Flying Futaba Newsletter

July 2025

Seven horsepower - upgradable to ten

The last Seagull Nemesis I bought to sell to someone to race in the Speedweekend air racing event in Melbourne went to Bill Hamilton, who kindly put his expertise into an electric powered setup. Would it be competitive with a 60cc petrol powered model for a ten lap race?

Despatching the electric aeroplane last would help. No need to use full power on take off either. With six horsepower available a tad under half throttle is more than enough. A run time of two and a half minutes would see the race through. Climbing high out of the circuit to loiter for landing clearance is not needed in the expert category. The pilot briefing at Cobram 2012 informed stragglers to expect to see models approaching to land if they were still completing the course. All they had to do was remain above the pylon height of six metres. This provides separation as a model on final below pylon height. Once people got used to this I had two landing together. Which saved heaps of time. It added interest to spectators and demonstrated a higher level of airmanship.

First flight of the EP Nemesis was on 10S. Cells were 25C and the APC 16x16 propeller produced a straight and level speed around 200 kph. This nifty little hand held radar showed 225 kph downwind, 175 clicks into wind. The following week was on 11S with 40C cells. In flight propeller RPM was 9500 for 248 kph straight and level. The photo shows 251 but that was after a slight dive on the first pass. Yep this thing was honking.

Sounded great too. Full throttle flight time calcuated to 2mins 31 seconds yet to be confirmed in practice but gut feeling is there is enough to complete a race. Vertical performance produced the same spectacle of

What a unit

Steve Neu F5B motor and gearbox

Futaba u400 standard HV digital servos

an FAI pylon racer pulling vertical to exit the course.

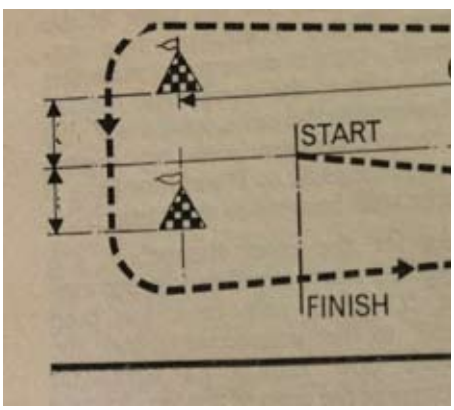
With 11s this Nemesis has seven horsepower in the nose. If we go to 12S that increases to ten HP although Bill's calculations show that exceeds the ESC limit and battery pack C ratings. Delivering that amount of power reliably, even if it could, we won't be doing that as 250 kph is as fast as I think this balsa ply D box spar style wing should be subjected too. Next hop will be back to 10S with 40 C rated cells as Bill thinks this should result in 230 kph with a three minute run time.

Data was from the ESC and calaculations from E Cal proved to be pretty close to actual. One of Bill Hamilton's interests is F5B and he will be trying out for the Australian Team for the upcoming World Champs in Queensland next year.

It never ceases to amaze me how people get locked into a position with electric power versus petrol argument. Well, when you see this thing go there is no argument. It is great.

It won't be demonstrated at the next scale race meeting in August. I'd already pulled my sponsorship. Promoting the hobby is hard enough but throwing another two grand of prize money just for a few blokes who won't race because they don't want to turn right instead of left? That's the equivelent of pissing into a dark suit. Nor will I be competing, if the racing club intends to stick to the course that was laid out on June 2nd. That is demonstrably unsafe. Not my problem I'm done dealing with it.

Flying the Nemesis on a 10 degree day with Bill's recently aquired JETI TX? Man that extruded alloy transmitter was cold. And heavy. Back brace and chiropracters voucher wasn't required but can you subscribe to a heater option? Servos in the Nemesis are Futaba U400s which retail for $50. More than aedequate.



1990s glass and foam Extra 300 for 85-100 cc engine

Servo Power

When I get around to getting this 1990's Extra 300 going I have to choose between the original twin servo setup, which was needed back then, or just one of the single grunty units available today. Putting my Futaba dealer hat on here, selling the company products is in my interest of course, but loading people up with unnecessary gear does not interest me in the slightest.

