

Electric Shock

High quality design and construction and light weight give this little 3-D model great performance.

By John Stennard



This new model on the aerobatic scene advertises itself as an 'Easy 3-D Park Flyer'. The box goes a long way to promote the aircraft and, in addition to viewing 13 photos, we are told that 'The Electric Shock is a top quality model that takes small profile park flyers to a whole new level'. Well, the Electric Shock sets off with a lot to live up to so let's lift the lid of the box and see if all that glitters really is gold.

The Bits and the Specs

Opening the very robust and attractive box reveals a profile fuselage, two wing halves, and a tailplane/elevator and rudder. All these are covered in transparent and plain coloured film, green in my case. Purple and red are also available. This is a beautifully constructed model with many dovetail joints on the framework. The emphasis is on a combination of strength and lightness to form rigid frameworks, which are much

better than the average modeller could produce on his workbench. The ailerons and elevator are pre-hinged. The rudder is hinged later with mylar hinges. Surprisingly, an undercarriage is available as a separate item but the instructions also say that 'The

Electric Shock does NOT require LG' (landing gear) and 'plenty belly landings did not damage the model in anyway'. Personally I prefer models with landing gear and was able to purchase the landing gear parts from Al's Hobbies, the distributor of this kit, for £6.99. A small bag of accessories includes some ply parts, pushrods, control horns, CF pushrods, CF wing tube etc. The control horns are made from CF as is the motor mount and the box actually lists 11 parts of the model that are made from CF.

The instruction booklet is in A4 format and runs to 8 pages using a combination of

The Electric Shock is well packaged with plenty of info on the box

ELECTRIC SHOCK
Easy 3D park flyer

PrecisionAerobatics.com
'cause quality counts!

The Electric Shock is a top quality model, which takes small profile park flyers to a whole new level! This high performance 3D aircraft will allow you to significantly improve your 3D skills without risking your larger and more-expensive models.

With its large wing area, low flight weight (— very low wing loading!), and huge control surfaces the Electric Shock allows you an easy recovery from any maneuver at a very low altitude.

Specialized structure engineering and clever use of Carbon Fiber throughout the aircraft gives the Electric Shock its excellent crash resistance and its light-weight.

Two-piece removable wings with carbon fiber wing tube and CF wing sleeves, make the model extremely strong. It is also very easy for transportation and storage, and 'yes' you got this right: no hassle of gluing or installing the wings to the fuselage! The Electric Shock is a real AWP and can be built in just a couple of hours.

So if you want to improve your 3D skills the Electric Shock will become your best friend and if you are already an experienced 3D flyer it will be your show off aircraft. In any case, this plane will make you smile!

Wingspan: 700mm (28")
Length: 500mm (20")
Wing weight: 300g (1.1oz)
Wing load: Approx 200g/m²
Wing loading: Approx 6.5 lbs/ft²

Get some excitement!

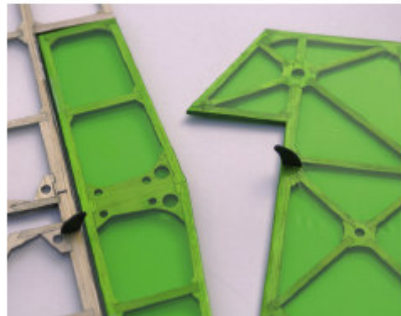
photos and text so the assembly process is well covered. Although no flying instructions are included, under the Radio Set Up section there is additional information about mixing flaperons and elevator control for some manoeuvres.

The E-Shock was clearly going to take a very short time to assemble, particularly as the wing halves bolt in place on the fuselage so it was time to assemble the R/C gear and get moving.

