



FLIPPI FIN

FlippiFin, the world's only breech launched model rocket kit!

The following two pages show you what to expect when you purchase the single stage or two stage version of the FlippiFin kit by Aerocon.

The single stage rocket comes complete with everything (except glue) to build your rocket.

You'll even find the breech launcher included with the kit!

The two stage version comes with all the single stage parts plus the additional components, excluding electronics, to build a 2 stage FlippiFin rocket.

FlippiFin Folding Fin Can Single Stage Rocket Instructions



FFR1-1

Overview

The FlippiFin is a breech launched folding fin rocket designed for vertical launch. It is not a NAR approved vehicle due to the metal fin can and can only be fired at Tripoli, private, or experimental launches. Due to its unusual nature, it can provide thrilling launches and simulates breech launch techniques used by the US Military. The breech launch provides additional acceleration within the launch barrel. The rocket motor ignites within the breech and continues to propel the vehicle on leaving the tube.

FFR1 History

In 1995, a bunch of rocket parachute military flares were demilitarized. They used a very cute folding fin can. Bill Colburn bought the surplus fin cans and scratched his head for a few months trying to figure something to do with them. While playing with different configurations, he found that a tube which fit the can perfectly also fit a 24 mm motor. Well, that was the start. He found a body tube and nose cone which worked and machined two adaptors to make the whole thing assemble properly. (That was the original version of the rocket, it now uses a different lighter motor mount adapter.) Our 18" military chute seemed perfect for the little vehicle and so that was added.

See the FlippiFin Tutorial Online here:
<http://www.aeroconsystems.com/rockets/flippifin.htm>

This rocket flies on:

Estes D12-3 Low altitude flight, be careful please!

AeroTech E15-4

AeroTech E30-4

F72, G55, G110 - please determine correct delays for your own vehicle.

AeroTech 24mm RMS (reloadable) might be used though special attention must be paid to maintaining the correct Center of Gravity (CG). Should RMS hardware be used you must make sure that the CG when loaded matches the CG specified in the instructions. We have not flown this rocket using RMS hardware so please be careful.

CG Location: 12.75" from Aft End

Parts List

- 1 each FlippiFin Folding Fin Can
- 1 each BT-55 Nose Cone
- 1 each BT-55 Airframe Tube
- 2.6 ounces of lead shot for nose cone ballast
- 1 each Mailing Tube - 36"
(the kit came packed in this, don't discard!)
- 1 each 3/16" Launch Lug
- 1 each BT-50 6" X 24mm motor mount tube
- 2 each BT-50 to BT-55 rings
- 1 each Length of Braided Kevlar Cord
(orange stuff)
- 1 each Length of Teflon-Fiberglass Bridle Cord
(the black stuff)
- 1 each 18" Parachute
- 1 each FlippiFin Waterslide Decal



You will also need:

- Yellow Glue
- 1 each Paperclip
- Thin Cyanoacrylate Glue (CA)
- 1/4" Masking Tape
- 5 Minute Epoxy
- Paint (if desired)

Making the FlippiFin Launcher

The FlippiFin comes packaged in a kraft mailing tube which will also function as the breech launcher. Remove the parts from the mailing tube and mark a line the length of the tube using a straight door frame as a guideline. Make a mark on the mailing tube 6" from either end. Cut the supplied launch lug into two equal parts. Glue or tape these parts to the tube so that they align with the axial line you made on the tube at the marks you drew on either end. Cut a flap in the breech launcher at one end to give the electric match leads a place to poke out. Set the launch tube aside.

Making the FlippiFin Can fit the motor mount tube

Since this is a surplus part from a rocket parachute flare it was not designed to be compatible with typical hobby rocket materials. The metal fincan has a certain amount of mass to it which must either be compensated by adding nose weight and/or by making the motor mount as light as possible. We did both to make the kit stable and safe as possible.

Locate the 24mm motor mount tube. Make a mark 3/8" from one end of the tube, this becomes the aft end of the motor mount tube. (see Figure 1)

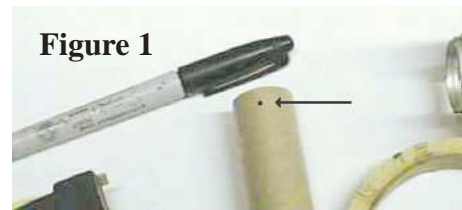
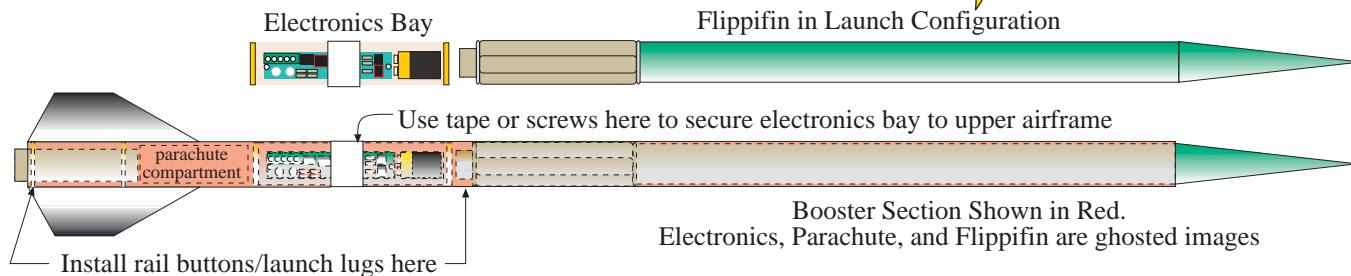