Companies are now peddling the idea a separate bus unit is needed in a 30cc powered model. Really? I'm not into bling therefore apart from testing out a system in a smaller cheaper model is the only reason I can come up with to add another level of complexity. How to set up and operate such systems has to learnt and understood as well.

Futaba instructions state three of its high powered servos can be connected directly to an individual receiver. I could opt for the DLPH-2 or fit another eight channel receiver and connect three high powered control surface servos per side. No interest in hovering this thing means forty five degrees plus of control surface deflections are not needed. Hence saving me a bucket load of money and set up time. So, how much torque does this Extra actually need?

The most aerodynamic load I can conjur up is a full throttle snap roll on a forty five degree downline. My 160 kph 1990s Sukhoi could do that and not trigger the failsafe. Or break up into pieces. It had one receiver, five 8.5kg/cm torque coreless servos and one battery pack.

Cobram Air Races 2012 Richard Mudge consistently demonstrated a 300 kph full throttle snap roll with his 85cc Percival Mew Gull. Difference between these two models is the size of the control surfaces. And the throws, aslo known as deflections. In

Mudgee's DL 85cc Mew Gull versus Michael Lynch's DA 85 powered version of the same Mudge kit

8.5 kg/cm JR 4721 coreless dual ball race servos

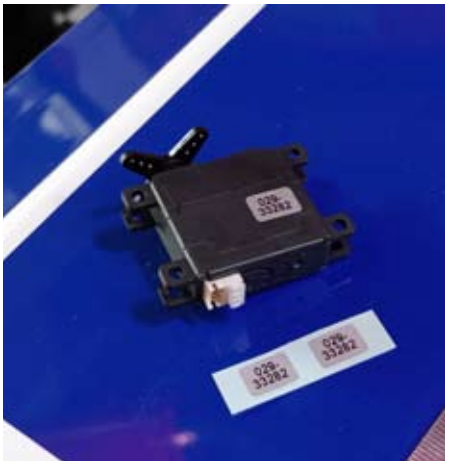
One of the epic one fifth scale warbird races in 2012 by Richard Mudge and Michael

Richard's case the ability to create a balsa foam wing capable of withstanding that load astounded me. And everyone else who saw it. Numerous times.

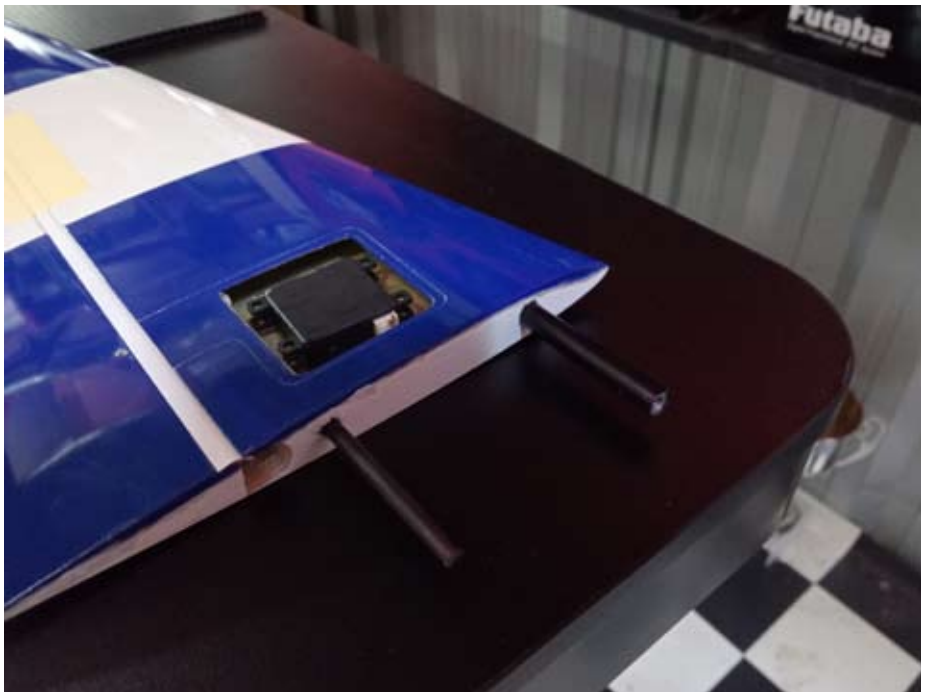
Not astounding but equally surprisng were the suggested Spektrum

