

Toon F-14

Build Instructions



Model Info

Wing span: ~21" 53cm

Length: ~27" 68.6cm

Battery: 3s 700-1000mAh lipo

Servos: HXT 5g or hs55 or better

CG: 10cm back from leading edge

Motor: 1300-1700kv 100w brushless

Prop: 8 X 3.8 slowfly

ESC: 15amp

TIPS!

Build tips

- Use multi temp hot glue and a low temp glue gun.
- Use a small amount of spray adhesive to hold the plans to the foam.
- Take your time cutting out the parts (the job you do here determines the fit and finish).
- Replace your razor blade every few pieces.
- As soon as you have the airframe built (end of ch 2) paint your desired scheme.

First flight tips

- Make sure the throws and CG are set per the instructions.
- To launch, hold plane by the cockpit and give a strong slightly upward underhand throw. Use half throttle and increase power slowly.
- This plane needs a bit of power all the way up to landing. Make sure to cut the power just before touch down and flare!
- Fly in a wide open area until you get the idea of how much space is needed to fly this model.
- Have fun!
- Don't let your buddies fly it!

Forward Fuselage

The forward fuselage is made of project board with the paper removed. You can use any 5mm-6mm flexible sheet foam.



Lower Fuselage

The build for the lower part of the forward fuse is very easy and will seem familiar if you have built any of my other planes.

1. Starting from front to back, glue the sides onto the outside of the fuse crutch. (Fig 2.1)
2. Again starting from front to back, glue the fuse bottom to the inside of the fuse sides. (Fig 2.2-2.3)

FIGURE 2.1 Crutch and fuse sides assembly



FIGURE 2.2 Fuse bottom going on



FIGURE 2.3 Fuse bottom completed



SECTION 2

Nose Cone

The forward upper fuse requires bending the flat sheets into 3d objects. This may be hard at first but if you take your time you can do it!

1. Find and pre-bend the front nose piece. (Fig 2.4)
2. Start glueing the gaps in the relief cuts. Make sure the bottom edges lineup. (Fig 2.5)
3. Start glueing the nose cone onto the completed lower fuse. Work from front to back carefully aligning the edges. (Fig 2.6)

FIGURE 2.4 Nose cone with slight prebend



FIGURE 2.5 Nose after gaps glued shut



FIGURE 2.6 Nose being glued on



SECTION 3

Cockpit / Turtle Deck

The building of the cockpit and turtle deck on this plane may seem scary but if you go slow and bend as you go, it will come out looking great!

1. Locate the cockpit / turtle deck piece “the crazy piece with all the relief cuts”. (Fig 2.7)
2. Starting from front to back, close and glue the relief cuts on each side. Make sure the bottom edges are even. (Fig 2.8)
3. Continue one gap at a time. (Fig 2.9)
4. Once you reach the middle, the shape should start sloping down. (Fig 2.10)
5. The finished part should look like a half egg. (Fig 2.11)

FIGURE 2.7 Cockpit / turtle deck piece



FIGURE 2.10 From here the shape slopes down



FIGURE 2.8 First two relief cuts closed



FIGURE 2.11 Half egg shape



FIGURE 2.9 Four relief cuts closed



Fuse Final Assembly

1. Start glueing the cockpit to the lower fuse right behind the nose cone. (Fig 2.12)
2. Work your way back glueing a small section at a time. Jump back and forth between right and left sides. (Fig 2.13)
3. When you finish, glue the joint between the cockpit and nose cone. (Fig 2.14)

FIGURE 2.12 Glue cockpit right against nose cone



FIGURE 2.13 Working toward the back



FIGURE 2.14 Finished forward fuse



Rear Fuselage

The rear fuselage and wings are made of 6mm depron or other stiff 6mm sheet foam.



