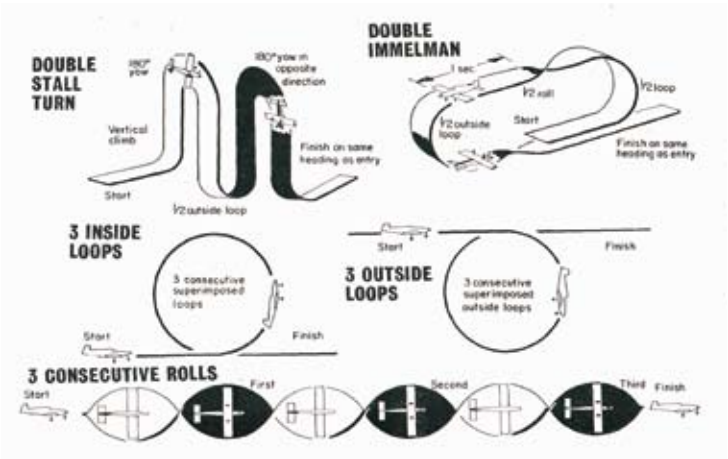
RCM News 157 digital March 2020

Classic Pattern

Flying Futaba

Phil Kraft wins the 1972 Aussie Nationals

Dad's 1971 USA World Champs trip



Art of Aerobatics by Brian Green

Display flight of a lifetime lost

Help them till it hurts them (Kamikaze style)

VMAA at Sandown 2020

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Leading Edge

If you want to become more proficient at RC flying, aerobatics is the go. If you want to become one of those people who can turn up, fly almost anything, even in atrocious conditions, competition aerobatics is the go. If you go to the flying field for just for a couple of flights and a chin wag, basic principles learnt flying competition aerobatics can still help improve your skill. Either way a five flight minimum is required each time you go to the field. Two flights to settle the nerves. Just like after you went solo. Every few years a model aircraft publication will re-do a "How to do a Four Point Roll" graphic and pay lip service to aerobatics. The information in this RCM News edition is different than from what is freely available in today's virtual world. Our previously published Art of Aerobatics series was written by someone qualified.

Flight Commence

I expect my introduction into flying RC aerobatics was different from most. In 1971 I started flying RC with an OS .19 powered three channel Tipsy Nipper at the DARCS Field in Police Paddocks, Brady Rd Mulgrave Victoria. Not long after that Dad retired from his profession as a LAME (Licensed Aircraft Maintenance Engineer) at TAA (Trans Australian Airlines). With Mum backing him all the way and family in tow he entered into a business partnership at Kraft Systems Australia and our family moved to Geelong. The company imported radio systems in knocked down condition to be assembled locally. Companies employing labour to manufacture could apply for an exemption from Australian Government import tariff which was 40% on imported electronic goods. Sales Tax was 15% on the wholesale price. The retail price for a 4 channel AM set with rechargeable batteries, 240 volt charger, switch harness, four servos and servo mounting trays was $399.

Six months or so before the 1972 Geelong Nationals Dad started coaching me to fly the F3a Schedule. Went from my dog of a trainer to what was known at the time as a "Full House Stunter". Old wives tales on how hard these are to fly were incorrect. That name since morphed into "Pattern Ship". A term I've never cared for because those who coined the phrase weren't much good. Model was a John McGrane design, the Northerner Mk1. It was so much easier to fly than the Invader. My recollection of three aerobatic fliers at the top of the tree, which I think would be backed up in the records, were John McGrane. Tom Prosser and my dad, Brian Green. Johnno lived in country Victoria, Tom Prosser country (NSW) and Dad in a capitol city, Melbourne Victoria. Another top flier was Ron De Chastel from Queensland. Banana benders faced a seriously long and somewhat arduous two day drive to compete in Victoria. Back then most aerobatic fliers also raced pylon. Competing with their own designs, these four flyers had National and State title credentials in both disciplines. Racing against the clock in pylon makes comparing yourself against anyone in the world easy.

Aeroflyte Invader Mk11

My first aileron model

Phil Kraft was so much better than the locals

Aerobatics is different. You can practise and practise, but to claw your way to the top level exposure to top level competition is a must. In 1971 my Father was the first Aussie to compete in an F3a World Championship. Equipment all worked, no lean runs but his scores suffered. Lack of exposure to top level competition, tyranny of distance the problem. Over the next few decades Dad's world champs experiences were put back into the Australian F3a scene. An instrumental factor in watching it slowly climb to world level. Bruce De Chastel remains one of many competitive Aussies on the world FAI pylon stage. Not so for F3a teams which peaked at the 1991 World Champs in Wangaratta. Slipped back since but it is great to see this country is included in the F3a World Cup.

I didn't get to compete in F3a at the 1972 Nats. August and October used to be the windiest months in Southern Victoria. Practising in very windy conditions a month or two before the event I flew way too far down wind

All the big names raced pylon too. Brigand 600 sq in FAI pylon racer

My second aileron model

and my model spiralled in. Two out of three ain't bad, I raced my Supertigre 2.5cc Cassutt in Quarter Midget pylon and competed with my Graupner Foka in Thermal. The one stand out memory of F3a was seeing how much better American Phil Kraft was than Aussie top guns. I won Novice F3a at the following Nats and started clawing my way up the ladder. Third in a Vic State Champs in Expert After flying with Canadian Ivan Kristensen when he lived in Australia I changed from Mode 2 to Mode 3. Flying Sankyo Digital back then so the sticks and rate switches had to be rewired. Rudder and elevator on the right stick. This is Mode for 4 for Futaba users, Mode 3 for JR. Ditto for the new kid on the RC block Spektrum. Don't know anything about JETI and the others newbies. Ivan's logic that rudder and elevator being on the right hand stick was better for right handed people. (BTW Ivan is a big guy. He still owes me for over stressing my skateboard) Mode 3 worked for me but I stopped competing in F3a just before turn around came in.

I've never been much chop at stringing three round loops together and the rolling and looping options to choose from in that last schedule made it much more interesting. Rolls had higher K factors. Slow roll, four, eight point, reverse point roll and reverse knife edge were all favourites.

$15 cheque for 2nd place racing my 1972 QM Cassutt in the middle of nowwhere. Forty three years later the chaps raced 60cc powered Seagull ARF Cassuts at Sandown for $2000 from Betta Home Living

I no longer fly fixed wing on Mode 3 but still fly helicopters that way. No longer in the business of test flying other people's models, I was toying with the idea of changing back to enter Classic Pattern at the Australian Masters in March but the category was cancelled. Which was a pity. The chance to fly in a World Class event passed me by.

Competition flying and promoting the hobby has always been of interest to me. Even flying a simple foamy with a few mates an impromptu comp spot landing or climb and glide often starts up. Take off seems an innocuous manoeuvre yet a correction for a swing off line or picking up a wing to maintain centreline immediately reveals pilot experience. Ditto for landing. Whether you are sport flying with friends, competing or display flying it's the last thing spectators remember. With the best advice and good quality equipment, sponsored by the Bank of Dad, all that time spent burning fuel to compete in good weather and bad gave me the confidence in my own ability to turn up and fly in some rather interesting places.

Years later I thought it a good idea to offer others the same experience of flying in front of a big crowd. Yes, forty eight years after adopting Phil Kraft's "help em till it hurts em" mantra, this magazine's efforts promoting RC flying have come to naught. Ageing membership and operating on a commercial basis is something model clubs really needed to consider a decade ago. The hobby has been in decline worldwide a few years now. It will continue but building your own plane and flying without electronic assistance will be a quirky thing from yesteryear. Just like vinyl records.

Pretty sure I was the first person in the world to fly a gas turbine powered model jet at a Motorcycle Grand Prix. That engine was hand built by my father. This issue offers Victorian Model Aircraft Association the opportunity for its own world first. Maybe practising that F3a schedule again with an old design will rekindle my interest in the hobby. It's a fantastic hobby. Unless of course you are in the RC business, where egos take precedence over making a sale. It doesn't matter what level you aspire too I hope this issue assists your flying pursuits and promoting your club.

FLIGHT COMPLETE!

Helped promote a Ballarat Club after VMAA wouldn't fast track a permit application. It did for others

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Classic Pattern Australia (reprinted from issue 117 January 2013)

by Stephen Green

Dragon Fli 2013

On Monday October the 22nd this year, I got a such a thrill. Test flying a model for Dad. He had built it to compete in a Classic Aerobatics day held on November 11th at the Nepean Club. Organised by the Victorian Pattern Association, any aeroplane that competed prior to the introduction of turnaround was eligible.

Brian Green and his second Dragon Fli at Pakenham Victoria 2012. OS 75AX - 8lb 13 oz

The OS 75 AX was tuned and tached. 14x7 APC an extra two inches in diameter than the old days. The idle needle was way to rich and after a few adjustments it idled reliably. So fast forward 41 years and the new model was lined up ready to go. Would it be as good? Or was it just nostalgia taking hold? Climbing out, the HiMark electric retracts cranked the gear up into the wheel wells. Just like the Kraft Multicons did so many years ago. After the first turn the engine unloaded and one thing became immediately apparent. I thought the model was fast when I was a kid but sure as eggs are eggs, they didn't go anything like this. The model weighed 8lb 13oz and it blatted past like a 1970's pylon racer. A couple of flights to set the throws and Dad had go.

We both agreed it was great rolling model and seeing it was quite

Smokin across the horizon!

Will I ever master the round loop?

One problem fitting a modern engine to an old design can be extra prop clearance required to soak up the extra horsepower

Brian Green and Dragon Fli at Doylestown USA 1971 OS 61 Goldhead, rear induction drum valve loop scavenged. 660sq in wing, weight 8lb 11 oz (3.94kg)

Australian Trans Tasman team flew the Dragon Fli. From right to left Barry Angus, Brian Green and John McGrane

windy, that other enviable characteristic, the high wing loading stacked up as well. We didn't apply any knife edge mixing as it is very manageable when rudder is applied on the side. Besides, it would be interesting indeed to fly it with reduced power and old servos and basic six channel radio. Anyway the experience got me all fired up and I borrowed a Curare from a friend and we both set out to start practising for the event. Which is what aerobatics is all about.

The Dragon Fli was an American design by Phil Kraft. Up until the mid 1980s, Kraft was the leading brand of proportional radio gear. Phil had won the FAI World Aerobatic Championships (I think 1966) with his Kwik Fli Mk 11 design. Dad competed at the 1971 World Champs in Doylestown USA with a Dragon Fli. He took two models. Number one was yellow and the spare was green. This was on loan by his business partner Barry Angus. Barry and Dad ran Kraft Systems Australia in Geelong, the Australian Kraft agents.

Flying the Dragon Fli bought back so many memories for me. I cut my teeth on aerobatics after Dad was finished with it, in 1971. He went on to design his own model, the Whistler, which was a jet style fuselage with more side area in front of the CofG. It used to whistle at the bottom of the Top Hat.

The first time by Brian Green

"The year was 1971 and I was the current Australian National Aerobatic Champion "F3A." So, why not enter the World Championships to be held at Doylestown USA later in the year, "But how." The MAAA did not know so a letter to the American Modelling As-


RADIO CONTROL MANUAL No. 4 79

Australia was represented for first time ever at World R/C Championship by two-man team. Here Brian Green's Kraft designed Dragon-Fli lifts off. Placed 43rd.

Take off and landing both judged back then

sociation came back with how and an entry form. The form had to be signed and stamped by the FAI affiliated National Aero Club which then was the Royal Federation of Aero Clubs, "Full size types." Off went the request and the response was, I had to be interviewed to see if I was of suitable character to represent Australia. Large office, highly polished desk, smart tailored jacket and a large handlebar moustache was the picture. I must have passed as the form was signed and stamped.
Next step was how to get the models, two Dragon Fli there?
A letter to the airline listing the model box size and weight and explanation asking if it was OK to go with us as baggage was replied yes. With transport booked with AVIS on arrival in the US, it was time to go.

Dot and I got to the check in counter but no way would they accept the model box as luggage. Explained about the letter of agreement but still no way. At the time I was a LAME (Licensed Aircraft maintenance Engineer) with a local airline, so knew a bit about procedures, departure delays are costly. We both refused to get on board unless the box came too. The stand-off continued until YES! Well into the flight and along came the hostess, (Flight Attendant ed) Mr. Green? "Yes" "Here is a bottle of champagne compliments of the airline." What could you say!

After a few days in LA, it was off to the other side of the USA. Some hour or so into the flight, the hostess walked up and down the aisle asking for Dr. Green, but no response. She then came to me and asked, are you Dr. Green? My name is Green but not a doctor. OH, we have a message for you from the AMA, there will be someone to meet you on your arrival. American Medical Association or American Modelling Association, hence the doctor bit. It turned out that one of the air traffic controllers was a modeller involved with the Champs and he had radioed the Captain with the message for me. Now what pilot would disobey an air traffic controller!

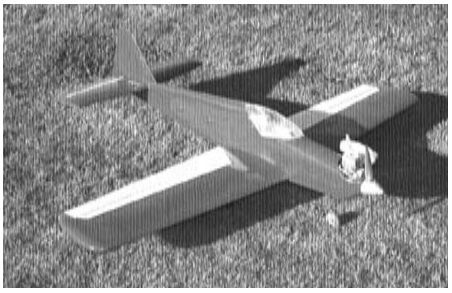
On arrival, there was no one to meet us and with the luggage and model box in our hands it was off to Avis to pick up the pre-booked vehicle. Sorry sir but we do not have any cars available. But we booked it weeks ago. Sorry sir, we cannot help you, we have had really, really bad storms and all our cars are out. Can you tell me where we can hire a truck then? Why would you need a truck, was the reply. To carry that box and our luggage of course. Will it fit in a Station Wagon? Yes. Well we have plenty of those available!

So with it all loaded it was off to Doylestown, in the dark. On the map, there was a freeway and we could hear it the distance but could not find how to get to it. And the car radio was blaring, the bridge over the XXX river at YYY is down and motorists should deter through NNN! Exciting times. Made it, met all the names I had been reading about and watched them in action.

Had the four flights without any problems and finished in forty-third place. Back on home soil, the questions asked were, how come our National Champion finished down there! Must have had radio or engine problems. Simple, the flying standard in the rest of the world is so much higher. Why, because of the depth of numbers competing in their events. When there is a hundred or so, to get to the top you simple have to be good. And the judges get to see and judge that standard.

Since that first time, apart from South Africa in 1979 when the MAAA refused to enter a team because of the sporting ban then in place, Australia has fielded a full team of three. Tom Prosser, Jeff Tracey and I made it to ninth in Springfield 1977. The best team result ever was fifth at Wangaratta 1991. David McFarlane, Steve Coram and Peter Goldsmith, were that team. Currently, Australia ranks in the low teens at Aerobatic World Championships.

A final anecdote was that in their report on the 71 world championships, a UK magazine published a pic of Dot and I sitting on log,



First thing noticed on my second aileron model was rudder area under the thrustline-stab was a vast improvement in slow and point rolls. Please note this pic was not Photo Shopped. *(We use Corel Photopaint. Ed)*

captioned, "First ever entry from Australia." When the magazine hit our shores the rumours started. Look at this, Greenie went to the States and picked up a girlfriend and is now sprung!"
(Thanks Dad. Ed)

Northerner Mk1

My first aileron model was a John McGrane aerobatic design known as the Northerner Mk1. Typical of the time the wing section was 20% thickness to chord ratio. Barry Angus gave it to me with the proviso that I return the engine after I was finished with it. Two months later, after cleaning all the muck out of it, I did return that twin glo plug Merco 60 engine. Still in running condition. Which was surprising.

One very windy day on the Belmont Common, the top of a Split S to turn around stopped it dead in its tracks, the model ended up way downwind over the Barwon River. It then spiralled in at full throttle. Dad thought it was a radio failure but I thought it was disorientation. We would never know because everything was destroyed. Apart from the engine, but I didn't know anything about ball races back then. We spent the best part of the morning looking for the wreckage

Centring detuned on Sport Series

and Mum saw a piece of yellow wing stuck onto a cyclone fence at Peter Pianto Fencing.

