

# Air Racing

## with Stephen Green



Three Seagull MSX-Rs at Cootamundra. Bendigo 42, 20cc glo finished ahead of 30cc petrol though the gap is reducing

### SEAGULL MXS-R 91-120 BY BYRON SIMPSON

"I got stuck into the assembly (sorry but you don't build an ARF) and for the most of it I was pretty happy with the gear supplied. Instructions are sufficiently written for the average person who has assembled a few ARFs already. The tail surfaces all lined up easily and glued into position without any issues and the engine bay was easily redrilled to suit my Syssa 30 petrol engine. A few tips for those looking at having a go at Red Bull with your 30cc petrol powered aerobatic machines, I'm running an APC15X14 though the best prop for your DLE30 is an APC 16X14. I run a 15X14 due to the Syssa having a little less torque but more RPM. Use a minimum a rate as possible on your control surfaces as big movements is more drag and you really don't need a 3 roll per second roll rate for entering any of the turns at a race meeting. This is a good basic set up for entering and will give you a fair chance of a decent finish. From there you will find almost any of the other racers from any of the classes are happy to help out with advice and more wherever they can to keep you going and going well.

For racing there were a few things I have upgraded or modified. I added a second servo for the elevator and changed the standard pushrods to 4-40 sized rod with z bends at the servo end. This was a very easy mod since the servo tray allows for the second elevator servo to drop into the rudder servo hole and a lightening hole beside is enlarged to take the rudder servo. Also all the control horns were upgraded to Dubro 912's, this gave me some peace of mind when it came to surface controls as at high speeds a small failure makes a big

mess. This is not to say the standard ones would not do, just with some things I like to stick with the devil I know. I did also increase the wingspan on mine to meet the 70" rule though this was not a major issue as the rules are heading more and more toward being so long as the aircraft has a 120 sized rating on the box. It is ok to use, this makes good sense as it is getting harder to find aerobatic aircraft for 120's that meet the 70" wingspan rule also and it keeps the class in the more affordable entry range where it's intended to be.

So after checking out all the undercarriage and little plastic glue on fairings this came to a fair weight gain and I had a bolly carbon undercarriage that was almost perfectly sized so I fitted it and didn't bother with all the look pretty fairings. Keep in mind though if the real one has spats, your model is required to have them also or you can incur a time penalty. The pilot supplied is not heavy but also not light and the canopy had a nice half height cockpit floor, with a few wiggles and a bit of force I was able to remove the extra flooring from the canopy and cut the lower half off the pilot so he is just a bust, then glued him to a small plank and back into the cockpit. I cut the canopy to size and glued it on with permanently with canopy glue.

A huge plus for the model is Seagull have used some forethought and included necessary hardware for an electric conversion,

this means I had plenty of well lightened spare timber for things like a receiver tray and battery tray and thanks to the laser cut holes in them they look spot on also. This was very handy since the heavier engine was installed and I also moved the throttle servo to be up beside the fuel tank I needed some weight further back and was able to mount the flight pack behind the main servo tray. I like the throttle servo on a petrol engine to be as close to the carby as is practical, this is the main reason for moving the servo to beside the tank. There was room for it and this meant the control rod is only about 75mm long so nice and solid.



Wing panels extended to meet 70" span



Syssa 30 cc petrol and APC 15x14, Bolly carbon undercarriage



Redbull Racer with 30cc petrol engine owned by Jay Everett, very nice looking aircraft



Giles 202 by Duncan Satchell

Seagull is good in that they supply just about everything including a spinner, but I picked up an ultimate style alloy spinner instead for that sharp looking nose. A bit of a down side for the model is the screw system for the cowl is very insufficient as the two top screws only go into 3mm light ply. It is a pretty decent sized cowl, so to counter this I added a couple blind nuts and 3mm bolts to the top. I would have done the same for the bottom but access is very hard and thankfully the bottom is at least into a couple layers of light ply so has half a chance of holding. The other major downside was after the first three test flights. None of which none were done to full race conditions, ie no sharp high G turns but the plane had some new found dihedral. I warned a fellow racer about the wing tube bending and even after strengthening his, it did the same. This info was passed onto Model Engines who obviously relayed it to Seagull as a week or two later a reply came that they have upgraded the wing tube to a thicker wall section. This is a good start as I don't know of many manufacturers that are keen to admit to a possible flaw in their product. I didn't want the hassles of another bent tube under race conditions so I opted to buy an aftermarket carbon wing tube by PBG and use instead (before you run out and order one I did have to pack it out with cello tape as the carbon tubes are slightly smaller diameter).

