

Wings Maker Sunrise EP

Styled on current F3A aerobatic designs the Sunrise is what I call a "Proper little aeroplane." This is my term for models that include aerofoiled sections on the tailplane and fin. Why? They just fly better.

This moulded EPO foam ARF stunter is manufactured by The Wings Maker, a division of The World Models. A minimum of four channels, but fitting a six channel computer set and setting up flaperon mix can enhance the flying qualities by utilising adjustable aileron differential and flap elevator interconnect. Available as RTF or ARF it is available with a choice of pink or black trim. For this review, ARF, World Models optional servos and electric motor were also supplied. There is a choice of two motors. When ordering the servos, they are available in various lead lengths. Choose 340 mm for the two in the wing so that the plugs will extend neatly just past the wing root into the fuselage. This does not matter for the rudder and elevator servos. Mounted aft in the fuselage they require servo extension leads.

The quality and attention to detail of packaging takes on greater importance today as more models are being purchased online. This is where you purchase this. No problems with any component were encountered as each part was cut free from the robust carton. A quick parts check and I thought the prop driver was missing but this minor omission did not delay construction. Quality and finish of moulded parts is excellent. One design feature that impressed me was the mounting of both tailplane and fin. The stab just slides into place on a rectangular flange, likewise the rear section of the two piece fin. A 10mm wide rudder post includes the rudder hinge

SPECIFICATIONS

Wing span	1,000 mm (39.5")
Length	1,110 mm (43.7")
Wing Area	18.8 sq dm (292 sq ")
Flying weight	760g (27 oz)
Motor	28 mm Outrun 1015 kv
Optional	25% more powerful used for review
Battery req	1,800-2,000 mAh 3 S Lipo
ESC required	25 A
Radio req	4-6 ch
Airframe	ARF fully moulded EPP type foam

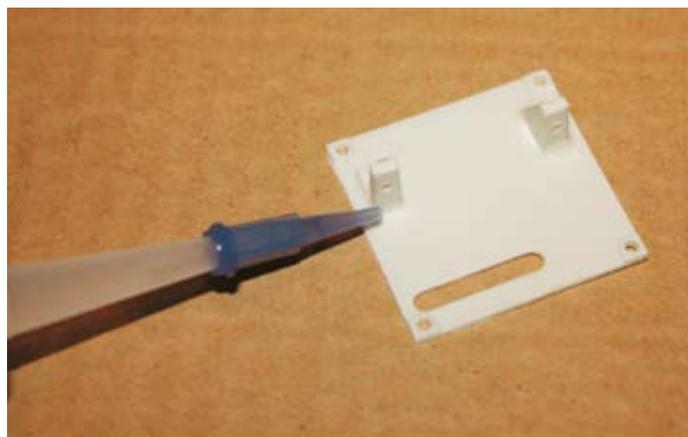


and this slots into the fin. This clever piece of engineering alleviates the usual fiddling to clear the rudder and elevator during assembly. The fit was also perfect, but the only blemish was a slightly less than perfect match of aerofoil at the top. Finishing the model is much easier if the empennage is glued in place when the rest of the construction sequence and installation is completed. That is standard operating procedure in my garage.

There are a few items to complete before glue is applied and the first is the live hinge line. Included in the kit is some fibre lined tape which must be applied along the bottom of each trailing edge and leading edge of the control surface. The hinge line in most foamies, (certainly in my collection) eventually starts to crack (but I haven't had a failure yet) and the tape is supplied to prevent this occurring. Applying the tape as per the instructions is quite fiddly. After applying the tape to one wing panel, I felt the hinge was too tight and would affect servo centring. The tap was removed and a couple of 10 mm wide sections were added at the inboard and outboard end instead. Sort of half a control line hinge which is what Phil and I used on those RTP models. The same treatment to elevator and rudder finished the job. The performance of my

