RCM News

RCM News

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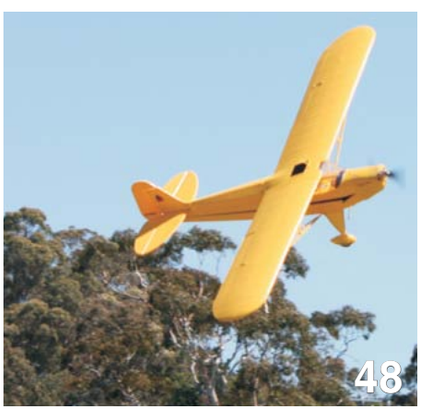

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Leading Edge

Commercial model flying is now part of our world. Drone Zone takes a look at this exciting new endeavour. Lots of people are already entertaining the idea of buying a copter and have a crack. Operating commercially is a world away from sport flying.

Multirotors have been sold in droves and it is inevitable that a percentage of these people will try their hand with an aeroplane. The day cannot be too far away when cashed up newbies rock up at model clubs with an electronically stabilised high performance 200 kph EDF expecting that they can just blast off, on FPV. Industry is ramping up production of this gear now. Richard Fraser has a crack at FPV racing in Multi Matters.

Australia is a small market which makes reviewing large sophisticated models and gear a rarity. Usually it revolves around Dad or myself buying one or a few mates chipping in with their project. The trend for magazines to publish Advertorials, (reviews written by the importer or someone aligned) has been on the increase during the past few years. I have not published on that basis, but readers would have been made well aware of that fact. I Fly RC is a new business venture by Scott Matthews. We first met at the 1999 Adelaide Golden Era Air Races with his beautifully turned out Laird Super Solution biplane. In addition to obtaining his Operators Certificate for RPA, Scott has been buying new models when they are released, fitting them out, for sale. He has agreed to send articles on models as they come through. One of the reasons I asked Scott to fly at Sandown was that he would arrive with a well sorted out aeroplane, fitted with quality gear. Installed correctly. Flown within limits!

The Build had a couple of fighters of interest to me. Jazz Cooper is refurbishing a Pica Spitfire. Bill Hamilton has an electric powered 1/4 scale Fibre Classics P-51 set to go.

Selling the hobby (pic by Ian Waters)

Driving the scale prop has thrown up a few curve balls. Hoping that next issue I can report on the test flight. Fnally Grahame Goodson's fabulous 1/4 scale Bleriot inches closer.

WWW.RCMNEWS.COM

With RCM News now being introduced to a much wider, hopefully younger electronic audience, I've agonised on how to introduce myself and this publication, to people seeking *a buzzword inspired full service radio control experience with world class enhanced risk based methodologies integrated into a total customer focused value added read.* We do that here. For $5. But not in so many words. If it's flown, flung or floated into the air, chances are that one of the many hints or flying tips buried within each issue will save you some time. Or just save you a plane one day.

Having spent a good portion of my lifetime fixing models at flying fields for people who have read something misleading in a magazine, or just failed to understand the instructions, I have absolutely no interest in puffing people, products or agendas up. My brand is flying and I don't take too kindly to loud mouths who aren't that good, bringing people who do put in the time, down their level. Occasionally, a slow or four point roll, two wing spans above the deck is required to shut them up.

Dealing with experts on forums is painful. Comments such as this one from Pincho, on RC Groups, about Sandown. "No self respecting Gold Wings Pilot would have flown in such conditions" Thoughts expressed from a proud club member? Or someone stuck in the past. I have no idea as to his credentials but combining a comment with footage ripped from the Internet does not an expert make. Just because he is not capable of flying in the wind doesn't make it dangerous. I've been putting up with that crap for years. It also shows an ignorance and/or arrogance of aviation safety. There are no absolutes. Gold Wings is purely an indication that on a given day that person passed a one off test.

I did not appreciate the comment on AMAS Facebook page about Sandown either. I treat the duties of Display Director very seriously. That display was put together by me, to attract young people. MAAA did not second guess me in any way. Overall, I have been quite disappointed with how AMAS has conducted itself since its inception. I did not appreciate that video posted by Model Engines either. They should have known better. My performance as Display Director is now under scrutiny by CASA.

To encourage the few who prefer to sit in the clubroom or on a computer and criticise those who do fly, I introduce the **World of Foam** series. Basic flying tips using selected models. Pincho might be interested to learn that I recently published the author flying his FunCub, in a 60 kph wind.

Thank you to MAAA for making Sandown a reality. Events of this magnitude have benefits for all who fly RC. Not just MAAA members. Due to the workload of that event, I apologise to everyone who waited patiently for me to get back to them.

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Channel Chatter

FunCub, 600 flights old and still cubbing

Living up to its name

I have attached a set of photos we took of my Fun Cub at my local club - VARMS. Please feel free to use, edit, delete as you see fit in the magazine. I have had nearly 600 flights with this model and agree heartily with its name.

Kind regards, Paul Van Tongren (Vic)

I hope you have recovered from the big weekend! I just wanted to thank you for the invitation and congratulate you and your team on a wonderful event. Our cadets (and more importantly their parents!! ;-)) had a wonderful time and were delighted with the involvement and access we were provided. You mentioned an upcoming event in May, we would be delighted to be involved and we should be able to get a good proportion of the squadron involved this time. Congratulations again and we look forward to hearing from you!
Some pictures I took on the day for your interest:
https://flic.kr/s/aHsk4fcTKw
Kind regards, Peter Aylward
President - Moorabbin Air Museum
Squadron Australian Air League

Hi there,
Just a quick note to say congratulations on a great day at "Sandown Air Race" on Sunday 11 January.
There was a great variety of things to do and see and a great raffle, of which we were the lucky winners of one of the LG Televisions.....it was much appreciated
Thankyou. The O'Keefe Family

I would also like to say what a fantastic event Sandown was and you should be very proud of what you achieved. I spent a fair bit of time in the grandstand with the general public and their response to especially the racing was fantastic and I think they were genuinely quite impressed by it all. I believe that our hobby/sport was promoted extremely well and hopefully it can generate a fair amount of interest and get some new people involved. The traders inside also seemed to be doing a fair amount of business as well so hopefully they were happy with their involvement. Once again thanks for such a great day and I look forward to the next one if you decide to do it again.
Cheers Dave Lovell (Vic)

Just a quick note to say how much the boys from Geelong (GMAA) enjoyed your airshow. We were most impressed, given the trying conditions of the very strong & gusty wind. Fortunately it seemed to be mostly down the strip, at least from where we were sitting in the grandstand. Hopefully your sponsors & Sandown Management were also impressed enough to want to do it all again next year! Also just a suggestion, did you mail/email club secretaries re the event? I can't recall anything official being received by our club. Only the magazine advertising which was discussed.

So, looking forward to hearing of the event happening in 2016.
So till then, Go Really Fast, Turn Left! Cheers, Phil Pope (on behalf of GMAA members attending)

Congratulations on a successful and very enjoyable (for the punters) day today. You looked as if you were working flat out all day, but it came together well, despite the very challenging wind conditions.
You could take up a new career as a cat herder! The calibre of pilots really made the day – disciplined, safe and competent. I was particularly impressed by the balls of the Cessna pilot doing a sweet touch-and-go – if it was mine and I got it back on the deck, the bugger would be staying there!

I thought the trade displays were a key part of the day as well. Australia/Melbourne has not really had a decent trade display/sales forum, and this one could fill the gap. Minor suggestion for presentation next time (I trust there will be a next time): the music works well with some displays, eg aeros and 3D etc, but could be muted or killed when the unique-to-type sounds are an inherent part of the display, eg F5B rocketship climbs and whistlepasts.
Pete Mather (Vic)

Sean (the Club Founder) , myself and the other members who attended the Sandown Park RC Day would like to thank you for arranging such a great day promoting all forms of Radio Control vehicles / planes / vessels and having the Victorian Armoured RC Club along to participate. The fact our Club could muster member support to an event only 2 days away was testament to the dedication of our membership and their love of our hobby. Our Club display enjoyed

substantial interest from the general public and member of other RC Clubs throughout the day who had either never seen RC tanks before or thought they were the only ones who owned one .

We hope the day went well enough for you to do another next year and onward into the future. You can be guaranteed of VicArmour's support at future events and we welcome any more assistance we can provide in support of the RC hobby. Thank you once again and we hope to hear from you regarding future events and any articles you might want for publication that will help promote our RC hobby in the future. Cheers for now. Gary Thorpe.
Comms Officer.
Vic. Armoured RC Club

My brother and I attended the RC Festival yesterday and thoroughly enjoyed the afternoon. The size of the crowd showed that the idea was sound and I believe everyone within my earshot enjoyed everything as much as we. Well done those organisers. Cheers Geoff White.
Publicity Officer. Bairnsdale and District Model Aero Club

Can you please let me know of this event is an annual event? I live in SA and was not aware the RC event was on, it was only that I saw it on the news in SA which made me aware. I am keen to attend next time if our holding another day like this.
Cheers, Rob Cain

I have just returned from the F1 Air Race at Sandown today and wanted to congratulate you on the inspiration for such a fantastic event. I went with my wife and we met up with a heap of GMAC members, their families and friends. The day was enjoyed by everyone.We hope that this is the first of many. Well done on a great event.
Regards – Graeme Anderson
Secretary – Greensborough Model Aircraft Club.

As one of the organisers and who probably attended, can you tell me which company had a large stand in the middle of the floor near the entrance. They were demonstrating and selling the Great Planes RealFlight simulator. Cheers David (ex student 15 yrs ago).

Well done Stephen what a great day! I was fortunate enough to be given a day pass and thought I would go have a look. As a former modeller who went off to General Aviation, became a Commercial Pilot and bought an aeroplane, I thought my model days were behind me, not so I was swept up in the enthusiasm of the day, bought a "Foamie with gear", thanks to the guys at Models and hobbies 4 U. I am now having a blast flying in the park wondering on why I moved away in the first place! Many people complain about this and that and the hobby is dying You Sir, are genuine about seeing people getting involved and having a bit of fun.

I congratulate you and your helpers for doing something really positive and it was a fantastic day that I enjoyed every minute of!!
Deborah Fanning.

A fantastic day and a real credit to you. Made us very proud
Dad.

Scott Matthews and Yolanda Jennings with Betta Home Living Cassutt 111 F-1 racer. Seagull Models supplied the uncovered airframe. Livery is Profilm yellow, logos measured by Scott, provided by Betta's marketing people and cut by Tiger Signs Mt Evelyn, Vic. DX 18 radio DL 60 engine

Tanks a lot Guys! ED) (pic by Ian Waters)

Sandown F 1 Air Race

(Pics by Stephen Barrow)

The big day finally arrived and what a day it was. The photo directly below depicts exactly what the event was all about. Presenting aeromodelling to the general public to attract new, younger people to the hobby. A hobby that has just received classification as a sport. To that end we received very positive stories that appeared nationally on TV News. Each was around two minutes long. Another story is set to appear on a motor sport program, In Pit lane.

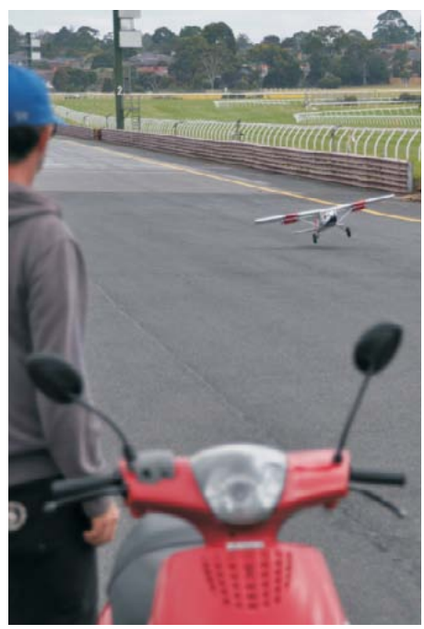
Attracting media has always been hard. Being treated seriously another problem. The venue played its part in addressing those issues, but the credit must go to the professional people at Sustainable Marketing. The PR company employed by MAAA. As far as the entertainment component for the public was concerned I was quite happy overall. We had a number of gags that didn't get a

Indoor exhibition area had a great vibe

Josh Labita on TV duty

Pilot briefing included a flight to demonstrate the ceiling height clearance. (A pressure landing in front of that bunch!)

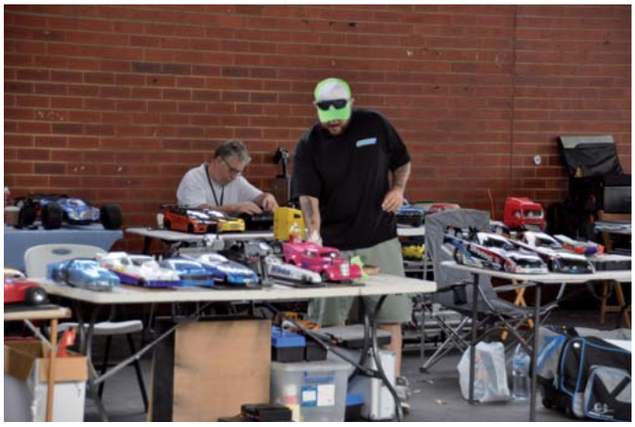
Strong crosswind blowing in towards the crowd is a Display Directors worst nightmare "You're not going to impress anyone in this group with fancy flying. Display flying is all about flying to 80%" Pilots did a great job heeding those instructions



Motor racing circuits are big places, Zip used 4 litres of fuel

Victorian Drag Racing Club put on a great show.

As did Melbourne RC Drift Arena



These boats were so cool

Mr Slot Car also sells car tracks

Tanks were a real hit

run. The ATIS seemed well received. The go round call each time Byron Simpson came in to land never got a run, because his model had too much power. When his back up model lost power, this affected the same gag planned for Chris Callow. The Pizza delivery worked better than expected. Half the people thought Gilderslag's one bung wing effort was on purpose. The other half did not.

By all accounts this was a successful event. For me I will take that view after the next one. My hope is that one of these happen should happen in each Capital city. MAAA has the resources to achieve this. It is very refreshing to see that will is now there. Whether State Associations wish to get involved remains to be seen. Pilot selection is critical. I was very selective.

It is my view that RC model flying, as demonstrated at this event, can fill that grandstand. The venue has more than enough room for other sectors of the radio control industry should they decide to participate. Anyone can put on a swap meet. Or organise a festival of sorts. This event was far too big for one person and this has been recognised. I realised that on Saturday afternoon. I'm sure others may have suspected so, but that was left unsaid until Monday. That discussion has already been had. Wearing the many different hats took its toll though on the day I was only wearing the Display Director hat.

Except the few who have chosen to experience what it is like to be on the startline with four of those F3D suck-

Sandown F1 Air Race

Dave Chivers welcomed the first spectators with the large Pawnee, which also was the back up glider tug

Number 1 glider tug pilot Steve Malcman checks out the conditions for the 1/3rd scale Piper Cub

David Hobby's six metre beauty grabs a lift behind the Pawnee. Crosswind glider ops really shone through, to those in the know

Tim Moreland with the Schweizer S-26. In the background is Anthony Peate and the Lunak

Adrian Koro on 3D aero duty

Lightly loaded Eurosport as Rowdy Matthews tackles the buffeting

Neil Addicot and the Hawker Hunter provided more scale jet thrills

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You Tube

Sandown F1 Air Race

WHO STOLE THE SHOW?

VMPRA's Glenn Matthew's Great Planes Viper versus 5 times world pylon champ Chris Callow's 350kph Voo Doo NXT?

ers wailing away, FAI Pylon meant nothing to anyone. Chris Callow changed that. His first pass emptied the exhibition area 90 seconds. 3,500 people now know about F3D.

When Chris Callow, David Law and David Hobby agreed to participate, that suddenly made the whole thing easier to sell. I knew the Scale World Champs models would be a hit. That's a given. Everyone can appreciate museum quality. Thanks to Noel Findlay, Noel Whitehead and David Law for bringing their fabulous aircraft. David was given the honour of flying a part of the rou-

Or the combined 3D Heli display by James Dargue and Josh Labita?

James and the Synergy E7SE *(Next year we're drag racing that machine. ED)*

Of the 3500 people, possibly 100 knew what F3D was. Now they all do

Hot flying by Rogan Josh and the Goblin

2014 Australian Scale Team members were busy talking all day

Victorian Association of Radio Model Soaring

Victorian Miniature Pylon Racing Association

Victorian Pattern Association

THE COMPETITION HOTS UP!

THE MAAA IS GEARING UP FOR THE MUCH-ANTICIPATED 68TH MODEL AIRCRAFT NATIONAL CHAMPIONSHIPS IN 2015 AS THE COUNT-DOWN REACHES ITS FINAL STAGES. HUNDREDS OF THE COUNTRY'S TOP MODEL AIR CRAFT PILOTS ARE EXPECTED TO DESCEND ON QUEENSLAND'S SOUTH-EAST FOR THE NATIONAL CHAMPIONSHIPS THIS MONTH. I'D ENCOURAGE YOU TO SPREAD THE WORD TO MAKE SURE THERE IS A GOOD TURNOUT AND SOME ADRENILIN PUMPING COMPETITION. PLEASE TAKE TIME TO VISIT THE NATIONALS WEBSITE AT WWW.MAAAEVENTS.COM.AU.

President's message

The Nationals will raise the profile of the sport and showcase aeromodelling in Australia. It's a real opportunity for our members to engage with their local community and public at large to show people that model aircraft flying is a thrilling, fun sport the whole family can enjoy.

But, Aeromodelling also offers some serious competition if you are ready to fly at altitude and the MAAA provides the only platform in the country to take part in the world championships, the highest level of competition.

The recent international success of Australian pilots will continue to raise the profile of the sport and the MAAA recently took time to speak to five-time Pylon World Championship Winner Chris Callow. He's competed in hundreds of races in Australia and around the world in the past 22 years and has hundreds of trophies on the shelf!

Rising through the ranks: Chris Callow

What ignited you passion for Pylon racing?
As a youngster, I was always fascinated with flight. I started racing in the early 90's when Bruce DeChastel gave me my first Pylon racer, called a stinger ½ A. I was around 14 years old. By the age of 16, with my father's guidance, we had made the Australian team and were on our way to the USA for our first world championships in 1995. We came 9th that year and the passion for my sport has only become stronger as the years pass.

Can you tell us about the race course?
Pylon racing is a set 4km course; 10 x 400 metre laps are required to complete the 4 km course.

The course is pinned out like a triangle with three pylons to race around. Three planes race together per heat and at the end of the competition the pilot with the lowest times wins the title.

At a world championships, we compete in 15 rounds, with the worst three scores removed from the final score sheet. This system ultimately means that to obtain a title the pilot not only needs efficient flying skills, but also needs to be consistent. They aneed their engine set-up reliably to perform at its peak for each and every race.

What's your biggest achievement in Pylon racing?
For sure, my greatest achievement would have to be winning 5x World championships alongside my father and being able to put on the Australian Team Shirt representing my country every two years is like nothing else!!