The MXS-R now has nine flights under its belt and just over 45 minutes air time, it handles well at high speeds but also doesn't show any bad tendencies when slowed down for landing. I have included a bit of data so you can see the speed versus altitude but keep in mind this is ground speed via GPS not air speed so doesn't account for wind, the wind on the day he day this was recorded was only a light breeze but should still be accounted for. I can accept that although the model is not intended for air racing but to its credit it suits it well due to having average sized control surfaces and a reasonably thin wing section. About the only thing that would make it better is if Seagull were to bring out a race upgrade package which would include a carbon wing tube, carbon undercarriage, and maybe an alloy spinner.

I must thank all my local hobby shops for letting me look through the boxes to check out the wing thicknesses etc and Col Taylor Hobbies, down in Canberra. They were closed by the time I was due in to Canberra on the weekend so they dropped it off at Monaro Hobbies for me to collect it. If anyone wants more info on air racing rules or to read more about the MXS-R mods and other planes for racing check out [www.rcmn.com.au](http://www.rcmn.com.au) or [www.aussieaeromodelers.com](http://www.aussieaeromodelers.com) Thanks very much Byron.

## RULES

With the announcement of two new events, a circuit of competitions is finally developing. The last weekend of October next year NSWMAS will be conducting the MAAA Nationals at Cootamundra. Moves to have the rules accepted by MAAA have been in process for some time. Looking back at other forms of competition, this has proven to be a good thing, but setting things in stone and accommodating ARF products will present problems. After plugging away at promoting Air Racing for a few years I have reached the point of finalising what I think are a workable set of rules.

Planning for the third Cobram event is underway and there is absolutely no doubt that if it wasn't for the availability of ARF models, this event would not be sustainable. It wouldn't have happened in the first place. One of my aims is to give competitors the thrill of racing in front of a large crowd in a friendly yet competitive atmosphere and race with two sets of lights.

We have sponsors interested in supporting the event because they can sell products. The town is taking ownership of the Air Races too. From a business perspective I get plenty of material to disseminate hints and tips on operating large models. Topping it all off, racing large scale models is great fun. To continue growing the event, attracting new competitors is the key.



Jay Everitt's Nemesis. The donk flew out in flight rounding Pylon 1. Problem was caused by excessive vibration after the spinner came off and damaged the propeller. Model floated down and survived relatively intact

Balancing the constant changing of product availability is one problem that will inevitably come up. The engine capacity for Formula One is one such example. Will the inexorable increase in engine capacity that manufacturers chase make the current 56cc limit out of date? The recently released 55cc OS is now discontinued. Both Desert Aircraft and OS have released 60cc engines. There are quite a number of other engines in the 60cc range. That may leave DL - DLE as the only well known 55 mills on the market. If they follow suit, a rules change will be required to keep attracting newcomers.

## Air Racing

Building events around ARFs that are not mainstream sellers has another potential problem. The CM Pro and YH Models Texans and the F1 Sundowner by Hangar 9 are no longer in production. The only manufacturer still producing a model in both classes is Seagull. Hopefully this will continue. The possibility was made more likely after the owners attended the Sheparton meeting a few years back. They got such a thrill watching their Sparrowhawks being raced around the course and this was the impetus to produce the A-T6 and Nemesis. But what if that ceases?

There are plenty of choices for anyone wanting to have a crack at racing. Red Bull is the entry level and the rules are very simple. The model must be a commercially available ARF and the manufacturer must state a 120 glo or 30cc petrol engine capacity on the box. Just like video movies ARF products have a limited life, and if a manufacturer intends to produce a specialised model, good luck to them. The likelihood of a company producing a scale aerobatic model with a cambered wing section (semi symmetrical) is highly unlikely.

