

Cork Screw 2

Designed built and flown by Bruce S. Levison, NAR #69055

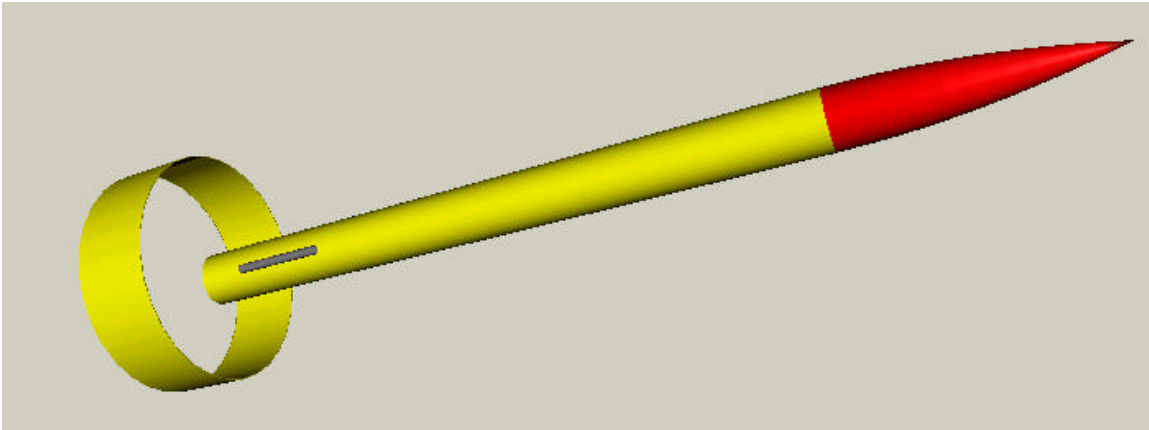


Figure 1: The Cork Screw 2

An asymmetric Ring-Finned model rocket that rolls in a corkscrew like pattern during flight. This unique and stable design is an easy to build one-finned rocket! Streamer recovery. Recommended Motors A8-3, B4-4, B6-4, B6-6, C6-5, C6-7

Materials,

BT-20, 8.5" long (Estes, EST 3085 BT-20, 0.736" diameter)
Plastic Nose Cone (Estes Reliant/Viking BT-20, 2.75" long Ogive)
Thrust Ring (Estes, EST 3085 BT-20)
1/8" diameter x 1.25" long Launch Lug (Estes, ESTES 2321 LL-1/8)
Plastic Streamer, 1" wide x 18" long polyethylene flagging tape
Kevlar shock Cord 36" of 30 Lb Kevlar
Ring Fin, 3" diameter NCR Body tube 1" long (see note)

Assembly:

- 1) Draw marking lines along the BT-20 body tube 180 degrees apart from each other.
- 2) Draw a line along the inside of the ring fin (NCR body tube) perpendicular to its leading edge all the way to the trailing edge.
- 3) Glue the 1" long by 3" diameter ring fin on to the 8.5" long BT-20 flush with the bottom edge of the tube by running a bead of yellow carpenter's glue along the line on the inside of the ring fin and then placing one of the pencil marks on the longer body tube exactly over this line. I used a carpenter's square to make sure the body tube was at a right angle to the ring fin. After this glue joint has dried add glue fillets to each side of the body tube ring fin junction.
- 4) Tie the Kevlar shock cord around the thrust ring (I used a clove hitch knot) and Glue the thrust ring 2.5 inches up into the rear portion (ring fin end) of the main body tube. Be sure that the shock cord passes through and out the top of the body tube and hangs freely out the top end of the tube.
- 5) Glue the launch lug along the pencil line opposite the ring fin attachment 2 inches up from the base of the body tube and ring fin. After this glue joint has dried add glue fillets to each side of the launch lug.
- 6) Assemble the plastic nose cone by using a plastic cement to glue on the base.

7) Using a double knot tie the plastic flagging tape streamer to the shock cord about 6 inches down from the free end.

8) Use a double knot to attach the nose cone to the free end of the Kevlar shock cord.

9) Prime, paint and finish as desired.

Notes: The ring fin on this design is just large enough for stability, do not add any more weight to the aft or ring fin end of this design. I made the ring fin from some leftover NCR body tube that I cut and sanded down to remove the old finish from the outside and glue and propellant residues from the inside. I store the ring fin of this model inside the core of a roll of one-inch wide masking tape to prevent it from getting bent during transport.

This small rocket flies out of sight on a C6 motor; I recommend an A8-3 for the first flights and B6's there after. Motors are friction fitted with masking tape.



Figure 2: Completed model after many flights showing some minor damage.

RockSim Version 7 file:

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