Other Essentials

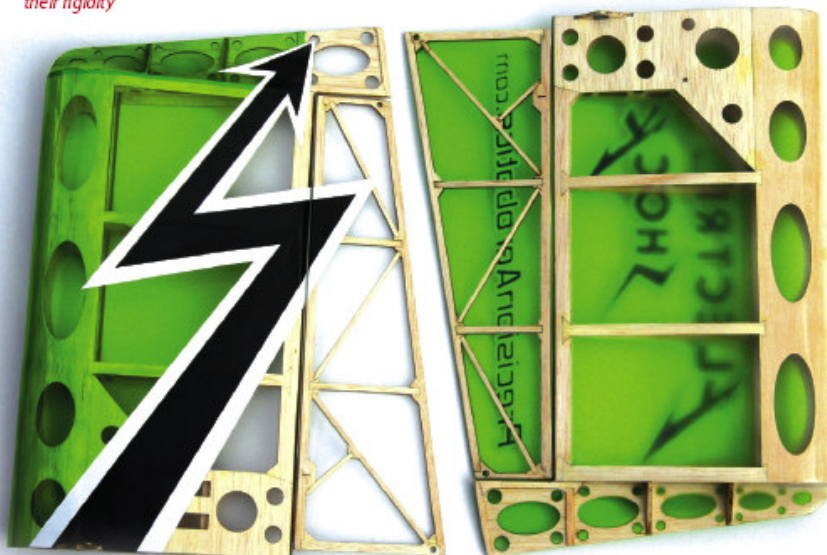
The instructions suggest a 3S 1000 mAh LiPo pack with a weight of 80 g or less and a motor with a 15-18 A controller. Four 6.5 g servos are also required. Our editor had included an Extreme Flight Torque Series outrunner for the model which proved to be similar to the suggested PA Thrust 10 brushless outrunner. The Torque 22T/930 is a 57 g motor with a 930 kV rating. It has a current range of 8-16 A and an APC 10" x 4.7" E is recommended if a 3S pack is used. I used four Ultrafly ST-6 Micro Servos. These are 5 g servos with a 0.8 kg/cm torque and a speed of 0.10 sec/60°.

As it fits inside the wing at the wing root the receiver has to be small so I chose a 3.5 g Spektrum AR6100.

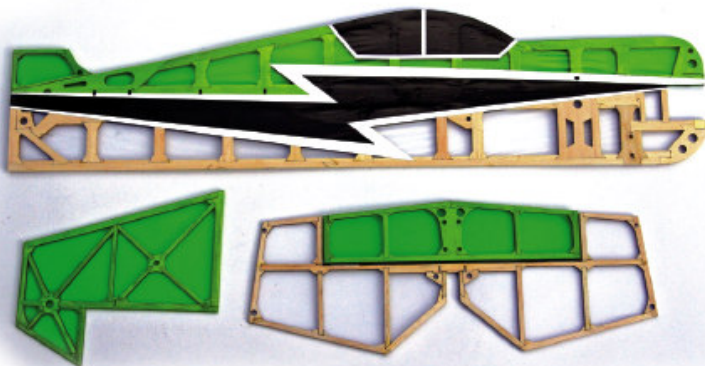


The control surfaces are pre-hinged and CF horns are a very nice accessory

The wings are lightened wherever possible but retain their rigidity



Due to low parts count there is plenty of room in the box



A dovetailed construction ensures a twist free framework

Bolt Up

Well of course there is slightly more required than just bolting the wing halves in place but not a lot! My model had no warps but did require some work with the heat iron; a heat gun can be used if preferred.

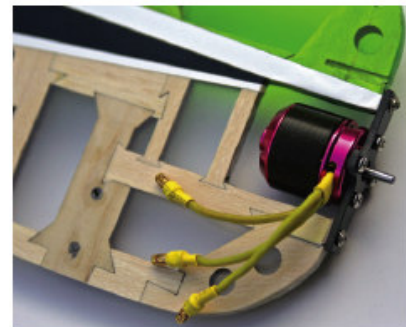
In the instructions emphasis is put on slop free linkages and a number of ply pushrod guides are glued into the fuselage. The combination of the guides, CF push rods with wire Z-bends and the CF control horns

is very effective and control surfaces are firm and slop free.

A 1.2 mm hole is made in the balsa framework for the tailskid wire and this is just pushed in and secured with CA. To make this more secure I bent a 90° angle in the wire and then bent the required angle for the tailskid. After gluing the wire in the hole I added a 'U' shape length of bent thin piano wire to secure the bent portion of the tailskid to the fuselage. Of course if you are not fitting the landing gear, a tailskid is not required.

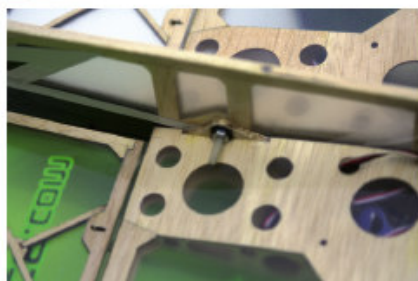
Provided you use a micro size Rx, installing it in the wing root is easy but check all the connectors are in the correct sockets before bolting the wings in place (guess who didn't?)