What has contributed to your success?
A lot of hard work, myself and my father Kevin, have worked tirelessly together, spending many hours in the workshop and out at our local flying club. We test aircraft and consistently learn the intricacy of our engines to obtain optimum performance. Testing and development of Engine management , engine Compression settings, Exhaust timing, tuned pipe development and constant Propeller testing and redesigning and the list goes on, we look at every component of our set up to try and achieve that little bit more. Even after winning five world championships, we are still trying to push the limits to see what we can achieve.

I certainly would not be where I am today without the full support and assistance of my father, in particular, but also my whole family.

The MAAA is also a huge asset to the Australian flying community, we have travelled the world and seen many flying clubs, and I believe Australia has some of the best flying facilities in the world.

The support we get from MAAA when representing Australia at a world championships level is great, we appreciate what they do.

Chris (right) and Kevin Callow

What is your favourite plane to fly?
My favourite plane to fly would have to be the Current F3D model I'm flying. It is called the "Voo-Doo" designed and manufactured by Bruce deChastel. It is a rock solid plane.

What models would your recommend for someone just starting out in the sport?
If you are interested to give pylon a go, you're welcome to come fly our Q500 class with any sport Model you own. You can find our pylon association & Calender for the year on the WEB just type in QMARA.

There are also many great models available at www.BigBruceracing.com. I like the V-GUN for F3R classes, the GR7 for F3T classes and of course, the VOO-DOO for the ultimate flying experience of F3D. These planes are all made by Big Bruce Racing.

What are your top flying tips for someone starting out in the sport?
With Pylon it's crucial to have the CG & Throw settings right as everything happens in a split 'second, so a well set up aircraft is the key. After that a reliable and fast engine package is a must.

There is no secret you just need to be 100% dedicated and practice a lot. If anyone has any questions or needs a hand with pylon racing, I'm happy to help and offer assistance.

Are you involved in other categories of flying?
I enjoy flying Gliders & 3D Electrics, other than that all my spare time & practice goes in to F3D.

Are you involved in other RC sports?
My son Jett is two and a half, while fascinated by my planes and helping me in the workshop,he's taken a liking to RC cars, that he "can do by himself", so maybe that might be something I pursue in the future with him. But hopefully he takes after his dad and races planes!

Sandown F1 Air Race

Australian Freestyle Fliers

Melbourne RC Helicopter Club

Victorian Jet Aircraft Association

(Should have put my daughters on commission. ED)

Tom Bloodworth with son Bill's model for the F3a demo

Indoor flying

Mani Riederic's F5B. Blink and you'll miss it

Bill Hamilton's awesome Salto

"You're going to enjoy landing that today David"

The only Cessna spotted by the Safety officer all day was Steve Malcman's 40% C182. Touch n go was nice too!

Nice Job!

Mike Farnan shot some video

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Sandown F1 Air Race

Two flight lines spread the action along the grandstand

All bets are off. First past the post final for $2,000 prize money from Betta Home Living

Evenly matched

From the left; and the winner is....Jeremy Randle (NSW) Mike Farnan (Vic) 2nd, Cliff McIver (Vic) 3rd

Byron Simpson put 12 months work into sorting out and racing the Seagull ARF. Managed a bit more speed than thought possible. Pink covering seems to scratch easily!

tine plus throwing in a few airshow manoeuvres. There was never any question of flying the Pitts Special, though his choice of aeroplane made him work particularly hard, landing.

Explaining extreme glider to people was harder. Which is how David Hobby was pitched. Putting the 300 kg load for a bungee couldn't happen on the day as the wind direction on the day precluded the only suitable launch site. Many may have missed his prowess on the sticks because that 300 kph Funjet was pretty hard to spot. People did get the chance to see what I saw, way back in 1999 at Caulfield. Operating his six metre glider crosswind in and out of the race track was never a problem at Sandown either.

I would like to thank Byron Simpson. Anyone who questions how he entertained the crowd should direct their enquiries to me. His development work on the Cassutt gave me the confidence to pitch F1 with that ARF. He certainly found the best prop engine combo for that model. Entertaining the punters and testing my course layout to boot! Now we have a class racing category too! Thanks to Rowdy Matthews for making the effort to deck the Cassutt out in Betta Home Living livery. All of those racers looked pretty racy. There's a bit more on the Cassutts in Byron's racing column.

Not only did I take great personal pride from presenting modellers who compete at World Championship level, I felt the same satisfaction from watching all those I invited to fly. Many spectators were amazed they could fly in the conditions. Not me. Those pilots did what was expected of them. Caring about flying skills as one comes through the ranks of competition flying is what got them there. An important component of MAAA membership. Given the resources I generated, I felt it was better to go with SIGS as a spectacle, rather than ask individual clubs to participate.

Many thanks to the club people who helped out, particularly at the

Mike Close presents the thoroughly deserved Air Sports medal to Chris and Kevin Callow

Fantastic Father and Son team

Thanks to Bryan Harper, Betta Home Living Cobram for organising fantastic raffle prizes

last minute, such as the control line fraternity. This whole experience has restored my interest in becoming a more active member. RCM News just helped get this event off the ground. Thanks to the RC hobby trade who support me too. Thanks MAAA. My interest lies in the flying side of the airshow. Next year I can really let loose, with the other vital component, working with a professional announcer. David Cahill (Davo's Karaoke) put 20 hours of work into that event. Thanks for your professionalism Davo.The next one will be huge!

Fisher Paykel Flight Proficiency

Yarra Valley Aeromodellers versus Lilydale & District Model Flying Association

Part of the program at Sandown, this bonafide competition was to promote juniors. Three tasks were allocated. Most loops in two minutes, most touch n goes and spot landing. Closest to the spot with an acceptable landing, on the main gear. Two pilots invited to compete were Maddie and a run down on the rules of the day were spelled out and they were left to practice.

The big day arrived. With the 20 plus kph crosswind, blowing in towards the crowd, showing no signs of abating it was decided to postpone the event. A few weeks later we met at the LDMFA Club field as they hold twilight flying get togethers during summer. Another briefing to outline the rules and it was game on.Maddie has a bit more flying experience under her belt which came through in

In the left corner, Daniel on the sticks, Damien Mould counting and offering a quite word if needed

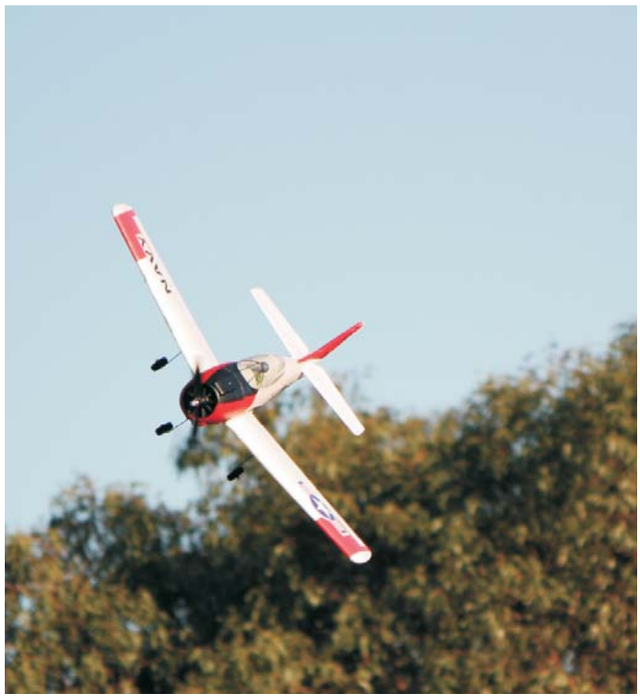
Parkzone T28s in hand, Daniel Goudge and Maddie Lang square off for a brand new fridge for their club room

Lang from the Lilydale Club and Daniel Goudge from Yarra Valley Club. The idea dawned on me watching the pair competing in Sport Pylon in the VMAA interclub trophy. Bryan Harper from Betta Home Living Cobram and Fisher Paykel came to the party with a prize. Club pride was at stake, with a shootout for a new refridgerator for the clubroom.

The model chosen for the task was Parkzone's T28 Trojan. A 3S powered sport scale model that has a following of happy owners. Very well mannered and looks good too! To reduce the possibility of airshowitis at such a large event, Maddie and Daniel would come out of the event with something to show for it. Each were each given a model. The excitement on their faces showed when they were delivered. A few flying tips

In the right corner is Maddie, with Greg Lepp on duty. Maddie chose to stand behind the pilot fence as this is where she was comfortable. Note that the antenna is above the fence

Task 1. Maddie hauls it over and over. Starting from 100 feet agl, most loops in two minutes



Task 2. Maddie rips it around for the most touch n goes in two minutes, from a standing start

the aerobatic section. She managed a few more loops and a couple more touch n goes.

Daniel blitzed the spot landing with a lovely nose high touch down, just above the stall, less half a metre from the spot. The wash up being that LDMFA now have a shiny new Fisher Paykel fridge efficiently purring away, ready to cool drinks and food on club days. *(Which is just as well as I discovered after the event that YVA doesn't not have 240 volt power. Possible sale at a good price to LDMFA was mentioned*)

Congratulations to both pilots. And their parents for encouraging them to participate. Not just for putting in the effort to practice, which was clearly evident on the day of the shootout, for expressing concern about the strong wind at Sandown and electing not to fly. Well done on both counts!

Stephen Green.

Task 3. Daniel slowly raises the nose and holds off for the first spot landing. Which was also the winning touch down

Another beauty. Daniel's second landing just missed. Daniel blitzed this task

The Build

Bleriot by Grahame Goodson

Well, slowly but surely, the Bleriot project is progressing .....that is after quite a long period of interest failure. Not sure quite why, but lately I have been overcome with apathy and consumed by indifference. Time to make a concerted effort to gain closure on this one! *(Perhaps when you aren't loaded with lethargy ED.)*

The fuselage is complete....with a custom made removable tinplate tank of 1300cc's, which should be more than enough for the planned cross - water trip. This sits at the bottom of the fuz at the front below the servo tray. Above the servos, is another removable tray, which contains the receiver, PowerBox LiPo batteries, and the switches for the receiver and the ignition system. I chose the PowerBox batteries, as they are a self contained unit, with an integrated charger. But more importantly, because they are safe

Yes but will it be flown across the bay?

Emotec concealed magnetic on - off switch for the Rx, and a PowerBox Spark Switch to disable the ignition system

to charge in the aircraft. Because of the design of the model, access to the innards is restricted, so this was the most convenient approach.

To gain access to the Rx and batteries, the wings and the upper control cabane device must be removed. The problem has been eliminated, as the batteries are charged from an external power supply which can be inserted via an access hole in the bottom of the fuselage near the tank.

Included in this same area is a concealed magnetic on - off switch for the Rx, and a PowerBox Spark Switch to disable the ignition system. The Rx on off switch is a solid state device from Emcotec in Germany. It is turned on and off by an external magnet. Accidental switching is impossible. Once this switch is powered up, it is possible to switch on (or switch off) the ignition switch from a momentary toggle switch on the transmitter. If the ignition light is illuminated, then the Rx and servos are powered up. This method eliminates any external switches etc, which is more in keeping with the scale appearance of the model. Of course the very pretty Saito FG 33R3 engine

Under the floor is.....

.....1.3 litres of fuel

Solartex linen covering

Tailplane ready for attachment

up front is somewhat of a dead give away!

The wings, which are covered with Solartex “linen”, are rather under cambered. I wanted to eliminate the possibility of the covering detaching from the lower rib caps so I elected to stitch the fabric to the bottom of the ribs before I covered the top of the wings. I am not sure whether this is how the full size aircraft were done or not, however this method works for me. After the top of the wings were covered, I applied reinforcing tapes over the stitches, and continued the tapes over the top of the rib capping as well. The original aircraft used batons tacked over the rib caps to secure the fabric to the upper surface. The upper surface is also quite cambered, so I steamed the batons to shape, and then glued and tacked them to the rib caps. This was very time consuming, but I was happy with the results. I used the same technique on the tail plane and elevators, and on the rudder, I used the batons on both sides.

Next in the sequence is to triple check all of the electronics before installing the upper and lower “jins”,

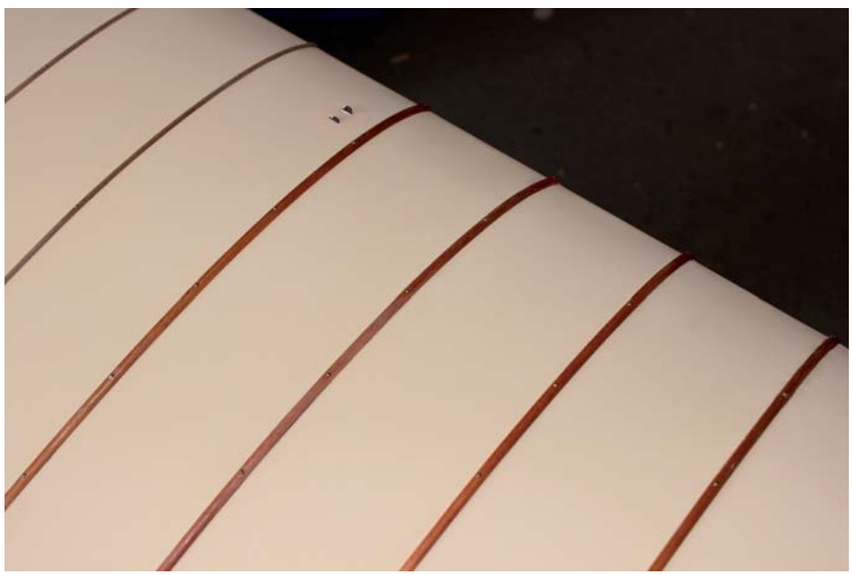
The Build

which are the strut systems that house the wing warping controls, rig the model and make all of the necessary adjustments. There is no instructions regarding the decalage, all you get is what is shown on the plans. So if there was not enough elevator trim available, it would result in tiresome flying. I therefore decided to make the stabilizer ground adjustable, which is in any case how the real aeroplane is equipped. Surprisingly, this installation method is in fact simpler than what was called for on the plans!.....to be continued.

PICA 1/5 SCALE SPITFIRE REFURBISHMENT BY JAZ

A few years ago I was lucky enough to pick up an older well-built 88 inch Pica 1/5th scale Spitfire without an engine. It was well built as originally intended and was fitted with a Moki 180. The paintwork and quality of build was of a high standard though the build was done with the mindset of the less powerful glow engine.

Control column is connected to the control system



Steamed the batons to shape, and then glued and tacked them to the rib caps

Stitched the fabric to the bottom of the ribs before the top was covered

Jaz Cooper and the 1/5th scale Pica Spitfire. Pica kitted the original Dave Platt design, which was powered by an OS 90 glo engine

With some well thought out approach this Spitfire was a perfect candidate for conversion to a modern petrol engine.

After attending the Maitland scale fun fly in 2014 and seeing all the larger warbirds I decided it was time to get that Pica Spitfire in the air. On taking various measurements it was decided a DLE 55RA would be a perfect fit that would not protrude to a large level. Along with the engine the airframe needed a complete check with various repairs and re-enforcements needing to be done.

The original servos being old nylon gear would all have to be replaced as well as new cowlings and other plastic trimmings which had resigned to old age fragility.

One of the major tasks of this conversion from the beam mounted Moki 180 to the rear mounted DLE was to remove the mounting rails which went through three bulkheads for strength. Then rebuild the firewall mounting to take the torque and vibration. This was done adding a second firewall behind the original light ply to bring it to at least 12mm thick and then fibre glassing the inside of the fuselage back to the third bulkhead. When this was completed the inherent strength of the engine mounting and fuselage was a major improvement.

As scale Spitfires are notorious for needing a lot of nose weight to balance I was not concerned about added so much fibreglass and wood to the front.

The Build

Fibre Classics Mustang kit awaiting refinement to power system to fly with scale size propeller

Once the firewall was prepared mounting the engine was relatively easy. The usual four bolt holes in the right spot and that was it. With the engine in place attention was turned to the inside of the fuselage behind the engine. Two battery platforms were added to the side, the ignition module at the top and the throttle servo off to one side. In all cases I made the beds which were then glued into place using the fantastic Hysol 9462 Epoxy.

The Spitfire refurbishment was progressing along at a steady rate and it was coming time to turn my attention to making new fibreglass cowlings, engine heat ducting and other improvements.

A lot has been achieved but the project still has a way to travel. More pics next issue.

Jaz Cooper (NSW)

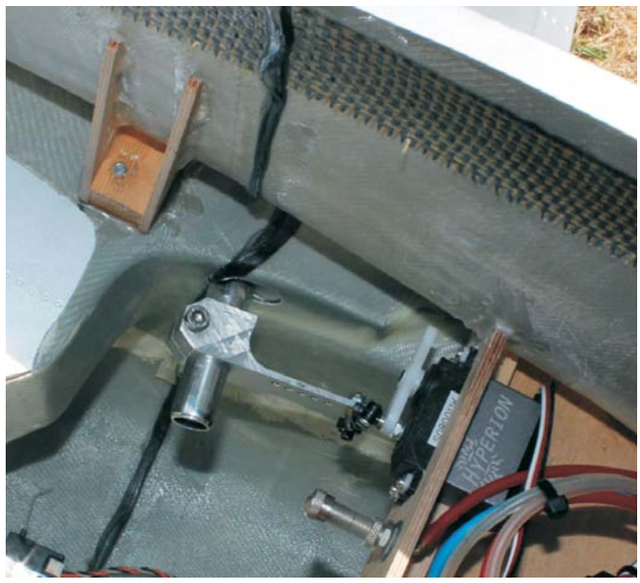
1/4 SCALE P-51 WITH SCALE FLYING PROP

This very interesting project is almost ready to fly. The model is a Fibre-Classics kit, built, by Tony Fontio (Vic) The original plan was to fly it with Tony's scratchbuilt 250cc 1/4 scale Merlin engine. The project stalled when Tony put the Merlin aside for a break and building a double row working fourstroke radial engine took over for a while.

Not pristine by any means, imperfect detail adds authenticity

Beauty isn't skin deep. A foam trailing edge to accept hinges was just not up to it. Replace with fibreglass circuit board material

Large flaps on most Mustangs usually does not produce much pitch change when lowered



Re-manufactured flap horn

A most amazing model in Tony's collection is another of the four 1/4 scale P-51s. In incredible static model, it was donated to the Museum at RAAF Williams. It is covered in lithoplate tan every minute panel works as per the full size. Must get down there with the camera again soon.

Tony's engineering expertise is world class and I remember him being utterly disappointed with the Fibre Classics kit. Sadly, his health took a turn and the project has changed hands. I've been witness to many works of art needlessly being stuck in because of the ability of the person on the sticks not quite up to

The Build

All this on two 10S packs

Of course it's retractable

Battery pack bay

Gear doors operate through an onboard sequencer. This can also be tasked to a computer radio with free mixers and delay timers

the pressure of the test flight. Fortunately this gem is in the very capable hands of Bill Hamilton.