Hangar 9 MB-335 for 8 kg thrust

Fin



4.3 kg/cm Futaba S3173 metal gear ball race glider wing servos



Tailplane

servo specifications in this Hangar 9 jet. Servo Torque of 7.92kg-cm on 6.0V or 8.5kg-cm on 7.4V is double of what worked in my last two jets, albeit twenty years ago. Price for eight Spektrum servos comes to around two grand. Seems a bit over the top.when eight standard Futaba U400 digitals cost $440. Eight core-less motor A301s would be just over $600. They won't fit into the taiplane halves and fin so the glider wing jobs cost $77 each. Either way the total cost is less than half of what's recommended.

If I ever get around to finishing the Super Sabre, that design flew with a 15kg/cm torque JR 8411 on the all

3.5/kg/cm torque servos ball race servos in these 8.5 kg thrust 10 kg jets

F-100 most entertaining flight Wangaratta Jets 2004

flying stabiliser, and 8kg 8321s on the rest. We had two of those jets. The first had a 13 kg thrust TJT 3000 engine which was manufactured in Australia. The second F-100 Dad built as a World Champs project with his GT2000 engine. Which was built from RCM News engineering drawings and upgraded to 10kg thrust. Both models were lost due to loss of power in an awkward position. Culprit was a locally made dud electronic fuel cut off unit which had insufficient gauge wiring. Which leads me on to another important subject. Extension leads.

By the way the Phantom pictured above had a pair of 8.5 kg thrust engines and although the all flying taiplane area was similar to the F100, it needed a lot more servo power.

Extension Leads

Genuine Futaba leads have been priced to compete and this is often where modellers choose to spend more on higher torque servos and save a few dollars on servo extension leads. For example, upgrading the MB-339 to coreless metal gear A601s and fitting cheapy aftermarket leads to fit a budget, my advice would be get the genuine leads and fit standard u400 digitals.

Why did most aftermarket leads flogged in hobby shops the past few decades have much less actual wire inside thicker plastic? Cheaper price and much higher profit margin. When someone has a servo jittering problem the first thing I look at is the servo leads.

Another interesting aspect of mixing different brand leads is the pins in the plugs and sockets. I suggest matching genuine leads with the same band of radio gear you are flying offers increased relability.

Scale Gliders

The Foka I collected from Newcastle is almost good to go. On inspection the tailplane was floperiffic, Guessing it took a hit on the way home and cracked the glue joint along one side of the rudder post. Fixed with fifteen minute epoxy on a cool six degree Melburne morning.

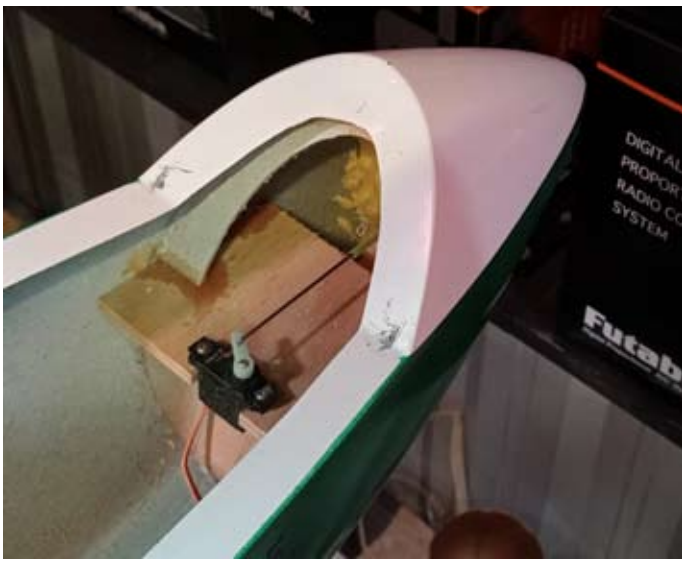
Plugged all the servos and spoilers in and fired up the radio. Eveything centred spot on so all I had to do was reduce the throws, set some differential and change the tow release servo for something with more grunt. A lot more grunt.

