

# Precision Aerobatics

# ADDICTION

# XL

by Brett Mezen

There's an old saying,

*"When you're on a good thing,  
stick to it."*

Well, Precision Aerobatics is certainly following that philosophy with its Addiction range of RC planes.

## My Addiction Grows!

Originally released in 2007 the first Addiction was designed around the philosophy of helping pilots to learn 3D. At 1,000mm (39 in) wingspan and a 750 gram flying weight it's huge wing area produced a wing loading of only 7.9oz/sq ft and a flight envelope never before seen in a fully built up balsa plane. 3 years later the Addiction X was released. The X had followed the Addiction philosophy but had grown to 1270mm (59 in) span and 1200 grams. But those amazing wings and the lightweight design meant that the wing loading was still only 8.18/sq ft. It set new standards in 3D flying and won awards overseas for its design and flight ability. Over 10,000 Addictions and Addiction Xs' have been sold worldwide proving that the philosophy and design works. But as he did in going from the Addiction to the Addiction X, Precision Aerobatics designer Shaun Vanunu knew there was even more to be had from this plane.

## Enter The Addiction XL

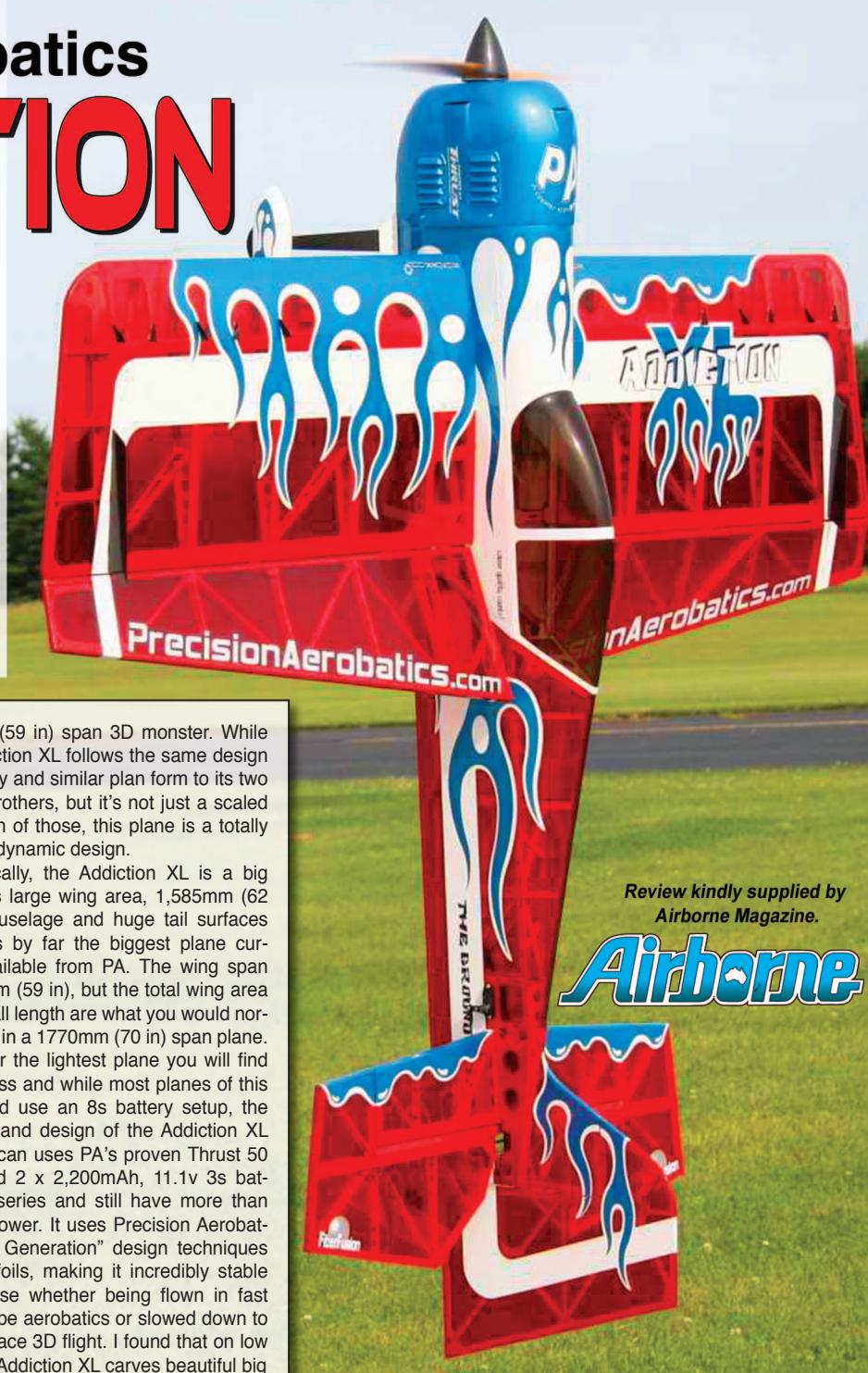
Pilots in the know call them Addy or Addy X. Well here is the Addy XL, a