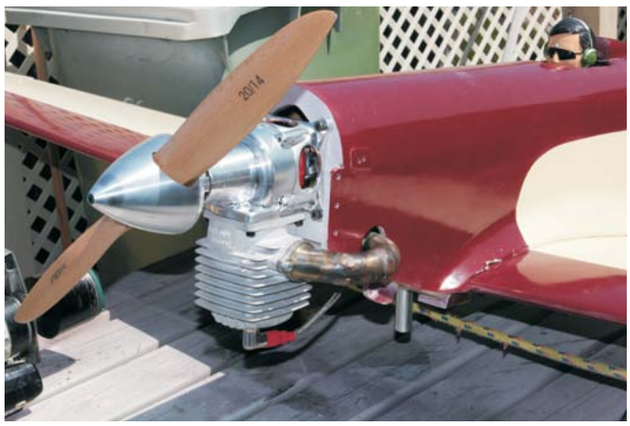
The model is ready to fly, except for one problem. Coming up with an electric motor combination to drive that huge scale propeller. The propeller pitch is adjustable and Bill's calculations based on twenty inches of pitch and a large low rpv motor should do the trick.

Current drain is the problem but there is an innovative (thinking outside the square) fix on the way.

Deluxe Products clotth and good old fashioned dope and talcum powder

1/4 scale Miles Hawk Speed 6
by Brian Green

Nearing completion to race at the Adelaide Golden Er Air Races in SA. Brian won the race twice with a 3W 58 cc engine on methanol. New model has DA 85 with internal Mt canister muffler. Plywood roll top of fuselage, balsa skinned foam wing covered with Deluxe Products material brushed on with old fashioned dope and talcum powder.



Desert Aircraft DA 85 and MTW knuckle header

Ply soft mount is supplied with MTW TD 115K canister

Graupner MX 24

by Stephen Green

I must declare some affinity with this brand. In 1974 my brother and I opened and rummaged through almost every box of a Graupner shipment for our parents new business venture. Cars, boats, planes and helicopters, we didn't bring in the radio systems. Graupner manufactured premium products. The catalogue 40 mm thick full colour catalouge reflected that. One thing I do recall is the phrase in the instructions. "He who desires the utmost performance should ..... etc". Selling top end product is harder than it looks. Full colour boxes for RC aircraft kits was unheard of back then. To some degree quality products do sell themselves. The key to convincing a customer to pay the extra often comes down to product knowledge. The Graupner Cumulus was a prime example. The 2800mm span two channel glider ready to cover glider sold for $295. A more than tidy sum of money back then. (The Aeroflyte 2 metre Trident kit sold for $70) Incredibly strong construction, the Cumulus was next to impossible to break on the winch or a cartwheel. They flew very well and we were always running out of them.

Mother Nature prompted me to make the switch from 36 MHz FM to 2.4 GHz. I had been considering changing the RF module when the gutters in the garage couldn't cope with a torrential downpour. Some of that went through my Graupner MX 22 transmitter. The radio was shipped to Germany but came back marked uneconomical to repair. I really enjoyed owning that radio. The transmitter was built by JR and I really took to Graupner's programming. Recently the company was bought by Korean manufacturer SJ Propo. I've used a few of their electronic products which have all worked as expected.

With that little historical context of the way, it was with great interest I was offered this radio system to review. This radio has a number of features that appeal to me setting up models that consume channels and switches, such as a four flap wing glider and a jet. I thought it would be relevant to set up a couple of the more complex once the nitty gritty has been covered.

The radio is supplied with an attractive metal case for transporting to and from the field. After pulling out the contents, the first thing I liked was the dedicated spot for the instruction book. RF transmission is FHSS frequency hopping system.

Also supplied are two receivers. It is a European convention that one channel is described as one direction from neutral. That's why the receivers are badged 24 and 12 channel. In Australia these are described as a 12 and a 6 channel. Both the receivers have an Australian Ctick which indicates they transmit back to the ground. Telemetry. HoTT, is hopping telemetry transmission. The receivers

Long battery life is handy for complex programming. And glider flying

Meets Australian regulations

accept what has now become industry standard servo leads with three pin connectors. Channel output allows for analogue and digital servos with 20ms or 10ms resloution. HD is available for connection to ancillary systems such as Powerbox or flybarless controllers. Individual servos values (digital) can be programmed through RX Data view function. Stick calibration is the other feature that makes the radio suitable for multirotor flying and other electronic flight assist systems.

Making the move to more complex models, which cost more, redundancy is something to be considered. One nifty feature is that both receivers can be bound to a single model memory. Primary flight functions can be split to the smaller 6 ch RX. Aileron and elevator are obvious. Throttle and shutoff in a jet are two that come to mind. Throttle and ignition in a prop job are another. A quick set up for a four flap wing Vtail glider and a jet, also with four flap wing, the sixth channel is defaulted to Flap 1. This can be configured to an alternate channel, thus making the sixth available for reduncacy.

Of the four three position switches, two have a toggle

Neck strap holder with three positions swings down at 90 degrees to the on off switch

TX

Comfortable to hold, it is also not heavy. Thanks in part the to single cell 4,000 mAh LiPo battery pack. Output power is quoted as 100 milliwatts. Not to be confused with overall consumption which is quoted at 125 m/Ah. So, the 4 amp/hour battery pack should provide plenty of flying time. And complex programming time, which is further enhanced by disabling RF. Range check procedure is simple and it reverts back to normal output after 30 seconds. A sensible good safety feature indeed. Binding is a straight forward process with the convenience of a bind button that can simply be pushed, with a finger. The safeguard is that it must be held for three seconds. Once the first RX has been bound the option to bind the second comes up.

A substantial hook is there for the neck strap which is included. The design of the hook reduces the possibility of inadvertently switching the power off if fumbling to remove the strap. The strap is also easy to adjust. Balance felt good, with three attachment points should cover any potential mismatch with individuals' different centres of gravity. After checking that feature out, the hook was removed because I don't fly with a strap. The sticks feel good. As do the switches. I cannot stand the feel of cheap switches and sticks. Three way switches abound. One long, four short. Another pair have a toggle. Four rotary dials, a pair of toggle buttons, a pair of sliders and one long two way switch. Which I would select for retracts.

The touch screen is full colour. Programming outdoors, in shade, on a bright sunlight is fine. A small pointer is provided but using my fingers works well. The "back" button is quite close to the top left corner. Until I got used to it, I swapped over and used my left hand. A removable rubber panel on the back has sockets for Data, Audio, Min Sd card and USB. Mode switchable to four modes the sticks can be quickly configured without removing the back. The TX sports a DSC input and wireless buddy box, with individual channel allocation to the student.

Failsafe

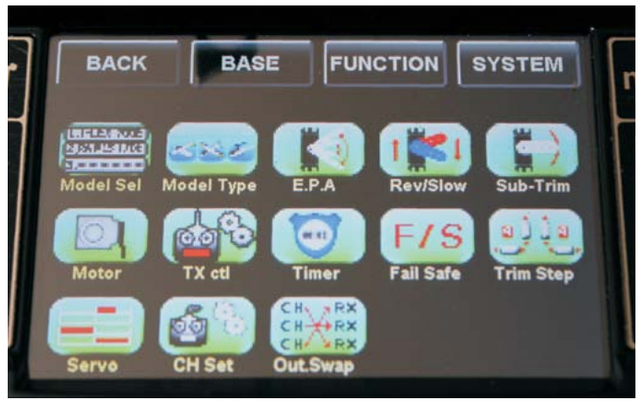
Default is all 12 channels set to hold at 0.25 seconds. This can be changed in quarter second increments up to one second, channels programmed to preset positions.

Programming

Choose either manual or Wizard, which ran through the basics in factory order. The servo monitor can be accessed at the touch of a button at any time. This is a very handy feature. Mixing presets for inflight co-ordination/adjustment such as aileron - rudder mix are a breeze to set up. As are the two knife edge mixers, rudder - aileron and rudder - elevator. Then there are the aileron - flap, elevator - flap and flap - elevator mixers. Those mixes are in addition to eight other free mixers which provide plenty of scope for accessory items. Four throttles is one. Gear door sequencing is another. This is achieved in conjunction with delay timers which are accessed through the Q-Link menu. This feature is for setting up flight modes too. Please note, that feature has been carefully checked on the servo monitor but not yet in an aircraft.

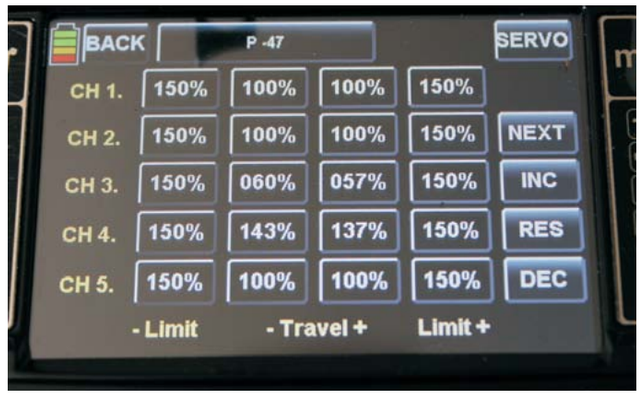
Graupner MX 24

Initial power up



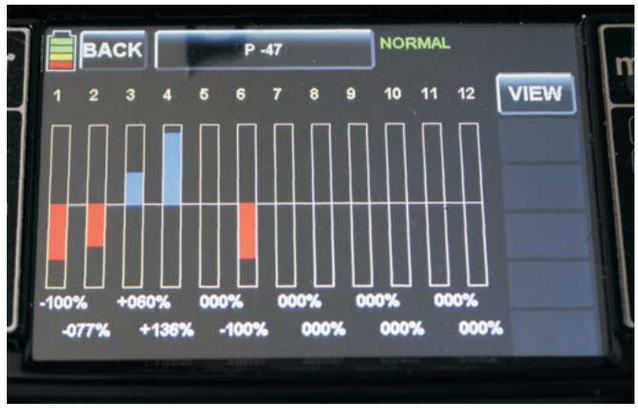
Model setup

Initial power up



End Point Adjustment, note "Servo" in top right corner....

Quick and easy initial model set up



.....straight to servo monitor. Handy!

Stick calibration for connection to advanced flight control systems, warning config

Along with the odd typo, the photographs in the instruction book did surprise me. Having said that, I had no trouble finding relevant information. Thanks to the logic, navigation through the various programs is made easy. Take the two flight timers to be set up in my jet. High fuel consumption makes this an important feature. The first timer is overall run time, set to a three position switch with the toggle. Switch down is timer off. Middle position activates and the toggle resets. Alarm set for eight

Flexible channel allocation

minutes. Number two timer is set to five minutes and it activates on gear up. That may not sound like much of a feature, but if resetting timers is a pain it is often overlooked. Timers can also be activated by throttle stick position. Or any other stick for that matter.

The other three position switch is earmarked for wheel brakes. Centre off, forward applies significant brake pressure. Holding it on the brakes spooling up to full power is one of the many fun aspect of jet flying. The toggle applies less braking pressure to reduce the landing roll and for taxiing. Setting any feature, timer dual rate mixing) to activate to any nominated switch is one of the most endearing features of this radio. Made even mores so when one just has to flick the desired switch and the computer recognises it.

Telemetry

This is something I will visit in a future article but GPS, Vario and all the usual flight and power parameters are available A number of interesting functions here. The first that caught my eye was the RX temperature alarm. With all channels able to support digital output power consumption through the receiver can be quite high.

Voice Trigger

This can be assigned to telemetry functions as well warning functions such as throttle position, throttle cut, throttle hold for helicopter. I never thought of any reason to have music playing whilst flying. One of the things I would love to do is fly scale aerobatic pattern to music. This feature would save me carting the porta-jive to the field and feeding it with batteries.

Summary

Packed with features it offers plenty of bang for your buck. Less than seven hundred. It would suit anyone considering a long term radio upgrade and flying more sophisticated models. He who desires performance in an economical package would do well to consider this radio system. The way value for money keeps improving, you might be flying that four engine bomber or sophisticated soarer sooner than you think.

Hitec Flash 7

by Dean Williams

The Hitec Flash 7 brings a welcome freshen up to the middle of the Hitec radio range. It sits between the entry level Optic 5 and top end Aurora 9X, and replaces the long-lived work-horse Eclipse 7. The Flash 7 brings with it advanced features that were first seen in the top of the range Aurora 9X a bit over a year ago, including low-latency (7 ms), high resolution (4,092 step) and triple 2.4 GHz protocols (Advanced Frequency Hopping Spread Spectrum G1 and G2 and Secure Link Technology – SLT™). It will work with Hitec's full range of 2.4 GHz air receivers and the full suite of Hitec telemetry accessories.

The Basics

As the name suggests, the Flash 7 has seven channels, all proportional, it also features on screen display of telemetry data, 20 model memories, adjustable ball-raced gimbals, four digital trims, five switches, a push button and two sliders. Programming is carried out using a rotary jog dial with push selection and a push button (the "back" button), representing a very simple user interface. The dot-matrix monochrome screen is backlit and measures 65 x 32 mm.

This Flash comes with a removable battery holder for four AA cells, however, batteries and charger are not included, and the unit is C-ticked for Australian compliance. The package supplied for review included an Optima 7 receiver with antenna mounting hardware and Supplementary Power Connection (SPC) wiring harness, a switch harness, a 101 page instruction manual and stickers. There is a second package available that has all that and also includes four Hitec HS-485 servos.

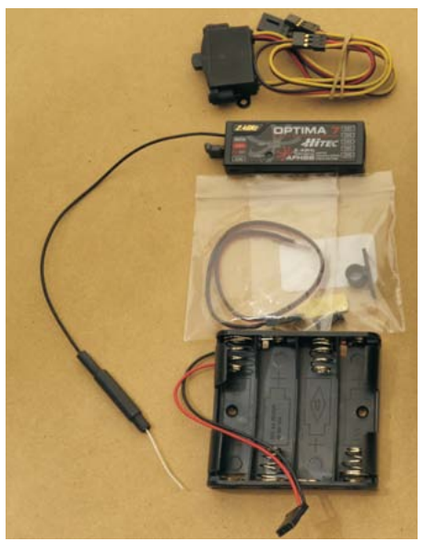
SPECIFICATIONS

Channels	7 proportional
Model memories	20
Model types	Acro, Heli Glider
Flight conditions	4
2.4 GHz protocols	AFHSS G1- AFHSS G2 SLT™
Lowest latency	7 milliseconds
Highest Resolution	4092 steps
Free Mixes	Three
Battery Range	(4.8 to 8.4 volts) suitable for 4-cell Alkaline, NiMH/Cd 2-cell LiPo/Fe
Weight	640 g (no batteries)

In the hand

An understated look, more functional than fluff, lacking the decorative features adorning the Aurora 9X. To me, it appears to be taking styling cues from the robot Number 5 from the movie Short Circuit! The plastic case is contoured to sit nicely in the hands, and it is textured around the handgrips for a confident hold.

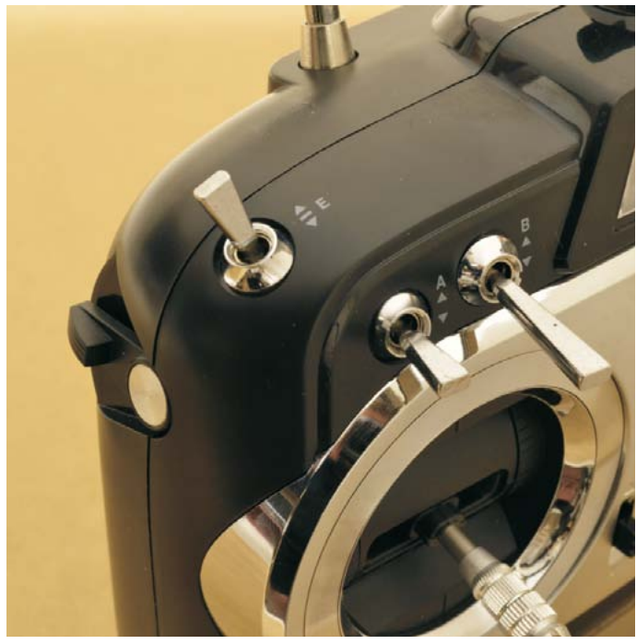
The neck strap attachment eyelet is positioned so the unit hangs slightly antenna high and it's oriented east-west, as opposed to the normal north-



Switch harness, Optima 7 telemetry capable receiver, antenna mounting hardware, Supplementary Power Connection wiring harness and battery holder to suit four AAs

Works with current Hitec 2.4 GHz air receivers, from the lightweight, Minima's through the telemetry enabled Optimas, and the high-speed, high-resolution Maxima's

Right shoulder features a momentary push button, two position switch, momentary switch and a slider



Left shoulder features a slider, a three position switch and two a two position switch

Illuminated panel under Hitec logo changes colour with the transmitter's status. Green when not transmitting, Blue when transmitting, Flashes when in range check mode or other warning. Power switch is well away from the trims. Neck strap eyelet faces east-west, in contrast to the more conventional north-south orientation. Safer when fumbling to disconnect!

All important Australian compliance C-tick

Comfortable hand grips

Centrally located data, trainer and DCS (supplementary power output) ports, battery bay hatch

Velcro strap secures the many of options to power through the convenience of the industry default standard JST connector

south arrangement. This will affect those who would like to use a standard neck-strap adapter to change the hang angle. I fly with thumbs on stick ends, and the sticks fall nicely under the thumbs, with only a little adjustment in length needed. The sticks feature Hitec's characteristically sharply-pointed, slip-resistant crowns and move smoothly. The throttle stick can be set up with either a ratchet or smooth friction hold.

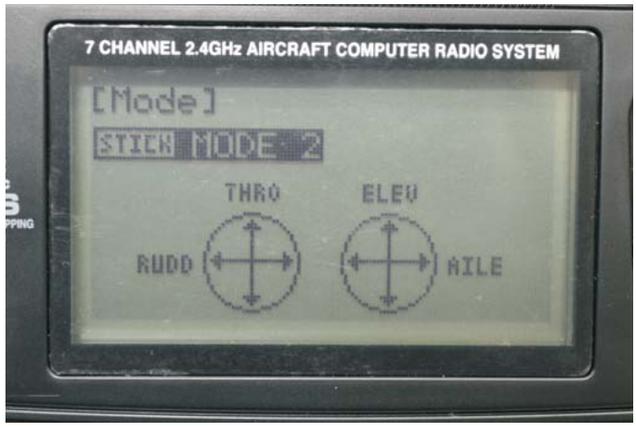
The side mounted sliders are as easy to reach and operate with the index fingers (much easier than on the Eclipse 7 Pro) and feature a positive ratchet feel and clear centre notch. The switch clusters are easy to reach and feature long and short switches, and interestingly, a momentary push button that I could see as being used to activate a camera shutter, bomb or tow release. There is also a momentary switch on the right shoulder (commonly used as the trainer switch), along with a two-position switch. On the left shoulder there are another two, two-position switches and a three-position switch. All the switches, sliders and the button are assignable providing great operational flexibility. At the rear, the carry handle is a decent size and props up the case at a nice angle on the bench.

On the rear face is a cluster of ports including data (for telemetry interfaces and firmware updates), trainer and DCS. The latter is an outlet for power from the units battery, with the potential to supply power to supplementary gear like head trackers or goggles for FPV, though it's not clear how much current this connection is rated for.