Measured up some leads for the Salto wing and trial fitted S3173 glid-

Tailplane took a knock on the trip home

It's three degrees outside

Valenta Gliders Salto



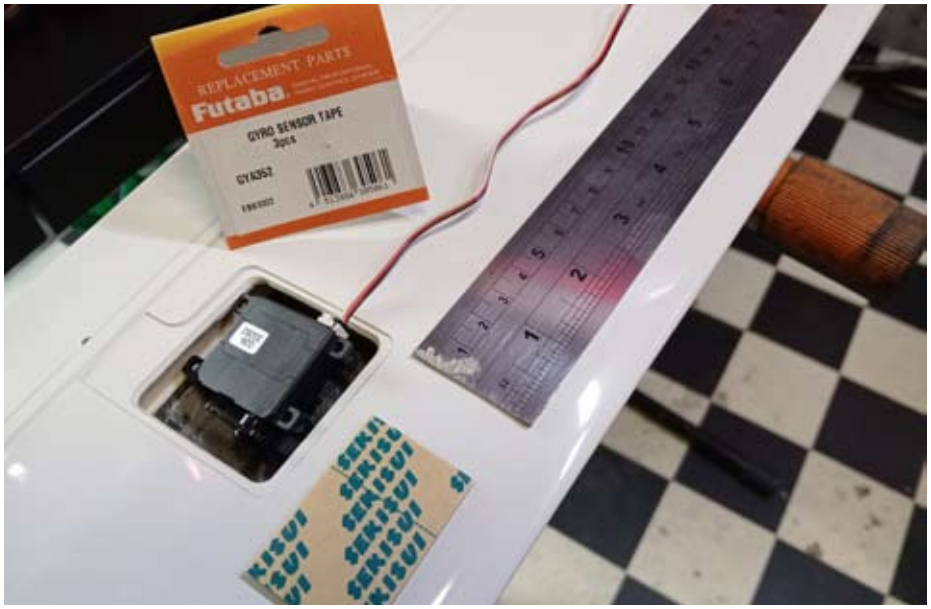
S3173 metal gear ball race glider wing servo for my first all SBus 2 setup

er wing servos in the taiplane halves as well. This will be my first SBus 2 setup and both gliders will have altitude /variometer sensor. Foka will have the GPS unit which incorporates the variometer and altimeter whereas the Salto will have the $55 SBS-02A sensor.

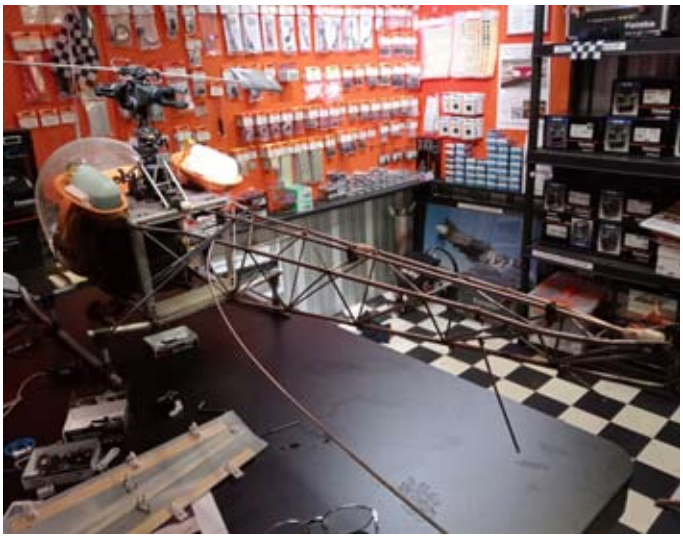
First flight will be behind Damien Mould's 6S Flex Innovations Cessna 170.