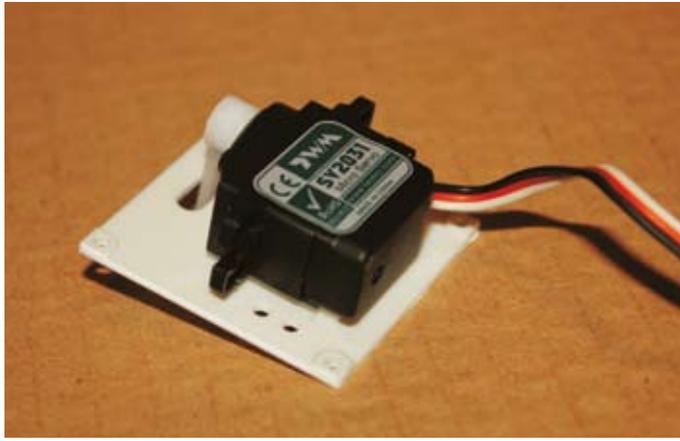
modification will have to be monitored. Each servo mounts on a nifty little plastic panel on a pair of ninety degree angle mounts. These are glued to the inside face but the torque from tightening up the servo screw as too much for the CA glue joint. Not having the correct size drill bit to ease the hole slightly, I replaced the assembly with double sided servo mounting tape. Choose a thin tape if you take this option. Anything thicker than 1mm will distort the aileron plate. This method has proven acceptable in a few high performance piston engine models of mine. The servo arms have to be drilled to accept the pushrod wire. This is held in place with a snap keeper and to provide ample clearance I chose the outside hole on the servo arm. Often this means a large reduction in ATV to obtain acceptable control throws but that would have to wait until sunrise the next day.

The bolt holes in the motor mount are a rectangular pattern which means the wiring must face either up or down. After trying both the upper angle produced the best result. Getting the first set screw into to motor was fiddly. Poke the wiring loom out through the cooling air inlet, get the bolts in then hook the wiring back, along the outside of the plywood frame. Be careful not

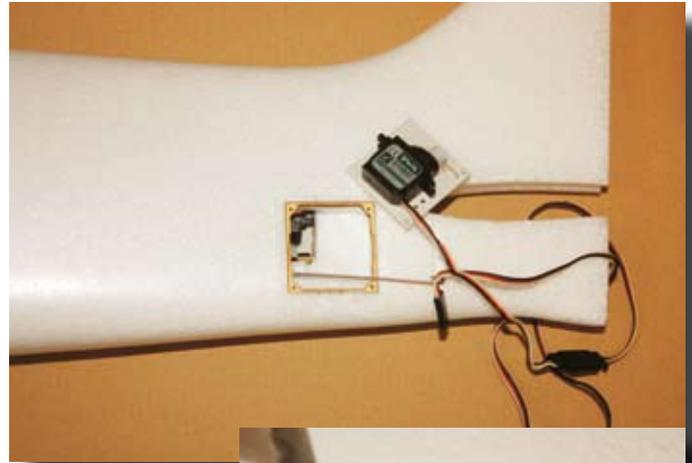


Glue servo mounts with thin CA. Blue dispenser tube from Deluxe Products fits over the nozzle on most bottles

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Double sided servo tape is my preferred option



Servo linkage with keeper at one end and kwiklink the other (yes two screws left to fit)



Anyone who has built a model that the rudder extends below the elevator hinge line, will appreciate this clever engineering



Ease out the holes in ply mounting plate before running self tappers through

to overtighten the motor screws; the softish ply mounting ring will crush. Just as it is stated in the instructions. Electric motors driving propellers still produce vibration and a dab of Locktite on each screw safeguards against them winding loose.

Components chosen to complete the model were a Spektrum five channel receiver, Multiplex 20 amp ESC, Fullymax 1800 25C 3S LiPo. Servo extension leads required are a pair of 150 mm for up the back and either a short Y Lead for aileron or another pair if flaperon mix is selected.

Undercarriage is a very simple affair. Because there is a hard surface available near my place I fitted the spats. If not I suggest leaving them off, which gives the option of fitting larger diameter wheels. Before bolting the wheels on and gluing the tail in, the last job is applying some colour from the extensive selection on the decal sheet.



Ditto the tailplane

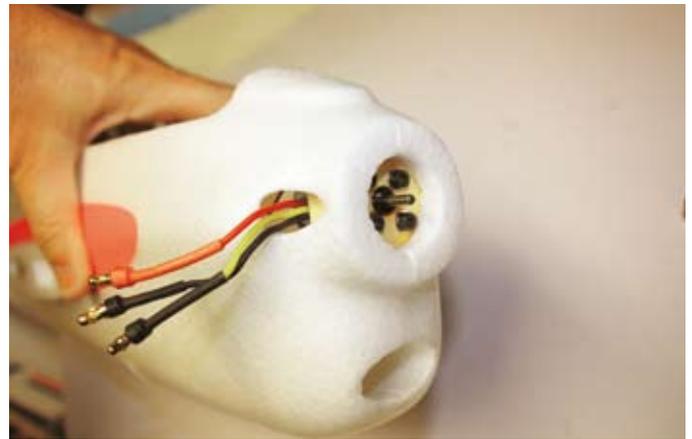
Actually they are stickers; decals used to be those water based adhesive jobs that slid off the backing paper.