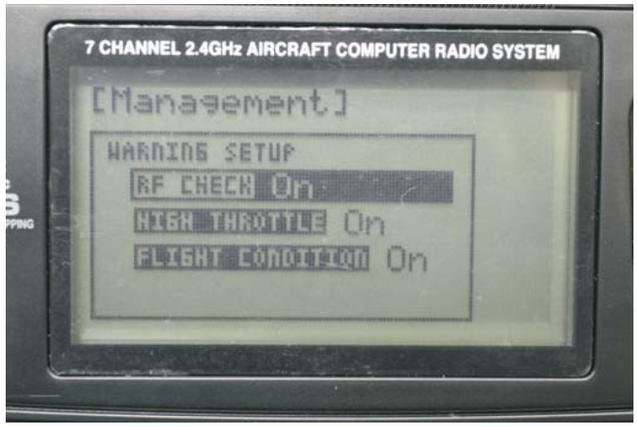
There is a charge socket on the lower right side, however, I find it much more convenient to take the batteries out of the unit and use a fast charger, which should be standard practice if using Li cells. Indeed, the Flash 7 will run on a wide range of battery packs, from four AA dry cells (yuck!) through four-cell NiCd and NiMH packs and even two-cell packs of LiPo or LiFe and there is a customisable low voltage alarm to suit each pack type. The Flash 7 draws 300 mAh during operation so a pack of 2,000 mAh NiMH cells will get you several hours of flying.

The instruction book is presented in the same format as for the Aurora 9X which is excellent, offering information and advice that is well ordered, written and illustrated.

Easy to read in all light. Programming is achieved with a simple and effective push and rotary dial



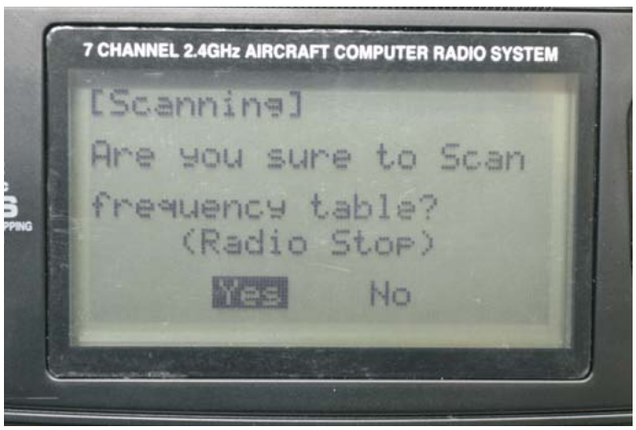
Accommodates the four basic stick modes. I fly Mode 2



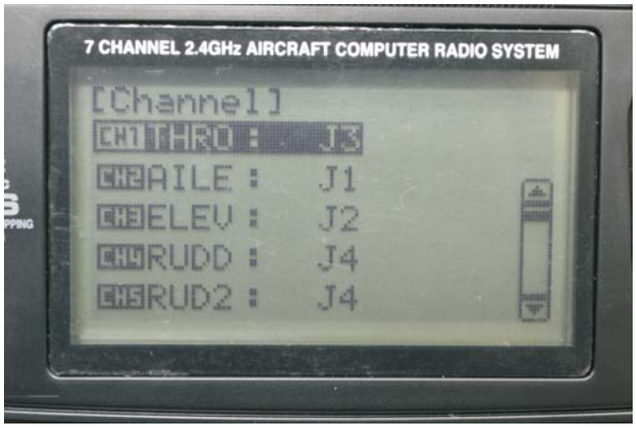
A number of status warning alarms can be engaged to improve safety (Yours and others)

Receivers

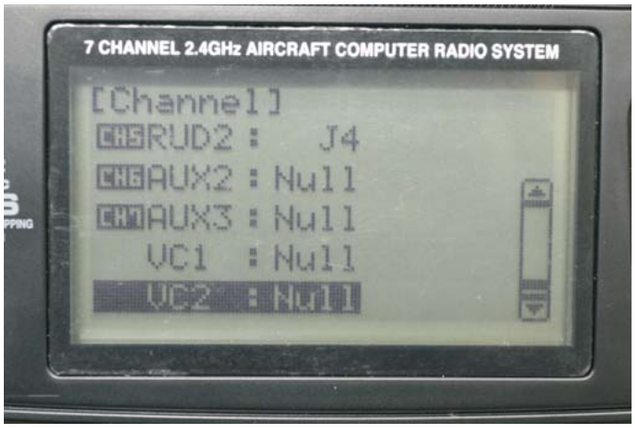
The Flash 7 is compatible with all the current Hitec 2.4 GHz air receivers including the low-latency, high-resolution Maxima 6 and Maxima 9 receivers, with six and nine standard channels respectively and the new Maxima SL receiver that has five standard channels and an S-Bus compatible output for flybarless systems. Maxima receivers operate exclusively with digital servos, and only on the Generation 2 Advanced Frequency Hopping Spread Spectrum (AFHSS) protocol and so they forgo all telemetry features and the Supplementary Power Connection. However, the Maxima receives still retain the Fail Safe function. The Maximas and the six-channel Generation 1 AFHSS protocol Minima receivers operate on a wider voltage range (3.7 to 9.0 volts) compared to the Optima receivers (4.8 to 7.4 volts) and have a reboot voltage of 2.7 volts (compared to 3.5 volts on the Optimas). The Optima receivers come in six, seven and nine channel configurations and



Scans the 2.4 GHz spectrum and selects the 20 cleanest frequencies



Mapping of the channels to sticks, switches and sliders can be customised



In addition to the seven functional channels there are two virtual channels (non operational), VC1 & VC2 and these can be used to help with tricky programming

operate on the Generation 1 AFHSS protocol with only the seven- and nine-channel versions supporting the full suite of telemetry functions. In the Flash 7 (like the Aurora 9X), Hitec has also included the third-party 2.4 GHz protocol of Secure Link Technology (SLT™) which features in a wide and growing range of receiver equipped ARF and RTF fixed wing micro and park flyer models and small helicopters.

On the Bench

The Flash 7 was delivered pre-configured for Mode 1. It can be swapped over to Mode 2 (for those strange people like me) or even Modes 3 or 4 (for those stranger than me!) electronically through the System List menu and mechanically by opening the case to loosen/tighten the respective gimbal springs and swap over the throttle ratchet leaf. However, I found the cam on the Mode 2 elevator control wasn't centering properly and needed to be replaced by Model Engines. So, if you need a Mode 2 or Mode 4 version, I would suggest ordering it that way rather that doing the conversion yourself. Stick tension is adjusted from inside the case, and whilst there you can take time to check out the thought and work gone into keeping the wiring neatly bundled and secured out of harm's way.

I opted not to use the supplied battery holder, instead I installed a flat, four-cell 1,300 mAh NiMH pack, originally intended to be a receiver pack so its plug was compatible. There was a surplus of room in the battery bay and the pack was suitably secured with the supplied Velcro strap.

Powering up the Flash 7 the user is greeted with an initialisation screen followed by a request to check your situation and questioned if are you ready to transmit with a choice of yes or no. The selection is performed by a turn and push of the rotary dial. This check function can be disabled, but I keep it as I can use it to stop the signal transmission and save battery power whilst I am fiddling with programming. If you chose no, the status light behind the Hitec logo glows green, and if you choose yes, it glows blue. Either way, the next screen is the home screen and this is where your adventure into programming the Flash 7 begins.

Programming

It's like falling of a bike, something that comes naturally to most people. Having been a user of the Hitec Aurora 9 for a number of years, and owning a radio with a similar input interface for many years longer than that, I was able to take to the programming like a duck to water. I didn't feel the need to open the instruction manual for the first few hours of play with the Flash 7. In reality though, I was probably over-qualified as the dial, button and menu driven interface was very intuitive to use.

On any screen, turning the jog dial sequentially highlights various options that can be selected with a push of the dial whilst a short push of the back button takes you back one step and a long push of the back button brings you straight back to the home screen. For example, on the home screen, highlighting the model name and pressing the jog dial brings up the model selection menu and selecting a model brings up more options including selecting, copying, deleting and renaming (up to 9 characters). Also selectable from the home screen

is flight condition set-up (four available), Spectra functions (range checking, binding and scanning) and timer set up (two timers available to either count up or down with switch, button or throttle activation).

From the home screen, a long push of both the jog dial and back button brings up the System List menu. Here, the global functions of the Flash 7 can be configured, including stick to channel mapping (assignments), trim step, trainer functions, Spectra functions (receiver selection, range check, binding and scanning) and stick mode selection (1-4).

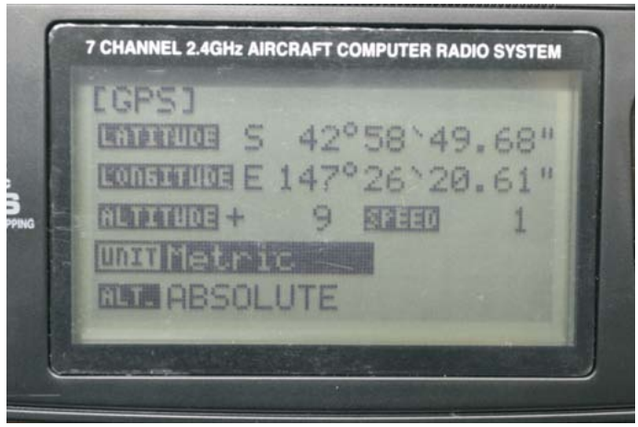
Selecting the Management option in the Systems List brings up options to change functions including screen backlighting duration, screen contrast, battery type (which sets the low voltage warning), audible feedback (beeping) muting and set up the warnings (frequency check, throttle and flight condition). In the System List menu the user can also access the telemetry information in the Sensor menu. Finally the user can also select model memory and change model type between Acro (powered fixed wing), Glider or Heli.

In selecting model type, there are options to specify the model configuration. For example, for Acro and Glider, there are six normal wing types (combinations up to two aileron and two flap servos) each with either normal or V-tail options. Additionally, there are three delta wing types, with an option of a tail featuring zero, one or two servos. The Glider configuration also gets the option of an ailevator tail. The Heli configurations include swash arrangements of 90 degree single servo, and 120 or 140 degree three servo swash.

I really like the channel mapping feature to keep the channel assignments constant across all my radios and models, but it also supports the opportunity to be creative with channel assignments such as assigning throttle to a switch or button for powered gliders, or using the sliders for pan and tilt functions on a gimbal mounted camera. In Acro mode it also supports mapping for twin ailerons, elevators, flaps and rudders, but not twin throttles, though extra throttle channels can be mapped to any of the five AUX channels available.

Telemetry data can be viewed and stored on Apple® devices using the HTS-iView 30-pin interface with the Flash 7

Data can be audibly relayed to the using the optional Hitec HTS-Voice. It can also be recorded on a PC using the HPP-22 or HTS-Navi USB interfaces



GPS readings show the position and ground speed of the model

With all these set up to the user's preference, the business of setting up a model can be tackled. From the home screen, a long push of the jog dial brings up the list of model specific programming functions, including the usual suspects of servo reversing, sub-trim, endpoint adjustment and dual rate/ exponential.

There are also additional features like servo speed, throttle lock, flight condition (four available), timer and monitor functions. If the user has previously selected the Acro or Glider model type, functions in this menu also include, aileron to ruder mixing and three, free mixes, which should be enough for the target market of this unit. The programmable mixes can have different rates either side of neutral and can be programmed to feature exponential and be activated by any of the switches or the push button.

In the Glider model type, additional pre-defined mixes include v-tail, elevator to camber, camber, offset and butterfly, plus aileron differential can also be tweaked, all very handy for the glider guider.

Under the Heli model type, there are the three, free mixes, and pre-defined mixes including revo, swash to throttle and swash. Pitch and throttle curves can be customised and both are five-point, and there is an electronic swash ring and gyro rate set up. Acro configuration included throttle cut and throttle curve functions. Interestingly, the Flash 7 also features two virtual channels. These are not secret operational channels (like secret tracks on a music album) as they are not transmitted, but are included to help the user with tricky programming functions if needed.

The instruction manual goes into the simple programming aspects of the Flash 7, enough to get the user comfortable enough to tackle more complex programming as needed. There is also an active online community for Hitec radio users that can be drawn on if a new (or old) user gets stuck.

Telemetry

As previously mentioned, the Flash 7 is compatible with the full suite of Hitec telemetry sensors when coupled with either the Optima 7 or Optima 9 receivers and respective Sensor Stations (Nitro, Blue or Advance). If using just the Optima 7 or 9 the voltage of the receiver power supply is shown in the bottom right of the home screen. With the inclusion of a Sensor Station, the rest of the telemetry information is displayed on the screen of the Flash 7 on different pages, ie temperatures (up to five), RPM (two), GPS (lat., long., alt. and ground speed), battery (volts, amps and watts), servo (amps), and Advanced (airspeed and vario.). The telemetry data can be relayed audibly using the HTS-Voice (which also has a headphone socket) and displayed and recorded on PC via the HPP-22 wired or HTS-Navi wireless USB interfaces or on an iPod or iPad via the HTS-iView 30-pin adapter. When I was testing the telemetry interfaces, I found I needed to bind the HTS-Navi to the Flash 7 as a Minima receiver as there was no menu option on the Flash 7 specifically for binding the HTS-Navi, a minor hiccup.

Other than that, I found the Flash 7 worked well with the HTS-Navi, as it did with the HTS-Voice, HTS-iView and HPP-22.

Multiplex Tucan, a pretty flash little test bed

Five model memories per page are displayed at a time

In Operation

I used a Multiplex Tucan as a test mule, making use of five channels as I operate the nose wheel steering on a separate channel to the rudder. The nose wheel steering was mapped as Rudder 2, allowing trimming and travel adjustment to be independent of the rudder, but coupling the rates and exponential. This avoids the need to use up one of the free mixers. I also set up one of the timers to activate from low throttle and to count down. I found that I needed to make sure the input beeper was un-muted otherwise there were no countdown beeps to let me know when to land.

At the field, the screen was easy to read in direct sunlight and the range test on the Optima 7 showed no problems. On the home screen, a long press of the back button engages the throttle lock, a great safety feature, particularly on electric powered models. A number of test flights revealed the Flash 7 felt good in the hands and operated smoothly and without fuss, whilst the trims were easy to locate without looking or fumbling.

Conclusion

A nice range of features to suit the flyer who feels the need to move on from the basic 4-5 channel set and expand their horizons. It brings flagship features within the range of a modest budget. Indeed, the high resolution and low latency also makes it attractive to advanced flyers wanting to push the envelope of their skills without being held back by the hardware. It has a fast and friendly user interface for programming with plenty of flexibility to cover many applications. Being compatible with the Hitec telemetry package also provides lots of opportunities to develop and experiment with airborne systems.

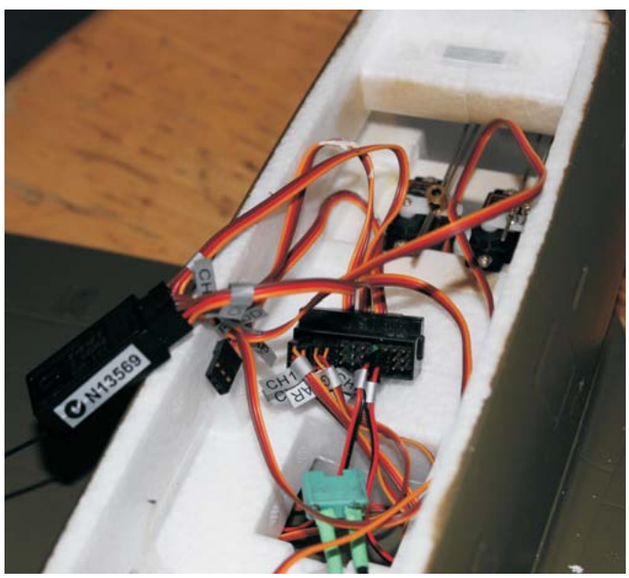
Dean Williams.

FMS P-47 950mm

by Stephen Green

I once gave an elderly gent a lift into the city and enjoyed a fascinating conversation on that short trip. He was a fighter pilot in the last stages of WW11 and flew the P-47. Hanging around not far above the stall at extreme altitude then rolling over and heading down into combat, that heavy aeroplane built up such speed, the ride was awesome. On one mission the turbo charger let go not long after gear up. A choice of a thousand army tents straight ahead or lining up with the railway line. He put it down onto the railway line, gear up. It came to rest, in three large pieces. The fuselage remained intact after sliding in between the two platforms, which accounted for both wings. Dazed after a bang on the head, he came to. Smoke and flame licking under the instrument panel his ground crew were quickly on the scene and hauled him out.

Warbird can be applied to all confrontations, but to most people it means WW11. If you've always wanted a warbird and are unsure of which type to go for, why not try a model of the biggest, heaviest and most expensive ever, from that period. What from I've read, a fully loaded single engine fighter could be quite tricky on take off. High powered, high wing loading and heavy with taildragger thrown into the mix. Provide the wheels are not set too far back, of all the configurations of conventional undercarriages, low wing



Interesting junction box for aileron, retracts and nav lights. Two sockets left for flap

First set of retracts? Place model between two chairs. Gear goes up - gear goes down. Gear goes up - gear goes down. Gear goes up - put wing away

SPECIFICATIONS

Wingspan	980mm (38.6")
Length	865mm (34.0")
Weight	1000g (35.3oz)
Motor	35mm 750rpv
ESC	35A
Prop	10x8 4 blade
Retracts	Electric
Flap	Optional
Channels required	5
Airframe	EPP Foam

Helicopter balling link pliers came in handy to do adjustments

- wide track are the easiest to manage. On that score this one ticks all the boxes. Sixteen ounces per square foot is not a high wing loading in the model aircraft warbird world, so tick that one off too! Now what about high power? After assembling the model, I took it outside and gave it a quick one second blip. It shot along the concrete quick smart. Yep, plenty of power too. Tick that box as well.

Two versions of this kit almost ready to fly model are available. It is also available in plug and play. The standard model has a 35mm 740 rpv outrunner that runs on 3S. The High Speed version has 36mm 770 rpv motor for 4S. Both swing a scale 4 blade 10x8 prop. If joining the 100 MPH club appeals, Byron Simpson reviewed the High Speed Corsair a few issues ago. It's quick. This article is for the slightly more sensible. It's the 3S combo.

Not much to say about assembly. Not in a negative sense. In a positive sense it's hard to throw in the odd superlative because this model is in line with what we are becoming conditioned to expect.

A straight forward affair. Install the stab halves, horns and kwiklinks on all control surfaces. Tongue and groove locates the canopy at the front. Large magnets at the rear. Instead of a Y leads for aileron servos there is a junction box. It has two spare inputs for flap servos. Optional, but the outlines can be cut through and with a small amount of a little of work all six channels can be utilised. For this review our approaches will be done flapless. Plug in and bind your receiver. Arm the ESC and the port and starboard navigation lights glow. Now there is a choice of which item to do next. Set the controls or skip ahead and support the model by each wing tip. Then cycle the gear. The electric retractable gear. Up, down, up and down. When you're done, the other advantage of retracts is storing the wing takes up less space. Put the wing away, with the gear selected up. Bolt the lovely four blade propellor on and that's it!

These make it quite easy to operate from typical Victorian grass strips

Not quite ready for its first sortie. Before the Jug is signed off to be available for squadron work, there is the matter of the test flight. And fine tuning the controls. The good news is that the wheels are 2 inches in diameter so flying operations are not limited to hard surfaces. Grass ops shouldn't present any problems if you've had a taildragger before.