Figure 1

FlippiFin Folding Fin Can 2 Stage Rocket Instructions



FFR2-2



Mount Rail buttons or Launch Lugs as indicated above.

Recovery

- Attach the bridle to the booster section and electronics bay coupler. Attach parachute to bridle. Protect parachute from Black Powder charge as appropriate.

Installation of Electronics

- Insert Electronics bay into Booster section.
- Secure the electronics and battery in the bay. Run electric match leads through forward bulkhead to sustainer motor.

Installing the FlippiFin Sustainer in the Upper Airframe

- Slip the FlippiFin into the Upper Airframe. Install and secure the electric match for the sustainer motor.
- Install the upper bulkhead and push it into place with the Electronics bay coupler tube within the booster section.
- Secure the Upper Airframe to the Electronics Bay coupler tube best way. Tape on the outside of the airframe works fine, some might use screws.

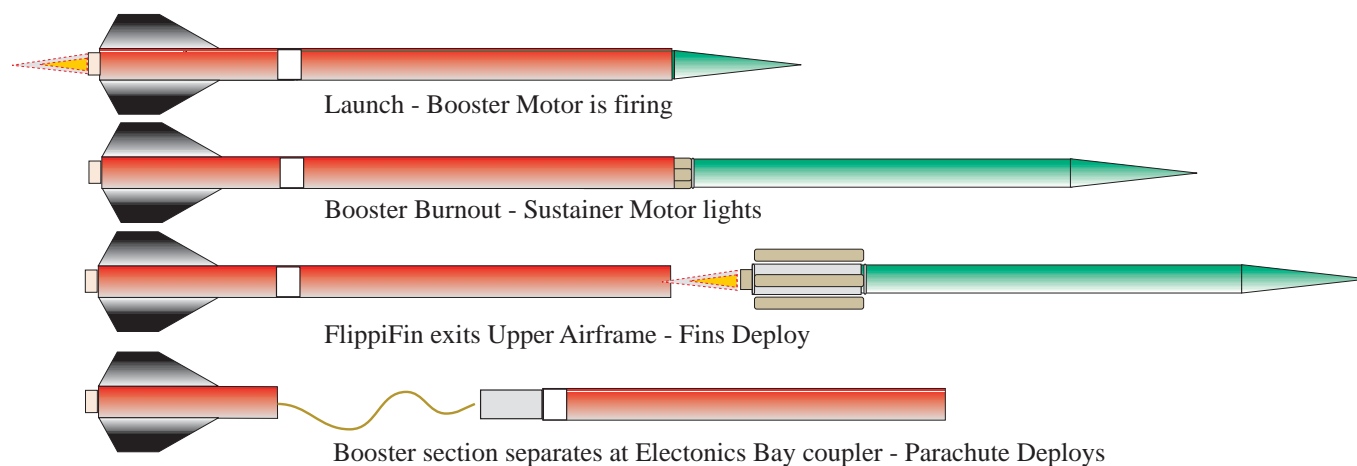
Regardless of method it's important to remember that the Upper Airframe section keeps the upper Electronics bay bulkhead in place. The upper Electronics bay bulkhead keeps the electronics and battery secured within their compartment.

How it Works

- When the booster motor lights, the onboard electronics detect liftoff. We recommend and have designed this Two Stage FlippiFin around the G-wiz LC Flight Computer.
- At motor burn out the G-wiz senses the decrease in acceleration and fires the sustainer motor.
- The FlippiFin sustainer squirts from the Upper Airframe section, unfurls its fins and continues its flight to apogee.
- The booster motor will fire it's deployment charge and deploy the parachute after the appropriate delay time.
- Additionally you can use the G-wiz LC electronics to fire the deployment charge at booster apogee.

Recommended Motors

- The Aerotech Econojet F20-5 is the motor of choice for the booster. Use the Estes D12-7 as the sustainer motor.



Warning: All liability waived! Rocketry is an inherently dangerous undertaking. Make your choices and take personal responsibility for the outcome of your experiment! Protect your privilege to fly rockets by not making the headlines or becoming a statistic.