At 66 inches, the wingspan on the new Seagull MSX-R is under the minimum specified but after having a close look at

MSR with wing  
extended to 70  
inches



the model, on balance the frontal area is comparable other models. For example the fuselage on the now discontinued Seagull Extra 260 is less than the MSR but the wingspan is greater. The Flitework Extra 300 had less frontal area than both of these models. To meet the current rules the wing panels on the MSX-Rs, raced by Les and Steve Davis and Byron Simpson at Cootamundra, were extended to 70 inches yet there have already been a few complaints about ninety size models from that meeting. Those who think it's all in the aeroplane, or the engine, have to come to grips that that there is more to it.

To keep it simple, if it says 120 on the box, whether it be two or four stoke, its

eligible. Competitors who are of a mind to keep chasing the minimums, a few hundred bucks to try the latest thing still makes this category pretty cheap fun.

As it stands, you can either build or punt an ARF around in Golden Era In-line, Radial, Formula One, Reno, Texan. Red Bull is an ARF class only. Learning to start and tune the engine quickly, fly a good course and land safely will put you well up in the top half of the results in a short space of time. Picking up another 20-30 kph takes work. Successfully competing against a purpose built model in any of the four large engine capacity classes with an ARF the airframe will eventually reveal some limitations. Mainly in the wing. My Nemesis only

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Ricky Rat, Brian Sawtell's modified Sundowner ARF



Byron Simpson's Top Flite P-40 ARF

weighs 7.4 kg and it has been tested in tight turns after a long power dive to around 250 kph. As was my Sundowner. Straight and level at 250 kph is a quantum leap for any ARF that qualifies. 250 kph is about the limit for a balsa - ply wing that will be up to the loads of a tight pylon turn. One that did fail, at that speed, was built for 60cc, but it was carrying ballast to meet the 3lb per 10cc power after fitting 85cc for Golden Era In-line. The extra weight and speed found the structural limit

There are a number of 1/5th scale WW1 fighters now available and this is one category that is set to grow. One potential problem is the 24lb (minimum weight requirement. Adding significant amount of ballast is very tricky. Years ago at the original event at Adelaide, both Dad's and my Mile Hawk Speed 6s needed the best part of a kilogram of lead to meet the 3lb per 10cc power loading. I was constantly worried about it being shaken loose. Many ARFs don't have enough room and would require significant modification.

At Cobram 2013 the minimum weight will be dropped for Reno and the power loading will be applied. In Texan, the winning engine will be removed and replaced with a brand new one, at the meeting. The engine will be sent to an engine tester and the report published. In 2014, retracts will be mandatory to make it a true one class event. F1 will remain as is for 2013, Noise level is 98 db @ 6 metres. On 2004 we will also be running that 35% scale open F-1 category up to 63 cc and open slather on the engine and exhaust.

These few changes are what I suggest are required and this will give something for everyone. Red Bull as a cheap entry level, Texan for class racing, F-1 also doubles as an entry level into larger categories and the others remain as is with plenty of scope for tinkerers. My other motivation is to have a workable set of rules that can be easily policed. What others clubs decide remains to be seen, but chances are if it qualifies elsewhere, you will be able to race at Cobram too.

#### GRATTON AIR INVITATIONAL

A four day event February 14th -17th held at Gratton Field, Ipswich Qld. Whilst this is not a stand alone race meeting, Texan, Reno and Golden Era In-line categories with 12 pilots per class. Check out the ad on page this issue or [www.crams.com.au](http://www.crams.com.au)

#### WARRNAMBOOL AIR RACES

A two day meeting May 4-5th for Red Bull, Texan and F-1. Contact Ken Perrett on 0428 527 139 or email [ken-perritt@bigpond.com](mailto:ken-perritt@bigpond.com)

#### COLOUR SCHEMES

With improvements to processing and turn around in between heats, plus counting on the usual attrition, my gut feeling is we could cope with a hundred entries at Cobram. Making this the best event it can be for all participants, our Mission Statement is, Aviate, Spectate, Officiate. In that order of importance. Racing itself looks after the second group and looking after the officials whilst last, is by no means least.