The CF plate provides a simple and secure mount for the motor





A carbon fibre wing joining tube is provided



Two nylon bolts and nuts hold the wings firmly in position aided by the CF tube

The ailerons can either be set up using the aileron channel and a Y-lead or, as I did, using the flapperon setting and two separate channels.

I personally prefer an undercarriage as it can protect both the prop and the motor in addition to adding realism. Apart from disliking the thin CF wheels which are distinctly un-scale, the U/C fitted easily on the model. I was slightly concerned by the lack of reinforcement of the fuselage around the U/C mounting area and this indeed proved to be a problem. After only a few flights, the area of the fuselage around where the U/C legs were bolted in place failed. I removed the U/C legs and glued two, inverted 'T' shaped, strengtheners made from 1 mm ply in place. The holes for the bolts were drilled and the U/C reassembled. This gave me an excuse to replace the wheels with a foam/plastic, spoked type.

To keep the Electric Shock close to the quoted all-up weight of 396 g/14 oz, I used a 3S 730 pack. I was concerned about overloading it but could always reduce the 10" x 4.7" prop size if necessary. This was perfect but my concern then was that although the pack was a 20C type, I could easily overload it, although an option was to fit a smaller prop than the 10" x 4.7" and reduce the current.

Up and Away

I did the usual high alpha hand launch and the Electric Shock, on far less than full power, rewarded me with a perfect vertical climb. After a couple of circuits to get the feel of the controls it was straight into some aerobatics and the model proved to be a very capable performer. The tight loops, wide loops, fast



The control rod layout can be seen in this photo

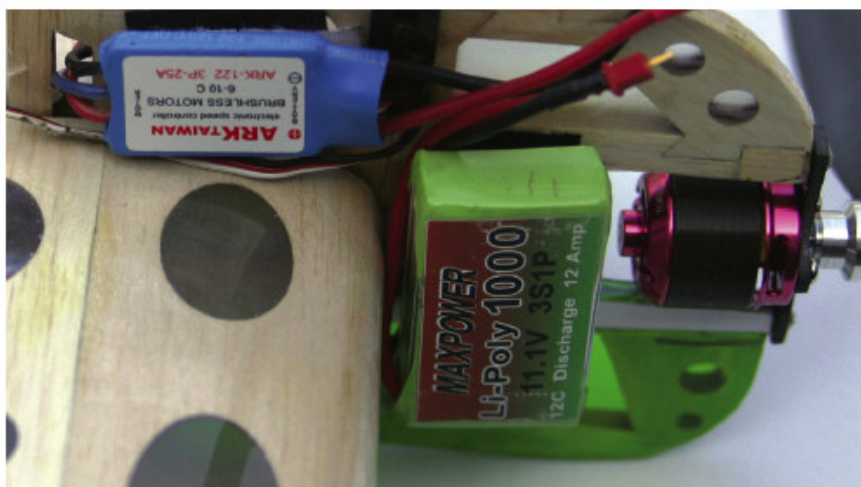


I tried 730, 900 and 1000 mAh packs and all worked fine

rolls, slow rolls, a good inverted performance and knife-edge were all done with ease and showed that this model will perform any manoeuvre that the pilot is capable of flying. Full throttle was very rarely used so the smaller capacity battery pack easily supplied enough power for an 8-10 minute flight. The Electric Shock tracks well and the stall turns are very clean. It has one of the best 'hovers' that I have come across.

I feel that my model has more power available than required so I could easily change to a smaller and lighter motor. The recommended motor has a thrust of 900 g, which for a model weighing only 390 g represents a 2.3:1 power ratio, which is very generous. I do not think a 140 W motor is essential for this size of model. I tried the

My controller at 25 A was bigger than required but was the only spare one I had!



Strengthened with 1 mm ply, the U/C mounting caused no more problems

heavier 1000 mAh pack and felt the additional overall weight was only noticeable in inverted flight. I also tried a Graupner Slow-Fly 9" x 5" prop with both a 730 and 900 mAh battery pack and thought the performance was even better so there is clearly room for experimentation with the motor/prop/battery set up.

The flights for the cameraman were done in quite windy and gusty conditions and the Electric Shock coped well. It was possible to hold the model at a high alpha angle in various attitudes and hover it into the wind. This made the cameraman's job much easier!

Final Thoughts

The ingenious design plus the construction and quality of finish of this model are excellent and all it said about itself on the box is deserved! The problem I had with the U/C mounting is at odds with the rest of the model and if starting again I would just forget about the U/C.