Peter Pianto was an ex Geelong football player and as staff went about their daily tasks, a crescendo of noise was followed by what they described as a bomb going off . Work halted for half an hour as they had to have a cup of tea to try and relax. No one was hurt and they were quite nice about it all, maybe because I was a kid.

Exit the Northerner and enter the Dragon Fli. I remember the Dragon Fli as a good rolling model, great in the wind too. You could also hold the nose way up on approach and fly it in on throttle for great landings. Back then they were judged. An additional bonus applied if you made the inner circle. I loved flying that plane. Tuning the engine was safer because of the OS Goldhead's rear needle valve. Climbing out after take off, I could hit the switch and watch those Kraft Multicon electric retracts slowly suck the gear up into the wheel wells. Just like the B-17s on 12 O'clock High. It didn't take long but the model soon weighed more than when it took off. The engine quit, just after take off. I tried to turn back and it clanged into a star picket.

Super Sicroly unservicable just before the Camperdown Nats Damien Milk flew my Northerner. HB 60 loop scavenged 60 engine, taildragger with retracts. Later the Northerner was practicing formation flying and had a mid air. The other model was mine too! OS Wankel powered Pilot Box Fli 20

This taught me that if the engine does not increase slightly in RPM when the wheels leave the ground, the mixture is too lean. The wing was ripped off, which damaged the fuselage and put a huge ding in the leading edge. Dad show me how to patch it up and next week the engine quit again. On take off. Turned back again and bang! Into the same star picket. At least I bent it this time.

This taught me that if the model ever has a sudden stop, the clunk will probably move forward and pinch off the fuel supply. If my model ever runs into long grass at the end of the strip, or it is stood its nose to be assembled, afterwards I point the nose vertical and

Inspired me to flick the gear switch as it starts to lift

John McGrane designed Northerner Mk11 (thinner wing) with a Kraft series 72 six channel radio. The kit was manufactured by Kraft in Geelong and it was supplied with balsa sheeted foam cores and partially built fuselage. Unheard of back then. Thwarted flop modellers. Kraft Hayes wheels with internal collar and Kraft Multicon electric retracts

Shaking the clunk back after OS 160 FX Seagull Decathlon ran into the long grass. BTW this model knocked of a Zenoah 62 Extra in the Red Bull Air Race Cobram

Gear goes up - gear goes down!

Norm Morrish with Webra power in a Northerner

Introductory price $89

give the thing a good shake. Then listen to hear the clunk fall back into position.

Northerner Mk 2

Having the right gear and model is certainly part of it but, frankly, if you use quality brand name gear and models, the differences are minimal. People still chase the latest thing to get the edge. I won Novice aerobatics at Camden Nationals and my Northerner had a warped fin. The fin was two pieces of balsa sheet with thin ply sandwiched in between then sanded to shape. After painting the model I noticed the warp and one day, I would make a new one. In the meantime I flew that model ten flights a week in winter and twenty in summer. I knew it backwards and never got around to making that change. Practice practice practice and knowing how to operate the equipment reliably in competitions got me through. Dad had always said you have to fly to what the judges want.

I remembered something he did years ago at the Strathalbyn Nats in SA. The judges were all full size pilots and he opened the throttle very slowly on take off. He received very high take off points which helped secure first place. So that helped. Plus he was the first one in Oz to have retracts. At Camden I decided to cut the engine and lower the gear on final. The model was a tail dragger with retracts. Most others were trikes. The silence grabbed peoples' attention to see if I botched the landing. Bruce Price and I were neck and neck all week and that little bit of showmanship made the difference.

Horsepower

The relatively high (by modern standards) wing loading of the Dragon Fli and other designs in the seventies meant one had to be mindful to keep the diameter of manoeuvres such as the three inside and three outside loops to the smaller end of the scale. Pull-

Whistler Mk 1. A modeller chatting to Dad whilst cleaning the model after winning the Nationals asked what Mode he flew. “Mode 2, youll never do any good flying that way” “

Whistler Mk 2

Whistler Mk 3 at Goriztia World Champs Italy

Whistler Mk 4 in the ready box

ing back into wind at the top of a Cuban Eight the aeroplane would virtually stop. Engines such as the Merco, an English brand, and OS were quickly superceded when an Austrian company released the HP 61 Schnuerle. This more efficient porting produced a big jump in horsepower. When Dad practised for a World Champs, we used to go out three times a week and have three to four flights per session. The engines would need a rebuild after six months.

When OS released the Schnurle 6o FSR in 1974, Dad was given one by the then Australian agent Gordon Burford, to fly in the Queensland Nationals at RAAF Amberley. In round two, the elevator servo failed on the vertical downline and the Whistler went smack into the runway. The bitumen runway. The fuselage structure was rolled 1.5 mm plywood, which turned out to be incredibly strong. The usual damage was there, plus it was broken in half. Five of us set about repairing the model overnight in the motel room.

It was a 24 can job and the Whistler turned up for round three sporting a new addition. A ring pull off a beer can glued on top of the very visible crack. As the glue on the zip top fuselage was drying Dad cranked the tail down a little. The tailplane incidence was never quite right he quipped. He went on and won the Nationals. When packing up Gordon asked for the engine back. He had sold it. I knew a bit more about bearings by then. Wonder if the purchaser was aware of landing two flights earlier? The next big increase was a few years later when a muffler was incorporated into the rear of a tuned pipe. Punching back into a strong breeze was no longer a concern. Speed was up and it was not uncommon to fly half a kilometre upwind before turning around. Wing area for competitive models of the day had increased to 720 -760 square inches and with power to spare, one could fly in very strong wind. In the 80s, Cliff McIvor and I once flew a routine together with his Curare and my modified Squirrel at a MARCS Club display. If the wind wasn’t thirty knots I’d go he. We didn’t bat an eyelid about taking off in such gusty conditions.

Landing the Dragon Fli reminded me that due to the low wing loading of most ARFs, modern pilots may not appreciate how much easier it is to fly, and land one of these older designs in gusty conditions.

Fliteline Models

Dad left Kraft and started out on his own with Fliteline Distributors, which was a wholesaler with a retail shop in Sth Melbourne in

Tuned pipes were the go at Camperdown Nats 1978. 2nd from right up the back, blue and white model with red trim is my MK Skymaster. YS 61 with timed crankcase pressure. Dad flew a Saturn with the YS 60 Graupner tuned pipe Rhom Air retract combination

Melbourne and North Strathfield in Sydney. Sounds familiar? We were the Australian Agents for Graupner who, amongst a plethora of quality products, marketed the Kwik Fli Mk 111 kit. Other agencies were MK Kits, YS Engines and Sankyo radio. MK Kits had precision now seen in CNC manufactured kits today.

The YS was very specialised, considerably more powerful than the OS of the day. Sankyo had the first servos with five gears in the gear train. The potentiometer was isolated from the output shaft and this made a huge reduction in maintenance. KPS 15 Kraft servo pots had to be cleaned every fifty flights. Sankyo also offered FM. The improvement in signal strength meant that one no longer had to raise the antenna when turning base low and a long way out, to ensure it didn't go out of range.

The timed crankcase pressure regulator on the YS engine occasionally needed a bit of nutting out, when the engine would load up and quit during transition from idle. As happened to me on the very first manoeuvre in the first round at the Loxton Nats in Sth Aus. Pulled up and over into the first stall turn not realising it had quit until the model wouldn't push out underneath. Oops, and flicked to high rate elevator but it was all over. This bright orange Phoenix 6 would never rise again from the ashes after it flew inverted into an orange grove and was destroyed. So I spent the next week as a spectator. This is why I always prefer to take two models to a competition, or any meeting for that matter.


SERVICE ABOVE ALL ELSE AT

FLITELINE MODELS

Double page spread in Airborne magazine featured the first specialist RC hobby shop in Melbourne with carpet on the floor. Our opposition used to say that made us more expensive!

I stopped competing in aerobatics just about when the noise level was adopted during the mid 80s. Having flown a number of models such as Blue Angel, Atlas, Arrow, Super Sicroly and Curare my favourite was the MK Skymaster. Superior to the Blue Angel and Phoenix because it did not have the familiar trait of swept wing planforms which increase in roll rate when top rudder is applied. The laminar flow wing made it a great rolling model. A YS 60 timed crankcase pressure and tuned pipe it turned a hand carved Max Daly 10.7 x 7.75 maple wood propeller at 13800 rpm. The model was lost after changing the elevator servo, I overlooked the output servo arm screw. My

all time favourite engine was the Italian Rossi 61 rear exhaust with a pipe. Although the transition wasn't as good as an OS, a brilliant idle, so easy to flick start and great power. It also took a long time to wear out.

My last model was built by Bob Hurst, a Squirrel fuselage with a Saturn wing and stab. Great in the wind. At the first competition at the Nepean Club in Rosebud it was very interesting to see what designs turned up. Of the twelve models that flew were two Squirrels, a Curare and a Phoenix 7. From the 70s were a Kaos and Super Kaos and a Jim Kirkland Intruder. What will the organisers do about the noise? Both Dad's and my models are really noisy. The Curare I borrowed from Salvitori was professionally built by Bob Hurst. The K& B epoxy paint is still brilliant. The pumped and piped OS 61 RF turns the APC 11x9 at 12500 rpm. A sign of old times. Due to moving

My Skymaster in MK livery - MK mechanical retracts

house I didn't end up flying it as I had not done any practice. Standing on the 36 MHz antenna and ripping it in half didn't help either. There are a couple of ARFs available. World Models made the Jim Kirkland design The Intruder. Don Lowe's Phoenix 7 is a glass fuselage and fully sheeted balsa wing from Hangar 9.

There are a few models on the building board and if a few comps are held each year, I would be very happy to build a new Dragon Fli. I got a real kick out of flying this one in the competition. At least with more pitch the very modern AX can be shut right up and still produce fantastic power for a, rather small by today's standards, great design.

FORTY EIGHT YEARS LATER

A forecast 100 kph wind I headed out to the Northern Flying Group to push the envelope

Art of Aerobatics by Brian Green (RCM News Issue 99)

This series is about flying aerobatics for fun and enjoyment but if you have caught the bug, State aerobatic web sites will list the action in your area. The Scale Aero fraternity have a very active scene too.

When I first started in radio control flying, singe channel radio using a rubber band driven rudder control was the norm. The good old days, Yeah! At a contest the manoeuvres were all level flying stuff, apart from a three turn spiral dive. We certainly have come a long way since then. When proportional arrived the natural thing was to place the thumbs on top of the sticks and later a trend developed in the international competitive aerobatic scene towards thumbs and fingers. making that change certainly improved the accuracy of my flying.

This series of articles will cover the basics of aerobatics, looping, rolling, stall turns, spins and snap rolls.
But why learn to loop and roll? After all, you might say, I can take-off and fly around then land, without any problems. That last word 'problem" is the key. Learning to fly aerobatics will give you the experience of seeing your model in very unusual attitudes, Inverted, on its side, diving, climbing you name it. And you learn to handle the model when it is in these attitudes.

Then when you are just flying around enjoying the flight and something unusual happens, a strong wind gust, the wrong control input or a momentary loss of control, places your model in an unusual position, you automatically know what to do to regain level flight. Then, you can breathe out a large sigh. Being able to fly even the simplest aerobatics will give you confidence plus the chance to stand out a bit at the field. So why not give it a go?

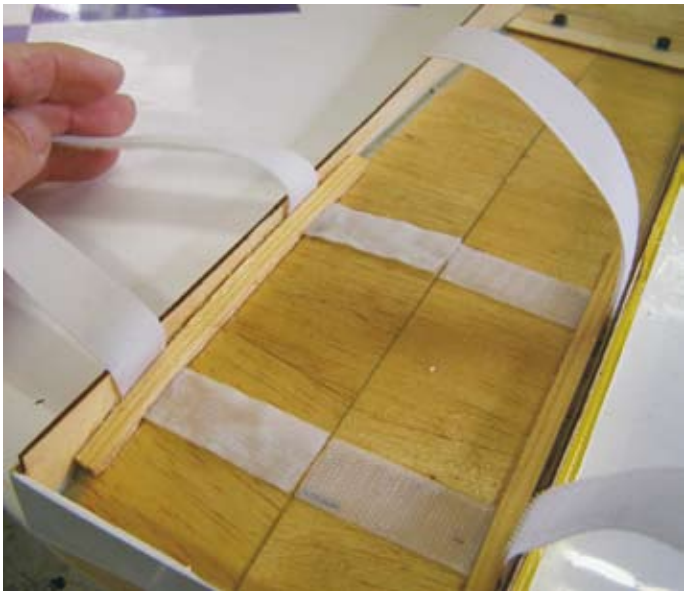
Which is your preferred method? Thumbs only or fingers and thumbs?

The typical modern competition ARF aerobatic model is a great flying aeroplane, albeit at a cost of several thousand dollars. And if your goal is to make it into competition aerobatics at a high level, then they are well worth the cost.

But there are many lower cost sport aerobatic type ARF models on the market that are capable of all aerobatic manoeuvres, and the one chosen for this series is the CMPro Leo, a typical ninety four stroke powered model. There are many equivalent ARF models from other manufacturers on your local hobby shop shelf.

Ninety four stroke, fuel, starting gear, oily model that needs cleaning after every flight, not for me these days. Another trend that has now firmly taken a foothold overseas to the point it has overtaken IC is electric power. With the right setup if offers power in droves, plenty of it , plus you can't get the needle setting wrong, EH! And no model destroying vibration, that is if you balance the propeller.

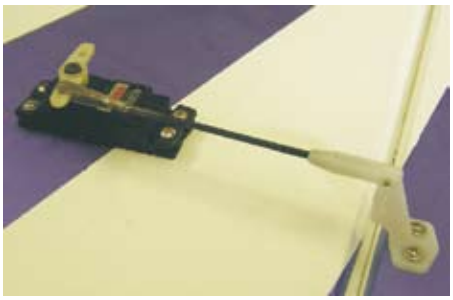
A 6mm thick ply spacer ring was glued behind the existing nose ring to take the motor. In fact it was two layers of 3mm, offcuts which were just laying around



LiPo battery sits on the underside of the wing centre section. Velcro strips hold it in place. Once the CG is correct small balsa blocks in front and behind keep it in position. Note the pine strips on each side that add strength to holding the Velcro tape in place.

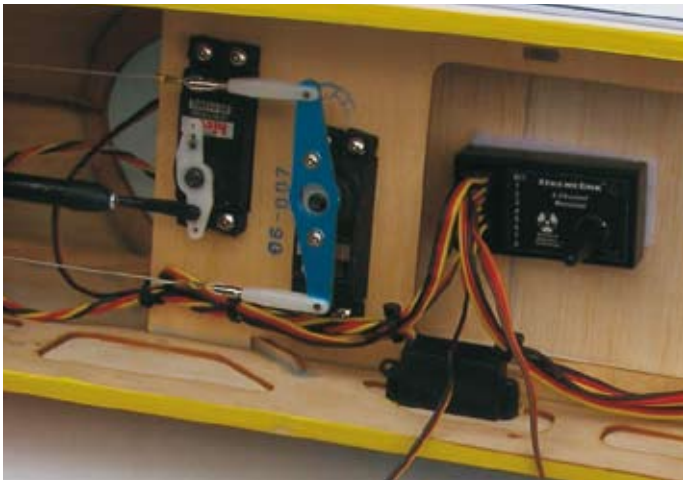
Battery held in place. Simple and effective

A Lite Ply baffle in the belly pan directs the hotter battery cooling air exhaust out through a slot in the pan



Apart from the kit, a Himark C5030 310 outrunner, Castle Creations HV85 speed controller and a Desire Power 3200 mAh 10S Lipo make up the power system. The motor is 50 mm diameter and 310 revs per volt. The Castle Creations HV 85 is an overkill but I use the same type in my F3A aerobatic models, so it adds to the spares. The 10S LiPo delivers thirty six volts and at 310 revs per volt from the motor, we should get around 11,000 RPM at the propeller.

To convert a new IC powered model to electric is not that difficult, simply change the engine mount and modify the fuel tank area with a battery retaining system. The battery location presents the biggest challenge, as one does not want to be taking the wing off, to change over the battery pack. With a LiPo, charging the battery insitu is a big No-No. That and the pictures basically cover the model modifications so now lets talk about aerobatics while keeping it pretty basic.



