

Cluster Funk

By Kevin McFarland

With a little help from his brother

My brother Kevin has been asking me a lot of questions about rockets for the last couple of months and so when he came to visit a couple weekends ago I said “wanna build a rocket?” He said yes so I gave him two kits of his own. One was a beautiful Fliskits Deuce and the other was an Estes Venus probe I picked up on ebay for about \$2. He was always asking about High Power stuff and I admit I really like high power, but I would rather fly my model rockets several times a week rather than a few high power flights a few times a year. So I showed him my real love of rockets and had him build his first scratch built rocket. He decided he wanted to do a cluster because it is cool! And he had never flown a cluster but we also wanted the option to fly on a single engine. Then he decided on 13mm and 18mm engines because he is cheap(read: in medical school). He got the great idea of a three finned rocket with a central 18mm and 3 13mm engines mounted on the ends or the middle of the fins. This was my first place to help-“keep your thrust as close to center as possible of your rocket will flop around like a fish” so we decided to mount the 13mm engines to the body tube and the fins to the 13mm engine mounts. Then I commented that it would be cool to make the central mount 24mm and use an adapter for the 18mm engines so when you wanted to you could really send the thing flying! So there we were, plan set.

1. Get a 18” piece of BT50 body tube from fliskits and mount a thrust ring inside so that only ¼” of your 24mm engine sticks out.
2. Make the fliskits adapter to fly the 18mm motor in the 24mm motor mount.
3. Get a piece of BT-5 body tube from fliskits and cut three pieces that are 45mm long on the short side with a regular 90 degree cut on bottom and a 45 degree cut on the top.
4. Mount engine blocks in all three BT-5 tubes so that the 13mm motor sticks out ¼”
5. On the BT50 body tube mark 3 fin lines on the side where you put the engine block.
6. Glue the 3 BT-5 pieces to these lines with the tallest part toward the body tube and flush with the bottom of the BT-50.
7. Make fins as the pattern shows and glue them on to the BT-5
8. Choose any of the fliskits nosecones of the appropriate size, we used NBC-50Y I think and put an eye in the base. Remove eye, put glue in the hole and replace eye.
9. Mount a shock cord in the tube and when all the glue has dried hook up a parachute and paint, fly, etc.

We then had my brothers first flight with his own scratch built rocket with 3 1/2A3-4t’s and a central A8-3 connected with a cluster whip from www.dmbrocketry.com (if you buy the one for four motors you can use it on your deuce and your tres too). It was so windy the day we had to fly the rocket blew across the field about 500 yards so we did not fly it on anything bigger. We should have used plugged motors in the 3 13mm tubes,

but we were afraid of that much impulse as I only had A10-PT motors. There was not much body scorching from the open tube motor mounts for the 13mm motors, but I would still recommend using the plugged motor. The flight was perfect and the chute opened at apogee with a nice descent although it was way to windy to fly again. Kevin took his pride and joy home(two states away) so I will have to wait for more flight reports from him.

Now I am going to build my own. It only took Kevin about two hours so it is not a huge project and it is a good way to get someone involved in clustering.