A competent pilot certainly could fly it in a relatively small space so its Park Flyer capabilities are justified. I shall really enjoy putting this model through its paces while keeping it in close. It will be a bit like indoor flying done outdoors!

If you are not used to flying lively high performance models like this get an experienced pilot to check it out for you first. I used 100% expo on all the control surfaces and would also recommend using a dual rate setting for initial flights.

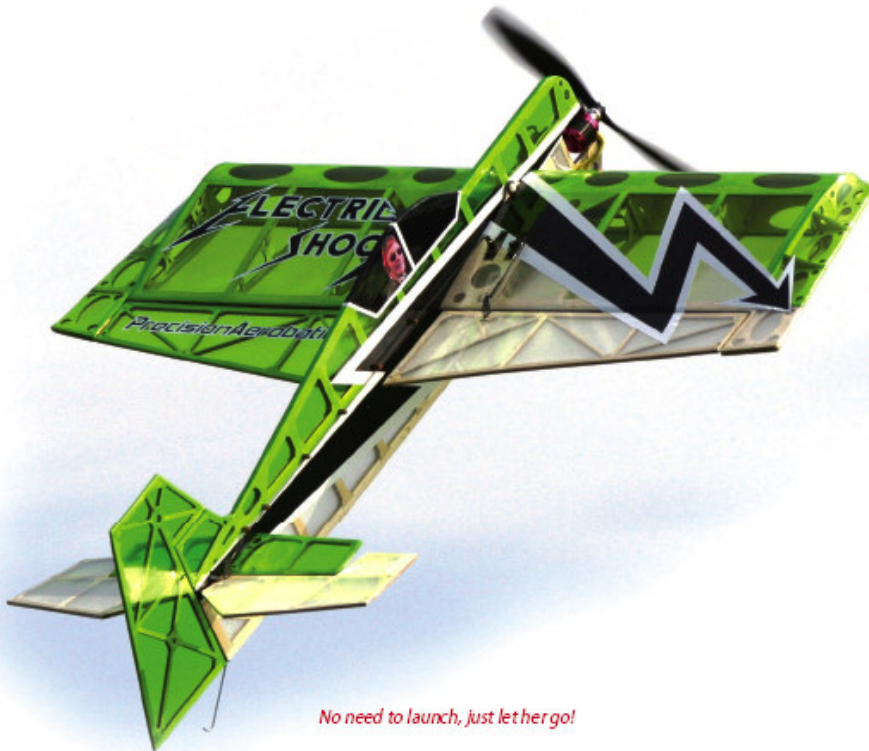
Q&EFI



The landing gear set. These are really only 'indoor' wheels and for a lighter model



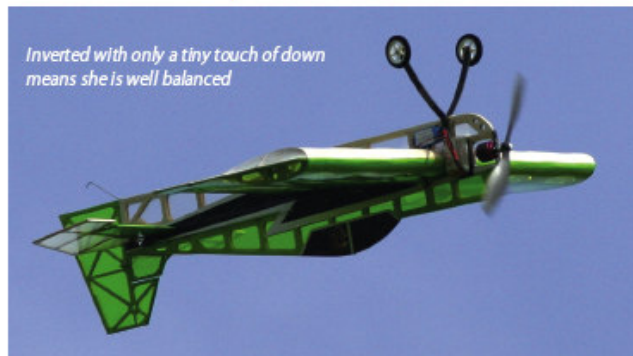
The replacement wheels were a great deal better looking and stronger too



No need to launch, just let her go!



Ready to fly and looking really attractive and dynamic



Inverted with only a tiny touch of down means she is well balanced

Q&EFI Specification



Model Information

Model Name: Electric Shock
 Manufacturer: Precision Aerobatics
 Distributor: Al's Hobbies, 219 New North Road, Hainault, Essex IG6 3 AG
 Tel: 020 8500 8884
 Fax: 020 8500 8887
 Website: www.alshobbies.com
 Price: £54.99, optional U/C set £6.99
 Model Type: 3-D aerobatic
 Construction: Balsa, plus carbon fibre

R/C Functions

- 1 Aileron (two servos)
- 2 Elevator
- 3 Rudder
- 4 Throttle

Model Specifications

Wingspan: 780 mm (30.7")
 Length: 820 mm (32.3")
 Weight: 396 g/14 oz
 Wing Area: 326 sq in -
 Wing Loading: 6 oz/sq in

Likes

The ease of construction, the stylish looks and excellent performance

Dislikes

The wheels and the U/C fixing

At any angle the fantastic construction is seen to advantage