Just like the real one this little package packs a punch, in the fun department

The FMS P-47 is distributed to hobby shops by Ace Hobby Distributors. 02 424647 1284 www.acehobbyaustralia.com.au

Gear down and those gear doors create a nose down trim condition

Powered approach works best

Flyzone Super Cub

by Michael Green

Anyone who took up the hobby in recent years might not know of the name Hobbico. This is a well respected American firm that has been around for years. Flyzone makes a range of park flying models, distributed by the oldest hobby company in Australia, Southern Model Supplies.

Elevator pushrod wire exits the centre. The other two are for rudder

To give some idea when I last flew, the company was still manufacturing Aeroflyte balsa kits. Things have certainly changed. Still getting my head around LiPo batteries and rpms per volt. And foam wings, with no balsawood on the outside. Go figure!

I am not quite sure if it should be stated as ARF or Ready to Fly. The review did come with a 4Ch 2.4GZ radio, 240 volt LiPo Charger yet the instructions refer to settings when different servos are used. The book is quite comprehensive. There is one thing to note, just in case you did like I did and think that you should use one of the pushrod guides for elevator.

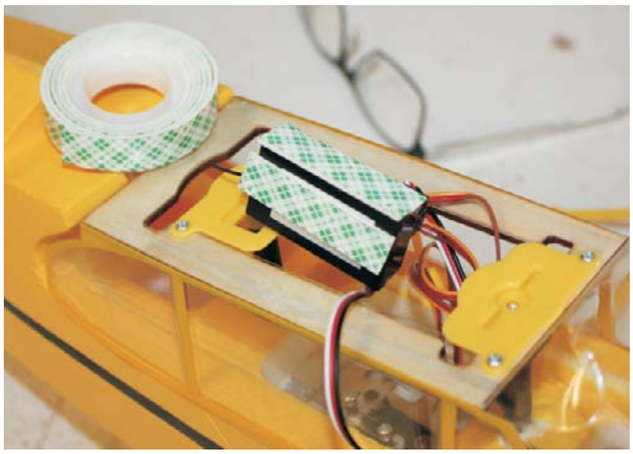
There are two, one on each fuselage side. These are for rudder. Closed loop was before my time too. This setup has a steel wire. Apparently this is unusual, but it works okay. So, don't get caught like I did. The elevator pushrod exits inside the middle of the fuselage. A steel rule was handy to verify the self tapping screws. There are a few different lengths assigned to various components.

Below; tail snaps in next

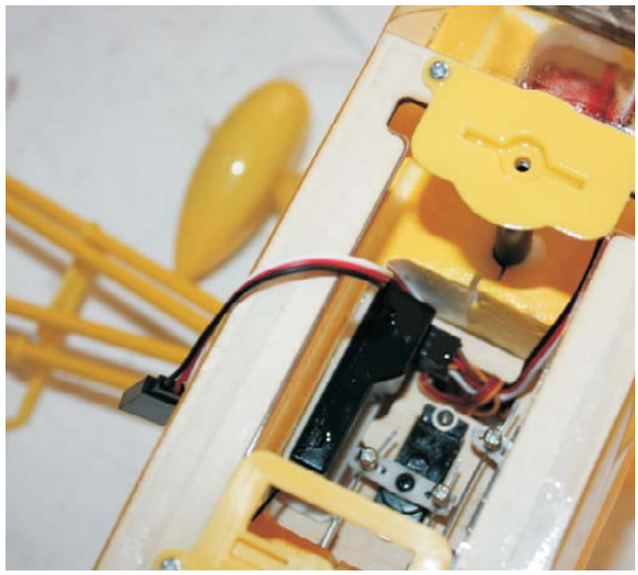
Rather than leave the receiver loose inside the cockpit it was stuck to

SPECIFICATIONS

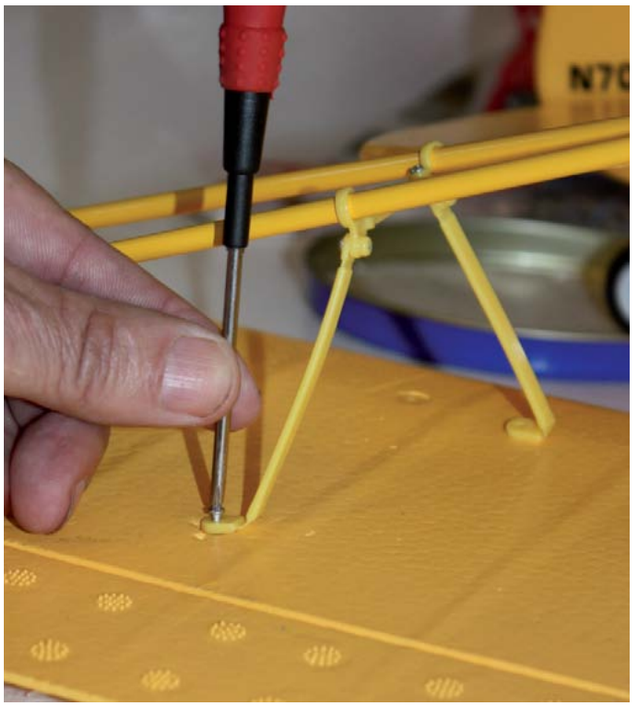
Wingspan	1220mm (48.0")
Length	865mm (33.0")
Weight	8600g 30.3oz)
Motor	30mm 1200rpv
ESC	18A
RTF	4 channel
Airframe	EPP Foam



3M brand double sided tape to hold the receiver in place



Stick to the side and tuck wiring away from servo arms and linkages



Trial fitting the wing struts

Standard Cub features included

the left hand side with double sided tape. An unusual omission for a set of instructions but easily fixed. The undercarriage is very cute and the scale radio antenna snaps in place to cover the forward wing bolt hole. A nice touch.

Wing Struts

Following the book is how they are mounted, except the screws are a tight fit Which is good. To avoid the chance of the screwdriver slipping off and putting a hole in the wing I trial fitted them into the wing first.

Removed the struts were secured to the fuselage followed by the wing. As per my previous suggestion get a steel rule, (or wooden ruler) and

Excellent power to weight ratio *(not typically Cub like. Good! ED)*

Flyzone SuperCub

Good little package

measure each screw. There are a few different sizes.

Flying

The Super Cub is very well behaved in the air and after along lay off I got going quite quickly. The structure is certainly durable. Very durable. I don't wish to say too much more at this stage except to say that I was pressured by a pushy brother into flying it on a very windy Tuesday.

Electrics are a bit new fangled for me and the Super Cub had a lot more performance than I imagined.

A fun foamy with scale detailing that would look good in an experienced modellers car boot as well.

The Flyzone SuperCub is distributed to hobby shops by Southern Model Supplies.
www.southernmodels.com.au

Drone Zone

All systems go!

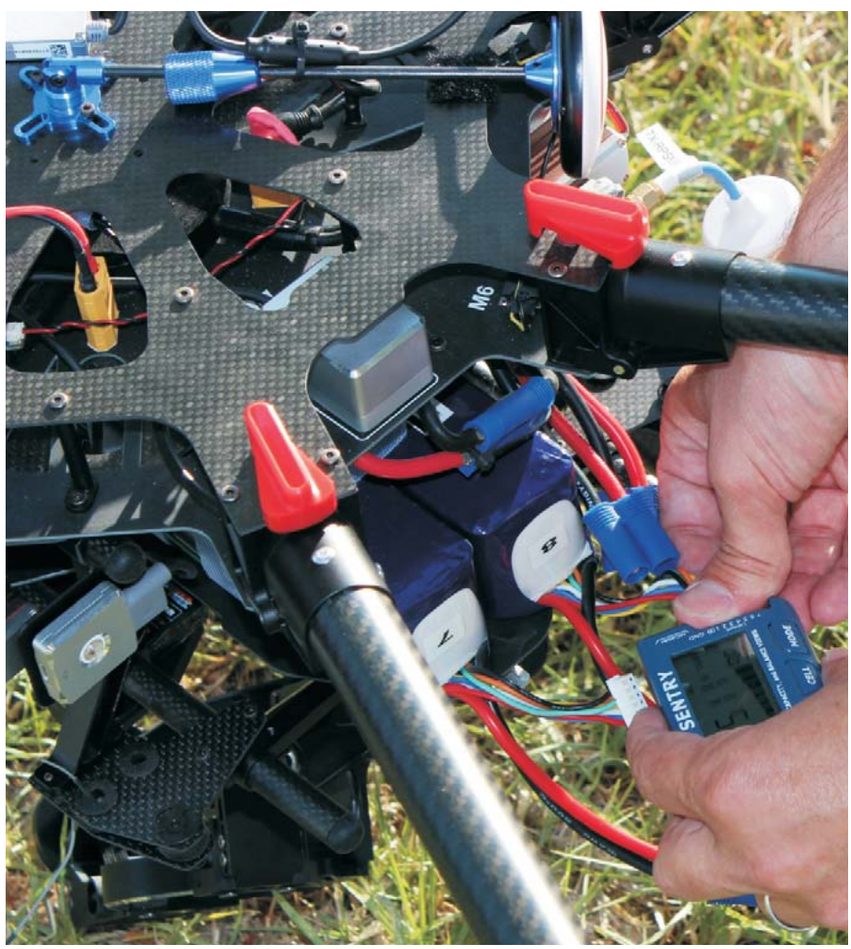
UAV was hard enough to explain to the general public. Then there was UAS (Unmanned Aircraft Systems) Now we have RPA. (Remote Piloted Aircraft) and RPAS (systems). RPA seems to be the one that will become the worldwide industry term. Efforts to force soft drink sellers to explain that “it’s not Coke, it’s cola” have proven almost futile. The term Drone is here to stay. That horse bolted yonks ago.

Do we have good drones and bad drones? Being on the receiving end of a particular operation might change that perspective. This column is concerned with civil operations. Not missions. That term has an odious military connotation that has been tagged only to the more sensational flights that make it to the TV News.

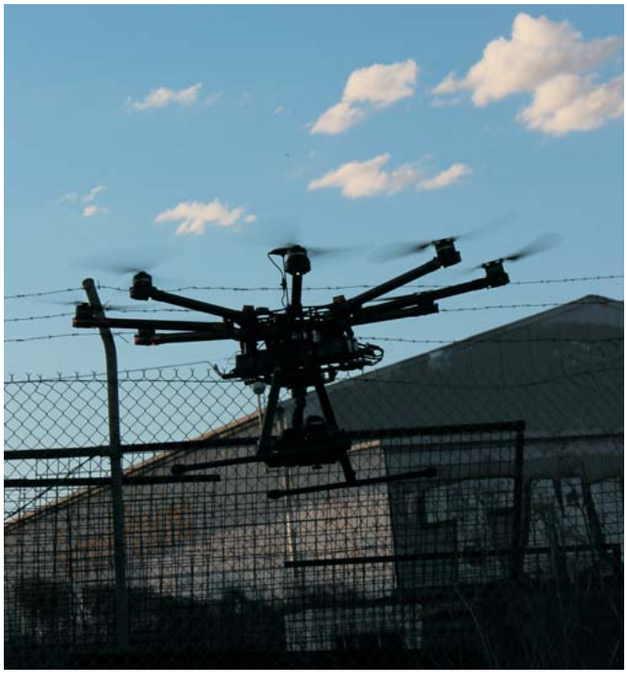
Richard Fraser helps out a competitor whose pilot was unavailable

Flying RC for commercial reward isn’t new. What is new is that regulations are in the process of being promulgated in many countries. Australia is at the forefront of that change. The Advisory Circular from CASA which for all intent and purposes turn the new regs into LAW shouldn’t be too far away.

Helicopters and fixed wing have advantages too, but Multirotors have opened up so many new areas of operation that not only reduces risk to aircrew, in some cases they are the only option to lift something aloft safely. These marvellous machines can do such more than many of us



Gear up and on the climb. Job sheet called for pic to be shot on dusk



Gear down heading back in

ever imagined. On simple 4 rotor machines the cost of a failure is high. More rotors increases redundancy as well as lifting power.

It is with great interest that I introduce a company that has taken this new type of specialist airwork to a whole new level.

XM2

Aidan Kelly Luke Annells and Stephen Oh specialise in aerial cinematography from drones. The company is two years old although each partner brings many years of individual expertise. Aidan owns ARK RC and is a very handy 3D heli pilot. As is Luke, who also looks after machining and building their own flying camera platforms. Stephen is the founding Directer of XM2 and his background is in film, production/ direction.

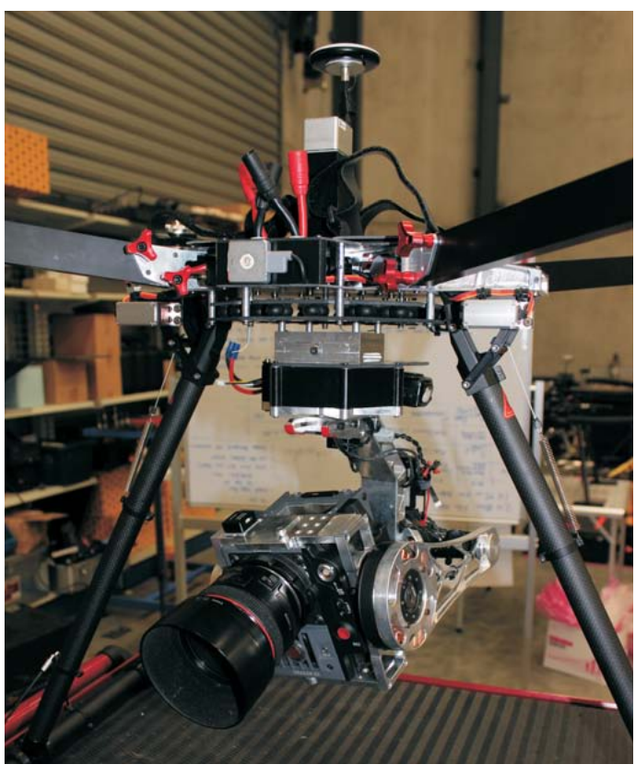
XM2 Drones are designed in house and feature twin motors on each boom. Purists might say that there

is slight loss of efficiency with this configuration but that is more than made up for with reduced set up time and maintenance. One version can relay HD video which is recorded on the ground. The latest platform is designed to lift the Red Dragon high definition camera which records in the air. The sensor has 9 times the pixels of HD and can also shoot 100 frames of HD stills per second. The body fits wide aperture Zeiss lenses. Low F stops are vital when light is low. Integral to the whole operation are the gimbals which are made in house. Considerable time and expertise is taken to tuning a gimbal to particular body - lens combination.

Time is money and it really applies to an industry standard that achieves one minute of useable footage per day on location. A visit to a small production filming on location should be enough for anyone to understand why cost per day seems astronomical.

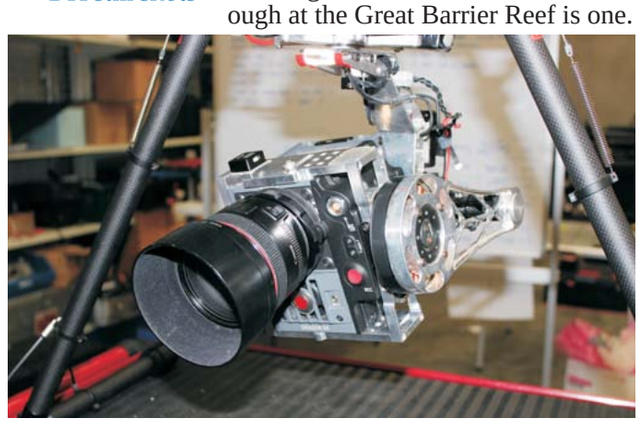
Stephen Oh brings a cinematography and production background to XM2

Another selling point of these incredibly stable and manoueverable aerial platforms is fast turn around time. Shooting a scene from two different directions often requires heavy equipment to be moved out of shot. A change of angle at a desert scene requires the sand to be swept to remove footmarks left by the crew. As payload capability increases, drones can reduce the need for laying out tracks for camera dollies. Swapping lenses requires gimbal damping to be re-calibrated or the gimbal changed to one that matches the weight and centre of gravity. Fast turn around is very desirable.



Red Dragon camera high definition video camera can shoot 100 fps DH still shots

A considerable number of commercials and film works are in the can awaiting release. David Attenborough at the Great Barrier Reef is one.



Air to ground HD video recording capability

The Moon and the Sun is a feature film due imminent release.

Even though everyone dreams of the impossible shot, much of the bread and butter work is creating POVs. (points of view) Have a look at the footage on the XM2.com website. Tracking horses along that ridge for thirty seconds for the feature film demonstrates brilliant flying and camera control. The image remains stable and in right in the centre. Note how much the trees are moving in the first shot in the mountains lifting up through the trees. Mountain flying in windy conditions is very challenging. Flying over water has its challenges too. A moving horizon makes it quite easy to suffer motion sickness. One mistake and you lose the lot. Even if the gear can be recovered salt water, renders it unusable.

Aidan showed me footage for an upcoming TV series and one shot that took my fancy was of the impossible nature. Tracking a vehicle through the scrub then flying through the fork of a tree is right up there up for anyone in the "How did they get

No need to holler for a Marshall

Flying under pressure! How does a $100,000 payload sound? With an AUW (all up weight) of 40 kg this new design will lift an Arri Alexa M camera. A world first

https://www.facebook.com/XM2Aerial
http://vimeo.com/103982608
http://vimeo.com/102807856
https://www.youtube.com/watch?x-yt-cl=85027636&x-yt-ts=1422503916&v=eAgyKeG0YXU

that shot" fraternity. This column isn't about giving up trade secrets, so Mum's the word on that.

The company has achieved Australia wide area certification from CASA which makes quoting jobs much easier and faster. New developments in gimbal, imaging and multirotor craft are being phased in. XM2's latest drone should have achieved certification by the time this magazine has gone to press.

Checking site for obstacles

Commercial Flying

In the 1980s I was one of a small group of people operating fixed wing and helicopters. I only shot film. Dabbled with video, but vibration was a problem recording on board. No so with film. A sixty powered heli had no trouble whatsoever lifting a 1.5 kg SLR, Even on 40 degree days. My last fixed wing model had all the convenience features built in. OS 90 fourstoke to reduce noise. Carburettor airbox for operating from dusty or sandy strips. Huge flaps, main gear brakes, viewing window for the frame counter. Fuselage door with window, to change rolls and check

Cinematography demands good gear

This operator is about to obtain his OC flying DJI's new Inspire 1 with dedicated camera

camera settings from data back. Two piece wing. Dihedral tailplane for improved pitch control when flaring with ninety degrees of split flap selected..

Redundancy is vital when offering any service on a commercial basis. Redundancy also refers to back up onboard systems in case of failure. Back then I operated standard radio gear and reliability was never a problem. Once the job involves crews on location, two of everything is required. Shooting stills within an hour of home I often only carried one model. Any further and in went a spare.

The most challenging flying was for Film and TV Directors. Many of who I met had one trait very much akin with that of the Family Court Lawyer. They have to know where to get information on an awful lot of subjects. But they possess little or no expertise in any. Nor have little interest. Explaining why you can't do what they want soon became of little interest to me.