SECTION 1

Rear Lower Fuse

1. Tac glue the fuse bottom to the fuse side. Use very little glue, as you will need to remove the fuse bottom to install your radio gear. (Fig 3.1)
2. Do the same to the other fuse side. (Fig 3.2)
3. Add the rear and lower intake blocking plates. (Fig 3.3)
4. Slide the wing into position. Make sure it is square to the fuselage and then glue. (Fig 3.4)
5. Glue fuse top and vertical stabilizers as shown. make sure vert stabs are 90 degrees to the fuse bottom. (Fig 3.5)
6. Bevel both elevons making sure to make a mirrored pair. (Fig 3.6)

FIGURE 3.1 Fuse side and bottom



FIGURE 3.4 Wing in place



FIGURE 3.2 Both sides tac glued



FIGURE 3.5 Fuse top and vert stabs in place



FIGURE 3.3 Rear and intake plates



FIGURE 3.6 Mirrored pair of elevons



Airframe Completion

1. Attach the elevons to the wing with tape (I use clear medical tape).
2. Dry fit the forward fuse with the rear fuse. (Fig 3.7)
3. Make sure the forward fuse is level with the wing. (Fig 3.8)
4. Notice that the seam between the upper and lower parts of the forward fuse is parallel to the wing. (Fig 3.8)
5. Once a level assembly is achieved glue the forward and rear fuse together.

