

3DfoamWorks's Flash

Super Lite - Amazing Performance

www.3dxhobbies.com



Wing Span: 31"

Length: 31"

Area: 264 Sq."

Weight: 6.5 - 10oz (Depending on equipment.)

Designed By

Jon Ziering

Thanks for purchasing the CustomCDR Flash. The Flash was designed with 3D in mind. The Flash is fully capable of freestyle and 3D flying.

With it's large control surfaces, light weight, and sleek design, the Flash performs wonderfully.

The Flash was drawn in CAD, and kits are cut with a CNC machine. Pre-notched tabs ensure perfect alignment, and very quick assembly.

Here are the Specs:

Wing Span: 31"

Length: 31"

Weight: 6.5 - 10oz depending on equipment.

Equipment needed to complete the kit:

- 1) CustomCDR 20mm Single
- 1) 10 amp ESC
- 3) Sub-micro servos
- 1) Micro receiver
- 1) 3s 350 - 830 Tonic Pack
- 2) 12" servo extentsions



1) Lets start the build by gluing the two parts of the middle stringer together.



2) Now take the middle stringer, and glue it to one side of the fuselage.



3) Next, glue the top stringer onto the fuselage, starting from the back, up until the curve of the canopy. Then, curve the top stringer over the top of the fuselage, and glue into place.



4) Now carefully glue the other side of the fuselage onto the assembly. Double check while gluing that the fuselage is straight.



5) Install the horizontal stabilizer. Ensure it's perpendicular to the fuselage, and centered into the middle.



6) Now it's time to bevel all the surfaces. Make sure to bevel the correct side of the ailerons. There are many different ways to bevel a surface. Some like to use sanding blocks, other a ruler and a sharp X-acto blade. As long as we end up with the same result, use which ever method you prefer.



7) Now, hinge the tail surfaces. I recommend using tape on both sides of the

**rudder, and only the top of the elevator.
I recommend using Blenderm Medical tape for hinges. If you can't get a hold of some, any type of Scotch tape works well.**



8) Next, install the battery hatch guides 3mm down from the top of the fuselage, as shown.

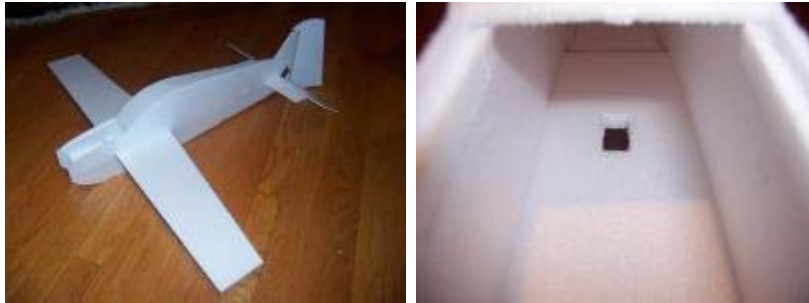


9) Next install the flat carbon rods onto the leading and trailing edges of the wing. I recommend working on a flat surface for this. Be very careful to glue them on, without creating any warps. If you do encounter a warp, we do have a second chance to resurrect the warp when we add the wing rods on later in assembly.



10) Next slide the wing into the fuselage assembly. Line up the aileron servo

cut outs in the wing, and middle stringer. Before gluing, make sure the wing is even with the horizontal stabilizer.



11) Next, we install the battery tray doubler.



12) Now we can hinge the ailerons.



13) Now, it's time to assemble the landing gear. -The landing gear are optional- The Flash hand launches and belly lands well if you fly off of thick grass. The landing gear will work well off of short grass, smooth dirt, or

pavement. Bend the music wire $3/4"$ x $1\ 1/2"$ in length. Cut the landing gear carbon rods to $8"$, and the other $5\ 1/2"$ long. Glue onto the leg pants. Next, use the Kevlar thread to attach the music wire. Soak in super glue.



14) Next, install the landing gear assembly through the pre-cut wholes in the fuselage. The carbon fiber rods should be glued into the middle stringer, over the leading edge of the wing. Also glue the two carbon rods together.

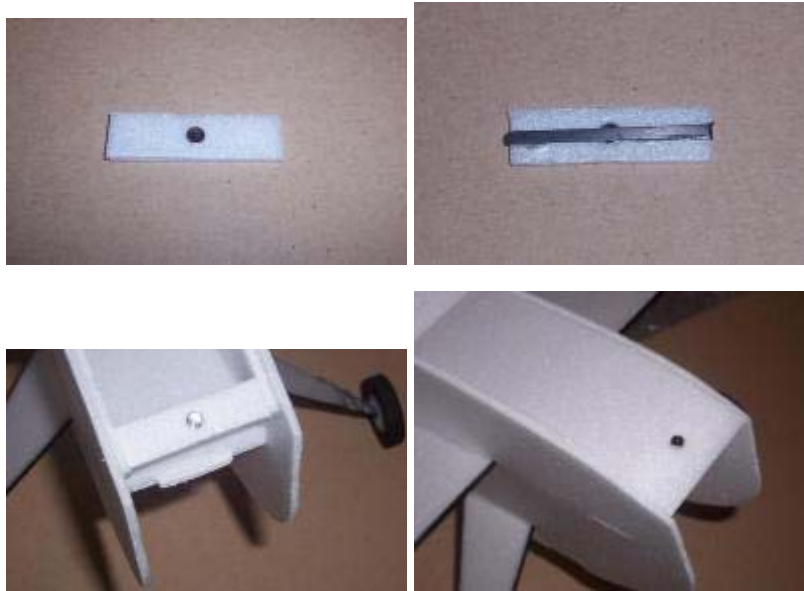


15) Install the battery hatch with tape as shown. Then carefully bend the battery hatch to shape. It's a very slight bend.