If you take the time and effort to obtain and pay for your OC, dealing with pushy clients comes with the territory. There will be a minority that does not care if the flight was legal. A responsibility that rests entirely with the operator.

Stephen Green.

Was this shot from a pole or copter?

Multi Matters
with Richard Fraser

A line of bright orange witches hats is a good way to define a course, they're highly visible in the monitor and boy do they wizz past fast when you're up to speed

Don't Bite the Hand That Feeds

Isolated on our island continent, it's easy to lose sight of just how lucky we are to be able to conduct our hobby under the provisions of regulations, in our case CASR 101. I don't feel there would be too many aeromodellers out there who would feel they are restricted in their activities by regulation. Work within the regulation and they are your friend. it only takes a brief look at the goings on in other parts of the world (the United States in particular) to realize how dire things could get for aeromodelling as a whole when the regulation of unmanned aerial vehicles gets thrown open to a 'clean sheet of paper' approach.

To that end, as aeromodellers it is our duty to protect the regulations that govern us, by not abusing our rights and throwing into question our legitimate operation of RC aircraft. As an example, CASR 101.395 details the application of the 30m requirement. CASR 101.055(1) states 'A person must not operate an unmanned aircraft in a way that creates a hazard to another aircraft, another person, or property.'

The MAAA's MoPs are written in such a way that by complying with them, you will by default comply with not only the Civil Aviation Safety Regulations but with a raft of other Regulation and requirements (such as insurance). Whether you're an MAAA member or not – you are obliged to conduct yourself in such a way that you comply with the regulations. How you choose to go about been informed is up to you, but bear in mind the concept of strict liability. Strict liability removes the defense of claiming no knowledge, not aware etc. CASR 101.395(5) states that an offence against 101.395(2)…which we know as the 30m rule… is an offence of strict liability.

LUMENIER QAV 250

Oh now I am excited! Since my last dispatch, I've had 30-40 flights on the QAV250 and really started to get it dialed in. Now I'm not a forums person, so outside our little group of FPV fliers I don't know what kind of performance others are getting, but with its current setup and a Voltron GPS device I'm regularly seeing 75km/h as peak speeds. Considering this thing is around 25cm's long and barely 20cm's wide that is really moving!

Orientation can be really difficult especially when you're looking at trees in the background

The aircraft itself is built around a 6mm thick G10 carbon fibre baseplate, which not only gives it great rigidity for flight but unbelievable crash resistance for the inevitable incidents. I've installed the Lumenier 2000kV motors – I see the ARF kits are now shipping with 2300kV motors. Which I will now need to buy. The ARF kit comes with Lumenier ESC's flashed with SimonK settings-dedicated to multirotor use. A PCB screws neatly under the baseplate, protecting the ESC's but also providing a neat connection for the battery lead and bussing the main power to the ESC's. Power is tapped from one of the ESC's BEC to provide voltage to the flight stabilization setup, receiver and FPV gear.

For flight stabilization, I've chosen to use the OpenPilot CC3D Atom. This is my first experience with OpenPilot gear and I've got to say, for a nerd its right up my alley! This is not a plug and play system, it would be as close to infinitely adjustable as you could imagine. Desert Aircraft offers some settings to get you in the ballpark,

Q500 TYPHOON

The Yuneec Q500 Typhoon is a complete aerial photography and videography (APV) system that records full HD 1080p 60 FPS video and takes 12 megapixel still photos.

Up to 25 minutes flight time!

- 3-axis CGO2-GB included (Compatible with a Steady Grip)
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from there, it's choose you own adventure. I found the initial setup to be quite a way off where I like to fly, but, as always, what suits one person can be completely off the mark for another. There is so much tunability in the system I was able to control individual elements of the aircrafts behavior even across different axis. In the end, for turning at speed I've ended up with a very different setup in pitch and roll- something I haven't done before.

What's also very refreshing is the ability to save my setup and email it to my fellow racers- they can load it onto their machines and give me feedback. If they don't like it, they can reload their old settings. The CC3D also has the ability to save a 'bank' of settings onto a switch. I can have my setup, and a mates setup, selectable on a transmitter switch and move between them in

The small 'pinhole' camera extends through the forward carbonplate wrapped in vibration attenuating tape. Just underneath, the huge G10 baseplate acts as a bumperbar

flight. Once I land, I can plug into the USB and remove the one I liked the least (which would be the slowest, of course!).

The camera position is fixed forward facing, I've utilized a 'pin hole' camera and video transmitter from Multiiwiicopter in Queensland, sold under the 'Carbonbird' brand. The picture resolution is good, and been a fixed camera installation you see every movement and wobble in the machine. It pays to take this into consideration in the flight controller setup as twitchy control response makes the video feed really hard for your eyes to track. The CC3D has such an amazing array of settings that achieving good maneuverability and stable video is entirely achievable.
To keep the wiring neat and simple I've used a Futaba R6303 SBUS receiver, utilizing the SBUS capability of the CC3D I'm able to run a single wire from the receiver to the flight controller. This configuration also powers the receiver. If you haven't had a look at an SBUS setup, I'd certainly encourage it particularly for smaller machines where the amount of wiring can very quickly 'birds nest'!

Finally, and perhaps the most vulnerable component for damage is the propellers. I've been using the Gemfan 5 inch propellers- at around $6 for a bag of four I can barely complain about the cost. So far the worst 'incident' I've had resulted in the breaking of two props, and I've yet to break anything else.

To power the setup I've chosen to se the Thunderpower 70C 3S 1300mah packs. Overkill probably, but my experience with the Thunderpower packs has always been good, for performance and longevity, and I've got a feeling these packs might be getting a hammering!

Once underway, the 3S 1300 packs are giving me about 5 minutes of flying time, with a vast percentage of that spent at full throttle. At 250mm from motor shaft to motor shaft, diagonally across the machine, this thing gets pretty small very, very quickly! With no GPS, compass or any of the orientation aids multi-rotor pilots are becoming quite at home with, orientation is a big issue with these machines. The video feed is

White lights on the back, a whole bunch of bank on and the nose low- a fast right hand turn

a handy crosscheck of where you are and where you're headed, but you need to really keep on top of which way its pointing, and have a setup that has it self level as a function, whether on the sticks or with a switch. The QAV250 is fitted with LEDS, under the baseplate, with a red and white line of lights to aid in orientation. In the end, its infinitely better to have a setup on an aircraft like this to cut the motors an drop it into a paddock than to risk a fly away. That said, it is so small even in relatively short grass it can be hard to find!
Setting up a race track isn't difficult, a couple of fluro orange bollards a hundred or so meters apart is a really good way to start. They are easy to pick up in your monitor, they don't hurt the aircraft if you hit them and if they aren't to far apart the emphasis becomes precise handling rather that raw speed. If you have the space, a couple of bollards and a lap round a tree mixes things up and certainly raises the intensity! We've generally been running around a 300m, three turn course over farmland and racing for 5 laps. In a straight of 100m or so length we've regularly been able to achieve speeds in excess of 70 km/h. I've no doubt there's going to be groups turning up all over the country having a ball racing these things. The QAV250 is but one example of the class, but it certainly looks like the pick of the bunch considering its robustness. As I write this I notice

With full throttle and around 40º nose down the QAV250 really starts to move, and you don't see much beyond whats directly in front of you in the FPV camera

Still photography or 720 HD video at 60 fps- 1080 HD at 50 fps

Are the gutters clean?

that the weekend just gone had a 250-quad racing event, in the photos I saw there must have been at least twenty aircraft present. I bet it was a blast!

Always I like to come back to the fun/$ formula, and I must say 250 quads racing comes up very highly. For a relatively (I fly helis too!) low expenditure, these things are amazingly good fun. After an afternoon racing, I barely have any voice left by the time I got home… who said quads are boring?

Disables after each flip

Camera and video button

Ares Ethos by Stuart Claire

Hardly anyone, myself included, was aware of this brand that manufactures a range of foam RTF Aircraft. And now this interesting quadcopter. The four channel transmitter is mode switchable. The auxillary function button activates the nav lights patterns and shutter release for still and video functions. The camera shoots in both 720 and 1024 definition.

The copter flies well although it took a few flights to become accustomed to the dead feel around neutral, otherwise known as expotential. The TX has dual rates and a flip mode for pitch and roll. When this is selected an alarm sounds and remains until the manoeuvre is completed. Flip mode has to be re-acitvated.

The model flies well. It looks easy to fix too. (We will be racing a pair of them next issue) The camera mount works well and reasonably smooth footage can be obtained if the model is flown the same manner.

The Ares Ethos is distruibuted to hobby shops by Model Engines Australia. tel 03 8793 5555 www.modelengines.com.au

Bank & Yank
with Byron Simpson

Pilot Notes were issued for Sandown F1. Possibly a world first, noise level and turbulence were covered. Altitude levels too! *(In terms of competitiveness and crowd appeal your scribe did what was required. Albeit for less than one race. Why did he fly the straight inverted? Because he could Why did he really do it? So the crowd could hear it. Inverted engine, pipe out the wrong side. Straight out pipe on DA 60 eng still wasn't loud enough. But it was fast enough*

The Inevitable

Well I enter this issue with somewhat of a heavy heart, I was looking forward to a great report on what I was hoping would be a well run event. Instead I think the cancellation of the NSW main Large Scale Racing Event at Cootamundra will see the end of that event, with my own personal opinion as to why being a mix of a few things over the past few years like rule changes and different rules sets as well as holding the event on the same weekend as another major event. Sometimes this isn't something that can be easily altered though, for example I understand the NSW State Field is well booked out around October so date changing isn't just a case of saying "Right let's just make it the weekend prior".

All this does bring to light however the necessity to ensure that all events throughout Australia comply to a very similar rule base if not the same, this will in turn ensure everyone who is looking to travel interstate to an event can rest assured knowing if their plane passed scrutineering at the previous event it should be able to do the same at the next event. By the time this issue makes the printing press (or the E-reader for those reading the electronic version) the ground work for an event to be run in the Canberra area should be underway, and although a little further north of Cootamundra the area being considered for the event has the potential for being a much larger event. Another major plus is being able to attract a substantial crowd and Large Scale Air racing is definitely a great spectator sport. Hopefully offering the right carrots will see competitors travelling from further distances to come to the event also, and being a major hub fly in fly out is also a very distinct possibility.

Sandown Need for Speed

I know that's not what it's called however The F1 Air Race Sandown turned out to be great event, and I'm looking forward to attending it again next year. The racing turned out to be a great spectacle for the thousands of people that attended and with a strong cross wind blowing all day all the pilots involved were tested on their abilities to take off and land on a specified area, and with Armco railing and concrete barriers either side of the runway this was not something for the faint of heart.

I was fortunate enough to get out to the P&DARCS club on the Saturday to get in some last minute testing on both my race model and the spare I had taken down with me, which was most appreciated as running my open port DA60 was a little on the loud side. So with everything running well and tuned for racing I was set for a strong showing, though things didn't quite work out that way for me. In heat 1 I was up against other strong racers in Jeremy Randle, Greg Leigh, and Richard Mudge (though Rich unfortunately had to pull out coming to the event due to local flooding at home). The customary pre race pics were taken and planes started then flown into the milling area waiting for the clock count down, and as the saying goes "When the flag drops, the bull dust stops" (you know how it really goes).

With a good speed advantage I managed to finish the heat 9 seconds ahead of Jeremy but during one of the laps after the heat had ended I pulled into turn 2 and discovered the models speed/tight turn fatigue point as the left hand wing ripped off and the model ploughed into Sandown's famous pit straight, then tried unsuccessfully to thread itself through the Armco. It did prove the track set ups safety though albeit at the cost of my model, as turn 2 was made well away from where any spectators could be seated in the grandstand just in case of any incident occurring there so hats off to Stephen Green for thinking ahead and keeping safety as a first priority. (This worked because I invited pilots capable of racing at the requested altitude. ED)

The other heats ran well with only a couple more minor incidents happening, ending a few of the other racers

So long, suckers.....

(Incompatible disparity between up elevator command rate and airspeed coefficient. Enhanced crowd appeal, on the 11th lap)

Byron Simpson (NSW) DA 60

Scott Matthews (Vic) DL 60

Richard Mudge (SA) DL 60. *(Please don't believe what they say about Melbourne's weather next time, you might have a shot at cleaning up Mr Mudge! ED)*

Cliff McIver (Vic) OS GT 60

Down on horsepower but aquitting himself very well,Michael Lynch (Vic) Saito 45 was a great sound. (You should have tipped the nitro can Mick!)

chances of taking home the Betta Home Living major prize.

This event ran slightly different to other race meetings and I must say I prefer the structure of how this was done, instead of having a points system to decide the overall winner the points accumulated throughout the heats defined who qualified for the grand final race, at which time all the points for the final flyers was reset which basically meant that assuming the race ran cleanly with no cuts, the winner of the grand final was the overall winner. As standard if there was any cuts these would be factored in but would only move change the positions of the top 4 in the final, and as it turned out this made for a fantastic race.

It was a pretty good start by everyone and as they all passed the start/finish line on lap 2, all four planes were within a hundred feet of each other. As the race progressed the planes tussled for places on the podium but the clear leader on the final lap was the white and fluro orange Seagull Cassutt of Jeremy Randle.

The MAAA presented the top three with their trophies and prizes and as the day drew to a close I must congratulate everyone involved with the running of the event, sure it had a few little hiccups throughout the day but in its inaugural year I can only congratulate Stephen Green on a great event, not only for air racing, in fact not only for RC flying, but for all facets of RC in Australia.

It's also great to see the MAAA saw the value in the event which has al-

Ian Bendle (Vic) jumped in at the last minute. (Many thanks Ian. *(Was racing more fun than flying at the 500cc Grand Prix?*

MVVS 58 powered Hobbyman entry made it to the startline for all 4 rounds. Successful flight testing the back side of the drag curve on a curved approach to boot. *(Sorry for running you out of fuel in Rd 1 Ian. Thanks to Davin, and all advertisers and exhibitors. ED)*

ready committed to making next year an even better event. A big thanks to all the other race pilots and may I say congratulations to:

1st place	**Jeremy Randle (NSW)**
2nd	**Mike Farnan (Vic)**
3rd	**Cliff McIver (Vic)**

It's All Class

Class definitions have changed somewhat over the previous couple years and as mentioned further up, this hasn't help to draw entries to events with no ground rules as such. And as some classes dwindle there comes a need to either expand other classes or introduce new ones, but there is a deeper problem that follows this. Pilot abilities is something a contest director can't know unless they've seen or know the competitor has raced before, and with Golden Era Inline now reaching very impressive speeds as well as the introduction of an Experimental category in the Formula 1 class then there needs to be a set method of determining a pilot's right to compete at the higher levels.

With most events now run under the Large Scale Racing Club of Australia banner, they have begun implementation of a license system where new pilots to racing can run in the lower categories without a license (This does not mean without MAAA insurance) but from there up will be two special interest licenses introduced. I myself am not sure how they will be named yet however the first stage would see pilots from the intro classes (Red Bull and Formula 3) be able to step up to the next series of classes (Reno Unlimited, Golden Era Radial and Formula 2), I will expand on the different Formula classes shortly, with the final step and highest license being certification to compete in Golden Era and Formula 1.

OK so what is this Formula 1/2/3 I've just spoken about? Well put simply it's very easy to get an ARF Nemesis and whack a 55CC engine in it to race in what is currently Formula 1, though pilots that do this haven't necessarily the building knowledge of how to build the plane to cope with the extra forces of the large engine and high G corners.

Since the Seagull Nemesis is intended for up to a 1.60 2 stroke glow engine, the 35CC petrol engines are within the airframes intended power specs. This keeps the aircraft as being able to be built pretty much as per the instruction manual (though I'd still recommend beefing up the engine box area), and as new pilots to Large Scale Air Racing get the feel for it and wish to move up, they will also have shown the contest directors they are capable of the next step and have learnt from other pilots that race in

Thanks to Air League parents for stepping in when the kids had trouble with the wind. It ran amok with the lap counting sheets. Thank you to Andrew Pain (Start cut judge) and Rhonda Abottomey CPA (Scoring)

From South Australia, using the engine that started it all, on the left is Mike O'Reilly, with Greg Leigh and their beautifully nicely turned out Zenoah 62 powered racers

the categories above them any tips they may need to ensure their airframe will last in Formula 2 without falling to the stresses involved. The other advantage of Formula 3 is that it offers another reasonably priced category for people to try to see if they like Large Scale Air Racing and if they decide they don't they still have a very nice scale aircraft to fly at their usual strip.
Formula 2 will pretty much be what Formula 1 is currently known as, still allowing ARF's like the Nemesis and Cassutt racer (Cassutt not permitted at Adelaide since 37% doesn't always class as Large Scale technically).

These will continue to be up to 56CC with non performance enhancing mufflers and no engine mods, this means pilots that either don't want to step up to the premier class or still have racers they don't want to chop up to make the premier class can still compete no worries. This is important as Formula 1 will be a class made for higher speeds and deeper pockets, essentially what Formula 1 should be. Formula 1 will not permit ARF's as they will be expected to require such major modifications that you would be virtually building it from scratch anyway. There is always the possibility of an ARF being built in the future that will be able to cope with the stresses but it would need to be assessed first, this would mean a manufacturer would have to be purpose building an ARF for Formula 1 and I don't really see this happening any time soon.

As far as what will set Formula 1 apart from Formula 2 will be almost everything. The airframes will be slightly larger at a minimum 35% however the powerplants will be up sized to maximum 63cc with any performance modifications allowed including performance exhaust systems like tuned pipes, here is where purpose built aircraft will be utilised as since there are no current ARF's that have the luxury of being able to wedge a tuned pipe through the fuselage. Couple this with engines that are running on high performance fuels using pressurised injection systems that are developed and you will be seeing some exciting new aircraft entering the scene.

As much as I love my Reno Unlimited racing even I have to admit it isn't looking like it will last the next few years unless it has somewhat of a revival, the cost involved in competing with these aircraft is currently the most expensive I believe as the aircraft used are expensive to buy/build and this is before you even entertain the idea of installing the retract units inside them. About the biggest plus is Reno Unlimited racers can be flown at most scale military events so they can serve somewhat of a double purpose, though compared to aircraft built for competing at scale military competitions I wouldn't be entering with anything more than the thought of entertaining the crowd with low and fast fly by's. I truly hope both Reno Unlimited and Golden Era Radial have somewhat of a revival as both classes are crowd pleasers, one with spectators able to recognise the World War 2 fighters being flown and the radials (although slower than their inline counterparts) relate back to the days of barnstorming and times where flying by the seat of your pants was done as a challenge and the word "safety" hadn't even been added to the dictionary.

The Final Turn

As my column draws closer to an end and enters the penultimate lap, I think it's only fair to end on a note away from the more political side of things and try and offer some information that may be able to move you further

No surprise that Victorians' Neil Addicott and Mike Farnan went for OS GT60 engines. Thanks for asking Seagull Models to produce the ARF airframes, in three different forms

up the standings. There are simple things we can all do to ARF's to get them to perform better in the selected classes, but a lot of these need to be done during the construction/assembly phase. One thing I recommend is thanks to most ARF's these days allowing for different powerplant types like electric and internal combustion, they sometimes offer different firewalls. If this is the case find the one you need then make it from a new piece of high grade plywood and throw the old one out, if it's at all possible build the engine box out further to eliminate the use of stand offs as they do allow a small amount of twist, and every time your big single cylinder engine fires the stand offs flex losing you some of the engines hard earned horse power.

