

The Optic Rocket

by Jim Davis

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You will be cutting 2 full main body/wing pieces. These get sewn together from top to bottom near where the circle is. One wing layer is cut away, leaving one layer of wing, two layers for the cell. You will need to decide what the predominate color of the kite will be and if your fins will match the cell/body or the wings.

Cutting

1. Cut 2 wing/body pieces, each on the fold. Use 2 colors. .75 ripstop nylon. Razor cut the 2 straight edges. Hot cut the 3 holes. (see note regarding holes) If your fabric is not wide enough to accommodate the full size pattern piece, add a seam allowance and cut 2 pieces to be sewed together as a first step. (see note regarding this seam) Sew them together before breaking the weld left from hot cutting the holes.
2. Transfer the pocket stitching lines to one of the colors.
3. Cut 4 fins. (2 fins from each color.) These can be cut from the circles left from the wing/body pieces if you are careful. Razor cutting is OK.
4. Reinforcements: (*self-fabric or 1.5 ounce ripstop nylon or 4 ounce Dacron*)
 - A. Cut 4 leading edge and trailing edge reinforcements. (2 of each color if you use self-fabric.)
 - B. Cut 4 fin tip reinforcements.
 - C. Cut 2 sleeves from the ripstop nylon. 3.2cm x 26cm. Use the color of ripstop which your wings will eventually be.
 - D. Cut 2 wing tip reinforcements.

Sewing

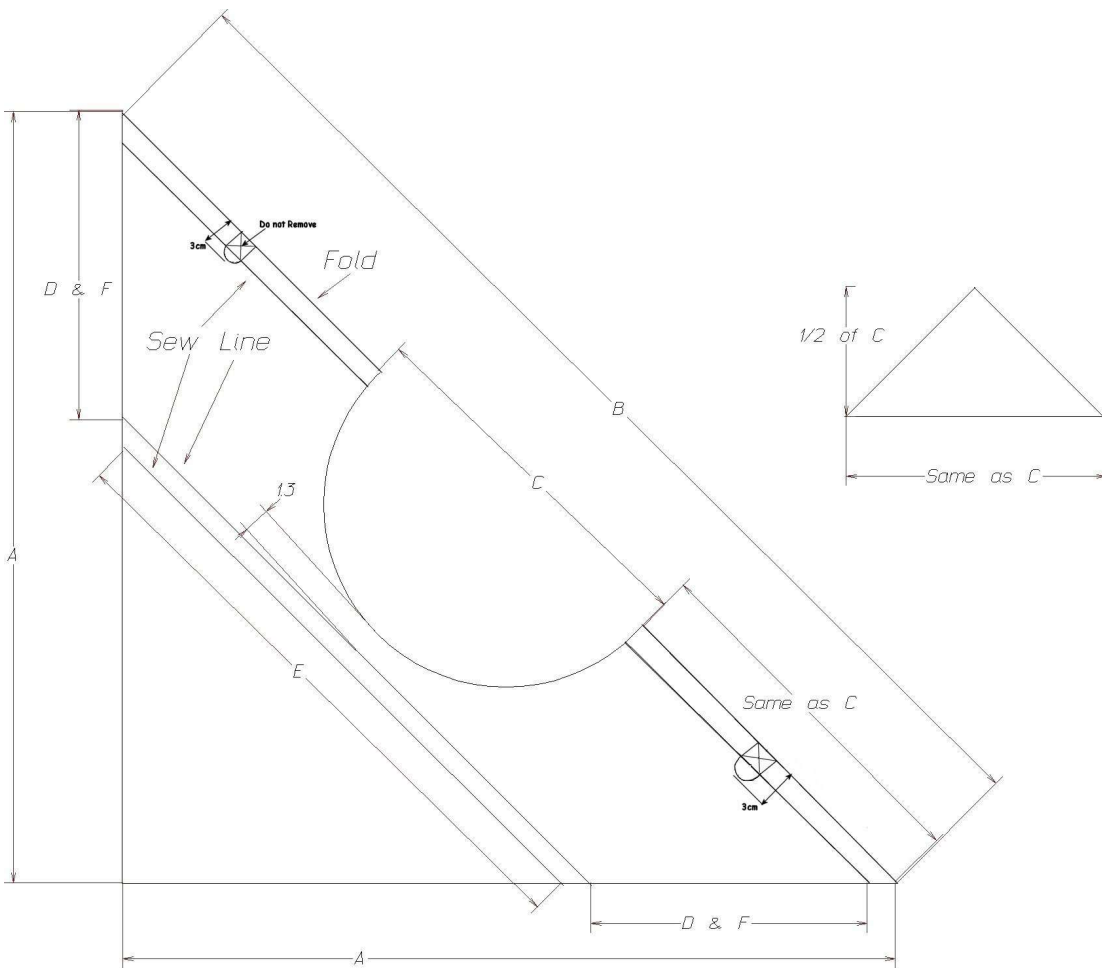
1. Sew on all the reinforcements.
2. Decide which color your wings will be. Position and stitch the wing sleeves on that color. Center them top to bottom and in about 15cm from the wing tip.
3. Edge bind the fins and main pieces. **Tip:** Remember, you will be cutting away the wing section of one color later on. Therefore, you only need to edge bind part of that color. Bind a little past the body/cell (section you will be keeping), not the whole piece.
4. Sew 4 pockets on: one on 2 fin tips and the two wing spreader tips. Pocket size 7cm x 2.5cm.
5. Fold a wing/body on the fold line and slide in a fin *with a pocket* to the fold line. I put them into the body to that the points were even. They are a little ways away from the circle. Secure with double sided tape. Stitch through the 3 layers on the stitching line, 1.5cm from the fold. You are sewing the fins into place and also making the rod pocket for the longeron. Repeat with the 2nd fin *with a pocket*. Make sure the pocket is on the same side as the first fin when you position it. Up or down doesn't matter, just that they are the same.
6. Repeat step 5 with the other body/wing piece and the 2 fins *without pockets*.
7. Lay out the 2 body pieces so that the wrong sides are together. Line up center seam line, hole edges, tips, etc. Fins are on the outside. Secure with double sided tape. This tape will be removed after sewing.
8. Sew 4 lines of straight stitches, 2 on either side of the hole. These are longeron rod