Choppers

First month of winter has been and gone. The next model to get going again after the gliders is the scale chopper. Pilot error caused a boom strike which was really annoying. Having a ball then on a steep descent then eighty or so feet up the engine started speeding up as though it was running out of fuel. Hirobo no longer manufacturing meant practicing auto-rotations with this model was not something I wanted to do. Setting a throttle hold to idle and selecting that might have avoided damaging the



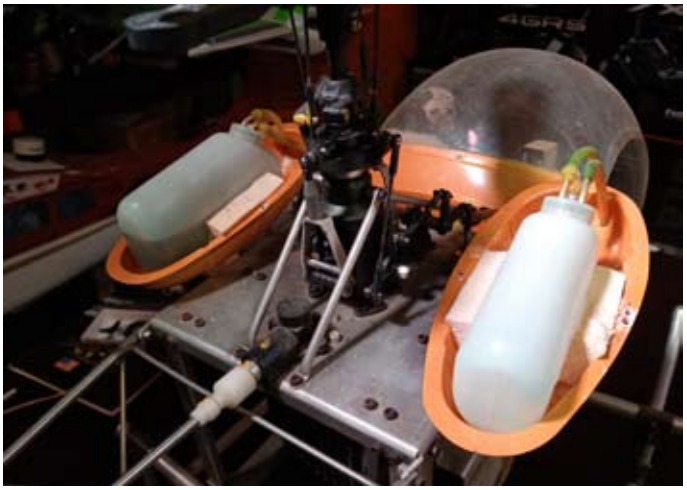
Futaba's excellent gyro mounting tape is available in different sizes and thickness



24 cc petrol engine

Will this buff out?

And this?



Sullivan slant oval fuel tanks plumbed in series

machine nevertheless I thought the engine had quit when I dumped the collective. Which is why I didn't go for the engine cut switch either.

Easing off the forward cyclic to raise the nose increases rotor rpm, and when full collective to pull it up was applied, it turned out the engine had not quit. The chopper spun ninety degrees towards me but I managed to gather it up a couple of feet high. Being a bit nervous, with what was a new machine to me, I sort of dumped it on. The bent undercarriage strut gives away why the blade strike happened.

Ding in the tail boom can be quite easily patched but the bend in the tail rotor drive could be problematic if it cannot be straightened. New gears for the tail rotor servo to be replaced and I sourced a new set of 800 mm blades.

The last item is the twin tank fuel system. The right hand tank is vented and connects to the left hand which goes to the carburettor. Upon inspection later the heli had not run out of fuel. The right hand tank was empty. In fact it had only started drawing from the second tank. Whether a small increase in resistance reduced fuel flow slightly between the two caused the increase in RPM I don't know. That was the longest flight I had done to date so it is likely it had never swapped over to the other tank.

Considering to pressurize the system but this setup has been widely used for years then I snapped up this Sullivan tank kit from the dump bin in a RC car shop. Yet another that that has gotten out of the model aeroplane market. The larger diameter tubing is for the right hand tank. One thing I will be doing is setting up a flight timer before it flies again. I haven't bothered doing that with my small electric Hughes heli. The collective pitch needed to hover slowly increases as the battery voltage decreases. Which gives me an indication of when it is time to land. That has worked okay but not using the functions on the radio isn't best practice.

Snapped up from yet another Melbourne hobby shop that is no longer stocking planes or helis

I've never practiced an auto-rotation but have experienced a couple and got down okay. Not utilising the the available functions on the Bell was a lesson learnt the hard way.

Petrol powered Hirobo SST Eagle

To gain stick time and practice in preference to wearing out the 47G, when I heard about a Hirobo petrol powered machine I snapped it up. This model was setup by Brian Simpson at Perth RC as a test bed for an autonomous flight project for a commercial operator before a bigger 45 cc powered chopper was designed and built.