That's right I still call it horse power!

In-line shootout at Adelade gets another entry. Built by Adam Argus, the Zlin is going to have another run

Originally powered with a 3W 80, The DA 85 bolts to the plate which in turn bolts into the fuselage. The the carburettor is attached last

Bank & Yank

It sounds better than watts, I'm not trying to power a light globe. Refer all complaints to the editor as I come from the land of loud is fast, oil is for lubricating engines not cooking, and there is no substitute for cubic inches (or cubic centimetres) and due to being brought up around race tracks complaints will fall upon my selectively deaf ears. If someone out there ever reads this far into the column however and feels the need to back me up on that I'm sure the editor would like to know his proof reading isn't the only set of eyes to make it this far down the page.

If the model uses bolt and washer control horns, look to upgrading them to horns like the Dubro 912 or 913's. These offer better quality and less play as any movement isn't desired, couple that with your control surface movements being in the range of 1/2inch maximum and you need things to be as solid as possible. In most of the newer ARF's being released they seem to be utilising the fibreglass control horns that are epoxied directly into the control surface, my personal opinion is these are well up to the task of racing although I do recommend using ball joints to suit 4-40 or 3mm control rods where you can to bolt up to them from the servos.

Lastly a good quality servo might cost a chunk more than something you buy from a cheap Chinese online seller, but to have minimal play through the gear set and good solid and consistent centring, your money will be well spent. Aside from the fact of course you also get a lot better peace of mind while barrelling around the course only metres of the deck.

Congratulations to Jeremy Randle and Tony Jones. *(Jeremy had asked for a dispensation not fit the pilot, in preference to spending that time testing the aeroplane and obtaining the Heavy Model Permit. A job well done! ED)*

For competitors who rightly complain about the pilot rule, finally, there is an answer

Yet another of the many successful crosswind landings

Speaking of which talking all this has given me the hankering to go flying, and with track time being an invaluable part of racing it's high time I got myself away from here and head off to my local to see if I can't gain a small advantage for the next race meeting.

Until then don't forget it's Bank and Yank. Byron.

Proving yet again that you don't have to be the fastest to do well in racing. All other entranct had 60cc engines. Jeremy came through using

Spooling Up

Skymaster L39 Albatross
by Rowdy Matthews

Turbine powered jets, are they difficult to assemble and fly? Years ago one would have said they were, liquid LPG gas powered JPX engines with scuba bottles for startup - very dangerous complex heavy and cumbersome by today's standards. However, today's a different story… I was approached by the editor of RCM NEWS to offer thoughts on some perceivably more complex airframes, a step up from the park flyers and Sunday sport models. If you already enjoy the success of turbine powered aircraft, you will no doubt have your own ideas. You may even find some useful tips, however the following is offered to the Sunday sport flyer.

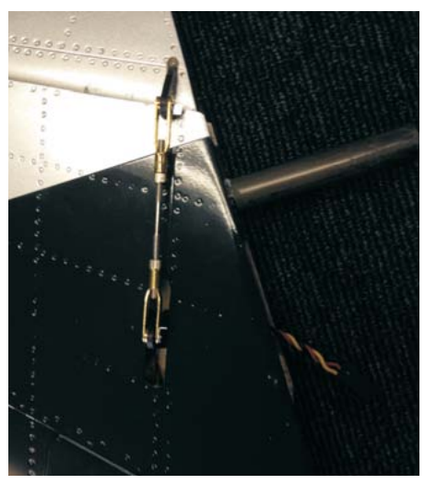
So to the Skymaster L39 Albatross. Why an L39? Having flown a variety of models I am a firm believer in the standard configuration of model. That is, a nice size wing and tail plane with individual elevators separate from the horizontal stabiliser. If you are looking at stepping up to a turbine aircraft, keep this in mind. It takes all the complex aerodynamic forces out of the equation and they tend to fly more on the wing than on pure thrust. Don't get me wrong, an F16 or Eurosport may look cool, but can easily bring you undone and land at full throttle short of the runway, if flown incorrectly. This is due to added complexities that are part and parcel with flying delta wing planforms at low speed.

The L39 was purchased almost 12 months ago and I finally got around to setting it up. Nowadays, you can have a good look at the model as soon as you open the box. It's like Christmas and I still get a kick out of a shiny new model. So to assembly. As opposed to construction as there is not a lot of glue required.

TECHNICAL SPECIFICATIONS	
Scale:	1/5.5
Wingspan:	1750mm
Length:	2200mm
AUW	
Engine size	10-12 Kg thrust
Engine used	ATJ 120 TI
Airframe	All composite

Empty out all the components, separate and identify each item. The L39 fuselage comes in two pieces, held together by 6 x 4mm bolts, good practice to run a tap through each hole prior to fitment at a later stage. You can come unstuck very easily by simple errors. There might be a smaller rudder horn etc. if not used in the correct location will bite you further on during assembly. So look for any little differences this includes pushrod lengths. It is also a good time to check clevises fit the horns as it is a lot easier to enlarge the holes now rather than once they are glued to a control surface.

With everything identified the first step was to assemble the rudder and servo into the fin. Robart hinges are used here and care needs to be taken to gain the correct geometry to ensure enough rudder travel but also to not be so sloppy to cause flutter or extra load on the hinges. The rudder is the only hinging required as the remainder of the model is all live



Take care to identify the correct control horns

Tailplane halves are similar to the rudder and call for a mini size servo. I managed to squeeze a standard size unit in each

Spooling Up

Two cockpit tubs take up a fair bit of room and the rear is a drop fit to assist with monitoring the engine on start up

hinged with the top skin of the flying surface. Once complete the rudder is bolted to the fuselage. Access to remove the fin will require tailpipe and turbine removal in the future.

The elevator halves are similar to the rudder and call for a mini size servo on each surface. Originally I had some Hitec 5245 (5 Kg) servos set aside however ended up squeezing in standard size 5645 servos. A little extra weight in the tail however the larger servos offer more authority and confidence. All surfaces have 10kg torque Hitec 5645 servos fitted and they have worked flawlessly. Elevators slide on to carbon tubes and are simply held with one bolt each side through the top surface. I have only just started to make allowances for removing tail planes by having the extension lead connect at the surface joint. It makes storage and potential transport so much easier. Consideration needs to be given to the extension leads as they run along the fuselage next to the tail pipe.

Next step is the fuel tanks

Fuel set up, as on most models needs attention but no more so than in a turbine installation. A small air bubble that completely fills a 4mm tube will be enough to flame out the turbine. Two tanks are fitted, one on top of the other with a conventional clunk arrangement. It pays to mark the tanks as it is very easy to forget which one the feed is and which the vent is. This is surprisingly easy to forget. Time is needed to ensure every joint is perfect and secured, I use Dubro fuel clamps on the tygon tubing in this instance or wire wrap where needed. Pressurize the tanks and check for leaks, accept no leaks. With the fuel tanks in, it is time to join the fuselage. With the forward fuselage attached thought can now be given to gear layout.

It is important to note the two cockpit tubs take up a fair bit of room. I spent a considerable amount of time securing the front cock pit and making the rear cockpit a drop fit. This pays off at the field as once the turbine is started the rear cock pit drops in, canopy on and away you go. There is nothing worse than an ill-fitting canopy or cockpit so take the time in the work shop to ensure this can be repeated on numerous occasions.

Make Life Easy

Turbine, in this case an ATJ 120Ti, simply bolts in and its position is dictated by the length of the tail pipe. Everything needs to be as far forward as possible for center of gravity (C of G) reason therefore slide in the tailpipe and set the pipe gap to turbine as per turbine manufacturer's recommendations. In order to have the turbine sit at the correct height in the fuselage I had to bolt the turbine to the underside of the mounting rails. Fuel pump, gas and fuel valves are installed under the cockpit floor along with the batteries, 2 x 2100mah Life packs for the Spectrum 12 Ch. Receiver and 1 x 4000mah lipo for the ECU.

Header tank, again ensure perfect connections and seal, is secured within view. It is important to be able to keep an eye on the header tank, as it will let you know if the fuel system is producing any air prior to a flame out. Post flight, the header tank should have no more than a

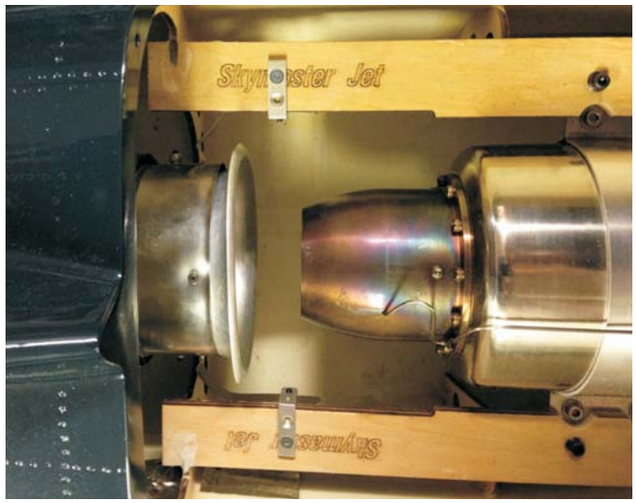
One tank sits atop the other

small air bubble, any more and you need to investigate. All battery and fuel connections need some thought as well, to ensure functionality and accessibility, all the time maintaining that scale appeal. A Dymo labeler is great for identifying the batteries, you will forget in the future as trends and times change.

Wings are next and there is not a lot to do here, the undercarriage is already fitted along with functional scale undercarriage doors. It is a good idea to remove the gear run some CA in the mounting holes and also check everything for security and correct function. I opted to swap the airlines, on the pneumatic undercarriage, with more subtle type airline that helps alleviate kinks. The L39 is pretty tight to run the servo connections and three airlines at the wing join and not have the undercarriage get hung up while cycling. I placed some plastic keepers in the wheel wells to maintain the leads away from the retracted gear.

Another time saver, the wings are secure with two 4mm hex bolts. To ease the set up at the field I used Loctite and put a wing nut on each bolt screwed right up against the head of the bolt. Simple easy and quick on set up and pull down at the field, no tools required.

With the wings fitted to the fuselage, I used two xicoy dual action air valves for retracts and gear doors and a single action valve for the wheel brakes. All sequencing was completed through the sequencing function on the DX18 transmitter. Set the timing for gear and doors to get



Turbine bolted to the underside of mounting rails to align with the thrust tube

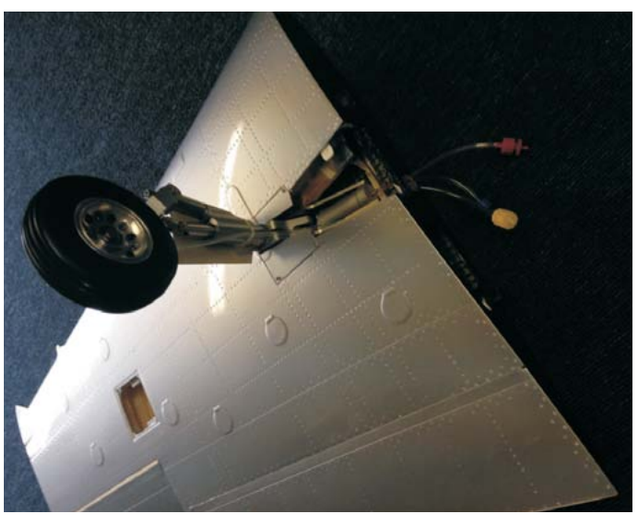
everything working well. The L39 has it doors closed with gear down for the scale position. Some jets vary with this configuration but a quick Google image search should set you straight.

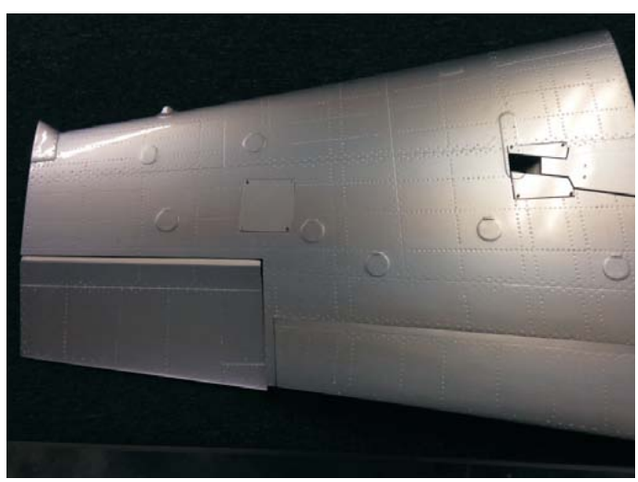
With the model on its wheels the recommended C of G was set, with the addition of a little lead in the nose. This is the penalty for standard servos in the tail. Control throws were set as per the manual and the model was ready to fly. I elected to set a bit of exponential and also set up a few mixes which always come in handy. 30% exponential was set on ailerons and elevator with 45% on rudder. Each control surface, 2 ailerons, 2 elevators, 2 flaps, rudder, nose wheel steering, brakes, throttle, gear and doors each had their own channel resulting in all 12 channels being utilised. This makes life easy however the model could be set up on 9 channels if required.

I find a few mixes very useful, obvious one is rudder to nose wheel steering however it is also useful to mix nose wheel steering to both gear retract switch and throttle. Why?

With gear selected up, I do not want the nose wheel to move around and potentially snare something and there is no need for nose wheel steering when the gear is retracted. The throttle to nose wheel is a great mix. Below 25% throttle is generally taxiing throttle position so therefore full nose wheel steering is required to perform a U-turn on the runway. When you advance the throttle, presumable taking off mix the nose wheel steering right back to about 10% each way which will stop the model getting out of shape on takeoff. Works well and when set up correctly no switches to remember (Poor man's gyro). The L39 required no elevator flap mix.

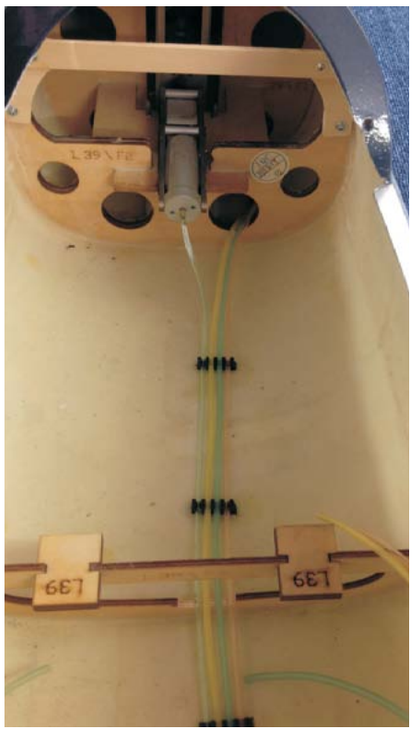
The model was successfully turbine certified, thanks to Bob Bennett, and



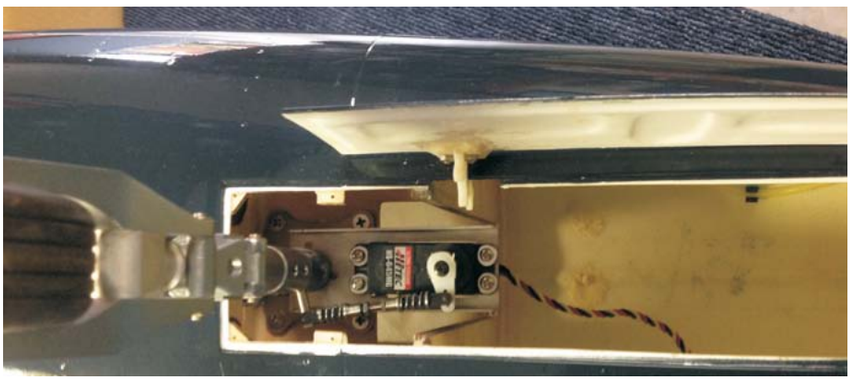


Gear door sequencing via DX 18 TX

Spooling Up



Skymaster's neat n tidy air line



Nose gear steering on rudder channel. Rudder is mixed through free mixer. Steering servo isolated when gear selected up prevents servo moving and pressing stalling against now immovable steering arm

test flown on the grass strip at Sale and District Aeromodellers and was very uneventful. The ATJ 120 proved to be a little over powered, however, this allows the model to take off at most short club fields.

If you are considering a turbine powered model, don't be overwhelmed. If you break down each element; flight controls, air system, fuel system, power supply and assemble the model in a logical non rushed manner it will provide you hours of pleasure.

Enjoy the wonderful world of Aeromodelling. Scott Matthews.

This article was supplied by I Fly RC who purchased the L-39 to build, to review, to sell. Check it out www.iflyrc.com.au ED)

Soaring Circle

Australian agent for Mueller Models Dave Pratley and the Espadita. This is one hot model. *(Smile Dave, Glue Gun bought three of them. ED)*

Grahame Goodson's EP version. 3900rpv outrunner through 5:1 gearbox driving 15x16 RFM propeller gives more than sparkling climb performance on 3S

Two Mueller Models

After a two month hiatus from having fun on the slope, I finally got to have a fly of both Grahame Goodson's recent purchases. The Espidita is a ripping little 1.8 metre which has been featured in the past two issues. To recap, it is of composite construction with internal aileron flap linkages. Grahame bought two and this one is the electric powered version. Damien Mould also bought one and he reported that in terms of flight trim after launch, it was the most perfect test flight of a model he has experienced.

Light southerly breeze at Mt Hollowback (Ballarat Vic) was a bit flukey. Andrew Pain had been there for a couple of hours and staying above the horizon was the go. One kilometre in front of the southerly face is a large hill which seems to generate a fairly constant patch of dead air. As Grahame assembled the models I launched my FunCub to have a sniff. Purists, please be reminded that Multiplex has a long history of manufacturing excellent gliders and the FunCub does in fact have a glider wing, albeit constant chord - constant thickness.

The Espidita was ready to go and after the control check and run through of the flap - switching function layout on the TX, off she went. Elevator trim was out but after a few beeps the model was stable in pitch and cutting through that dead spot. Control harmony through the first few turns felt really good. A feature that continues to impress. Fifty feet below the horizon wasn't a problem. These modern gliders are so efficient that another turn or two in the search for rising air can be done with confidence. Even if you do bomb out and have to fashion out a landing down the slope, construction is so strong that the risk of damage is minimal.

More altitude lost. Now looking down on the model which was it still in sink, it was time to make a decision. Land and take the lonely hundred metre two hundred metre walk down the hill (right in front of people) or hack around towards the left side in search of keep lift. Had it been the second of Grahame's brand new Espiditas I may have gone conservative and bailed. Time to see how visible the colour scheme is at altitude. What switch was it again? Oh, that one. The three position 1000 watt switch. Half power provides ample climb rate. Fully forward gives so much more. Five or so seconds later the large stripes on the underside of the wing left you in no doubt that the glider was still upright.