- sleeves.
9. Cut away the extra wing layer.
 10. Add the last 2 pockets. They should be on the opposite side of the pockets already on the other fins. **Tip:** Pockets are OK and are the method used by Jim Davis. But we weren't happy with it. A better way so you can tension the kite, is to use 45cm long lines instead of putting on these 2 pockets. This is what we did on the new pink and black Optic Rocket and it works VERY well. Bob can tension the kite much better.
 11. Cut 2 longerons to fit into the longeron sleeves. Sew one end closed. Insert the rod and sew the other end closed.
 12. Cut the long rod for the spreader. Put end caps on it.
 13. Cut the 2 rods for the fin spreaders. Put an arrow knock on one end, an end cap on the other. Add a loop on one rod for the tow point.
 14. Done! Happy flying.

NOTES!

Holes: You may want to position the small hole 1cm closer to the large hole. We found the small hole was off slightly and had to make it bigger when Bob was cutting rods, etc. I think this is because I lined up the points on the kite rather than centering the fins. You can see this in the picture – weird holes and off center tips but even edges at the top and bottom of the kite.

Seam rather than a fold for the center of the kite: If your fabric is not wide enough to cut the wing/body on the fold, add a seam allowance and cut 2 pieces of each color. Sew this seam first on both sets. Mark the sides you lay together with a piece of tape. Sew the sleeves and reinforcements on the side *WITHOUT* the tape. This is very important. This seam is the first step of a “French seam”. The raw edges of the seam will be tucked inside (into the rod pocket) when the seam is sewn in step 5. When your kite is done, you will see a nicely finished seam if you look into the cell, not edges sticking out.



All Dimensions in Centimeters
 Rod sleeves sized for 6mm rods

| Square side | Long spar | Circle dia. | Tip side | Short spar | Fin side | Keel spar | Cross spar |
|-------------|-----------|-------------|----------|------------|----------|-----------|------------|
| 101.6 | 140.0 | 47.9 | 33.9 | 90.0 | 33.9 | 76.7 | 127.5 |
| 137.2 | 192.0 | 64.7 | 45.7 | 121.0 | 45.7 | 104.0 | 172.0 |