Corrosion from smoke when Perth RC caught fire is such the machine has to be pulled apart, cleaned and re-assembled. My heli division has a couple of 450 T Rex electrics to get going too which is another learning curve setting up the 760 3 axis heli gyro for the flybarless rotorhead. The other little flybar machine is the Hughes 300.

I see a lot of fixed wing chaps get into helis and never progress from hovering into forward flight. Sooner or later standing from behind has to changed to looking at the machine from the side. Edging into forward flight can be done in steps. The hardest part of forward flight is transitioning back to hover, so before pushing the nose over and gassing it up, you need to know how to stop it.

When the knowledge base was minimal and flight sims did not exist ,I learnt to fly these things in the late 1970s by easing the nose over and slowly walking behind the machine for ten metres or so, then pulling it up and putting it down. Lifted off and repeated until I ran out of room. Shut down, walked the thing back and repeated. Time and time again.

In most cases learning to fly choppers suffers the same fate as chaps hovering fixed wing IMAC style today. Some club members get the shits

Learn to hover postioned like this

when the runway is blocked for a few minutes. A few clubs developed a hatred of helis so doing that at a club field might be just too hard.

I practiced elsewhere in a large open area. Once I was comfortable doing that, establishing a hover then turning it left, ninety degrees and pushed slowly forward ten metres and a tail rotor turn to the right. Chugged slowly past twenty metres then another tail rotor turn to the left so the machine is slowly progressing towards your position. As it comes in from right to left then stop it just past yourself. Hover, land and repeat. When you get better try stopping it right in front.

As you improve just go further and a little faster. I've always been better at landing from right to left so I now practice more the other way. When you can fly in from the side and comfortably pull it up and establish a stable hover before landing, then is the time to tip it forward and try a circuit.

MAAA Scale Nationals in Vic

Great field and only a few hours drive to fly in a National competition is an

You have to be able to pull it into a hover

Before you push forward

opportunity too good to miss. One thing I have got to get down pat with the Spitfire is a more consistent speed in the landing approach. Which means finding the right throttle setting with the flap elevator trim mix. What fired me up to do that during the three hours solo time logged in the circuit as part of Recreational Pilot License training.

One aspect of flying in a subjectively judged competition is understanding what the judges want. There is a difference between model aircraft scale judges and full size aerobatic judges. Which was demonstrated by my Father way back in 1971 when he won F3a aerobatics at the Strathalbyn Nationals. Opening the throttle more slowly than the other competitors was noticed. Helped enormously by retracting the undercarriage. He was the first to do that with a set of servo operated home built mechanical main gear units.

How long should I take the open the throttle on the Spitfire? That should be easy enough to find out on You Tube. Or I could ask someone who flies one. Descending 360 orbit is the hardest manouvre in the compulsory section. Managing the throttle makes for an interesting decision. The judges guide lists "no significant reduction in power" as a downgrade. Which is fine with fixed pitch but doesn't quite work with a variable pitch prop in an early WW1fighter. Or does it?

The other consideration is what optional manouvres to fly. Showing off that marvellous ellipctial wing is a distinctive advantage the Spitfire has. Unfortunately I can't do an F3a style slow or point roll. Not because I cannot do that but the Mk1 could not sustain inverted flight. So I'm thinking a positive 1G slow roll and a barrel roll. Flying in a scale competition you are allowed one free pass. In 2006 I was lucky enough to see how F4C World Champ Andreas Luthi dealt with it.

Loops? The only full size WW11 warbird I've seen repeatedly perform a round loop is a Hawker Seafury at Avalon Airshows. Mustang and Spitfire loops were oval. This model would do an oval but after reading the judging guide I concluded performing a loop with this particular model is too risky. Gut feeling is it would get pinged.

On that point I had to go to FAI to get the rules and judging criterea. Information about scale flying on the MAAA Website is dated 2017. Some SIG only uses Facebook. Which is preaching to the converted. A common mistake now being made by many organisations wanting to attract new members, Just to confirm that would be the SIG. Not the STIG. I glommed

Wings not level

Entertainer and aeromodeller the late Ron Blaskett with Jerry Gee and friends

on to that marvellous inspirational idea from Top Gear. Stunt pilot WG Gilderslag was also inspired by the late Ron Blaskett who commentated at the Dutton Airshows in 1999 and 2000. For those of you who wouldn't know of Ron and his doll Jerry Gee, they were an institution on Melbourne TV in the 1960s.