Radio and servo installation is the same for either IC or electric power

The three manoeuvring planes and their control inputs are, rolling (ailerons), pitching (elevator) and yawing (rudder). When a model is in level flight the lift generated by the wing balances the model's weight, so straight and level is the path. The elevator setting controls the amount of lift generated by the wing, so increase the up elevator setting and the model climbs and vice versa. Roll the model inverted and without any elevator position adjustment the model will dive, because now the wing is generating lift towards the ground. So, to fly level we need some down elevator applied to change the wing's attitude to now generate positive lift. The amount of elevator position change depends on the position of the CG and its relationship to the centre of lift. A forward CG position needs more elevator input than an aft CG position. When flying aerobatics, the maximum elevator sensitivity, or power is that needed to initiate a spin. Any more than that and the model is just too sensitive in pitch and this makes it difficult to fly an accurate straight and level line.

A straight and level line is the basis for all aerobatic manoeuvres as it defines the start and the end of individual manoeuvres. A good exit is always important even if you are not under the scrutiny of an expert as it's the last thing that people remember. In the next article we will cover basic flight trimming for aerobatics and then we start on the fun bit, the all important bit, how to do them pesky loops and rolls. That is, circular loops that appear round and axial rolls that look straight.

A perfectly round loop does not look all that circular when it is viewed from the ground.

Art of Aerobatics by Brian Green

(RCM News Issue 100)

TRIMMING

Back when we used to build our own models the mantra was, “build it straight, build it true”. That was the past, now the majority buy their models ready to go, where the building accuracy is determined by the manufacturer.

MARCS field 12 km from Melbourne CBD recently lost

That is one reason why competitive ARF aerobatic models are more expensive. It takes time and careful workmanship to build an extremely accurate model, time that we pay for. Another reason is that royalties are paid to the designer, usually a high profile aerobatic competitor.

You’ve bought the model, installed the gear, now we have to get it to perform. Flight trimming is simply to get the model to respond accurately to each control. For example, aileron input should cause only a roll, no yawing or pitching. Rudder should cause only yawing, nothing else. And so on. Sounds simple enough, but if it were only so!

The position of the centre of gravity has a direct relationship to elevator sensitivity. Whether you buy it or build it, that is something you can alter. Think of it a system of levers, like a see saw. The centre of lift is the pivot point and the CG sits closest to it while the elevator is a long way out on the beam. Move the CG further out on the beam and you need more elevator power to compensate.

A typical indication of a very forward CG is the inability to slow the model down on a landing approach. This applies to all model types, Stick some small bits of plasticine, one at a time, at the tail to move the CG back and just see how it goes. As the CG moves aft the elevator sensitivity will increase. Of course if you get the CG too far back, the model will be unstable in pitch. If that happens you will have an exciting time.

The maximum elevator throw is that required to initi-

Johno McGrane. Gee that fin shape looks familiar

Bangus flying one of Macca’s designs?

Chris Kay fires up George at MARCS

ate a spin entry. This amount may make the model harder to accurately fly straight and level. It really depends on the model's design. If that is the problem there are two ways to handle it.

One is to use dual rates, high rate for spins, low rate elsewhere. The other is exponential curve setting, soft around centre and steeper towards the extremes of travel. The problem with this method is that a knee can occur in the curve, which will make elevator inputs around this knee extremely sensitive.

Another way to solve this, although it does require some work is to use dual rates and expo on both rate settings. By careful adjustment of the high rate expo curve one can get it to match the low rate expo curve in the travel areas used for the other manoeuvers. Flick into high rate as you fly in for the spin entry and the level flight elevator response will be no different from that when in low rate.

ELEVATOR TRIMMING

Fly straight and level, easy enough, but is it straight and level? We tend to fly with the inner wing lower, with the wing plane aligned with our line of sight. Wrong, you should be able to see the underside of the inner wing. Starting a loop with the inner wing low, without any other control input, (aileron and/or rudder) means that the top of the loop will be much closer than the bottom. In other words, the loop will not be vertical.

There are two factors that govern the diameter of the loop, the model's weight and the motive power. Once it was IC engine power, now one can add to that electric motor power. Power to overcome the model's aerodynamic drag, plus lift the model's weight on the upward path.Too large a loop for the model's power and the flight path will become unstable across the top, too small a loop and it will appear rushed due to the higher airspeed. Like most things in aerobatics, it's a balancing act.

If you fly a loop from the left and then from the right and the model tilts in towards you during both loops, it's a safe bet that you are flying with the inner wing low. If however, you complete a loop that is in a vertical plane, no left right deviation in the flight path and fully circular, stop flying immediately and go buy a lottery ticket, you're sure to win. The circularity of a loop is governed by the amount of elevator applied, coupled with the power from the engine/motor. (Engines are Internal Combustion, IC, motors are electric) For the same amount of power the model will slow as it goes up, gain speed across the top and really gather speed on the way down. As the airspeed changes so does the force applied by a constant elevator setting. So its easy right, more elevator as the model slows, less as it gains speed. Of course we forgot about

the wind, hopefully blowing down the flying line. Add in the power and elevator adjustments to compensate for yet another influence on the model's flight path. So when you think your loops are circular, how do you really know? Ask three judges, the first may say, I thought it was a bit tall, the second, I reckon it was pretty good and the third, it appeared to me to be too wide. When that happens, you finally realise you will never get it any better. All that's needed now is do multiple loops with every one identical.
NO PROBLEM, right!

Full rolls and part rolls make up a large percentage of aerobatic flight and a slow roll that is as straight as a line with a constant slow roll rate is a very inspiring manouevre. But first we need to get the more normal faster rolls looking good. The model's roll rate needs to be set to one that will give you time to input the required elevator response but fast enough that the model does not spend to long on its side. Then you do not have to worry about any rudder input to keep the nose up.

We will leave that until slow and point rolls are covered. The roll rate is set with the aileron stick held at its limit

Ian Watts holds while Bruce Grinter fires up the Atlas at Lilydale 1977. Webra Speed 61 - Futaba radio. Sadly these two gifted model builders are no longer with us

and the aileron travel adjusted at the servo/aileron horns to give the desired rate, typically about one point five seconds per roll.
We can cheat a bit here by using the servo travel function in the modern computer transmitter to initially set up the roll rate. Once that is done, the aileron travel can be measured and the mechanical linkages adjusted to give the same amount with the transmitter reset to one hundred per cent.

It is easy enough to leave the servo travel at the transmitter setting but doing so will lessen the resolution of the control system. For example, reducing the transmitter value to fifty percent, simply means that there are now only fifty servo steps from centre to full, compared to the one hundred.

The other factor in performing axial rolls is aileron differential travel, where one aileron travels more than the other. Typically used on non symmetrical wing sections with the up going aileron travelling the greatest.

The reason is that the down going aileron created more wing drag then the up going one. To check simply place the model in a climb while looking up its backside. Move only the aileron stick to full and see if the model yaws off the line. If it does then aileron differential is needed.

If the model yaws to the right, that means that the right wing is creating more drag then the left wing panel. Obviously it is the aileron that is causing that drag increase, so simply reduce the amount of travel on the right aileron. A yaw to the left is fixed by adjusting the left aileron travel. Of course one could increase the aileron travel on the opposite aileron which would result in a faster roll rate. Or simply split the difference. As the roll rate is

Mid 80's noise testing put the brakes on high rpm and airspeed. Tates Performance Hobbies owner Eddie Edwards starts up Javelin at the Asia Pacific Champs, Dave McFarlane assisting. Dave runs Model Sports a great shop for specialist aerobatic advice and gear. Models in background were Chinese, whose team members were full time at the Aviation University

slowed, one needs to input rudder to stop the nose of the model dropping due to a loss of vertical lift when the model is on its side. The application of rudder will cause the tail to drop, raising the nose and this will vector the thrust from the propeller upwards to maintain level flight. Another factor which is dependent on the fuselage design, is that lift can be generated from the fuselage side area.

Now the application of rudder as well as raising the nose can also generate unwanted actions. For example, the application of rudder when the model is on its side, may cause the model's flight path to deviate left or right. It gets a bit complicated. The centre of drag of the deflected rudder is typically above the model's centre of gravity and the resultant force will cause the tail to move. The correction for this effect is to use a mixer to couple rudder to elevator. By rolling the model onto its side and apply only rudder. You can then see if the model's flight path deviates left or right. And it helps a lot if you have someone with you who can also observe and record which way the model's flight path goes.

Then its simply a matter of adjusting the mix amount to correct the flight path.Finally another effect of rudder input is that it may change the rate of roll, although this is not something that happens with modern aerobatic model designs. As with the rudder elevator correction, again mixing aileron with rudder can correct this one.

Once the slower roll rate is mastered with the model's flight path straight and true, simply moving the aileron stick to centre when the model is on its side generates a four point roll. What could be easier? My theory which is based on many years of experience of trimming for aerobatic flight is that it is a combination of adjusting the model's centre of gravity, control surface throws and simply learning to fly the aircraft through the required manoeuvres. Till then, keep on looping and rolling!

Art of Aerobatics by Brian Green (RCM News Issue 101)

CONTROL THROWS

First we will cover setting up the control surface throws on our example aeroplane, the CMPro Leo. It is a typical mid sized sport aerobatic, usually powered by an IC size engine, however electric power for this one. The reason is simply ease of use with a down-side of buying a number of suitable batteries.

I have two aerobatic models, a Chinese ARF Beryl and Queenslander John Payne's Tempest. Both are electric powered, so when I go to a competition with either model I take six battery packs. Plus of course the TX and a small tool box. Most of the time, I only have to use the allen driver to tighten or undo the canopy screw.

Now if I was flying with IC power I would take, bulk fuel, tank filling system, glow plug driver system, starter, tool box with spare glow plugs and all the other small bits and pieces one needs when vibration from the running engine is present. And that is another advantage of electric power, absence of vibration, you did balance the propeller and spinner. Right!

The radio system fitted to the Leo is the new Hitec Aurora system that has all of the programmable features needed to make the task of flying individual manoeuvres so much easier. My first world champs model, the Dragon, Fli was controlled by a Kraft six channel system where the only adjustable function was end points and dual rates on elevator and aileron. Compare this with the multitude of programmable functions available in today's radio systems. Having this range of options is great, learning how to use them to make the task of flying easier is the hard part.

Before getting down to it, I have never been able to conclude how much of flight trimming is adjusting the model, compared to learning how to fly it. When one first starts off into RC flying, the model set up to the manufacturers specifications, usually has far too much control surface throw. I believe the reason for this, is that when first starting out it is very re-assuring to move the stick and see the model instantly respond to where you want it to go. Compare this to having only the amount of control throw necessary to make the model do the wildest manoeuvres. The difference then, is thinking about what you want the model to do, then moving the stick the amount you feel will be required.

In the earlier paragraph about the 70'S Dragon Fli, I stated the TX was equipped with dual rates on aileron and elevator controls. As an example, a slow roll required low rates while a spin required high rates. So after the roll and prior to the spin one, had to move both switches to the high rate position. And there was no rudder dual rate available. One had to set the rudder throw to that required for spins and live with that amount of rudder sensitivity during the rest of the flight. The advent of exponential programming did minimise that problem.

Compare this workload, to flying using the Aurora transmitter. By using flight modes, one simply flicks one switch to change between slow roll and spin control sensitivity. Thus leaving you more time to concentrate on the model's flight path. And by using a three position flight mode switch one can have three flight modes on one switch.

Now onto the nitty gritty and while the names may be different, the procedures apply to most modern programmable transmitters.

The first step is to select the model type, which is Acro, with two aileron servos. Actually the first step should be naming the model, in our case Leo. I would assume that if you are interested in programming for aerobatics you would have set up either the manufacturers or what you believe is necessary in control throws and of course the directions. Next we name the flight modes; with the Aurora, it's Normal and Spins. Then in the spin mode we set up the Expo values. I use twenty five percent on aileron and elevator and forty percent on rudder.

With the flight mode switch in Normal, I set the elevator, aileron and rudder maximum throw (end points) to seventy five percent of the spin values. Initially the same amount of Expo as per the spin mode is set up.

Before we start the flying part, a word about flight mode switch position. I fly Mode Two so the left hand has the lighter work load therefore I use a left hand switch for the flight mode selection. For mode one I would suggest the opposite. With the basic programming accomplished it's off to the flying field. Before we can assess the amount of control surface travel set up, we need to know what inputs

Scale Aviation's Peter Bons with the KAOS

Futaba Australia's Brian Simpson with his KAOS

are needed for the three manoeuvres not covered in the last issue, stall turns, spins and snaps.

Stall Turn

An accurate stall turn is basically a function of rudder power and propeller RPM. Rudder throw to yaw the model and slipstream over the rudder to bring the model thought the one hundred and eighty degrees. With the spin flight mode selected a vertical flight path established, the throttle is closed and then opened up a couple of clicks and the rudder is then softly applied to yaw the model. The released to exit going back in a vertical path. The timing when to ease the rudder in and out and the amount of throttle to use is a learned art. IE practice.

During this yaw, the outer wing panel will be travelling faster than the inner one. Therefore any angle of attack on the wing panels will tend to roll the model. Adjustment of the elevator stick position will minimise this pitch change.

But we do have a programmable transmitter so why not mix a small amount of the required elevator direction with low motor. And depending on the other high control throw manoeuvres one could set a higher motor idle speed in the Spin flight mode. Once again all this is about reducing the pilot's workload during the stall turn entry.

Aircraft type

The assumption is often made that a current F3A or scale aerobatic design is a must have to do aerobatics. Add heaps of power too. Well nothing could be further from the truth. Any model is capable of aerobatics and don't get sucked in when you hear gee that plane flies really well. A good pilot will make anything look good. However the dedicated F3a design is best at doing the F3a pattern but they happen to make great sport models which is why they have always been quite popular. Just like Formula One racing cars they certainly do tend to look all the same so if better appearance appeals the next best thing is the scale aerobatic craft.

One key difference here is the likes of Extras and Yaks are designed more with snap rolls in mind and usually not as couple free in the knife edge mode as the modern F3a model. Both of these aerobatic types have good power to weight ratios and will easily sustain knife edge flight but you don't have to rush and buy one. It won't make you better. Not straight away.

Correct technique and setup are the key things to get started then its practice practice practice. And quality coaching helps too.

Spins

Spinning is a spectacular manoeuvre and relatively simple to perform. Unless of course you are flying in an aerobatic competition and have to please the judges.

First a straight flight into wind to establish the heading. Reduce power and as the model slows, apply up elevator to maintain level flight. Eventually the model will stall and the nose will drop, then apply full rudder and aileron in the direction of the spin entry coupled with full up elevator. With a crosswind blowing always initiate the spin direction into the wind. Otherwise the drift will make the entry look untidy and it could also drift back over your head.

Anticipating when the model will stall is the difficult part, but here we can cheat a bit. As the model slows, if you suddenly release the up elevator needed to maintain the level flight path, the nose will drop. Provided the model speed is slow enough, then the rudder, aileron, elevator application will initiate a good looking spin. The entry speed is the critical point. Too fast and whacking in the rudder, aileron and elevator will cause the model to rear up and roll over into the spin.

To terminate the spin, simply move all control inputs back to centre. If there are judges present, don't just release the sticks. The noise of them hitting

OS 160FX powered Seagull Decathlon. Could accredited judges see their way to give the maximum score for a perfect slow roll with this?

centre with the springs vibrating is a dead giveaway. That could mean a downgrade in points. Judges can be tough! I recall reading somewhere that "practise makes perfect." If only it was true! Does help though!

SnapRoll

A snap roll is defined as a rapid autorotation in the rolling plane. The fuselage angle should suddenly change, instantly followed by a rapid roll rate. The back end should prescribe an arc during the roll. The control sequence is full elevator, followed milliseconds later by full rudder and aileron in the same direction. For a positive snap aileron and rudder go the same way.
For a negative snap, down elevator and split the aileron and rudder sticks. The very short time gap between the application of elevator and rudder, aileron is to prevent the model's flight deviating from a straight line with the initial application of elevator. As in the spins, move all sticks back to centre to terminate the snap roll.