1500mm (59 in) span 3D monster. While The Addiction XL follows the same design philosophy and similar plan form to its two smaller brothers, but it's not just a scaled up version of those, this plane is a totally new aerodynamic design.

Physically, the Addiction XL is a big model! Its large wing area, 1,585mm (62 in) long fuselage and huge tail surfaces make this by far the biggest plane currently available from PA. The wing span is 1500mm (59 in), but the total wing area and overall length are what you would normally find in a 1770mm (70 in) span plane. It is by far the lightest plane you will find in this class and while most planes of this size would use an 8s battery setup, the lightness and design of the Addiction XL means it can use PA's proven Thrust 50 motor and 2 x 2,200mAh, 11.1v 3s batteries in series and still have more than enough power. It uses Precision Aerobatics "Next Generation" design techniques and aerofoils, making it incredibly stable and precise whether being flown in fast pattern type aerobatics or slowed down to walking pace 3D flight. I found that on low rates the Addiction XL carves beautiful big

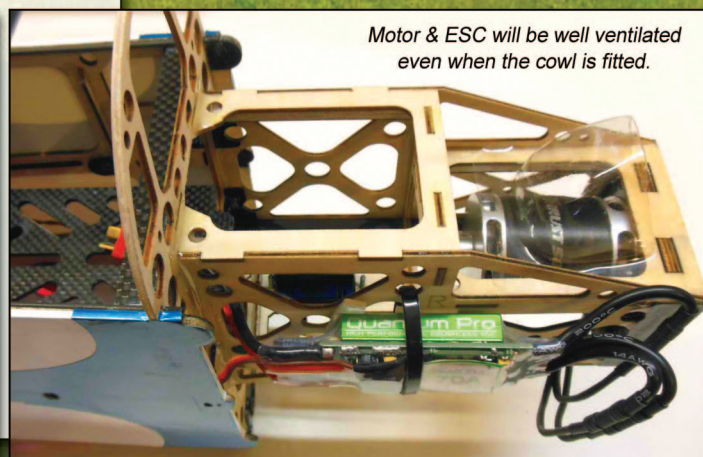
Generous amount of carbon fibre used for strength and light weight.

Motor & ESC will be well ventilated even when the cowl is fitted.



Review kindly supplied by  
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**Airborne**





lines in the sky and flew very precisely and like a much larger plane. Then switch to high rates and you can slow it down to less than walking pace and harrier, hover and torque roll all right there in front of you like you have never done before with such a large plane, but I'm getting ahead of myself.

## In The Workshop

I have a yellow Addiction and green Addiction X and like a true addict I was at PA headquarters the day the container arrived that had the Addiction XL kits on board. My kit came straight out of the container so I was officially the first Addiction XL owner in Australia. I chose the red colour for something a bit different to my smaller versions and being double boxed for safety and sturdiness and with all parts and fittings securely taped in place there was nothing amiss when I opened the huge box.