Back to the job at hand of competing in a Nationals. Understanding the rules is part and parcel with competing. Choosing easy manouvres with low K factors such as lowering the flaps or undercarriage is less risky, but also quite boring. Back in F3a days when landing offered a bonus K factor if you landed within a five metre circle, you had to decide whether making the inner with an adequate touchdown versus a greasing a three point landing into the outer circle. Doesn't apply in scale but landing is the last thing judges will remember obout your flight.

Touch n go with a Warbird seems a bit wimpy but a bit of fine tuning to get a more stable approach will be conducted in the Spitfire's next outing.

The +25 value produces 3mm of up elevator trim with full flap

Brian Green Trophy

June 23rd marked a year since my Father died. Dad wanted no fuss and following his wishes we held a

Using this dial to set the flap- elevator trim on approach is a really handy feature

private service with a long lunch with family. I had asked him if it was okay if we did something to commemorate his participation / contribution to aeromodelling. My two sisters and my late brother all have fond memories of going to the MAAA Nationals where we each formed life long friendships with other children.

I digress slightly but although the Festival of Aeromodelling is not a competition, it is replicating some of that scene where modellers get to see a multitude of disciplines in one town. FOV's auction at a big dinner brings back memories of the Nats too.

My mother won the raffle drawn at the annual Nats dinner. The prize was a HB 61 loop scavenged two stroke. The following year that engine got me out of Novice category into Expert F3a. That was like going from primary school where you felt like king of the kids only to start at the

bottom again in secondary school. Looking through some memorabilia and the few trophies Dad kept, a competition style public event is the what I want to do. One of his life long passions was improving Australia's standing in the world of F3A aerobatics, but our first thoughts was replicating the Yarra Valley Air Race event our family conducted in 1997.

Speedweekend. Melbourne has been added to my list of yet another case of dealing with small minded model club individuals getting in the way. Ah well. Another year of planning lost. The irony is the same air racing people who complained about cheating but didn't have the guts to put in a protest, are the very are same who didn't support what I set up to fix that. To help me move on from decades of being knifed, the trials and tribulations promoting the hobby has been covered and put aside at rcmnews.com.

An alternate runway is importasnt in full size flying. One thing I've learnt from all my endeavours promoting the hobby is to have an alternate plan too. I do have a smaller private alternative in mind if a modified speedweekend proposal doesn't get up at any of the suitable model clubs I have memberships. Doubling the sales of RCM News magazine was achieved by supporting Austral-

Celebrating model aircraft competition flying, then and now

Speed Weekend is a series of short five minute demonstrations of a multitude of disciplines on the main runway, all in one day. This ties in with VMAA's encouragement promoting sporting club activities and PDARCS club members long history of competitive success. East Runway has electric powered 2kg operations such as STOL competition and 100 lap pylon.


FAI F4C Scale


FAI F3J Gliding


FAI F3D Racing


IMAC


FAI F3A Aerobatics


FAI F3C Helicopter


FAI F5B


Brian Green Trophy - Warbird Race



100 Lap Pylon STOL


Jets



Helis then and now


Classic Pattern


Old Timer


Scale Glider Tows


Free Flight


Control Line

speedweekend.melbourne

ian hobby importers who supported me with advertising, That was easy compared to getting a big picture event to keep going.

Even though I am now selling and promoting Futaba, an exclusive Australian agency with a radio system manufacturer remains the best value for aeromodellers. Whatever the brand. That was a factor at any event either my Father or myself have started.

Ever since Dad started importing Lanier ARFs in the 1970s I've have always seen that as a quick means of improving flying skills by getting into the air more often. F1 and F2 racing is just an extension of that.