Knife Edge

Now if you really want to wow the onlookers, knife edge flight is a surety. Start the practise at a safe height and when confident bring it down and straight up the strip. Safely of course.

From level flight roll the model onto its side and apply rudder. For a roll to the right use left rudder and roll to the left uses right rudder. Simply release the rudder as you roll the model back to level flight. The more experienced you get then slowly ease off the rudder during the roll out. With the model on its side the application of rudder tilts the nose up so that the thrust from the propeller stops the model from descending. The side area of the fuselage also comes into the equation.

The level flight elevator setting is set to trim the wing so that it generates lift to keep the model in level flight. Now with the model on its side that lift will still be there so a small amount of down elevator will be needed to make the flying line straight.

Just to make things a bit harder, some models, typically scale, will roll out when rudder is applied, so a small amount of aileron will be needed to prevent the model from rolling out of knife edge. Of course to make it all easier you could set up a flight mode just for knife edge with the appropriate amount of elevator and aileron adjustments dialled in. Then its a simple roll and rudder. WOW! Torque and propwash will make the aileron and elevator mixing values slightly different flying on the right side then the left. Claims of "no knife edge coupling abound these days and it is true that some F3a models exhibit precious little but there is still some but it is so minor on my Beryll.

As good as mixing aeroplanes can be, varying atmospheric conditions will change the values slightly so the serious aerobatic pilot will always compensate ever so slightly.

Heaps of opposite aileron needed for knife edge

Current generation FMS Olympus foamy much easier. Control surface throws were Aileron 12mm each way, Elev 16mm, Rudder 15mm. Measured at the tip or top. Excellent model, until it just flew away on DSM

Thick trailing edge on Dan Wheeler's model softens control response around neutral. Dan recently moved up into in F3a class

Henry Hutchinson with the Jeff Tracey Squirrell

Expo

After a few flights to get the maximum control response in both flight modes to a level you are happy with, now comes a trick to make the control response for smaller stick movement, either side of centre, the same in both flight modes. Remember, we do have far greater control surface travel in the spin flight mode and this will make the model's smoother flight movements a little touchy. Thus small flight path adjustments will require different stick movements between the modes. IE: the model will be more sensitive in the spin mode.

The first step is to bring up the exponential adjustment screen. Then with the normal flight model selected, move the elevator stick up to just below or at half way and note the elevator position. While holding the stick in this position, switch to spin mode and adjust the exponential value to place the elevator in the same position it was in the normal flight mode. Do the same for down elevator.

Simply repeat this process for all flight controls and of course in both throw directions. There will still be a minor variation in control sensitivity around centre but it will be so small one would have to be a ? to notice it. Worth doing all the same so you know the start was from a common point

To practise

Back to the Leo. Controls were set in spin mode with aileron travel in both directions at eighteen millimetres, elevator at twenty with the rudder at eighty millimetres. Normal flight mode was set to seventy percent of these travels. Now it's off to the field. The first flight will be using the spin mode to set up for spins and snaps. All assembled, battery plugged in, engine check and open the throttle, roll down the runway and lift off. Motor stops, very low airspeed and a heavy, LANDING! Motor mount ring came unstuck. Back to the workshop. Yes even electric models suffer from (EFATO) engine failure after take off

Repair completed and with the magazine deadline fast approaching it was back to the field. Put the Leo together, turned the receiver on and the ailerons jittered when moved. A quick check revealed a cell in the RX battery had died. Was I jinxed? The receiver uses it's own power supply in preference to running off the BEC. Standard operating procedure in high powered electric models. Then the thought, "it did not happen in the air, great", I was lucky but a message, beware of RX batteries that have been laying around unused for a long time. Next time out was success and to make it a really happy day, the initial control throw settings were pretty spot on. Experience does count for something. With more flight time, usually some small adjustments will be made as the experience with both the model and your ability grows.

When we talked about the CG shift as fuel is burned, in an IC powered model, one can see the advantage of electric power. There is no CG shift during the flight. Another advantage of electric power is that there is very little variation in power output when climatic conditions change. These are the reasons why electric power is on the way to dominating the entries at high level F3A aerobatic competitions. (F3A is the World Championship event). Plus at any level, rags and cleaning fluid are not required.

Flying aerobatics is basically about visualisation, you visualising what you want the model to do and moving the sticks to accomplish that task. So the first step is to realise the forces acting on the model when if is flying. For example, when trimmed to fly straight and level at full power, the thrust equals the aerodynamic drag of the air frame and the lift generated by the wing equals the model's weight. Imagine what happens when the model is pulled into a vertical climb and then without any elevator input, the weight now acts vertically through the tail. As the thrust cannot be increased, "remember we are at full power," the model will slow down. The lift generated by the

Peter Goldsmith flew his Lotus design to eleventh place at the 1991 World Champs in Australia

Brian and Dave McFarlane. Dave's Model Sports offers specialist aerobatic advice and gear. Available as a kit Dave is one of the few competitors flying his own design today

wing does not have to overcome any weight, so the model will start arcing in the direction of the canopy.

As the arc reaches horizontal, the weight is added to the lift still being generated, now downwards, by the wing and a rapidly curving dive will develop. When the arc reaches vertical the full weight is added to the thrust and a very rapid increase in speed will develop. The increased speed will generate more lift from the wing and the model will gradually arc towards level flight. Whilst simply described in four flight attitudes, the transition between these stages is very gradual. Please note, that without any elevator input this will consume an enormous and scary amount of height and is not really recommended. It is the picture we want in our heads.

And with this picture in the mind, it's simply a matter of visualising what elevator inputs and the transition between the stages that are needed to make a circular loop. Up elevator to start, slowly reduced to a little down as the model approaches vertical, slowly increasing the down through the transition to horizontal slowly adjusting it to vertical downwards and slowly back towards up in the transition towards horizontal.

Now add to the above, the inputs that required to cater for the changes in airspeed during the loop, the model slows down on the upwards trajectory and really speeds up on the downward path. Not that much you can do about the upwards now, but reducing the power for the downwards bit is really necessary. Unless of course you really want to test the strength of the wing structure and its mounting. The slowing down on the upwards line can be overcome with power. You need enough power to equal and even better, to exceed, the model's drag and weight. It's simply a matter of not using full power for straight and level flight and varying this power during the loop. Something to work on once a truly circular loop using just elevator and power off for the downwards bit is achieved.

And once a circular loop is achieved, outside and part loops, straight vertical climbs and dives, figure eights are easy. Just imagine the forces acting on the model and what you need to do to compensate for them to put you in full control.

A straight axial roll is beautiful to watch, more so if it's slow. The axial part is achieved when the model's C of G flies a straight line and that is not that easy, more so if the entry is also straight and level. With level flight trim, the wing will be generating lift towards the canopy no matter what attitude the model is in. Visualise that wing lift and to compensate for it will require both elevator and rudder inputs, so it's easier to start with a faster roll as this requires just aileron and elevator with a small deviation in straightness.
Start with a gentle climb and apply the aileron. As the model passes through knife edge gradually apply down elevator adding more as inverted is reached and reducing it as the model rotates back towards knife edge transiting to up elevator as it rotates towards horizontal. Starting with a climb compensates for any height loss during the roll, so as your control timing improves, the entry climb angle can be reduced.

Obviously any elevator input when the model is in knife edge flight will cause a severe deviation left or right so the trick is to ensure that the elevator input is nil at this point. Any small amount of elevator during this transition will cause a deviation and as your elevator timing improves, will hardly be noticed, whereas deviations in level flight really stand out.

A slow roll is achieved by using less aileron and adding rudder inputs to the above process and requires very co-ordinated control inputs. Aileron controls the roll rate, elevator the lift generated by the wing during the roll and rudder vectors the engine thrust to keep the nose up during the knife edge section. Think about it and visualise what is required. Elevator is applied as the roll commences and this reduces to minimum as knife

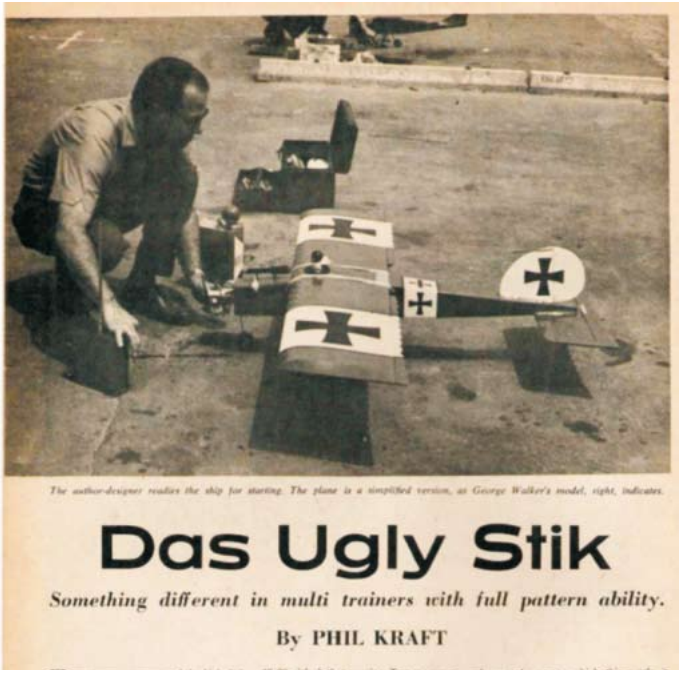
Scott Matthews recreated from scratch the Super Sicroly in this photo his a father built

John McGrane was one of the big shit stirring personalities back then. Dad once dropped Johhno's daks in between manoeuvres at a State Champs. Imagine doing that today?

edge is approached. At the same time rudder is gradually applied reaching the maximum required to maintain level flight at the knife edge position, minimum elevator, maximum rudder.

The down elevator input starts as the model rotates towards horizontal while the rudder is reduced. At inverted, maximum elevator, no rudder. As your timing improves you will find that the elevator input actually starts towards down before the knife edge section. The wing is still generating lift throughout the roll and is controlled by elevator inputs. The next one eighty degrees is the same except the elevator and rudder inputs are reversed. Please note that maximum does not mean maximum stick travel just that required to maintain level flight. Once axial slow rolls are achieved, point rolls are easy, simply stop and start the aileron input when required. On knife edge for a four pointer and so on.

That is the theory, however model design can substantially alter the control inputs that are needed. Most sport type aerobatic models will have some rudder/pitch coupling, meaning that when rudder is applied the result is that an elevator effect is also applied.



The author-designer readies the ship for starting. The plane is a simplified version, as George Walker's model, right, indicates.

Das Ugly Stik

Something different in multi trainers with full pattern ability.

By PHIL KRAFT

Some big names got started in competition with simple constant chord constant thickness models such as this .46 powered Kyosho Calamato. Steve Coram made the grade from Novice to Expert by winning the WA State Champs with a Middle Stick knocking off a Curare, YS, tuned pipe and retracts

1980s MK Champion 60 fixed gear plastic fuselage foam wing ARF

Like many European designs the Curare was not as good in the wind as a Saturn or Skymaster

Extreme Flight Extra flown by its very happy owner Darren Tilnak. This company manufacture a range of well sorted scale aerobatic models that fly equally as well as more expensive fully composite airframes

Colin Allen and a Flitework Extra. Kit cost more because the company paid the license rights

Steve Richardson with Comp ARF Extra 330 at Shepparton. Still radio active flying JR. Richo is the Australian agent

World champs F3A credentialled Chris White and his Corby Starlet was essentially blocked from Team selection by Victorian scale boffins worried about the "dreaded aerobatic fliers"

Fly the model away from you and then roll the model into knife edge and use only rudder to keep the nose up. Any deviation left or right noted will require compensation with elevator during the slow roll. With some models, the application of rudder will also initiate a slight roll, so aileron compensation will be needed. It's very easy to write about, but not so easy to do a beautiful slow roll, and I never said it was easy! Dedicated F3A aerobatic design minimises these deviations.

(Large or small, s*cale aero models I've flown include Laser 200, Cap 20L, Spinks Akromaster, Pitts Special, Sukhoi SU26, Super Chipmunk, Extra 300, Ultimate Bipe, the Extra exhibited the least amount of rudder pitch coupling Ed)*

Art of Aerobatics by Brian Green (RCM News Issue 121)

There are basically two styles of competition aerobatic flying; one that has been around for decades is the F3A current FAI World Championship category, held every two years, while the latter is IMAC, often called 3D, which originated in America. From their web site: "Inspired by full-scale aerobatics, we strive to fly scale aerobatic model aircraft in a competitive and realistic manner that is challenging for the contestants as well as interesting for spectators."

Those last three words say it all, as F3A , unless you are involved, is pretty boring to watch. Perhaps comparing Ballet to Rock and Roll. The aerobatic principles are the same, just IMAC is a more aggressive flying style and uses all axes of the airspace. However the entry level classes of both disciplines are similar and require a similar degree of difficulty. The IMAC "scaleaeros" website address at the end of this article will put you in touch with the relevant organisation for that discipline. After seeing the rapid growth of IMAC events, the F.A.I has bowed to the inevitable and introduced the F3M event for large scale aerobatics. Apart from the 1979 event held in South Africa, Australia has fielded a team at every F3A champs since 1971. Enough of the politics, lets go flying!

Are you now looping and rolling and discovering what a great experience it is to be in total control? I truly hope so; if not get into it, you may surprise yourself. Another benefit of flying aerobatics is that you get used to seeing your model in a multitude of positions and automatically know how to recover when things may go wrong. A skill that can come in handy when test flying someone else's or an unusual design.

A description of an aerobatic stall turn is that with the model in a vertical attitude, it rotates around the centre of gravity in a vertical plane and comes down a vertical path. Despite the name, the model is never stalled, just stationary (well almost) prior to the turn. With the model trimmed and flying straight and level, as it gets close to being in front of you, pull a quarter loop to obtain a vertical flight path.

Then a quarter roll so that the canopy faces you and still going vertically while holding a small amount of down elevator as the model is still holding level flight pitch trim. Now for the tricky bit as timing is very important. As the model slows, gradually reduce the power and just before the model stops smoothly apply full rudder, then release it just before it reaches vertical and comes back down. A quarter roll and quarter loop and it's back to level flight.

Visualise what the controls should be during this turn. If the model flops either towards or away from the canopy then the entry speed was too low or insufficient power was used or the elevator was not neutral. During the turn, the outer wing will be travelling faster than the inner wing so any lift that is generated will cause a rolling effect and the turn will not be flat, so again, the elevator input is critical, typically a very small amount of down is needed Once a flat stall turn is achieved, it's time to really impress the watchers and it's all about throttle control. As the model comes to a complete stop, immediately apply a couple of clicks of throttle, just enough to keep it there. The slipstream from the propeller then generates the rudder power to do the turn and then come straight back down the entry line and you can really

Aussie Chris Brislin at the Tucson Shootout. Thought I'd seen it all until Chris's fabulous display flight Grand Southern Cross Rally at Luskintyre Park

My recreation of a fabulous Model Airplane News edition with Hanno Prettner and Curare on the cover. BTW PC 9 or PC21 make for a fantastic flying scale model

Martin Morgan knife edges his Hanger 9 46% Ultimate Bipe at the RFDS Charity Day. Marty is President of Border Model Flyers at Pinnaroo

feel good. A tailslide is, as the name implies, a slide backwards in a vertical line. Quarter loop to establish the vertical line, slowly reduce power until the model stops and slides backwards, one and a half fuselage lengths is the usual criteria. It can then either flip forwards or backwards to come back down the line. The trick is to define either a forward or backward flip. As the model slows to stop it is vital to have the model very, very close to or vertical. Otherwise it will not slip backwards but flip either forward or backward. Then when stopped and starts to slide, elevator is applied to determine the flip out direction. Up elevator for backwards, down for forwards. The elevator as in forward flight introduces camber into the tailplane so that it generates lift to flip the tail as the vertical speed increases. Also slipstream from the propeller contributes to this elevator power, on the entry at least.

