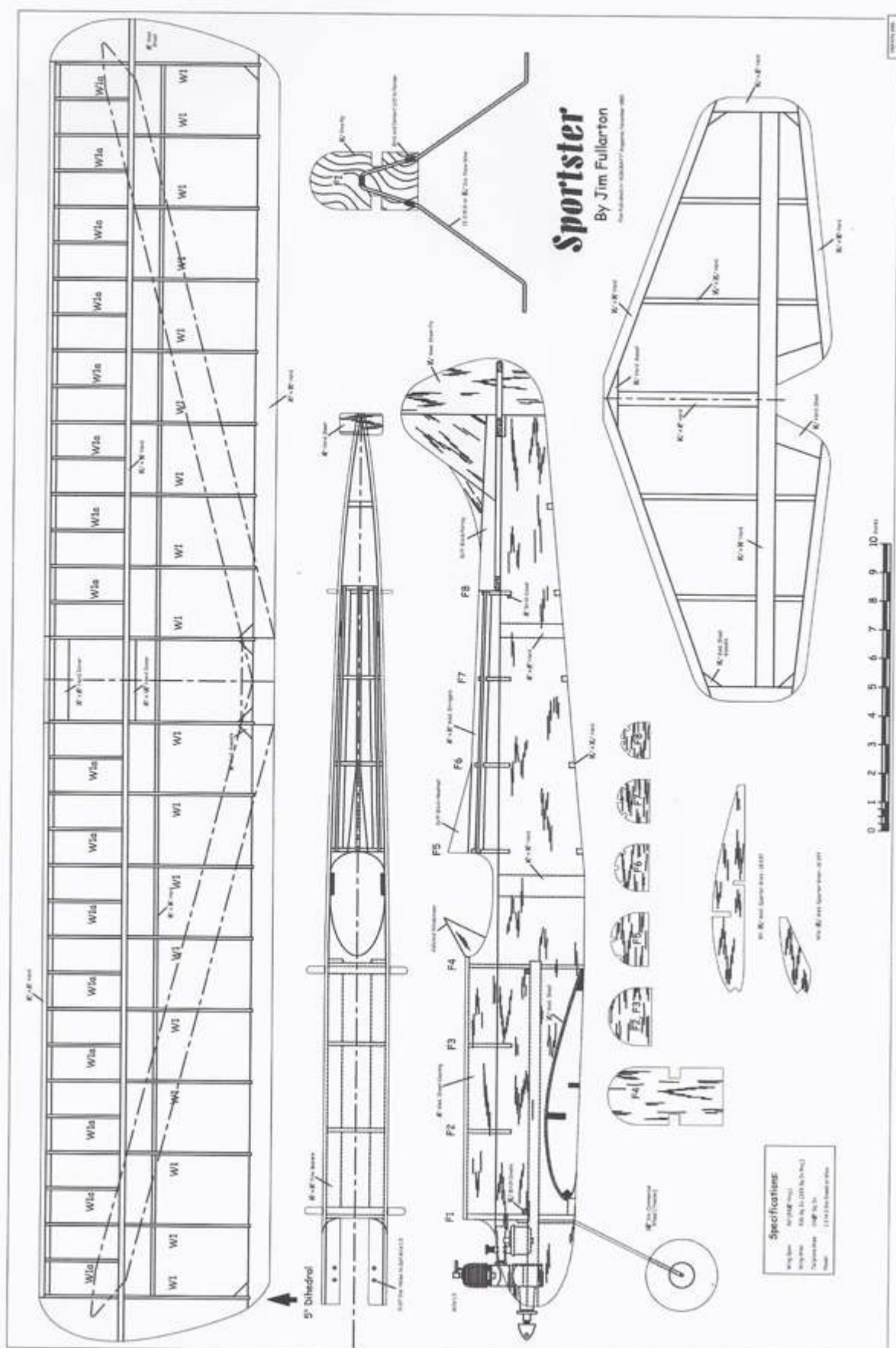
Beers - large savage animals found in US and Canadian forests