Rather than the quite complex and time consuming scheme on the box, I chose a splash of colour and set to work. The easiest way to line stickers up is to remove a small section of backing paper at one end. Lightly position the sticky end and when happy with the alignment, slowly remove the remaining backing sheet and

work out any air bubbles as you proceed. The mark of a good quality sticker is the adhesive, the better ones can be removed a couple of times and re pressed if the alignment is skewiff. With any sticker or any trim placed on the outboard section of the wing, it pays to occasionally check that the leading edges are not lifting. If you are not adept at suddenly having to hold half aileron to make the aeroplane retain level, a sudden out of trim condition created by this can catch you out.



Filing the plywood motor mount is required if using the upgraded motor otherwise wires foul outer casing



Poke wires out through the cooling slot then hook back inside with a pull through



Don't forget to order the prop adapter



There's a bit more to soldering motor and battery wires than you think. For the inexperienced, an extra pair of hands can help. *(Why thank you thing!)*



TX and I was happy with the throws. Top rudder tends to roll the model out so start your knife edge mix with 3 % up elevator and 23% aileron mixed with rudder. After this amount of time there was still sufficient power to pull a knife edge loop. Still not happy with the pitch trim, a simple change of battery pack was to eliminate or decipher the cause. Was it a servo centring problem or tail heavy? Replacing the 1,800 mAh pack with a heavier 2,200 fixed that minor niggle. The model flew better. I cannot stand servos that don't centre adequately and these WM units were okay. Control throws on low rate were set as follows

	Throw	Up	Down
All		12mm	10mm
Elev		10mm	11mm
Rud		20 mm both ways	

Not quite enough elevator on low rate to remain in a spin without 1/4 throttle and



Fullymax fully forward. CofG is slightly aft with recommended 1,800 mAh. Flew much better with heavier 2,200 3S. High power to weight ratio hauled it vertically from take off and it kept going up

FLYING

As one would expect this model will perform all aerobatic manoeuvres, but if you are looking for more, there is more. And if you want more, buy the more powerful motor. Throttle pushed open and, two seconds later, as the power came on I knew there was enough to go, straight up. Exited the take off climb after a half roll to pull out inverted some 50 metres up. Is that disrespectful to test a new model that way? I don't know!

Model was pitch sensitive and a landing back across the fence to reduce ATV. Ten short hops and scores of beeps on the DX-7



Fairing taped to uc wire and cyanoed at fuselage end

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Goes where it's pointed



Ditto inverted

other than that she does it all. Inside snaps are also good. It may seem unusual to use a folding propeller but the thinking is it reduces the possibility of damaging the motor mount if the model tips over. The landing and take off qualities of the Sunrise are so benign you would have to do a pretty good dumb thumb to do this.

Speaking of dumb thumb, it's confession time. My modification to the hinge system came unstuck on the last landing. A downwind short field approach over the fence on the cricket oval boundary placed undue load on the rudder hinge. It departed and flailed about in the breeze hanging off the

kwiklink after I struck the railing. A bust of power kept the show going and no further damage.

Did you notice the lack of spinner in the flying shots? One of the screws was dropped when installing the spinner and it bounced under the bench, never to be seen again. I couldn't find a replacement. One other item expected to come loose was the fairing on each undercarriage wire. I used clear Sellotape to attach them and a dob of foam friendly CA at the anchor point of the fuselage. Half of the dozen landings onto the bitumen were a bit hot and required a hand brake turn to avoid the scrub. On

a hard surface the outside leg bucks and bends in protest yet the fairing stayed in place. Happy with that.

If you are new to flying an aerobatic schedule, the rear page of the instructions shows one. Excluding snaps and spins, any schedule is a combination of the basic loop and roll. Half rolls, quarter rolls, half and quarter loops are used to exit and position the model at either end of the sky for the next manoeuvre. If you can memorise, or have a caller to talk it through, there should easily be enough battery capacity to get through the schedule provided.

Good quality components and an easy to follow instruction book made putting the Sunrise together an enjoyable experience. If fitting the World Models motor, knowledge or access to someone capable of correctly soldering motor wires is required. Other than that detail, anyone who has assembled a few ARF models of any description will find this is a cinch. On the workbench and in the air, which is where you will discover the beauty of these designs, they go, and within reason, stay, where they are pointed. It flies like a proper aeroplane.

The Wings Maker Sunrise EP is available online from JRC Models Australia. www.jrcmodels.com.au

25% aileron knife edge mix is a good starting point when you start to learn about applying top rudder