Now onto spins and snap roll. An auto rotation is where the model rotates around the CG with the wing stalled. For example in a spin the model falls vertically while rotating with the axis at the CG. Imagine the model suspended from the roof by string that is attached to the top of the model near it's centre of gravity so it's slightly nose down. Push the tail and the model will rotate with the nose and tail one hundred and eighty degrees our of phase. Gradually lower the string so the model falls while rotating and that is a spin. In flight, the inner wing flying slower will experience a loss of lift and thus keep stalled. Flying level at height, one reduces the power to slow the model down, gradually increasing the up elevator to maintain a level flight path. The model will eventually stall and the nose will drop. As the nose drops apply full rudder and full up elevator and the model should rotate into a spin. After a number of turns simply move the sticks back to centre and the model should exit the spin.

A flat spin, as the name suggests, is a spin where the attitude of the model

Fuel burn changes CofG

is nearly flat and is generated by a very large elevator deflection or a very rearward CG or a combination of both. A fully developed flat spin can be very dangerous, as it can be difficult to stop, more so if an aft CG is the culprit. Full down elevator and power on is the only hope. Typically caused by a large fuel load that is carried forward of the CG, as in a turbine powered model. As the fuel burns off, the CG moves backwards. As in my F-100 jet!

If a spiral dive results, where the model circles around the vertical line, then on entry, use aileron in the same direction as the rudder, as this causes a greater loss of lift on the inner wing. If after this, the model still enters a spiral dive rather than a spin, then in order, increase the elevator travel, then rudder then move the CG back. If moving the CG back. Please keep in mind the first article on setting the CG. Too far aft makes for a very-very touchy model. If the model flips over before stalling then the entry speed is too high.

A snap roll is essentially a spin with power applied to maintain the flight path and with the power on generating airspeed, is the reason snaps are more difficult to fly than spins. More so if a number of snap rolls are defined, such as in a competition. A snap is defined by the nose pitching up for a positive snap or down for a negative followed by the rapid rotation. The wing must enter a high speed stall to commence the auto rotation so it's basically a combination of airspeed and elevator/ rudder travel to achieve snap rolls.

For example an avalanche, where the snap is flown at the top of a loop is easier to do, given the same control surface throws, than a snap in level flight. Simple because the airspeed is generally lower. With excessive surface travels it is easy to commence a snap roll but the problem then becomes "how many do I want." As in spins the CG position can come into play, the more forward it is, the harder it is to generate snaps under power.

Most manoeuvres that have names are simply combinations of straight flight, part or full loops or part or full rolls. One of the simplest, an Immelman turn, is a half loop followed by a half roll and is typically used to gain height. A Cuban eight is a part loop into a forty five degree down line, straight flight, half roll, straight flight, part loop, forty five degree down line, straight flight, half roll, straight flight and a part loop to exit. And there can be numerous variations, inverted entry line, full rolls, point rolls, snap rolls, but the basic shape is still the same, a horizontal figure eight. Once the basics are mastered, you can make up your own, and enjoy writing pictures in the sky.

In control

The programmability of modern transmitters is amazing, more so for one who flew aerobatics when none of that existed. No dual rates, no flight modes and no exponential, same control throws for slow rolls and spins. Obviously it is an advantage to be able to be able to increase control surface travels when a spin or snap is called for and yet have lower control sensitivity for the much smoother flight segments. One can set control throws for slow rolls, another for spins

John Payne flying single stick at an Australian Masters. Knob on top is rudder, throttle cable on right hand side

and another for a snap roll. Then add in exponential to soften stick inputs around centre or minimise the trembles and it's never been easier. One can set each control throw individually by the dual rate switches or together using flight modes. Now where is that switch? *(Futaba invented stick mixing for modern F3a schedules. Not much time for switching between manouvres. ED)*

What Mode?

An often asked question is, what is the best mode, one or two for aerobatics? Simple answer, whatever suits you. The reality is that the mode you fly is the mode of whoever taught you. When the first control systems that offered multiple channels appeared, each servo was controlled by a two position centre off switch operated by the thumbs. With two thumbs, one for elevator, one for aileron, Mode one was born. When multi channel proportional systems arrived, as we have today, that thumb restriction was removed and other modes were borne.

The most co-ordinated controls used in aerobatics are elevator and rudder and ideally these should be under the control of your predominant hand, right or left. For strong left handedness,

Multiple Australian F4C Scale Champion and multiple World Champs competitor David Law uses competition aerobatics to hone his skills

Flying basic aeros gave Marie Pedroz confidence to tackle first solo. Wouldn't have taken her long to be better than her boyfriend. She's one that got away

Mode one, right handiness Mode three, but that mode is very rare. Mode two is a compromise.

Moving the sticks

The majority of flyers cup the transmitter in their hands and use the thumbs to move the sticks. A leftover from the TX control switching days. A simple test is to rubber band a short pencil with the tip level with your thumb tip and write your name on paper. Then grasp the pencil between thumb and forefinger and again write your name. Which gives you more accurate control? If its the latter, then the TX weight is taken with a neck strap or better still a tray, leaving your hands free, only having to move the sticks. Maybe that's the reason all transmitters have a neck strap attachment.

What radio?

Reliability and accurate centering servos are number one, which includes all major brands. Then programmability that can assist in the flying, and it is helpful to have an experienced flyer in your area that can help with this. After all, the saying, "why re-invent the wheel" covers it. Futaba is dominant in the aerobatic scene, but the reality is, all current brands are quite capable.

Will It do it for me?

Joe wins the world championship using brand X and flying his ABC model design. Do I need to get what he uses?

KRAFT SYSTEMS, AUST.

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Kraft radio systems have been available in Australia since the early days of proportional radio control, and at that time were imported fully assembled and tested with a price of $950 for a four channel system. Sales volume continued to increase and it was soon apparent that a lower price could be achieved by including some local content in the completed system. Kraft Systems Australia was then formed to undertake the assembly, testing, distribution and service of Kraft Systems Inc. U.S.A. products within Australia. Following a visit to the U.S.A. by Barry Angus and Brian Green to obtain the technical information and test procedures necessary to undertake local assembly, the first shipment of radio systems in knocked down form were received. These radio systems required assembly, alignment and test of the transmitter, the receiver and servos being tested at the U.S.A. plant prior to shipment. Sales volume continued to increase, and the amount of local content has increased until today virtually all of the labour content is performed in Australia.

We at Kraft Systems Australia are proud of our achievement in bringing to the Australian modeller, the world's finest radio control systems, backed by the best after sales service in Australia.

We thank you, our customer, for your continued support.

A BUSINESS IS PEOPLE

Barry Angus has been an active modeller for over twenty six years, with the last sixteen being devoted exclusively to Radio Control. Barry has won and placed in State and National Championships, has represented Australia in both the Trans Tasman, and 8th World Aerobatic Championships. Barry handles our sales and administration.

Brian Green, past National Aerobatic and Pylon Champion, has represented Australia at the Trans Tasman and 7th and 8th World Aerobatic Championships. Brian, who has been involved for over twelve years in the manufacture and repair of radio control systems, looks after the technical production and quality control of our radio systems.

John McGrane, or "Johno" as he is affectionately known to his many friends throughout Australia, has been involved with modelling since he was old enough to see over the bench. Past National and State Aerobatic Champion, Trans Tasman representative, and one of Australia's leading model designers, John is our man Friday.

Eric Beilby, well known radio control technician, operated a radio repair station in Gippsland, prior to joining Kraft Systems. With over twenty years in modelling, Eric's interests are wide and varied, in fact we call him our Sunday Pilot. Eric is our production and repair technician.

Glen Block is our apprentice technician, and in models he likes them big. Currently flying an eleven foot Sunpor thermal soarer, he is building a seven foot Barnstormer power model. We think he is responsible for the shortage of balsa wood in Geelong.

We at Kraft Systems are dedicated modellers, and our years of accumulated experience guarantee you, our customer, the finest radio control systems available, backed by the best after sales service in Australia.

WE TRY HARDER BECAUSE WE "KNOW" WHAT IT TAKES.

Kraft Australia in Airborne magazine, Barry Angus, Brian Green, John Mc Grane, Eric Beilby, Glenn Block

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Futaba announces it's new systems

FP-S4
5 Channel complete set comprising FP-T5 5 channel transmitter with inbuilt 220-240V transformer type dual charger, FP-R5 Receiver with I.C. decoder, four FP-S2 linear output servos, and 500mah TX and RX nicads. Features quick-change plug-in crystals in TX and RX for on-field change of frequency band.
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FP-44
4 Channel complete set comprising FP-T4 TX etc. with in-built 220-240V transformer type dual charger. FP-R4 Receiver with I.C. decoder, four FP-S2 linear output servos, and 500mah TX and RX nicads. The most popular set available with all the features required by both competition and Sunday fliers.
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FP-44A (PANTHER)
(TO INDENT ORDER ONLY)
4 Channel complete set with same components as set FP-44 above, except holders for dry pencell batteries supplied instead of nicads and in-built charger. Economical start with "Full-house" proportional control.
$295·00

FP-33
3 Channel complete set with FP-T3 twin-stick vinyl-clad transmitter, FP-R3 Receiver with I.C. decoder and high impact polycarbonate case, and three FP-S3 powerful and impact resistant rotary-output servos. Provided with battery holders for dry pencells.
$234·00

FP-22
2 Channel complete set with FP-T2 single stick vinyl-clad transmitter, FP-R2 Receiver with I.C. decoder, and two FP-S3 servos. Features plug-in crystals in TX and RX. Ideal for cars, boats, and soarers. Set up for pencell batteries.
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NEW FEATURES INCLUDE:
Top-throttle control sticks, servo mounting trays, switch guard, large servo unity, integrated circuit modules in all receivers for greater reliability, improved double brush motor in FP-S2 servo.

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Administrations and clubs peddling the line RC flying is expensive don't understand how to sell the hobby

Japanese brand Sankyo digital. FM signal great gimbals, strong metal cased receiver. Servo gear train had five gears to isolated potentiometer from output shaft. Big reduction in maintenance compared to Kraft

Dad's two metre Dragon Fli on 10S

The new Classic pattern rules allow up to 6S and two metre airframes. Interesting to see how that pans out

At that level the pilots are so skilled that they could fly anything and do well, and most if not all are sponsored by manufacturers. Over the years there have been a few W/C winning designs that have been dogs to fly by those less experienced.

And beware of spending money on the latest trend, hoping that will do it for you, as model aircraft manufacturers make their money by modifying model designs to keep the sales going. It simply is not what you use, but how you use it, so practice and more evaluated

Fifty five years of manufacturing radio control Futaba is the dominant brand in aerobatics

New kid on the block

One way Spektrum's Aussie agent conducts business

Australian Masters 2020

by Stephen Green

Dragon Fli 1st place Classic Pattern January 2016

The last competition I flew in that was subjectively judged was the inaugural Classic Pattern in Victoria in 2016. Blustery conditions that suited the rolling capability of the Dragon Fli got me across the line. Prior to that it was a scale competition at the excellent Twin Cities Club in Albury NSW. Flying my 5.5 kg plastic fantastic twin OS 30 fourstroke De Havilland DH 88 Comet was fun. That descending 360 degree turn is a challenge. Not to mention that infernal figure eight but in general man oh man that scale pattern remains seriously boring. Multiple F4C World Champion Adreas Luthi had the right idea entertaining people at each turn around and in the free pass. A bit of showmanship goes a long way.

Nostalgia 2020 style.

One thing I've always wanted to do was compare FAAST 12CH to the standard 14CH protocol and see if I could notice the difference in the air. A heap of suitable JR servos in the drawer but its really only a fair comparison using the manufacturer's offering. I've often wondered what components were in a model when a claim of radio failure is made? Is it fair to blame the radio if a different brand of switch harness is used? Servos too. Don't get me started on cheap receivers. Recently I set up a Futaba retail outlet and during that time read the instructions on as many products as I could. One thing that came through was crystal clear. After market manufacturers claim compatibility but Futaba does not manufacture its products with others brands in mind. Subtle differences in the pins and sockets of extension leads, quality of the wiring are two things that come to mind. A groovy header card and extra thick plastic is cheaper than copper.

I am no longer a retailer nor am I in the business of selling magazine advert for a living. I ordered some Futaba 3072 HVs. Which will be powered a standard Futaba six volt NiMH battery pack. That's my go to pack. The extra grunt provided by 7.4 volts isn't required in this application. Airspeed altitude and engine RPM. Throw in some telemetry for in-flight data on prop selection and there you have it. Read the instructions plug it in and it works. Simple.

Nostalgia is great but how authentic should one go? Airframes are easy. Servos and engines have made a quantam leap since my early days flying Kraft. A set of $20 Futaba S3001 3.5kg ball race servos are heaps better than the ubiquitous Kraft KPS 15. Which cost $50 each back then. The 3072s cost a little more than that. What about the

Competition takes many forms

Polaroid camera blew the digitals away at my kids annual Fathers Day school breakfast. Whirring motors and gears, children watched in amazement as the photograph developed in front of their eyes

Timeless shape of the DH 88 Comet. Rudder skills learnt flying aerobatics and helis gave me the confidence to shut down one engine in flight. (BTW this amount of right rudder is sufficient0

Hitec servo centring in this Curare does not cut the mustard for competition work

Tom Bloodworth with Bill Bloodworth's model for the F3a demo at Sandown. I reckon the go would have been a routine flown on knife edge

pointy end? The OS Goldhead in Dad's Doylestown model turned an 11x7 Top Flite Super M something in the order of 11500 RPM. I think the new Classic rules stating .65 CI or 6S have missed the mark. Suitable tuned pipes and manifolds no longer readily available create the opportunity for people who don't have one to whinge about being disadvantaged. How much horsepower should one put into the model? As much as you can get. It's more fun. The .75AX in my Dragon Fli pulls a 13x10. Which transforms both the flying experience and the spectacle. Anyone remember when F3a was such a thing?

FLY THE SPORTSMAN SCHEDULE WITH THIS?

Competing with this today would be seen as taking the piss

Phoenix Convertaplane flown at Sandown 2016, High wing, low wing or this configuration the only difference was elevator trim

Singles can use the oven without fear of reprisal but for the married modeller I suggest the heat gun

Engine out for a new set of bearings, time for new livery over the Christmas break. Decided on the same colour as the Phoenix

FROM RCM NEWS ISSUE 72

The Valley radio Flyers field, just out of Shepparton, Victoria was the venue for the 2005 Australian Masters Aerobatic Championships, Australia's premier aerobatic competition.. With competitors from every state competing, plus Henry Lim from Singapore, the entry level was the best for some years although the entry level Sportsman class only managed two entries. RC aerobatics has four classes of competition, as mentioned above the entry level is Sportsman and this has the simplest set of manoeuvres. The next up is Advanced followed by Expert and then F3A which is the International and World Championships schedule

Australian Masters 2020

VPA got the engine rule right

Dan Wheeler had to source an old OS .60 FSR to replace his YS 115. Why? *(A slap in the face for Yamada. Ed)*

Greg Hede's piped OS 90 in the ARF Phoenix 7 goes like a cut cat

6 I shredded through the orange grove at the Loxton Nats some four decades ago. Rd 1, pulled up into the stall turn on the first leg of the Figure M with half rolls. Engine snuffed at idle. Damn! No problem. Regain airspeed push out inverted and roll out to make the turn back to the strip. Ran out of elevator on the way down. Switched from low to high rate. Too late. Didn't even end up with a reusable tailplane. That sheared off as it went between the fork in a tree. Oops.

Should I order another engine

So I sat that Nats out. Although I did get to call for Dad in FAI pylon, racing Ranjit Phelan with a Phelan Mustang and engine. What a hoot. His engines were so far in front of everyone else yet the pylon fraternity in Victoria wouldn't support that guy. People chose to go slow in the belief Ranjit always had a better engine than his customers. Which I thought was stupid. Of course he was always developing but it's not always the fastest plane that wins. One needs to finish all rounds with no cuts first. Years later I raced a Little Toni in FAI at the Bendigo Nats. Good for 1min 30 secs. I ended up in a heat with Ranjit after the others in my heat dropped out. Ranjit was twenty five seconds faster.