Back when the Large Scale Racing Club movers and shakers actually talked to each other, I reluctantly agreed to naming F1 with ARFs as the premier catogory. F1 should have been a build category with F2 for 60cc and F3 for 35cc.


Brian Green Invitational


Seagull Models F1 Cup


Seagull Models F2 Cup

Come on Dad let's build a model plane

Building a scale model to compete in a race might seem an exercise in futility. But not to me. Not yet. Building my own model to compete gives a greater sense of satisfaction. That tradition remains of interest to a minority but it is worth promoting. Although young people interested in building are few and far between they do exist. The latest installment of " Come on Dad let's build our own plane" is in the July edition of MAAA's Wingspan.

Big picture events is one way of attracting them. Having wasted so much time, energy and money dealing with people inspired by Richard Craneum, the Brian Green Trophy has been put on the backburner. Maybe next year.

Whittling down the list of unfinished projects continues.

Stephen J Green AUS 5932.

Deciding how much it will cost to set up a new model using a website can be a bit tedious. Here is a more convenient guide. Prices don't included cents and are rounded up to the next dollar. Please note the website is the actual reference for current pricing

Transmitters

32MZ WC	$3990
26SZ	$1625
16iZ Super	$ 985
12K	$ 585
10J	$ 585
6K	$ 383
6L	$ 145

Air Receivers

FAASTest

R7114	$279	R7308	$229
R7306	$159	R7301	$140
R7103	$159		

T-FHSS

R3008	$99	R3006	$89
R3104	$	R3106	$
R2008	$91	R2001	$69

990MHZ

R9001 $192

HV Servos

U301	$31	U400	$45
A301	$78	A500	$171
		AG300	$

Standard Servos

U300 (4.8-6 volt) $20

Gyros

GYA 440 rudder elevator $ 89
GYA441 aileron elevator $ 89
GYA 451 $118
GYA 553 three axis $233
GYA 750 3 axis with RX $

Telemetry Sensors

Altitude 01A	$ 55
Airspeed 01TAS	$130
RPM Opto	$ 45
RPM Magnetic	$ 85
Voltage 01V	$ 52
Current O1C	$ 99
Servo O1VS	$ 49
Temperature TE	$58
Temperature	$125
GPS O2GPS	$225
CARVIN	$ 22

RX Battery Packs

F2FRF 1800 mAh 2S LiFE $76
FTF1800 mAh NiMh 5 cell $70

Switch Harness

ESW-J FET 10 Amp	$57
ESW-D FET 30 Amp	$81
SSW-J low voltage	$17

HD Extension Leads

100mm	$16	150mm	$16
200mm	$16	300mm	$16
400mm	$17	500mm	$17
1000mm	$26	1500mm	$27
Y Lead	$24		

SBus Leads

100mm	$35	200mm	$16
300mm	$37	500mm	$39
1000mm	$26	1500mm	$43

SBus Junction Box

4 Point $23 6 Point $26

Flying Futaba and RCM News are published by: Stephen Green

Recommended and maximum cover price is on the front cover.

Transmitter Switch Allocation

LD Mixing adjustment

SF Retracts

SE Three Axis Gyro

SA Dual Rate

SB Auxilliary

Slider Telemetry
SF Retracts

LD Mix adjustment

SH Trainer

SG Engine cut

SD Dual Rate

SE Flap

Slider Telemetry

This page started with self preservation in mind and I have printed and laminated a couple of copies. One for the hangar and one in the TX case. This transmitter was a production sample on Mode 1 which I converted to Mode 2. My diverse range of model types include Fixed wing and helicopter with glo plug, spark ignition and electric motor, glider with flap and or spoilers, retractable undercarriage, telemetry downlink, gyro systems and flight training it has taken me ages to decide on a standard setup.

Sport flying with mates, competing are other factors. Telemetry switching requirements used for glider towing or air racing differ. Racers use airspeed and RPM on the right slider. Ditto for glider tug with altitude and variometer on the left. Voice gets drowned out as other piston and turbine engines take off so ceiling height limits and low battery alarms are set with the buzzer. Low battery is the most urgent vibration alert.