The bright red translucent covering looked like it was almost glowing under the lights in my workshop and through it I could see the work of art that is a Precision Aerobatics airframe. You can clearly see the sophisticated engineering used in the construction of the laser cut and CNC machined balsa and ply airframe and you also notice a lot of carbon fibre used throughout the entire construction. PA developed a technique called fibre fusion in the design and construction of their planes. This is a combination of balsa, ply and carbon fibre that uses the grain of the wood combined with the carbon fibre in a way that creates super stiff, incredibly lightweight parts. I'm still amazed at how light each part of a PA plane is, yet very rigid and very strong.

Precision Aerobatics offers their planes in various levels of build readiness. You can purchase everything from just the bare airframe right up to everything you need to get in to the air. These more complete packages are called iPA's, that's Integrated Performance Airframe-Drive System, and means exactly what it says. So I purchased the iPA's Power Package and added a carbon fibre spinner and the carbon fibre vortex generators (more on those later). Go to [www.precisionaerobatics.com](http://www.precisionaerobatics.com) and have a look around their website and you'll see what I mean.

Now back to the build. Personally I love manuals and Precision Aerobatics are some of the best out there; they are very in depth and cover every single piece of the build and flying setup in detail. The Addiction XL isn't your everyday ARTF and it uses some very neat build ideas that will give you a better flying plane so I would suggest you use it. Having said that, the build isn't difficult and took me about 10 hours of steady paced work.

I started on the wings where you have to attach the ailerons with standard Mylar hinges and CA. Being as the Addiction XL is a 3D specialist you want to make sure you have large deflection on all surfaces. This leaves a bit of a gap between the wing and aileron but the kit comes with pre-cut strips of covering that you seal the gap with. It's pretty simple really; you fold the strip in half along its length, then lay it into the gap. Taking your modelling iron, you run it down the wing side first making sure the strip is attached firmly. Then you deflect the aileron to 55 degrees and run the iron down the aileron side attaching it there. You end up with a completely sealed hinge line that is super strong and matches the airframe colour. Do this on the underside of the wing and it's just about invisible. The elevator and the rudder also follow this method.

So with the ailerons done I moved to the easily installed tail surfaces. There is one part of building PA planes that concerned me on the first couple of their planes I built. It's where you have to remove

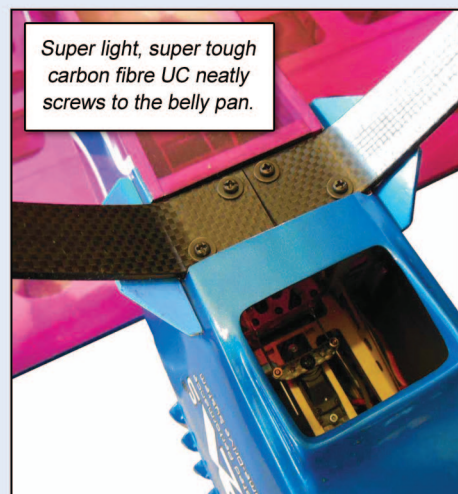
a small part of the rear fuselage so you can slide the horizontal stabiliser with attached elevator into place. But using a very sharp modelling knife or saw make it easy. And a small block of balsa is supplied to plug the gap and once covered in the supplied matching covering you can't see the work. You just have to make sure the stabiliser and elevator are level before gluing them, mine needed no adjustment or sanding at all and then just make sure you do not twist the fuselage when gluing the block in.

Moving on to the servo installs I encountered a small delay. That is because the supplied servos didn't fit the mounting holes. Each hole needed to be made longer by 1-2mm and it is a fiddly time consuming job. I would have expected that they drop straight in seeing as they are the recommended model. The supplied pushrods are carbon fibre, as are the CNC machined control horns and the servo clevises are CNC machined aluminium at the horn with German made ball links at the servo side. None of your soft plastic or bendy wire here; these linkages are rock solid with full and free movement. I do suggest you make sure you have long servo arms to get the required 3D throws, and here again Precision Aerobatics supplies carbon fibre versions that are light strong, look great and result in perfect linkage geometry. Speaking of the supplied hardware, carbon fibre is also used for the wing tube, wing sleeve, landing gear, pull - pull servo arm and in reinforcing the cowling.