Another nostalgia project

Prather Little Toni OS 40 with Magic Muffler

Factual reporting

Dad and I gave up a decade ago trying to get PR out of any SIGs so this is the most space devoted to APA or VPA for years.. I looked after publicity and the program for the 1991 World Champs and selling F3a today is akin to gay figure skating. Skillful? Absolutely! Yet, just like factual reporting, not everyone cares for it. My recent Facebook post didn't create as much angst as when someone hacked the APA server to sell an anal vibrator on a competitors page, but it is indeed unfortunate Classic Pattern Bulletin #1 was changed to pull the pin. My only interest was to enter as an individual, as published in that bulletin. A nostalgic road trip with my father and brother I was so looking forward to burning heaps of fuel to try and win the thing. I wonder how many Sportsmen entries the event will attract.

Help them till it hurts them

Phil Kraft's mantra

At the Geelong Nationals in 1972 Gerry Mussen's Webra 60 refused to start. Gerry flew Futaba. Those flying Kraft chuckled as he looked set to lose that round. Phil Kraft (God in those days) instructed my Dad to take the Sullivan starter out to him. Begrudgingly Dad complied with the Boss. Gerry almost fell over with the shock. When Dad sat down Phil said "Help them till it hurts them".

Futaba Sales Jim Davies with Gerry Mussen

Forty eight years later

How did applying Kraft's mantra work out for me? When I joined the Lilydale and District Model Flying Association (LDMFA) in 1976 it was rather bemusing to see the majority of instructors walk across the strip to the Sth East Corner to land. They could only land looking over their left shoulder. It didn't take long for others to notice Dad and myself standing in one spot and flying high speed models in and out of that strip from both directions. Take off and landings were judged in F3a back then. Rapidly improving flying standards and support from a leading hobby shop that club soon grew into the most competitive club in the country in Aerobatics, Scale and Pylon. Blokes who though nothing of putting their old timers about at circuit height of the nearby GA airport took great exception to my Father's proposal that the club purchase a club house to secure its future. Almost split the club in half.

Paced out Turn 12 to ensure I could make the bridge and remain legal. Ten metres to spare. Did it inverted. Best thing I've ever done

Tattersalls Sukhoi SU 26 flew under every bridge at Phillip Island Grand Prix Circuit and I got paid for the privilege

Business card. Aerial photography on the flip side

Tattersalls Sukhoi SU 26 and Miles Hawk Speed 6 Ballarat Airshow 2001

Third scale SU 26 JR 388 radio and Zenoah G74 gave great reliable service

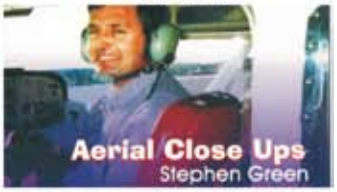
Line stringer pulled 1.6km of shark line between peaks in the Victorian Alps. Piped OS 61 15% nitro

The Slug carried a 16mm WW11 fighter gunnery camera for TV dramas and ads. Piped Rossi 60

First camera job. OS 91 FS Canon T70 SLR Sonic Tronics pneumatic brakes

A more refined version

Graupner Heim heli on location. Piped Rossi 61 Canon T-90 SLR



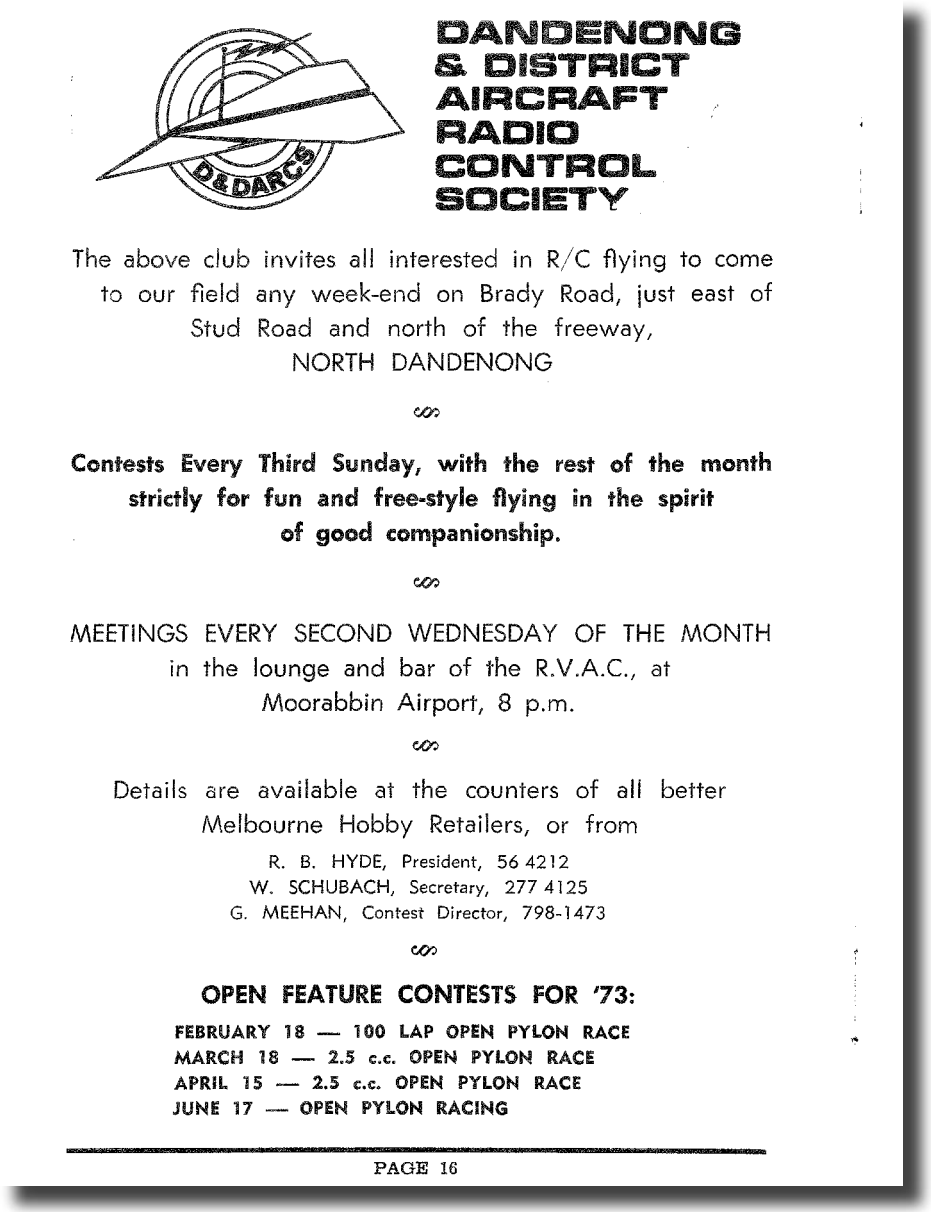
Bank and yank photograghy, not quite vertical but close. Mamiya 645 SLR - 60 deg bank 2 G turns

Help them until it hurts them

IS THERE ANYTHING TO BE LEARNT FROM THIS?

The club should have moved years ago. Models have outgrown the flying area. Lack of foresight and pandering to tight arse modellers the problem. Just like the MARCS, Melbourne's oldest model club. Now gone. Ageing membership and lack of interest from youngsters it is inevitable either fees will have to rise or other methods to raise funds employed. Static displays at shopping centres or sausage sizzles at Bunnings Hardware are two relatively easy ways to raise awareness and cash, particularly for small clubs. To inspire people into actually trying their hand at flying a model the best way remains demonstrating the art in front of a crowd.

If it turns out RC flying really isn't your thing at Model Aviation Mens' Sheds there's always mowing to be done, fences to be fixed. If becoming a mover and shaker within the model aircraft fraternity floats your boat, aspirations might be better served joining a committee. It's a thankless task so before you criticise anyone who serves on a committee perhaps volunteer your expertise first. Before you start setting rules, putting up signs and lowering flying standards to the lowest common denominator at a state or national level start at a club first. Victoria is lucky enough to have two organisations offering that career path.



D&DARCS

DANDENONG & DISTRICT AIRCRAFT RADIO CONTROL SOCIETY

The above club invites all interested in R/C flying to come to our field any week-end on Brady Road, just east of Stud Road and north of the freeway, NORTH DANDENONG

Contests Every Third Sunday, with the rest of the month strictly for fun and free-style flying in the spirit of good companionship.

MEETINGS EVERY SECOND WEDNESDAY OF THE MONTH in the lounge and bar of the R.V.A.C., at Moorabbin Airport, 8 p.m.

Details are available at the counters of all better Melbourne Hobby Retailers, or from

R. B. HYDE, President, 56 4212
W. SCHUBACH, Secretary, 277 4125
G. MEEHAN, Contest Director, 798-1473

OPEN FEATURE CONTESTS FOR '73:

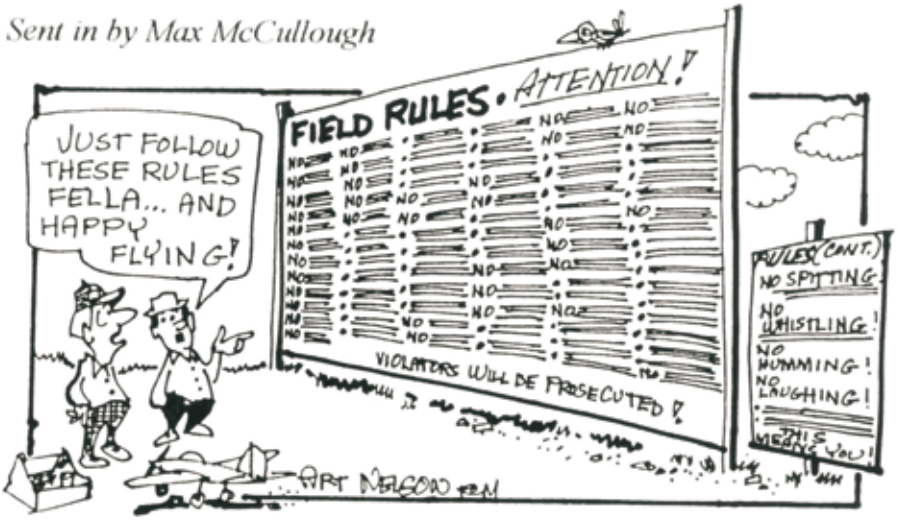
FEBRUARY 18 — 100 LAP OPEN PYLON RACE
MARCH 18 — 2.5 c.c. OPEN PYLON RACE
APRIL 15 — 2.5 c.c. OPEN PYLON RACE
JUNE 17 — OPEN PYLON RACING

PAGE 16

Part of what made the DARCS club great has replaced by a sense of entitlement and expectation of financial handouts

Aspectivity 338 - Oct 01

Sent in by Max McCullough



P&DARCS

Pakenham and District Aircraft Radio Control Society

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Email: registrar@pdarcs.com.au

19 December 2019

Stephen Green
10-65 Collins Street
THORNBURY VIC 3071

Dear Stephen,

Application for membership

Thank you for your application for renewal of your membership of the club and your remittance.

We have a membership approval process defined in our club rules. Your name will be printed in the next Newsletter, and then at the following Committee meeting a secret vote will be taken to approve your application for membership. Once the committee has considered your application I will contact you again.

Enclosed is a temporary membership card to cover this interim period. Please carry this card when visiting the club. You may use all the club facilities with immediate effect.

The committee and all club members are committed to ensuring that you enjoy flying with us. Should you require any additional information or help please do not hesitate to call me on 0419 353 007, or e-mail me at registrar@pdarcs.com.au.

Yours Sincerely

Rob Till
P&DARCS Registrar
1291219

P&DARCS Association Number: A0027172K
Affiliated with the Model Aeronautical Association of Australia Inc. (MAAA)

Seems my credentials to renew after an eighteen month absence are now somewhat lacking. This hardly inspires confidence in the value of my parcel of shares in this flying field. Wonder how beginners are treated?

Victoria's leading Club?

I've never been interested in mowing lawns just landing on them and rather than spend time on a club mower, promoting this fabulous hobby has been my way of putting back in. Presenting aeromodelling to mass market audiences by flying off the racetracks at major motor sport events, and being paid for the privilege, was ahead of its time.

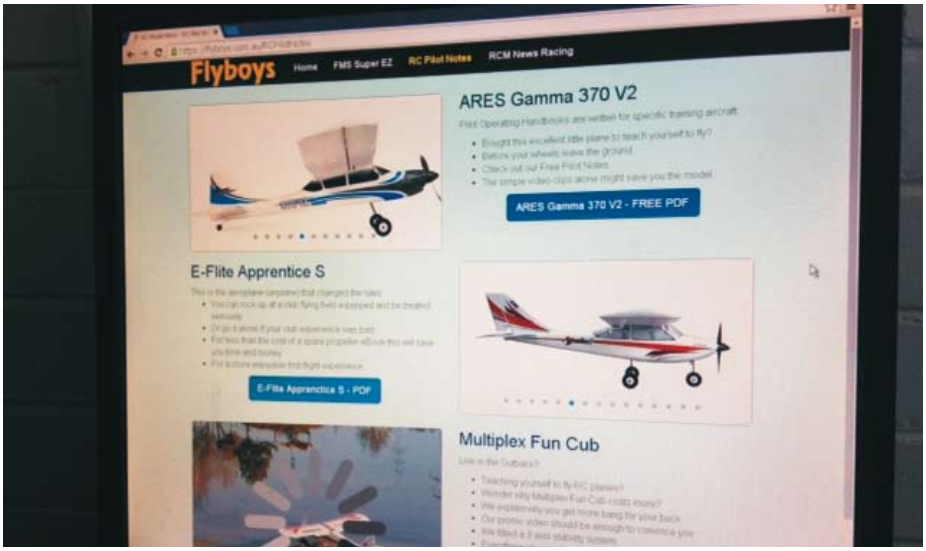
Rather than waste any more expensive pages explaining my behind the scenes machinations dealing with promotional and / or safety issues to groups of individuals who should know better, actions towards me and this magazine by Victorian Flying Scale Aircraft Association, Moira Model Aircraft Club, Jet Fliers Association NSW, Victorian Jet Aerosport Association, AMAS, NSW Pylon Association have been noted. Those oranisations can go forth and multiply themselves.

Sandown F1 Air Race was my way of introducing the idea that aeromodelling can and should have its own stand alone major capital city event. An industry event for the greater good. One of the benefits I saw in organising it was to drive people to model clubs. Reducing membership numbers will make funding flying fields overheads more difficult. Demonstrating to the aviation community that RC airmanship actually exists was another. Hope I am wrong but efforts promoting Large Scale Air Racing and Sandown F1 Air Races look to be in vain.

Airshows

Raising public awareness that we are not a bunch of selfish old men playing with expensive toys is important. Perception

Help them until it hurts them



Industry began producing models that allowed beginners to experience a successful first flight thus negating the need to join a club Years of hearing ancecdotes of beginners first experience visiting a model club inspired me to write three Teach Yourself to Fly eBooks

of good corporate citizenship can be served by donating proceeds to a local charity. If the club needs that money another good thing to do is have an airshow activity that involves children. The simple balsa chuck glider competition is number one. Either activity provides a reliable hook to interest local media. Improves your club's profile with local authorities. Helps if applying for a grant. Many model clubs now own their field. If I was President of PDARCS I would run two such events each year. One for charity. One for the club. On the day the focus is to entertain the public safely and hopefully inspire new people into the hobby.

In 2014 I demonstrated the auto stability of the S version of the fantastic E Flite Apprentice to a few members of VMAA executive at P&DARCS. News Flash! The .46 glo powered trainer has not been industry standard for years. The last update on VMAA beginners page was in 2010. A year before I made the decision to do something else for a living I wrote to three model clubs about the prospect of operating a professional Flying School. The off hand blanket

AIRBORNE MAGAZINE AND FLAT OUT RC WERE SMARTER THAN ME. THEY DIDN'T GET INVOLVED

responses received from P&DARCS and Yarra Valley Aeromodellers that members don't want that sort of thing was not unexpected. Northern Flying Group treated my enquiry with respect. Which leads me to say what I think is the biggest problem for MAAA and State Associations. How beginners are treated at club level and the flight training system remains out of kilter with commercial reality.