Veerjun - mythical New Zealand maiden

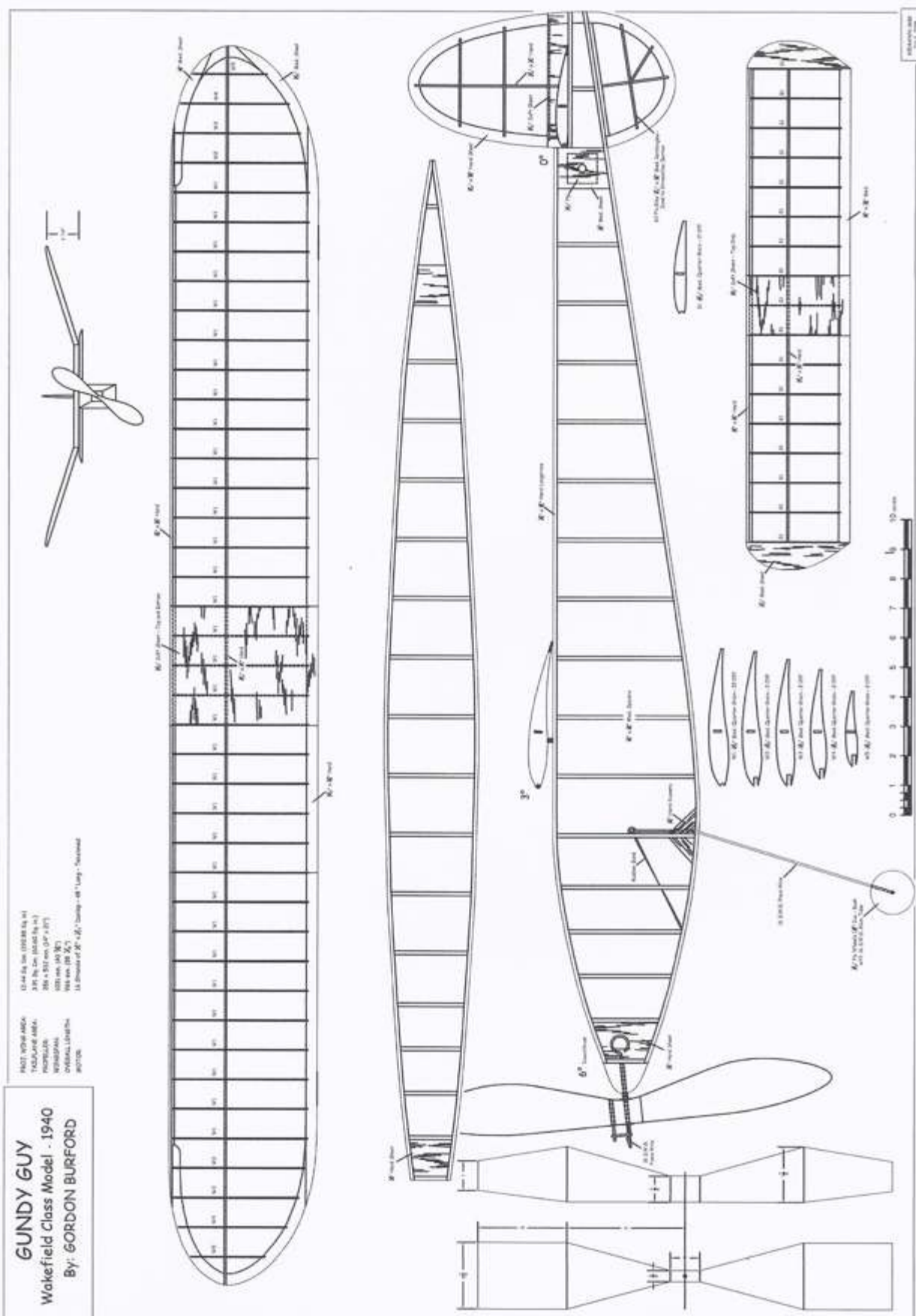


**So that's all there is to it. Learn the lingo and "Bob's your uncle".
Piece of cake really, to win this trophy.
Oh, next edition, I may try to explain how to fly well in wund.**

MIKE GLAISTER'S PLANS OF YESTERYEAR - The Jim Fullarton Sportster



MIKE GLAISTER'S PLANS OF YESTERYEAR - The Gordon Burford Gundy Guy



65th MAAA MODEL AIRCRAFT NATIONALS PERTH WA 12 April 2012 – 20 April 2012: PROGRAM OF EVENTS

DATE	ADMIN HQ – WHITEMAN Lumen Christi - INDOOR	C/L FIELD WHITEMAN (WP) HARD STAND	C/L FIELD SWAN CC (SCC) GRASS	R/C FIELD WHITEMAN (WP)	R/C FIELD KAMS (K) (Oldbury)	R/C FIELD WANNEROO (WA)	R/C FIELD Whitfords (WH)	F/F FIELD WHITEMAN (WFF)	F/F FIELD MECKERING (M)	SOCIAL
Thur 12 Apr	REGISTRATION									
FRI 13 Apr		Processing & Practice Day	Practice Day				Practice Day IMAAC		7.30am – 2.30pm F1J Power Open Rubber Slow Open Power	
SAT 14 Apr		9:00am F2C qualifying 12:00 F2F Heats & Final	9:00am Vintage Stunt	9:00pm Electric Old Timer 12:30 pm Electric ½ A Texaco	9:00am Thermal Glider		9:00am IMAAC		7.30am – 2.30pm F1G Rubber Open Power P-30 Rubber	
SUN 15 Apr		9:00am F2C semi's & Final		9:00pm Electric Open Duration	9:00am F3B Glider		9:00am IMAAC		7.30am – 2.30pm F1A Glider 4.30pm Fly Off	
MON 16 Apr		9:00am Goodyear Combined Speed F2A & Jet Speed			9:00am Hand Launch Glider		9:00am IMAAC		7.30am – 2.30pm F1B Rubber 4.30pm Fly Off	F/F BBQ Meal at Farmstay Homestead Meckering
TUE 17 Apr			9:00am F2B Aerobatics 9:00am Classic B F2D Combat		9:00 Limited Electric Glider (Bill Pettigrew)				7.30am – 2.30pm F1C Power 4.30pm Fly Off	
WED 18 Apr			9:00am F2B Aerobatics 9:00am Open Combat		9:00 Open Electric Glider (Bill Pettigrew)	9:00pm – 12.00pm ½ A Texaco 12:30 pm Standard Duration	Pylon?	2.30pm – 4.30pm HLG/ CLG 7.30pm – 8.30pm Night Scramble	Reserve Day For any postponed Meckering events	C/L Social Function Swan Valley
THUR 19 Apr	7.30pm – 10.30pm Hangar Rat Peanut Scale		9:00am Vintage TR Bendix TR		9:00 Large Scale	9:00pm – 12.00pm Burford Duration 12:30 pm 38 Antique		8.30pm – 12.30pm Free Flight Scale 2.30pm – 3.30pm Day Scramble		
FRI 20 Apr			9:00am Vintage Combat		9:00 Stand Off Scale	9:00pm – 12.00pm Duration 12:30 pm Texaco				Presentation Dinner 7.30pm