The first steep dive was a little disappointing. Thought it would have been quicker. Passing back through 500 feet glints of the prop indicated that it was windmilling. Back up to altitude. A quick tailslide to ensure the prop stopped and then down it came again. Whooooosh! That's more like it. Not happy with the first approach. A quick go round. Popping the nose down a few degrees on a high performance glider is all that is needed to get moving again towards the rising air on the slope face. The next approach was from high with full flap selected. Flap elevator trim wasn't to my liking but this is an area of personal preference. Mine is to to trim for a 45 degree descent because this is about what is required to maintain airspeed.

A brilliant model to fly. And assemble.

Eldorado

A much larger F2J multitask glider with identical construction and still with those fabulous internal wing control linkages. No motor in this one but seriously, does it really need one? A good heave and it was above

that horizon almost straight away. A few turns and control response became apparent just like on the Espidita. It's hard to put into words but I sort of noticed it, by not noticing it. The model feels locked in and controls are lovely, right through the speed range. Aileron - rudder mixing was very powerful. Switching in and out a few times to confirm, coupled aileron rudder setting was too strong for my liking. Most, if not all V Tails I've flown have been soft on rudder. Not this . Picking a wing up low and slow, this model has plenty in reserve when aileron isn't enough.

Headed away from the slope to see how far the lift band extended. Bombed out half a km out and turned back towards the hill. A few turns back in that dead zone and it was scratching. A couple of suggestions about bailing out and landing way down the hill were ignored. These designs are so amazingly efficient the confidence to press on and sniff out rising air was worth a few more

Why listen to the owner anyway?

attempts. Why listen to the owner anyway! Sure enough, venturing out to the left had side into clean rising air and the model was quickly back up over the horizon. That was without flap.

Reflexing the entire trailing edge hadn't been set up yet. Back in close where we could see it, lowering a tiny amount of flap made a huge difference. Grahame had set up crow mix and after setting up a steep descent the Eldorado cruised on in. Rounded out and held off for a second or so. Almost stationary right in front of us. Selected flap up and she settled on nicely. This might seem an unusual technique. Seventy degrees of flap the trailing edges extend below the bottom of the fuselage. Even though metal geared servos and linkages can cope, I try to avoid subjecting the gear train and linkages to being the first point of contact.

Just like the smaller hotliner this is a brilliant model. Both models were purchased from Dave Pratley at Hyperion Australia.

E-Flite L-13 Blanik by Rowdy Matthews

A few years back I fitted a small 60 size turbine to a 4m Fox glider and what a performance it had. This model was last flown at Shepparton

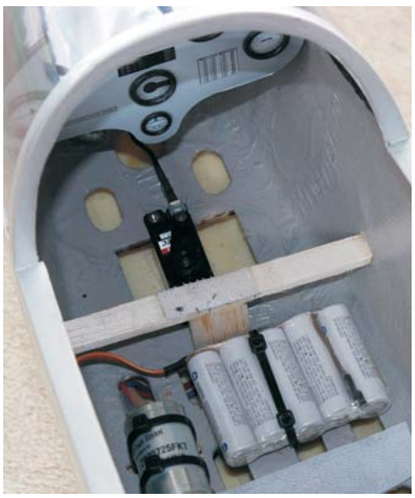
Mammoth Scale and then sold. Being one of the first of it's type, turbine powered glider, in Australia I sought to find another suitable subject. Enter the ¼ Scale Eflite Blanik.

With a wingspan of 4.2m and an advertised weight of 10 Kg in glider form, this model would be well suited to a turbine conversion. Why fit a turbine to a glider? Firstly, it allows self-launching without the need for a tug and pilot. Secondly with this set up the opportunities are almost endless as to where it can be displayed and flown, glider days, aerotow, fun fly, scale weekends and jet events. The flying characteristics and landing speeds allow it to operate from basically any RC airfield. It also creates a lot of interest where ever it is flown.

The kit is very simple and like most ARF aircraft these days is simply "Shake and Bake". However, care still needs to be taken during assembly. As with most scale gliders, lead will be required in the nose, that is a given so consideration to getting all the weight forward is a priority.

I dropped four Hitec 5645 (10 KG) servos into the wing, one on the rudder and two smaller 5245 servos on each elevator. I also installed a servo on the pre-fitted aero tow release. In order to rise off ground I made a small nose wheel dolly that attached to the aero tow release to help the take-off roll, in trials this prove to not be required but worked well.

With the Glider assembled as per the manufacturer's manual, it was time to mount the turbine. A 60 size turbine produces approximately 6KG of thrust is rather small and compact in overall size. I simply added two ¼ ply stiffeners directly under the top surface of the fuselage. A simple alloy angle engine mount was then bolted on. Consideration was then



Nose gear dolly (by Rowdy Matthews) is released after takeoff

Distinctive swept forward wing

given to the thrust angle. The turbine needs to sit starter motor high or in a nose up position to provide correct thrust angle. Issue here is the hot exhaust gas approximately 500 degrees when running are being directed onto the fuselage.

First ground runs proved the temperature was too high on the fibreglass fuselage. The turbine was raised up on ply blocks approximately ½ inch to aid the exhaust while providing the correct thrust angle. With the turbine mounted a little higher, a 24oz Dubro tank was mounted inside the fuselage over the C of G and the rear cockpit area was used for the turbine ECU, pump, header tank and valves. A check of the C of G and the model required a melted down church bell in the nose. Not too sure on the actual weight but about 16 snapper sinkers were melted down.

The Blanik was inspected by a turbine inspector and test flown with an

Huge flaps make controlled descents a cinch

aerobatic routine on it's first outing. The model weighs 11.5Kg and with 6Kg of thrust provides ample power to take off unassisted and perform a loop from level flight. The 24oz fuel tank provides 5 minutes of managed powered flight with nice big graceful aerobatics carrying plenty of momentum. Once the transmitter timer goes off the model is climbed to a height and shut down. Best glide to date is 18minutes after shutdown, so thermaling is still an option.The huge flaps enable a nice nose down controlled approach for a beautiful touch down, very rewarding.

Enjoy the wonderful world of Aero modelling. Scott Matthews.

This Blanik article was supplied by I Fly RC who purchase the model to build, review, then it's for sale ED)

Great Planes Viper

by Glenn Matthews

The Quickee 500 design is an excellent kit and good value. When properly trimmed it fly's well. Intended to be a fast model there are a number of proven modifications that will make the Viper much more durable and able to better withstand the rigors of competition.

Fuselage

To make the front more rigid and less prone to having the firewall part company with the fuselage it is a good idea to strengthen the top area. Do this by putting a 25mm wide piece of 3mm ply on the top of the fuselage. Put some glass cloth strips around the inside of this area as best you can. Cut back the front of the hatch to suit.

The fibreglass inside the fuel compartment in the Viper fuselage is a bit on the light side and not well adhered although recent kits seem to be much better in this area. It can be worthwhile running some strips of fiberglass across the back of the firewall and down the sides and bottom of the fuselage.The ply plate to which the stiff dural landing gear is bolted is prone to breaking out of the fuselage.

Speed Comparision at Sandown. From the left VMPRA's Gary Davidson and Glenn Matthews with Chris and Keven Callow. Viper took off and on the second lap Chris Callow's World leading FAI pylon racer set off to catch it

Use a chisel and carefully remove the small triangular hardwood fillets and replace these with a 3mm ply doubler on each side. While you are at it, remove the blind nuts from the landing gear plate. Apply some 4oz cloth and resin around this area.

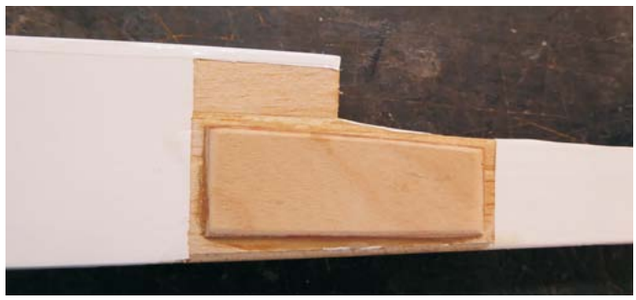
Drill out the undercarriage to ¼" and tap the landing gear plate with a ¼-20 tap. Put some super glue on threads and allow it to cure to strengthen the ply. Use ¼-20 nylon bolts to fix the undercarriage on. These bolts may break off in a heavy landing but it will save breaking anything else.

The metal wing bolts can come loose in flight. You could use Loktite on the screws, tape over them or it is a good idea to replace them with nylon bolts. If you do this, just remove the blind nuts and tap the wing mounting plates to ¼-20 and drill the wing mounting holes out to ¼". Before you drill out the rear wing holes, put the wing on the fuselage and check that it sits square – you may need to use a round file to get the holes in the right place.

The back of the fuse between the rear wing mount and the last bulkhead be-

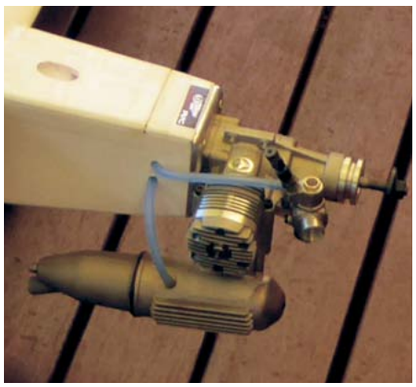
Add a25mm wide piece of 3mm ply on the top of the fuselage then add glass cloth strips

Remove balsa triangle stock on undercarriage plate and replace with 3mm ply doubler on each side



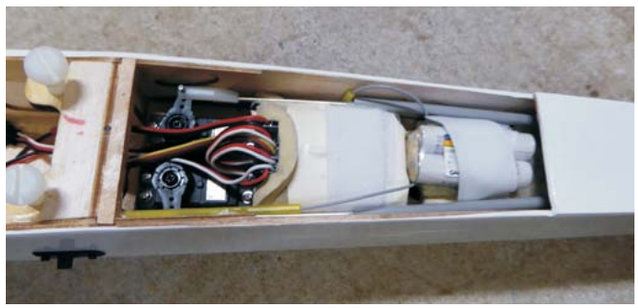
Reinforce the fuselage sides by laminating some ply on the outside

Great Planes Viper



Race proven mods for a more enjoyable entry into sport pylon racing

A piece of spruce about 6 x 12mm along the bottom of each side for an increase in strength



Wiring well away from servo arms, receiver and battery pack mounted on vibration absorbing foam. Installation 101

hind the servo tray is weak and will break easily here on a heavy landing. Glue in a piece of spruce about 6 x 12mm along the bottom of each side.

The rear fuselage is prone to cracking at the bulkhead at the tail plane leading edge. The fix is to reinforce the fuselage sides by laminating some ply on the outside. Cut the Monokote covering away, apply the lamination and recover the area.Another thing you can do here to add more strength is if you happen to have some carbon fibre rovings remove the bottom covering then cut a slot through the bottom sheeting. Lay the carbon into the slot and soak it with super glue.

The Viper must be checked for correct incidence angles on the tail plane and firewall. The incidences should be 0-0-0. The tail plane can be shimmed to the correct angle with a piece of balsa cut and sanded to size then glued in place. I suggest that after you have test flown the model, the whole tail plane can be glued to the fuselage with epoxy and micro balloons. If the firewall is out, that can be cured with washers behind the engine mount to get zero up, down or side thrust.

Wheels

Viper wheels rely on a friction fit to stay on the axles. They almost inevitably vibrate off in the first few flights. The fix is to either replace the wheels or solder or braze ¼" brass washers onto the outside of the axles. Just make sure that no solder gets into the thread inside the axle.

OS & TT 46 Mufflers

The TT46PRO and OS 46 engines are notorious for losing the rear half of the muffler. They are prone to breaking the bolt through the muffler which lets the rear half fall off in flight – never to be seen again. The fix is to pull apart the muffler before running the engine and glue the front and back halves together with an aluminium epoxy like JB weld. Do not over tighten the bolt through the muffler or it will eventually break due to stress.

The Great Planes Viper is distributed to Hobbyshops by Dawn Trading 02 9666 4999 www.dawntrading.com.au

Viper donated to VMPRA by Dawn Trading as a give away to encourage sport pylon. Engine donated by RC Headquarters *(Thanks to Glenn Matthews for putting this project together for Sandown.ED)*

Flight School
with Stephen Green

Multiplex Fun Cub. WG's pushed the envelope with the kit version. Metal geared servos for reliable all round bush bashing

As more and more companies offering tuition for drones it makes me think of my time offering commercial RC flight training. One stark difference between full size flying and RC is that full size offers ongoing development path to hone skills after achieving PPL. Night VFR, Instrument rating, Multi engine, aerobatic to name a few. If I've taught 500 people to fly RC I've taught a thousand. The program to achieve basic solo included model and radio handling, start up, taxiing, trimming, stalling and deadstick procedure. Basic aerobatic manoeuvres, loop, roll and Immleman were taught when the student became overloaded during circuit and bumps. The number of people who returned to do more advanced lessons could be counted on one hand.

At RCM News, we're not big on making claims to pump ourselves up. We leave that the magazine. It's our best salesman. With one exception though. In possibly what is a world first, we are the only RC magazine to have a qualified Stunt and Test Pilot on staff. WG Gilderslag is the very model of a test pilot. His name is such that I don' have to spend any money to make him appear on Google or Facebook. Now that he has completed testing the electronic waters for me, figuring out what to do on Facebook, Forums Twitter Instagram and what sort of Website to have, I can think of no one better to conduct our latest initiative? A program that offers flying tips. Rather than chew up time sitting on a flight sim to configure virtual models closer to what happens in actual reality, we've gone for foam. Even people who hate foam aeroplanes, may learn to love them.

Three models have been chosen for the task. E-Flite Apprentice (SAFE) is for those just wanting to get up and down with a minimum of fuss and can only manage one or two flights on their occasional outing. Flying from rough ground or unprepared strip remains the exclusive the domain of the taildragger. Multiplex FunCub offers the easiest taildragger endorsement known to man, with a very high fun factor chucked in to. Finally, the FMS P-47. Entering the warbird world requires finesse, to handle a double tapered wing, high power to weight ratio and retractable undercarriage. These models fly well, they are readily available in Australia and there is a spare parts listing in the instruction book. Whether spare parts are required is up to you. To mix it up a bit, the entire RCM News foam fleet is at his disposal as well. Over to you WG.

World Of Foam with WG

Welcome to my world. Flying. Before you join in, it is important that my credentials are offered. Before

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Sandown Tower, Cargo 1, ready Runway 18, with Pizza

Queensland

Taking a break from F-1 racing and stunt flying

Queensland

SOUTH AUSTRALIA

Western Australia

starting this series, I'm taking a badly needed break from the rigours of F1 racing. Stunt flying at Sandown was rather taxing too. Who'd have thought delivering a Pizza by air would be so challenging?

Hanging a glider off the back of the Maxilift is nothing compared to drag created by a foot square Totos Pizza box. After a few runs to get the take off sorted, the system was to place the box in front of the aircraft with sufficient line length to get airborne. Before the taking up the slack, pull into a steep climb to reduce acceleration. Otherwise the line pulls out from the cardboard. Then the fun really starts. The box rotates quite fast and the drag really plays havoc with elevator trim. Yaw too! After a few near misses, full flap and a smidge under half throttle found a speed where the aeroplane was manageable. Practice makes perfect and the drop went well on the day. Very well actually. Been flying long enough to know that after dropping that pizza right on top of the commentators tent in front of a few thousand onlookers in those conditions, that was a gift.

Any pussy can sit in the clubhouse and slag off at Gilderslag. Any pussy can cut and past to puff themself up into a hero on You Tube. Our videos are the best of three, single shot takes. Here are a few shots to give the you the gist. Grab a foamy and join in. If putting flying credentials on the line is a concern, start with the Apprentice Your flying might even improve. Until next issue! WG.

Operating from rough ground

Have a crack! If you're not breaking the occasional prop, push a bit harder. Foam is very flexible

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GT 33cc. 2-stroke

The GT33 will suit slightly larger planes that use 1.20-1.60 2-stroke or 2.00 4-stroke glow engines. It has the muscle to swing larger props, yet runs more quietly than comparable engines while exceeding their output. It starts easily with electronic ignition that accepts many battery types.
The GT33 comes with a compact E-5030 in-cowl style silencer produces 5db less noise than similar engines.

Displacement: **32.98cc**
Bore: **36.0 mm**
Stroke: **32.4 mm**
Practical RPM: **1,800-8000**
Output: **3.85ps (3.75hp)/ 9,000rpm**
Engine weight: **984g**
Silencer weight: **160g**
Ignition module weight: **105g**

GT 60cc. 2-stroke

The GT60 features for the first time in an OS Engine, a liner-less cylinder integrated with the cylinder head which contributes to better cooling and lighter weight. It employs a reed valve/ rear carburettor for high performance, a compact IG-02 ignition module that produced a consistent high voltage spark even at high RPM while consuming less current at idling.
The GT60 is sold with or without the highly efficient E-6020 Pitts style silencer.

Displacement: **59.91cc**
Bore: **44.0 mm**
Stroke: **39.4 mm**
Practical RPM: **1,600-8,000**
Output: **6.08ps (6.0hp)/ 7,000rpm**
Engine weight: **1,400g**
Silencer weight: **178g**
Ignition module weight: **105g**

GT 22cc. 2-stroke

The GT22 is the ideal choice for the many planes that use .60-.95 2-stroke or 1.20 4-stroke glow engines. The beam mount allows it to be retro fitted in many existing glow powered planes as well as current 1.20 size ARF. The GT22 is supplied with a compact in-cowl style silencer in combination with a rear mounted carburettor make for a wonderfully versatile power unit.

Displacement: **22.00cc**
Bore: **32.0 mm**
Stroke: **27.5 mm**
Practical RPM: **1,800-9000**
Output: **2.7ps (2.66hp)/9,000rpm**
Engine weight: **761.6g**
Silencer weight: **132.6g**
Ignition module weight: **105g**

GT 15cc. 2-stroke

This new addition is the smallest size in the range and will fit in the models designed for 2-stroke 61 size/4-stroke 91 size engines. Very compact OS original pump and newly designed compact carburettor are used for easier installation and handling. Special shell type roller bearing is installed at the connecting rod big end which enables the engine to run with 50:1 gasoline mixture.

Displacement: **14.95cc**
Bore: **27.7 mm**
Stroke: **24.8 mm**
Practical RPM: **2,000-12,000**
Output: **2.4ps /15,000rpm**
Engine weight: **631g**
Silencer weight: **178g**
Ignition module weight: **95g**

GF 40cc. 4-stroke

The GF40 is OS Engines' answer for a powerful 4-stroke gasoline engine making it ideal for scale models. Combined with its quick response and excellent torque characteristics, it is well suited to aerobatic and sport models. Featuring a specially developed Walbro carburettor, lightweight ignition module, convenient choke rod guide and Positive Crankcase Ventilation system, the GF40 produces the same power as the GT33 but with the magnificent sound of a 4-stroke.

Displacement: **39.96cc**
Bore: **40.00 mm**
Stroke: **31.8 mm**
Practical RPM: **1,800-9000**
Output: **3.8ps (3.75hp)/ 8,600rpm**
Engine weight: **1,170g**
Silencer weight: **113g**
Ignition module weight: **95g**

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