Politics of Big Airshows

The WW1 Pageant in Victoria years ago was a really good idea. Really well supported but killed off by an accounting disparity with the gate takings. That's why I didn't involve the VMAA at the Dutton Airshow at Caulfield Racecourse in 1999. Nervous Nellies wouldn't have had the guts anyway and it was easier to operate under my own steam and insurance. Thus avoiding the long list of pilots thinking they "should be invited". I didn't need VMAA. Which ruffled a few feathers.

The overriding idea behind Sandown 2015 was a vehicle for SIGs to raise funds to fund World Champs teams. PR, attracting new members etc were part and parcel. A competition flyers way of putting back into the hobby. The way a few Vic based SIGS conduct themselves one could be mistaken for thinking they were God's gift to model aviation. The original $35 grand budget was to conduct one event and gauge interest from SIGs and VMAA. It was a single day event. Not a problem for experienced competition fliers used to turning up on any given day at different locations. One day only made it more attractive for owner operated hobby shops to participate. To maximise potential return to MAAA for the trade to convert spectators into modellers I organised one from each point of the compass. Each one with a good working relationship with a model club. I lost control of the thing and the budget blew out to $55G. The following year MAAA spent $75G. A fair portion of that went to paying for professional services. Train and Hobby Show spend the same but more

Large Scale Racing Club's contribution to Sandown 2016 came from 1980s VARMS Expo inspiration. Competition for best club display highly sought after. We did it in the air with young guys racing as a club entry. All three were well above my minimum standard. Club CFI or President had to vouch their pilot was capable of landing within ten metres of a given spot in 15 kph crosswind

January 27th 2017
VMAA Secretary,

Dear Mr Thompson,

Given that the Permit Application and Risk Assessment provided was the same as the 2015 event approved by Neil Tank , President of by the MAAA, I fail to think of any inconsistencies that would cause you to withdraw the approval. I therefore request that you provide me with specifics that the VMAA is no longer comfortable with.

Can you please provide at your earliest convenience a significantly more detailed explanation as to why the VMAA has withdrawn its approval for the Sandown Model Aircraft Display for Sunday March 12th. What elements in the review of the Application led to the withdrawal of your approval? Further, which other parties did you consult with?

Your statement of an understanding of the effort that has gone into an event of this magnitude and the suggestion that [redacted] will contact me verges on being a little hard to swallow because at least a dozen times over the past two months I have left telephone messages to [redacted] and have had zero response.

Notwithstanding the [redacted] amount of MAAA money that has already been spent at this venue plus my time and effort plugging the resources and benefits that MAAA membership offers, aeromodelling stands to lose its good standing within the hobby and radio control community at large.

I am dumbfounded that at the eleventh hour the VMAA has seen fit to withdraw is approval. This creates a position where considerable financial loss could be incurred by the event organisers. Your assurance that [redacted] will call me, as stated in your letter, is of little comfort to me.

Yours Faithfully,

This is why Display Permit Applications for Sandown were lodged through AMNSW. (Name removed out of courtesy not to affect chap's international flying competing pursuits) Exhibitions and Publications Ltd pays for the grand race track and grandstand in December and I wouldn't risk using VMAA again. Problem now is Model aviation in Victoria has come under closer scrutiny since VMAA's recent blanket 3500 feet ceiling height extension request. I have never been knocked back for a commercial display permit or exemption by CASA and I couldn't risk using VMAA again. After this episode Train and Hobby Show was advised to set up a MAAA SIG for this event

Help them until it hurts them

Response by a VMAA member at executive level to this privately organised and funded event was ringing around to participating pilots warning they would not be insured. My insurance policy good enough for the Australian Grand Prix Corporation, Sandown Phillip Island, Calder Park, Winton motor racing circuits and Avalon Airport

I've already tested taking off. Blasting a pulse jet from here. Easy peasy! Committee members continue to make the mistake of judging everyone by their own capabilities. Not everyone uses cheap equipment either

volunteers on hand releases funds to spend on TV and radio. VMAA didn't pick up where MAAA left off so I ran three more. Train and Hobby Show pays all the bills so we get an audience for free. 15 km from the CBD. At Sandown 2019 I floated the idea to VMAA President Reeve Marsh the possibility of using the event to promote a Nationals in Melbourne. His main concern was for the Free Flight fraternity. VMAA has a fair amount of cash in the bank. A few hundred grand. Some of which should be allocated towards PR. That's what Not for Profits whose first charter is promoting and fostering the building and flying of model aircraft is for. In August 2019 Keith Quigg, an innovative past President of MAAQ, offered to run the 2020 event. Leading pilots from various model flying networks were keen to support him. Part of his proposal was to spend $10,000. Half of that towards run of station TV advert on Channels 7, 9 and 10. One would have thought advertising model aircraft on TV was a good thing. If one was after new members that is. The other money was for a few individual travelling expenses, club trophies etc. According to the November minutes VMAA Executive is finding it hard to justify a business case. Seriously? More a case of rather than do something let's do nothing. Which is pretty much what it has done. VMAA kicked up such a stink about lodging the display permit through NSW it can piss off.

Selling even a small advert to traditional Melbourne hobby shops was too hard. The only idea I could conjur up to meet their expectation of a $50 spend that inspired people to kick the door in to visit their shop was advertise FREE FUCKS or FREE BEER. Two new players in the hobby trade who I thought operated more professionally was an illusion. Train and hobby Show prints 20,000 promotional swap cards which are distributed to hobby shops etc. I made sure images of commercially available entry level product were included. One proprieter's response was to remove them from the counter after I left. His

1980's basic trainer package. Kit engine radio accessories. Add starting equipment and fuel later

How many "Join a Model Club pamphlets could have been handed out from my spot in the pits at 2001 Aust Motorcycle Grand Prix?

Help them until it hurts them

You Tube video was shot as part of a presentation to ask one the most recognised voices for my generation to do the TV radio voice overs. This superstar agreed. RC car and aeroplane racing at Sandown. The RC car fraternity squabbled and cancelled so I pulled the pin

1970s media hook

1980s Media Hook

Now it's the jet

This issue included a forty page feature on Sandown. 3000 runons printed in full colour handed out. Behind the scenes comments of the conduct at a NSW Jet event got me banned by a Victorian jet club

ARES RC Trainer Fleet Multiplex Wing Stabi 7 Parrot Disco
Gamma - Alara - Crusader
Giant Models Crams Large Model Flyin
Range Checking Servo Setup The Build
The Hangar Bank & Yank
Flyboys Flying School
Gold Wings Test - Assymetric Flying

Medical Express

Biggest mistake made organising the 1999 Dutton Airshows was mentioning to a VMAA committee member that Greg OKeefe drove a Porsche

Help them until it hurts them

December 6 2017

Mr Allan Moffatt
C/O Jeff Dutton
Dutton Garage

Dear Mr Moffatt,

I publish an Australian magazine for radio control model aircraft enthusiasts and I am writing to ask if you would be interested in doing a voice over for a TV radio advertisment promoting the 2018 Train and Hobby Show at Sandown. Next year's event will be held on the Labour Day weekend March 10-13th. The event is a not for profit to showcase model trains, planes and automobiles. Most hobbies are suffering from an ageing membership and we are concerned about getting kids off the computer and into a hobby.

The feature event on the Saturday is the Futaba Formula One AIr Race which is flown off the racetrack in front of the grandstand. The models are a 40% scale replica of the famous Cassutt home built aeroplane. The models are powered with a 6HP two stroke engine, race speeds are 250 kph. The feature event on the Sunday is the Futaba interclub race between the Hallam and Geelong large scale off road clubs.

I am 58 years of age and have been flying RC model planes since 1972. Dad has been in the model aircraft business since then. We used to sit on the roof of the campervan to watch the Sandown endurance races in the lat 1970s. I think the event was known as the Hang Ten 400. I digress but one thing I will always remember was how superior your Peter Stuyvesant RX7 was under brakes through the esses. We always commented how good it would be to organise a model aircraft show at Sandown. Since then I have flown RC model planes commercially including the Qantas Australian World 500cc Motor Cycle Grands Prix at Phillip Island, 199-2001. World Super Bikes, V8 Supercars and the Historics at Phillip Island, Sandown, Calder-Park and Winton. Sponsored by Mr David Jones at Tattersalls, Jeff Dutton made his name available to get us started. Tim Schenken was Clerk of the Course when most of my flying operations were conducted. I never held up a race and on occasion entertained the crowd when the track had to be cleared.

If you were to consider my request in the affirmative this would give us a huge leg up in terms of attracting an event sponsor and assisting build the largest hobby event in Australia. It would also help me realise a life long dream. During the past decade my magazine has also been building a national F1 Air Racing circuit. www.F1NAR.com

Included is a copy of my magazine plus F1 Air Race programmes from Sandown 2015 and 2016. These events I conducted myself and the aeroplane livery shows my sponsorship efforts to date.

Yours Sincerely

Stephen Green.

Advert published February 2nd 2020 but F1 Air Race competitors have not been invited to attend

A big idea waiting to be revisited

Reflecting how the hobby has changed and how out of touch current executive is, Dad's 1/4 scale Spitty was the only large model on the Sandown 2019 VMAA static display. Why?

competitor, who supports the event, tried to get drone racing in behind my back after the CASA permit had been granted. My attempt to inform him about radio gear C Tick compliance and insurance backfired. Anyway that's politics on a small scale.

Display flight of a lifetime

In 1999 the deal was done to race five YS supercharged 1/4 scale Supermarines and Macchis at the Melbourne F1 Grand Prix. Included was a static display in the Tattersalls Marquee. Four reliable flying chaps were ready to build it was looking good. Phone call (on speaker phone) from the board member to the Motorsport Manager was not well received. So much so that what would have been a "World First" never eventuated. That would have been something!

VMAA November minutes

21.2 Train and Hobby Show 2020 – Update from Mr Keith Quig, VMAA Sandown Coordinator. Submission and request on what is needed for the event. Comments made in regards to what VMAA is proposing for the event. There was several submissions on how the event should be conducted and what is needed.

21.2.1 It was generally agreed that any requirement for spending VMAA funds requires true business benefit. It is not yet clear what marketing outcomes are expected from the proposed expenditure. Likewise, it was suggested that sufficient local pilots would be interested in participating to avoid the need to pay for interstate visitors. Some reimbursement of expenses or provision of lunch etc would seem reasonable Cubs will be actively engaged in order to encourage them to participate.

Help them until it hurts them

Supermarine by Arthur Fyans

The deal at the three Qantas Australian World 500cc Motorcycle Grands Prix I flew was my sponsor would get a run on the PA. That never ever happened. Even after personally handing the PR blurb to the announcers. Signage is fiercely priced and policed at those events. To square up for my sponsor I came up with a world first. I am the only person to fly an unauthorised 1.2 metre high by eight metre long Tattersalls banner at a world championship motorsport event. You could read that thing a kilometre away. Many of the stewards cheered me for doing so. They got it. So did the Motorsport Manager. Her face went white when I told her.

Display Director

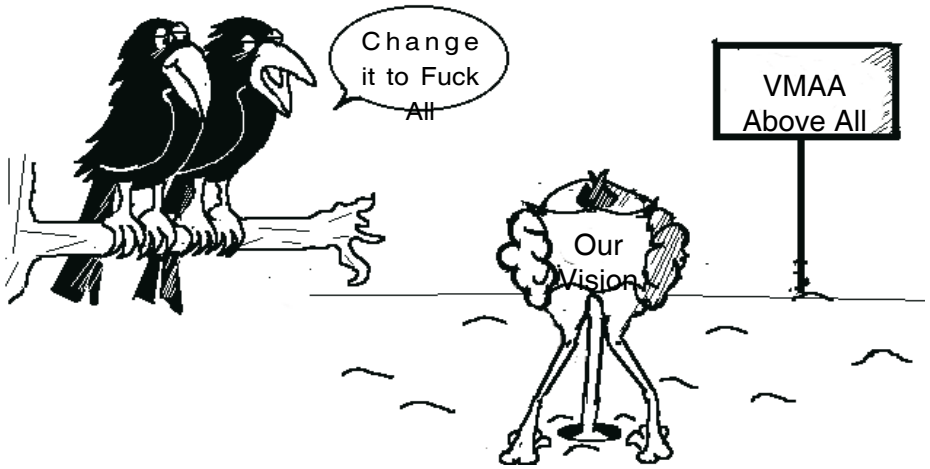
Model Clubs have a long history of putting the hand out for sponsorship and so many times I've witnessed flying operations conducted with scant regard for the reputation of companies associated with events. Most of us try to do the right thing but we too have that one percent that think rules don't apply to them. One competitor's potentially nasty crash on take off at Sandown 2015 was explained to the satisfaction of the regulator but had one jet modeller's flights resulted in a catastrophic accident and the Insurance Company sought to recover costs, MAAA's assets may well have been put at risk. One would think a serving President of a State Association would follow procedure. That experience is not new to me. I had a similar flouting of Insurance related MOPs by another President before. Which is why the Safety Officer of the Day at Sandown was crusty enough to deal with anyone. Or so I thought. It turned out my Pilot Briefing briefing had a couple of shortcomings. Noted and published previously for the greater good. One pilot at a later event didn't do the right thing. Never to be invited again.

NSW.AEROMODELLERS.ORG.AU WEBSITE LEADS THE REST

F1 Air Racers haven't been invited to Sandown 2020 but a few of us remain available if this innovative RC airshow gets another guernsey

Ultimate RC event

Sandown was not my ultimate event. It was about applying what I've learnt to assist raising aeromodelling's profile. Protocols in place, all the hard work has been done. As an MAAA Associate Member who grew up going to the Nats and appreciating FF, CL technology and skill too, RC SIGS need to realise we are the lions share of the dwindling aeromodelling business and are heading down



Help them until it hurts them

ONE MAGAZINE ISSUE, A LITTLE IMAGINATION, SHOWMANSHIP AND WILLING PARTICIPANTS PRODUCED THIS

World Championship Scale

World Championship Heli

World Championship pylon

Scale heli

VARMS club membership

Jets

Help them until it hurts them

Invited from RCM News pilot network the minimum flying standard was ability to land within five metres of a given spot in a 15 kph crosswind

World Championship F5B

Speed comparison

MAAA Hall of Fame presentation

Made the telly right across the country

Beta Home Living raffle

Glider towing in difficult conditions all day

Help them until it hurts them

Wings wheels and water

Scale F1 racing bonafide competition

Pylon judges marched to their positions to
“When Johnny Comes Marching Home”

Plenty of ooh and aahs when landing

RCM News on sale now

Sandown is just another runway but the crowd in the grandstand couldn't see it

Landing judge idea worked a treat

the same path. How long MAAA can afford to fund increasingly smaller groups of secret mens' business to play at West Wyalong I don't know. I'm not that fussed about that but why should RC run away and hide? If you fly big models get set to start paying more. Maybe what to do with the Nats is something Carl Bizon could consider if he intends getting involved at committee level again. VMAA became relevant to the majority of its RCmembership under his stewardship. Over the years the response by various VMAA Executives to any of my RC events has been actively negative yet it jumped at the chance once it was made known I had finished at Sandown. Having put so much into that event I had hoped it works out but VMAA needs to lift its game. Safety is Paramount is an easy catch phrase that boffins stand behind. Compliance with regulations is a big part of that yet the organisation chose to allow drone radios that did not comply to fly at Sandown. No way would I sign my name to that. Under my watch even the music played through the PA was squeaky clean. The professional announcer pays the copyright. Whether there is sufficient experience, competence or will power to meet the flying standards required for that venue remains to be seen. VMAA's most significant decision to progress the hobby in recent years was moving monthly meetings to the Victorian Association of Radio Model Soaring club rooms. Hot air from deliberations about inactive Facebook and Twitter icons, old fashioned website, updates on how wonderful P&DARCS is could all be harnessed.

This competition / airshow would net $20G at a Capital City club field

I've had a couple of world firsts myself so here is an inexpensive idea more in line with VMAA's current capability and business case for "Return on Investment." Recycling is a good hook to attract media attention. Victoria could again lead the way. Just like it did back in the 1980s.....

Radio Control Model News is published by: Stephen Green

www.rcmnews.com

World Exclusive

VMAA
NIGHT THERMAL

2nd Thursday of every month

Briggs Field
Melbourne
Australia

VMAA Exhibit Sandown 2020

A few hundred grand in the bank, no problem with VMAA paying for the FPV netting at Train and Hobby Show Sandown 2020.