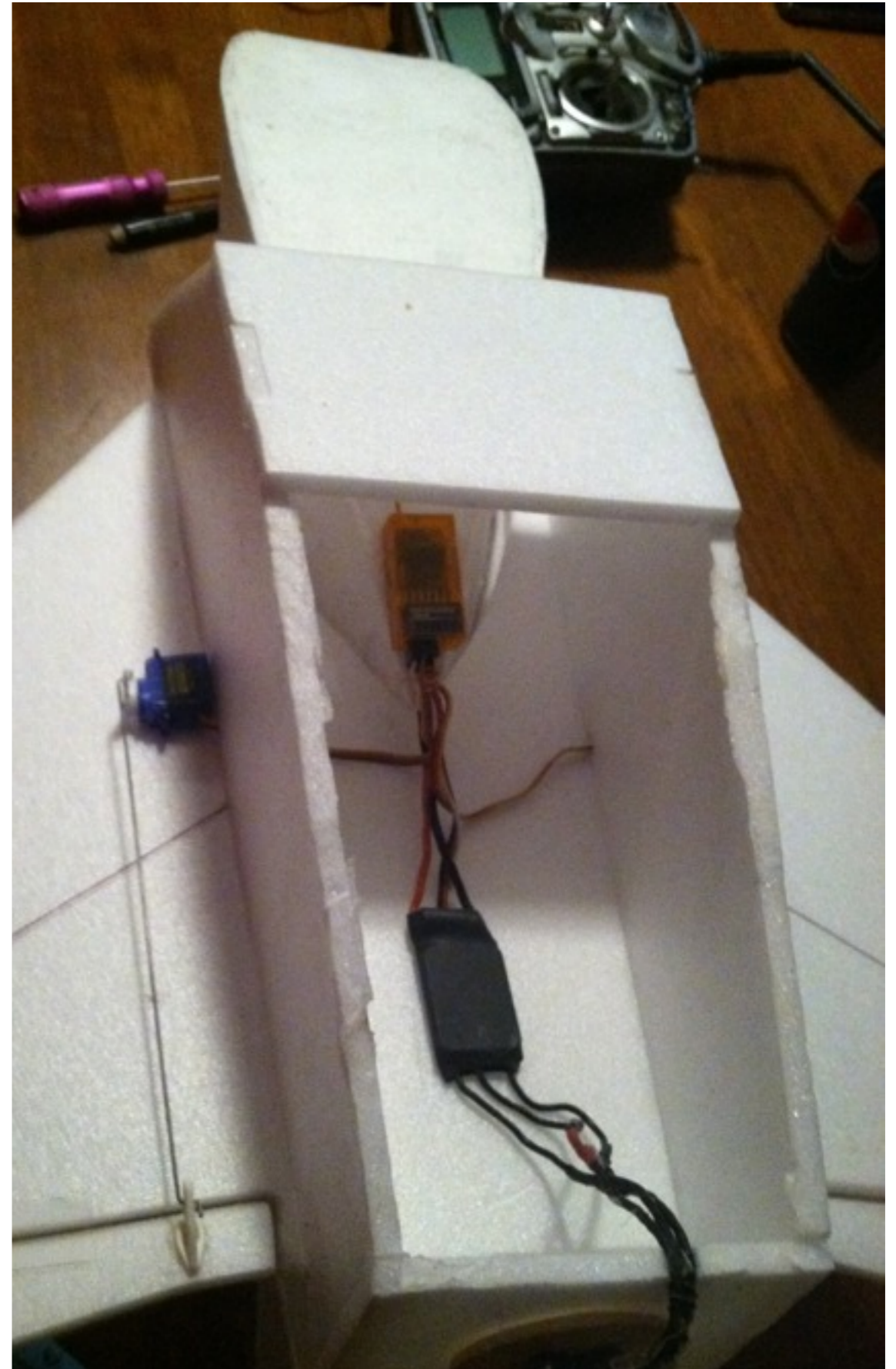
FIGURE 3.7 Dry Fit



FIGURE 3.8 Forward fuse level with wing



Radio Install



SECTION 1

Servo Install

1. Install control horns making sure the hole you wish to use is directly over the hinge line. (Fig 4.1)
2. Glue an elevon servo on each side of the fuse as shown. Cut a small hole in the fuse sides and pass the servo wire into the fuse. (Fig 4.1)
3. With the servo arm at 90 degrees to the wing and the elevon surface level, measure, make, and attach the pushrods (Fig 4.1)

FIGURE 4.1 Servo setup



Motor / ESC Install

1. Glue the motor mount to the fuse with 0 right thrust and 0 down thrust. (Fig 4.2)
2. Carefully remove the bottom fuse plate. (Fig 4.3)
3. Attach the motor to the ESC (make sure the motor spins clockwise when looking at the rear of the plane) and make sure the battery leads can reach the front of the plane. (Fig 4.3)
4. Cut a small hole in the forward fuse bottom (make sure it is below the fuse crutch) and pass the battery leads to the front of the plane. Connect the ESC servo lead to the RX. (Fig 4.3)
5. Follow your radio's instructions on how to setup a delta plane. Plug your servos into the appropriate locations and check that your elevons move in the correct directions.
6. Glue/tape the RX and ESC in place. Then glue the fuse bottom plate back on. (Fig 4.4)

FIGURE 4.2 Motor mount



FIGURE 4.3 Radio gear



FIGURE 4.4 Bottom back in place



SECTION 3

CG and Battery

1. With all radio gear installed, position the battery fore and aft until a CG of 10-10.5 cm (back from leading edge) is achieved. Mark battery location with a pencil. (Fig 4.5)
2. Carefully cut a battery hatch above or slightly behind the battery location. (Fig 4.6)
3. Use tape to hinge the hatch. Add a piece of scrap foam to the inside of the fuse to create a ledge that will prevent the hatch from falling in. (Fig 4.6)
4. Glue velcro to the battery and inside the fuse on the crutch. Install the battery and recheck the CG. (Fig 4.6)
5. With radio on, make sure that both elevons are level with the wings. Measure (from the widest point) the elevon height from the ground. (Fig 4.7)
6. While giving full up elevator, measure the height then subtract the original level height to get the travel. It should be around 1/2" or 12mm. (Fig 4.8)
7. Do the same with roll.
8. Start with a fair amount of expo for your first flight (I use 55 on my DX7 radio).

FIGURE 4.5 Find CG



FIGURE 4.8 Full up!



FIGURE 4.6 Battery hatch



FIGURE 4.7 Level elevons