To get the required CG the Addiction XL needs its rudder servo mounted as far forward as possible. This has been cleverly placed in the motor box. The design allows for easy installation once the motor box is installed and uses a pull - pull system of supplied Kevlar thread to control the rudder. Being Kevlar, the thread will not stretch over time so once set up, any future adjustments will be minimal. It is a little fiddly to install but when done gives positive, slop free rudder control.

Speaking of the motor box, it is a separate pre-built item that is reinforced with carbon fibre. It is attached to the airframe during the build with epoxy and carbon fibre rods. It's great to see that PA has replacements available as it's better to replace a motor box in the event of a heavy prop strike or front end bingle rather than a complete fuselage, a great design idea.

When complete, the Addiction XL looks superb and with the addition of some of the stickers supplied with the kit you can customise the look more to your liking, though I have to say this is the first PA plane that I added no stickers. I just didn't want to break up the look of those huge clean surfaces.



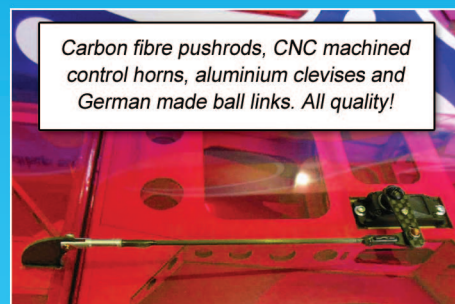
*Super light, super tough carbon fibre UC neatly screws to the belly pan.*



*Large cowl allows plenty of cooling air over the motor.*



*Batteries easily fit behind the firewall to balance out the Addiction XL.*



*Carbon fibre pushrods, CNC machined control horns, aluminium clevises and German made ball links. All quality!*

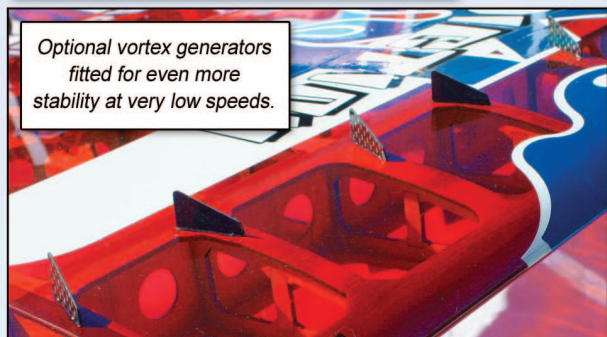


## To VG Or Not To VG?

The Addiction XL joins the list of Precision Aerobatics airframes that use carbon fibre vortex generators on the wing leading edges and tips. These get a lot of interest at the field and on forums as to what their purpose is. In basic terms, they lower the stall speed of the wing and as the Addiction XL can be flown very very slowly, the VG's help even more. PA doesn't supply them as part of the kit and this allows pilots to make a personal choice on their use, but I would recommend them. Watch this video for a great demonstration of the effect of vortex generators; [www.youtube.com/watch?v=SXwVyxorvno](http://www.youtube.com/watch?v=SXwVyxorvno)



*I'm not short, 193cm, so this gives an idea of the plane's size - huge. Luckily the wings are easily removed.*



*Optional vortex generators fitted for even more stability at very low speeds.*



*Note the huge control surface deflection required for 3D flying.*

## Up, UP & AWAY!

I had to remove one wing to fit the Addiction XL into my wagon, which meant a simple one or two minutes was needed to bolt it back on with the supplied nylon bolts and be ready to fly. It was a beautiful sunny day with a slight breeze, I plugged in the batteries, switched to the recommended low rates, checked everything was moving correctly, took a breath and pushed the throttle stick forward.