Any danger of spending some cash to promote the planes?

Flying Futaba

2020 Futaba Australia Classic Pattern International Championships

VPA Classic Pattern competition Feb 2nd 2020

I've never flown in an international event. CD'd a Kraft Master years ago when Bertan Lossins and Ivan Kristensen competed. Classic Pattern was launched a few years ago. Started off with gusto in Victoria but it has not gathered any momentum. When news came through about Classic at the 2020 World Cup - Australian Masters Round I got a bit excited. The chance to fly against International competitors really got me interested. That didn't happen. Not enough time to fit the extra category in was the reason proffered. Now it's just a one day competition at a different field but with competitors from New Zealand, United kingdom, Netherlands, Japan and USA is a start. Just after writing this piece a further ten entry spots were allocated to the Australian Masters. The APA missed the boat with this. But that just my opinion.

Calling for Cliff McIvor and Norm Morrish, two competitors at the Victorian Pattern Association Classic day, got me fired up and we left after the first round to get to work.

The slow roll

In my book a perfect slow roll remains the most graceful of all aerobatic manoeuvres. Fast, not too low with a Spitfire in front of a crowd. Yep, that's hard to beat but for me the ultimate slow roll is one performed in front of judges.

Even Blind Freddy knows that rudder and elevator inputs are required to maintain the same altitude through the manoeuvre. Almost as important is maintain the heading. Lots of pretty graphs available that state the obvious but how do you actually fly one? Instead of re-writing what has been written in this magazine a few times previously perhaps using modern technology might be easier. In this case it's a Runcam looking aft and a few uncut videos on RCM News You Tube Channel.

To fly a good one, ie without fudging and raising the nose on entry, the first thing needed is an aeroplane that can maintain knife edge flight. Mid or low wing designs are best but if you are nervous about improving slow rolling your F16, F18, F15 try the FMS Super EZ. In standard trim it can maintain knife edge and the increase in roll rate in the last ninety degrees mimmicks quite accurately what it is like to slow roll a jet with a high wing. Or a low wing with sweepback. Or the hardest, a high wing jet with sweepback.

A word of warning. Coaxing a plane to fly on its side creates drag. If you intend spending the day practicing knife edge and setting up computer mixing, make sure the mixture is a little richer than the usual setting. This is particularly important with petrol engines. A glo engine will usually cough a few times before it quits lean. Putting a recently current generation F3a setup aside (ten years old) electric power drops off towards the end of the flight as battery voltage reduces. Which means your rudder and elevator inputs will vary. If the plane is flying slower, more top rudder is required. More top rudder equals an increase in roll rate.

Landing

Most of the crowd cannot see the racetrack at Sandown but pilots can.

Futaba gear and Aeronaught props for the OS 75AX

Greenie's Meanies

Flying Futaba

Ply plate needed for Futaba switch harness

Relive a few memories

Only as good as your last landing? E Flite retracts 5mm wire legs (3-16th) on are too stiff on a 4 kg model

Last year I trialled two ideas to give the commentator something work with. Landing judges to involve the crowd worked a treat. It also made others on the sticks try harder. Reducing the time back tracking or recovering models way down the end of the strip would save heaps of time at an F1 Race meet. The other idea was to encourage pilots to make the gate. After a couple of goes I nailed my last one. Well almost. Side slipped it in, killed the engine and ruddered it ninety degrees into the taxiway. Speed down to walking

Mike's mission, and he chose to accept it, was sneaking something past Dad

Thanks FAI gliding competition rules composite structures have improved immensely however power flying standards have dropped since F3a ditched judging the quality of the take off and landing

Going hammer and tongs for the 2020 Futaba Classic pattern comp

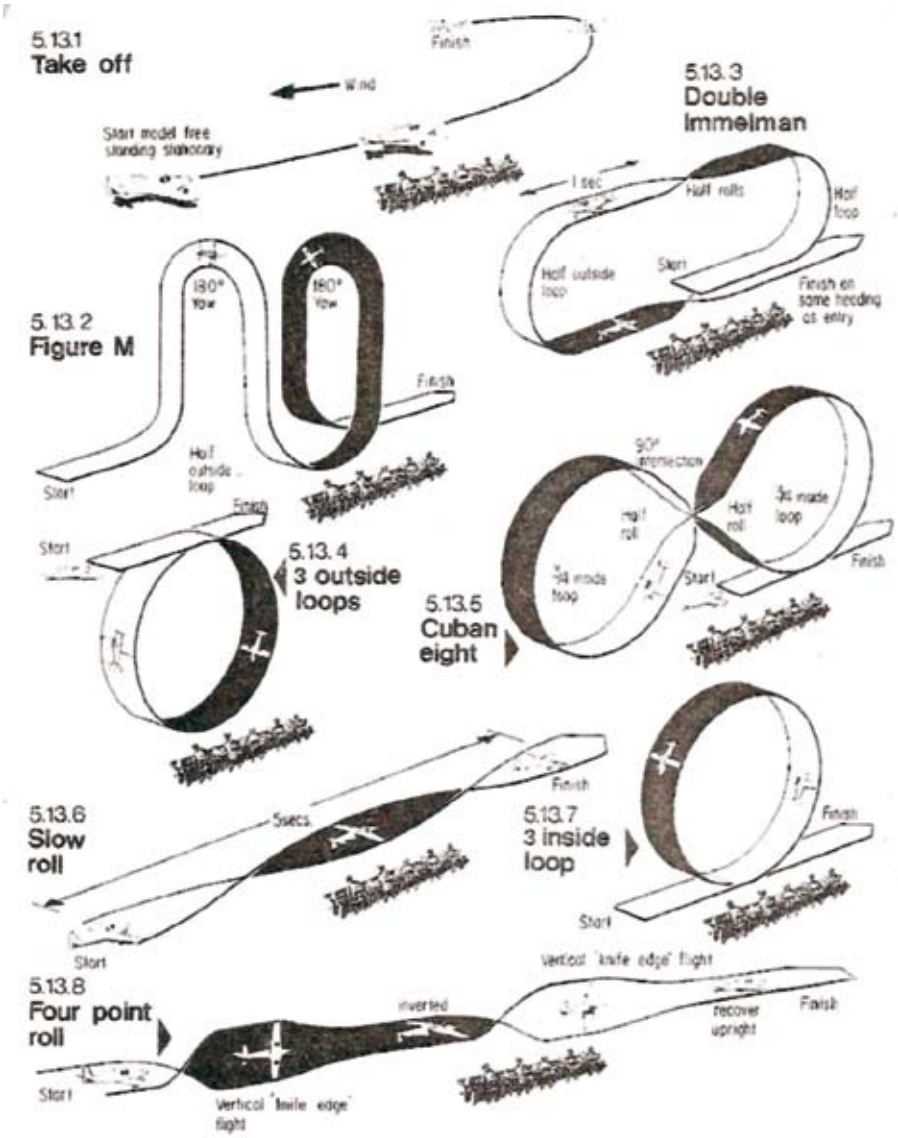
pace then someone decided to do me a favour and grabbed the model. Hero to zero. Should have made my intentions clear. Too many people at the flight line too. Which made it look like I didn't know what I was doing. Bugger

Dragon Fli

New servo and switch harness mounts for Futaba, repairs to the undercarriage mount in the left wing completed should I gear it up as is and just get practicing or give it new livery. The OS75 AX doesn't meet the new international rules. Sourcing an old engine isn't the way to go for me. All that effort practicing can come to nought if something lets go. OS 65 AX, with heaps of nitro, maybe a pipe. Keeping asthetics in mind the only type in keeping with this design is the Jett 1/4 wave pipe muffler. Many years ago an F3a competitor campaigned a Ranjit Phelan Magic Muffler. My recollection maybe off, I think the model was an Arrow. Nevertheless it went like a cut cat in a straight line but died in the arse in the verticals. I can execute the 1972 schedule to a reasonable standard on both Mode 2 and Mode 1. Even in a 30 knot wind. A skill set I put to great use wearing the Dutton shirt. Whether a modern F3a machine (aka powered glider) can be flown comfortably in those conditions I do not know but it's not a problem with this old clunker.

Should I go back to Mode 4? With the competition seven weeks away and model not ready for another fortnight

NOTE THE POSITION OF THE JUDGES, IT'S ALL ABOUT SYMMETRY



the plan was to punt my Super Ezy through a manoeuvres a few mornings on the way to work. Once the stunter is ready to go it will be five flights per session, three days a week. A mate had a carton of heli fuel, now surplus to requirements as he has gone electric. I don't know if anyone else who flew F3a in the 1972 Nats will be competing. It's odds on I will have the oldest design. Knowing what the judges are paying is part and parcel.

Flying Futaba

Powermaster Jungle Juice stored in a wine cellar

Super EZ on Mode 4

Made the switch after a few flights on Mode 4

Simple super easy charger system no programming required

Presenting an old clunker with a ten foot finish is not the best way to go.

One thing that really stuck with me from those early days was adding a bit of showmanship. Today that might be construed as smart arse ism. Using a traditional setup only requires five channels but a few more wouldn't go astray. Not letting the cat out of the bag but I reckon mine will be the only model sporting two receivers. After a couple of flying sessions I decided to persevere with switching back to Mode 4. Blustery conditions on the first day were not a problem with this 1 kilogram (2.204 pound) foamy. Gust sensitive of course but the bumps are certainly smoothed out by the Futaba GYA 460 gyro. Gains are set very low, self levelling not the requirement. Thinking right back to when I started flying I wouldn't have dreamt of pushing a flat bottom aerofoiled model into the last half of a Double Immleman. This thing does it with ease. Not enough horsepower (kilowatts) up front to do a decent Figure M but shooting slow and point rolls made up my mind for me.

Twin receivers, a bit of overkill?

Colour schemes with lots of pretty little lines of colour certainly look great on the ground

Remember USA Dave Brown's Phoenix chequered colour schemes? This is easier to see where it matters. When I was a kid the Dulux enamel spray can was my go to for re-paint pushbike frames. And model aeroplanes. Back then it was fuel proof. Should have tested that first. Bummer

Gathering in-flight data with old versus new engine prop combos was an interesting sideline to this project. Event now cancelled due to Corona virus, Battery packs removed and mothballed the fleet to re-group.

Paint left a few days to harden up the newspaper was removed then the project came to a screaming halt when I discovered the Dulux enamel spray paint was not fuel proof. Then I lost a whole week due to work commitments. Throwing the cost and time to set up a smaller new engine into the mix, a ten hour drive to experience three flights in the inaugural Futaba International Classic Pattern Day became too much of an effort. To top it all off Corona Virus prevented Onda from attending. Hopefully the APA will get behind Classic Pattern and the opportunity to fly against internationals will present itself again. Hopefully that will happen.

Promoting aeromodelling has been a big part my hobby too. Good quality brand name gear and the pilot standard set was integral to operating in strong crosswind at Sandown 2015. Potential wash up due to unlikely catastrophic failure in my new interest is likely to involve eggs or tomatoes. Time spent programming my 16SZ for the Classic was swapped for a 20 kg Roland Juno DS keyboard.

Trailing Edge

After it was made known 2019 was my last Sandown VMAA jumped at the chance to showcase aeromodelling. The hard copy edition of this publication was printed in early February. Distribution was delayed until the 28 day deadline required by CASA to assess public display permit applications had passed. The digital copy was released after the event. According to one senior source the airshow was a disgrace.

Dorothy M Green models the Saturn. Ivan Kristensen design Sankyo SP 7N radio YS 60 engine

Been there done that still got the t shirts

Miles Hawk Speed 6s scratched from RCM News plans

3W 58 powered Seagull Models Sparrowhawk 120

Webra 120 - CM Pro Texan 120

OS 120AX - Seagull Models Texan

OS GT60 - Seagull Cassutt 120

OS GT 55 powered Seagull Models Nemesis 120

The other pursuit this magazine has thrown plenty of resources into has been large scale air racing. Instead of winding up the Large Scale Racing Club and sending the bank balance back, Joe McGuffin passed the banner over to Byron Simpson on the basis I was not on the committee. Don't know why. Doesn't matter. Ever since Adelaide Air Races in 1997 traditional pylon ideas from organisors, not the people who race, kept getting in the way. I think the way forward is to wind up the club. Send

68 entries ten grand net profit, supported by the trade. Who will do this again? Facebook? Google? Twitter?

Bellanca 28-92

Over the years one of the recurring problems with Adelaide Golden Era was how the organisation dealt with legitimate model ID complaints from competitors. Which prompted this idea. Even an elderly gent with Coke bottle bottom thickness spectacle lenses couldn't mix this machine up with a Mew Gull. Each nacelle was designed to be removed with three bolts. Now wishing I hadn't binned this 8 HP exciting high speed racer

the money back to MAAA as per the club constitution and let NSW Pylon squabble over the scraps to prop up the often less than a dozen competitors its events attract. What's needed is a new entity.

F1 - F2 - F3

Another point acquiesed to NSW Pylon was category names. To attract younger people Club president Byron Simpson and I thought following Moto GP was the go. Makes it easier attracting media too. F1 was to be the open class 300 kph build only, tuned pipe methanol go for it. F2 being 60cc ARF and F3 35cc Nemesis.

The hobby trade has changed. What worked in 2012 won't work now. Just before Cobram Air Races was white anted I was about to put an exclusive RCM News Racing proposal to one key retailer in each state to carry Seagull ARF racing stock and promote same. In other words if they stocked the product, to support the club events I would advertise it at no charge.

Unless we have large pubic events that help promote newbies it ain't going to happen. Biggest problem for the organisation right now is to convince the importer to support the categories

Will Lil Misty ever fly? Not bothering to start something new this time until behind the scenes has been properly sorted

with ARF stock. As it stands right now I don't blame them for not. A few attempts in the magazine to convince prospective Air Racers to put a deposit with their local hobby shop fell on deaf ears. I have one more idea left to realise the potential for large scale air racing and this will be my last racing effort. I won't be wasting any time or putting in if NSW pylon committee members are involved at committee level. Chaps are good competitors no problem there. As far as vision and ability to create an egalitarian racing scene goes their skill sets have proven totally lacking.

At club level the overwhelming majority of modellers just want to know if the grass has been cut and they have insurance. A small number put their hand to do that. If your club suffers under petty small minded selfishness and people want to tip them out that requires turning up a meetings and getting voted in. That proved too hard with this pursuit.

At state level I decided to call a few out in this issue. I'm done with them now. At a national level MAAA and AMAS should both count their lucky stars Peter Coles lost interest. I have a long memory yet every arsehole in business or committee level that ever crossed myself or Dad were invited to participate. Not to fly. Sandown was all about growing the hobby.

Aileron flutter on take off? (**Not taking the piss. Ed)

EFATO and through the fence at Rd 1

Rd 1 next year. Needed a drone to recover the head

Recovery inspired by Humpty Dumpty and Leigh Majors

** International readers not accustomed to the Queen's English will struggle to find a copy of Australia's Pocket Oxford Dictionary which covers this saying. WikiLeaks does a pretty good job albeit not as succinctly

WG Gilderslag Stunt Pilot

Air Race and stunt pilot duties were not his main game. Before I expose WG's key role with RCM News and risk the lifestyle to which he has become accustomed, it is with ironic bemusement I note authorities and multinationals around the world are finally making noises about holding social media publishers/ distributors to account for inaccurate, misleading, offensive content.

In its heyday

Whether it be a digital or print publication the Distribution Contracts I've signed with Gordon & Gotch and Bauer Media have a liability clause exempting the distributor fro publishing fopahs. Dad did the same with Kerry Packer's Australian Consolidated Press. Which included the right to remove magazines from the shelves and pulp them. Or return at the publisher's expense.

Professional pilot sure nevertheless this was just a ruse because WG put his hand up and volunteered his good name to go in and put himself in harms way to report back experiences on the vagaries of social media. A crusty bugger and can look after himself and a model pilot. Yes we made no secret of that yet none of the wankers out there took WG's Flying Circus on. *(We did get a few letters. Ed)*

Back to building and flying

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