The time has come for competitors to give thought to changing the colour schemes in Red Bull and F-1. If every one turns up with the same colour scheme that will throw a spanner in the works. One thing I insist on to satisfy the aviators is matching times to make the experience of close racing a reality. It is too taxing on the Marshalls to maintain concentration over two days with an increasing number of the same type and colour scheme. We will soon have models and competitors on the website so that competitors can see what changes others have made. Cowls, wheel pants and wingtips are easily changed. Making a more concerted effort such as the two models at the top of this page will enhance your racing weekend because of the reduced likelihood of a mistake.

As a back up I will have a few spray can of Acrylic Laquer, in various colours. This will be sprayed onto the wing tips and or tail and spats. This paint dries almost instantly and it can be easily removed from the film later with solvent.

#### NATIONAL AIR RACES BY BYRON SIMPSON

"I arrived at the Cootamundra field Friday morning to see the guys mowing it ready for the weekends racing, over the next few hours people began to rock up in dribs and drabs then after the usual catch up chat and ribbing about who's going to beat who, the pits began to get busy with racing aircraft. The majority of the competitors made a Friday appearance to ensure any bugs were sorted out before race day and do some final tuning, with only a handful of pilots not arriving till Saturday morning.

This year's races boasted a larger field than last with Reno Unlimited the only category with insufficient entries, and as the crowd gathered for the pilots briefing it was obvious there would be some good close racing. One thing I have noticed since visiting the National Air Races last year to this year is the growth of Red Bull, and although there are now a number of pilots purchasing ARF's (myself included) specifically for racing this category there are also entries with pilots bringing along there 30cc aerobatic job to have a go and enjoy the weekends racing for something different. This is great as the class is doing a great job of allowing people who don't want to go and buy a heap of new gear to be able to come along and compete.

The long range forecast for Saturday was to be reasonably blowy with possibility of a shower and slightly lighter winds for Sunday, so I must thank the weather man for being reliably wrong and putting on great weather for the whole weekend. The first round of the weekends racing was underway when the Texans took to the air, with Steve Davis in one heat and Pop Davis in the other everyone knew the speeds they needed to match. It was good to see that although the Davis' are faster, they aren't much faster than the others speed wise, they just seem to fly very smoothly which gives them the edge they have. Although there was a few early retirements from the Texan class there was enough entries to keep 2 heats going most of the weekend.

## Air Racing

Following the Texans were the Thunder Tiger Reno (A class specific to this event only) which has unfortunately lost momentum over the last few years and with a first round mishap by one of the pilots was down to two planes for the rest of the weekend.

Next cab of the rank were the Golden Era Racers. These are a great class to watch as it is rare to see some nice scale planes from the 1930's getting their fabric stressed as they head down toward Pylon 1 at full noise, then bank into the corners for some tight turns. One could almost be forgiven for thinking this is what it was like back in the day with the real ones. Perhaps Pop could let me know as he would have been around back then!

With the Geelong boys racing a couple of Monocoupes, Duncan flying a very nice looking Caudron Racer and Dave doing his best with a loaned Sparrowhawk compliments of the Geelong boys, things were set for a great race. To the disappointment of pretty much everyone the Caudron had engine problems on take off and was damaged to a point of not being able to race the rest of the weekend. This left Dave to fly the flag for In-lines over the Radials which he did well coming in to win the heat, only to dead stick on approach. Which dropped him short into the very long outfield damaging the wing beyond repair. With only two left in the class we had a bit of a chat and put my P40 Reno Unlimited up with them for entertainment value.