In just a few metres at about 2/3's throttle she was airborne. I turned into a standard circuit and started checking trims and watching how she handled. It only took 1 click of elevator and 2 of aileron to be flying straight and level, very straight and level. I was immediately impressed with the stability and precision. There are 2 props suggested for the Addiction XL, a Vox 15x8 or a Vox 16x6. I had gone with the 16x6 more for 3D but found the speed was good and when I pulled into a climb the uplines were very nice. I had the batteries pushed all the way up against the firewall to achieve the recommended 3D CG and a dive test and inverted pass confirmed that the setup was just about neutral with the slightest of down stick needed to hold level inverted flight, just how I like it. On low rates the Addiction XL could be used for practising nice big aerobatic sequences, it is amazing that a 3D dedicated plane can fly aerobatics so crisply and precisely. Even a novice pilot would be comfortable building their flying experience with it.

But low, slow 3D is where the Addiction XL is the big kid on the block, so I switched over to high rates and went for it. Lower, lower, was running through my head and I just couldn't stop. I got down to head height and started throwing her around. Now this is a big plane to have flying this low and slow but it is so stable and confidence inspiring it will amaze you. I came around for my first hover, those big control surfaces now giving me full control, in fact I was over controlling a little and had to settle my thumbs down a bit to smooth it out. I was flying with about 50% expo which is a lot less than the 70% recommended in the manual, so it would be smoother at the recommended settings. Over time I have discovered it's a preference for me to have more control around the stick centres so you may want to play with the expo starting at about 70% and go from there. Also that course pitch Vox 16x6 prop made the throttle very sensitive, so again

I had to settle my thumbs down a bit. I will be trying the Vox 15x8 later to see how it feels. But I was still super happy, and going to full throttle had the Addiction XL pulling out in a perfect vertical upline then full rudder tipped her over the top on the wing tip for a stunningly tight stall turn and then back down the same line as she went up on. Very nice indeed.

I flipped inverted for a bit and was feeling great so I went into a rolling harrier, it was so nice I had it rolling along the flight line about 60cm off the deck, then I realised I was 2 minutes into the maiden flight and should perhaps take it a bit easy.

Harriers were up next and into the slight breeze that was blowing it was amazing, sitting at a solid 45 degree angle, zero wing rock at slower than walking pace. I think it's one of the Addiction XL's best looks, these super low, super slow harriers look like they defy physics. But that was before I pulled full up elevator, flying into an ever tightening banked circle that ended up with the plane sitting stationary in the air chasing its tail and it was easy! I was having fun now and getting used to the feel. I found hovers now locked in and torque rolls could be super slow.

I was getting low on battery and realised I hadn't tested knife edge yet so I rolled onto the side and that huge rudder and fuselage side area again just locked it into position. The Addiction XL loves super slow knife edge harriers as well.

The landing was slow and soft and a non-event as well. I have been flying 3D for a while now and can find my way around a lot of the fancy moves that are out there, but I haven't flown a plane that makes it possible to do this stuff so slowly and stable, in fact the only one that comes close is its smaller sibling the Addiction X. But as they say, bigger fly's better, and the Addiction XL is another huge leap forward in big model, low & slow 3D flying. You can watch my maiden flight video here <https://vimeo.com/82918163>

Since the maiden I've put in quite a few more flights on my Addiction XL. It handles the wind extremely well and I'd even say it's good fun as you can literally surf the breeze. A couple of moves that I love with it now are knife edge loops which are super tight and can be done one after the other for 3 or 4 in a row across the field, and it will even knife edge hover into a good breeze. And I mentioned defying physics earlier, well wait 'till you see this plane do a climbing flat spin, simply amazing! I'm more Addicted than ever!



## SPECIFICATIONS

Length	158.5cm (62.4 in)
Wingspan	150cm (59 in)
Weight	2.08kg (4.6lbs)
Wing Loading	10oz/sq ft
Motor	50 size brushless