16) Insert the magnet into the battery hatch magnet holder. Then install a piece of carbon over the back of the magnet holder. Install the magnet

holder into the Fuselage. Next, install the magnet into the battery hatch. Make sure the correct side of the magnet is facing down.



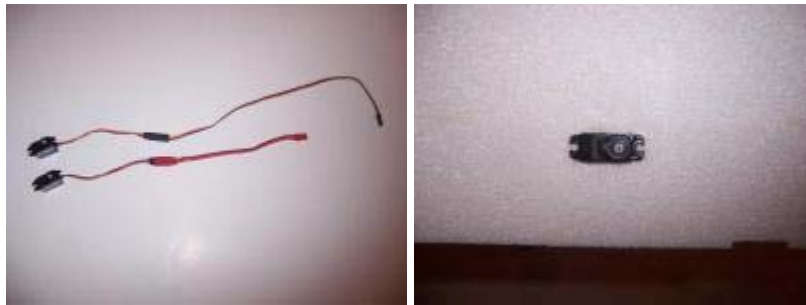
17) Next, find the foam firewall, and laser cut motor mount. Glue together. Then install the motor. In this case, the best motor for this application, is the CustomCDR 20mm Single.



18) Now, install motor assembly into the fuselage. There is a notch in the foam to ensure a straight bond. There should be 0-0 directional thrust.



19) Install servo extensions onto your servos. I'm using a 6" extension on the rudder servo, and 12" extender on the elevator servo. Install servos into the pre-cut slots. Glue in place with CA, or hot glue.

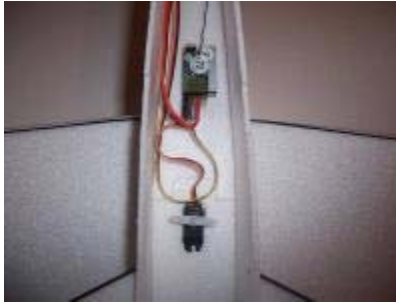


20) Cut a small whole in the middle stringer below the elevator servo cut out. Wick the servo extension through the whole, and down the bottom of the fuselage. A piece of music wire, with a 90° bend can help snag the extension, and help pull it through the whole.



21) Install the aileron servo. The aileron wire should not go below the center stringer. Glue the servo with the wire sticking up. Install your receiver with double sided tape, or Velcro. plug in the servos. Now is a good

time to center the servos before making the linkages.



22) Now install control horns into the surfaces

23) Bend, and attach the control rods.



24) Cut a small whole in the middle stringer behind the landing gear.



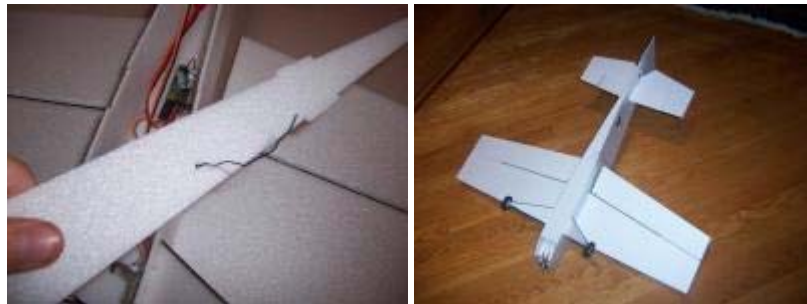
25) Using double sided tape or Velcro, attach the ESC to the side of the fuse. Next, insert your battery lead into the whole in the middle stringer. Open the battery hatch, and pull the lead into the battery bay.



26) Cut a small whole in the bottom stringer using an exacto knife.



27) Next, slide the antenna through the whole in the bottom stringer, and glue the bottom stringer onto the fuselage assembly.



28) Install the wheels. There are a few ways to hold them on. I used wheel collars, but reccomend using a "Z" bend to hold the wheels on.



29) Next, we install the wing rods. If your wing has a warp from gluing the flat carbon on, now is the time to correct it. Either pushing, or pulling out the warp. Glue the ends to the main carbon landing gear rod (as shown)



We're done! The Flash is now complete. Now is also a good time for decoration, and radio setup.

Radio Setup:

Double check that all surfaces move in the right direction.

Low Rate Recommendations: (Measuring from the farthest point away from the hinge)

Ailerons - 1 1/4" in each direction.

Aileron Expo - 25%

Elevator - 1" in each direction.

Elevator Expo - 20%

Rudder - 1 1/4" in each direction.

Rudder Expo - 15%

High Rate Recommendations: (Measuring from the farthest point away from the hinge)

**Ailerons - 2" + in each direction.
Aileron Expo - 35 to 40%**

**Elevator - 2" + in each direction.
Elevator Expo - 40%**

**Rudder - 2" + in each direction.
Rudder expo - 25 to 30%**

Center of Gravity

The Flash has a wide selection of CG points. I recommend 2 1/2" back from the leading edge for 3D flying. For your first flights, you may want it slightly in front of that. If you also plan on sport flying, around 2" is a great place to start.

Flying

The Flash is a very stable aircraft, but very nimble if needed. For your first flight, take a couple of circles on low rates to get used to it. It should fly level with no correction, once trimmed.

If you're planning on flying aerobatics, start on low rates. The rudder is very effective, and can turn the airplane on a dime. In Knife edge flight, it needs less than half rudder, and half throttle to hold it. It creeps along in knife edge at an incredibly slow speed. Inverted is just as stable as upright. That goes for inverted harriers as well. There is no wing rock, and all the controls feel as solid as level flight. Snaps, from inverted or knife edge are great. The Flash stops on a dime in any orientation, and keeps going straight.

The Flash is a joy to fly. It can fly in incredibly small spaces too.

Enjoy guys!

Jon Ziering