With Red Bull having enough entries to cover four heats the racing was good all weekend, even with a few dropping out. The other grand part about Red Bull this time is that finally the 30cc petrols are becoming competitive with the 1.20 glow engines. The test bench for this being myself and Pop Davis both running the Seagull MXS-R, mine with the Syssa 30cc and Pop with the OS 120 AX. Proof as they say is in the pudding and the times between us were very similar, myself ahead in some and Pop ahead in others. I must say that they guys who took a stab at 30cc being the comparative engine did a fantastic job of picking it. This year also the petrols were more prevalent than last year, where from memory the glows seemed to have a bigger share of the start line.

Yet another sign of how quickly the class is becoming more popular with the 30cc aerobatic community. A point of note though for those interested in trying, having done a fair bit of testing the props that seem to work best on your average 30cc engine like a DLE 30 is the APC16X14, my Syssa

Hopefully the long grass and out landings that caused quite a few problems for a number of competitors will be rectified for the Nats



doesn't have the torque to match the DLE but does have a bit more RPM so I run an APC15X14. This will save you wondering why you're being left in the wake of others whilst running your normal 18X6 3D prop, aside from that the planes are reasonably stock with standard exhaust or canisters.

Back of the bus were the F1's and this year there were good numbers of which only 1 was not the Seagull Nemesis, this made for some close flying and I'm sure a nightmare for the people on the lights. Nevertheless they did a fantastic job, but more on that shortly. The F1 class was entertaining to watch due to the similarity of all aircraft involved and speeds being similar over the field, I'm sure if it wasn't for a few early retirements the F1's would have been nail biting racing all the way to the last pylon of the last heat.

Saturday night was a busy night for some of the racers with repairs to be carried out so as to keep in the game for day 2, though I did manage to head into the local to enjoy dinner and a beverage with the Davis' then back to their motel room to discuss fine tuning on the aircraft. Waking up a little under the weather Sunday morning (though not too bad) I headed out to see who was about, some of the guys seemed to be gathered around a huddle so that was the most logical place to head to find out what was going on. I arrived at one of the F1 aircraft with what looked like four brain surgeons doing their best to rewire someone's pet poodle to become something from Pet Cemetery.

This was a perfect situation to arrive at as I was sure they needed my advice on where the ears should go. After some friendly banter and a bit of team work the poodle, I mean plane, was ready.

Sunday morning saw the breeze turn so landings and take offs were the opposite direction from the previous day. This was no issue to anyone as it was nothing more than a light breeze all day. Sundays flying saw only a couple of planes drop out of the racing, which was still close to a full field. As the day headed towards the final race it was nice to see only a small amount of carnage for the whole weekend.

For the most of the time everyone had a great weekend, so far as I could tell. The local club members need to be thanked for manning the canteen for the weekend. It was a bit of a shame that some of the pilots attending had to send their helpers down to the judging tent to man the lights. It is fine to say that's OK they weren't racing but it makes a big difference when it comes to someone working on ensuring your planes are ready for the next races. Whether flying the current one, or your caller that works well with you is swapped for someone who may not quite know the way you fly. This can easily make the difference between taking home the first or second place trophy. I hope that this can be sorted out so the entrants are not pressured to supply these people next time.

That aside the weekend was a fantastic weekend for racing and everyone involved did well to keep the heats flowing with only a handful of reruns being required. The presentations saw some of the usual faces but also some new ones, well done to everyone who managed to take home one of the medallions up for grabs whether it be gold, silver, or bronze and to those who like myself, didn't manage to grab one we now have something to aim for next time". Thanks again Byron. And to Les Davis for the pics.

Until next time remember, it's bank then yank!

### 2013 RACE CALENDAR

**Gratton Invitational Calvert (Qld)**

**Feb 14-17 At-6 - Reno - GE In-Line**

**Warrnambool Air Races (Vic)**

**May 4-5 2013**

**Red Bull - Texan - F1**

**Adelaide Golden Era (SA)**

**Virginia SA 12-13-14 April**

**(All categories except Red Bull)**

**Cobram Air Races (Vic)**

**June 1-2 2013 (All categories)**

**Great Texan Race (Vic)**

**Bendigo Vic August\* date to be confirmed**

**Texan - Red Bull**

**National Air Races Cootamundra (NSW)**

**Incorporating MAAA Nationals**

**October 27-28 Oct**