

Art Applewhite Rockets

from deep in the heart of Texas



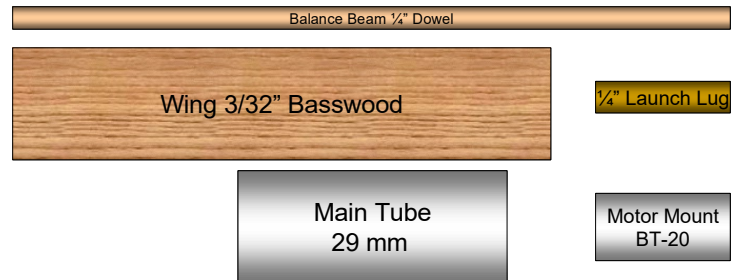
18mm Helix

Free Plans

Recommended motors: B4-2, B6-0, B6-2, C6-0, C6-3

Parts:

Wing – 6" long, 1 1/4" wide, 3/32" thick
Basswood (Don't substitute Balsa)
Main Tube – 3" long 29mm LOC Motor Mount
Tube (Don't substitute)
Motor Mount – 1 3/8" long BT-20 tube
Balance Beam – 8" long 1/4" pine dowel
1 3/8" long 1/4" Launch Lug



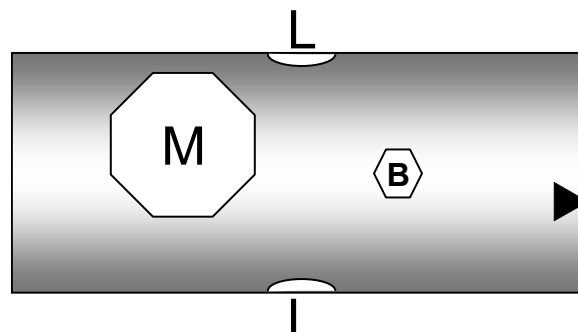
Materials and Tools: Elmer's Glue-All, #11 X-Acto® knife.

Construction Tips:

- Read **all** the instructions before starting construction.
- Test fit all parts before gluing them.
- **Elmer's Glue-All** is the only recommended glue for this kit.
- Allow the glue to set before going to the next step.
- If you have any questions please contact Art Applewhite at rocket877@aol.com

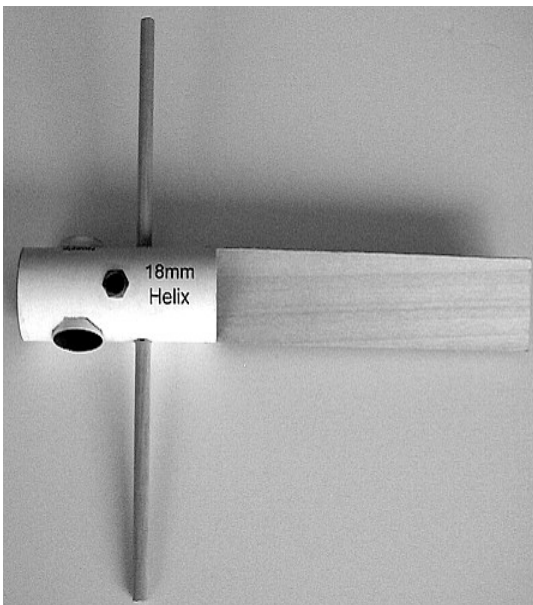
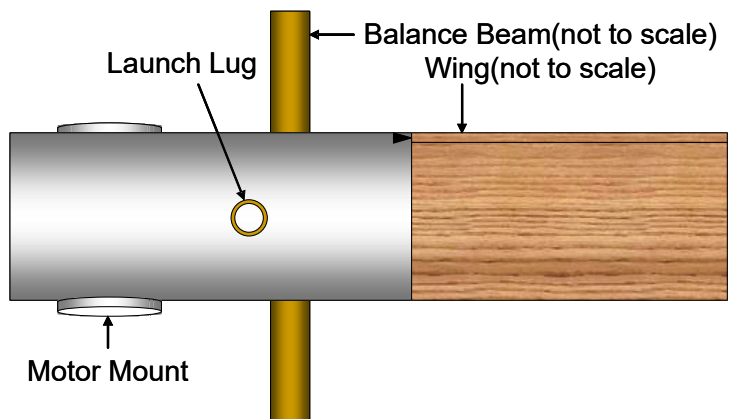
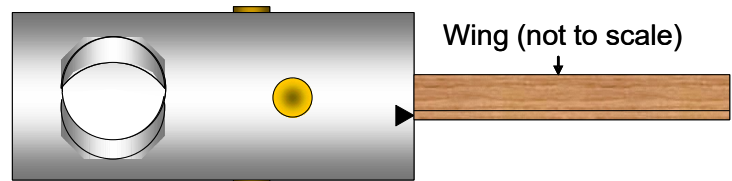
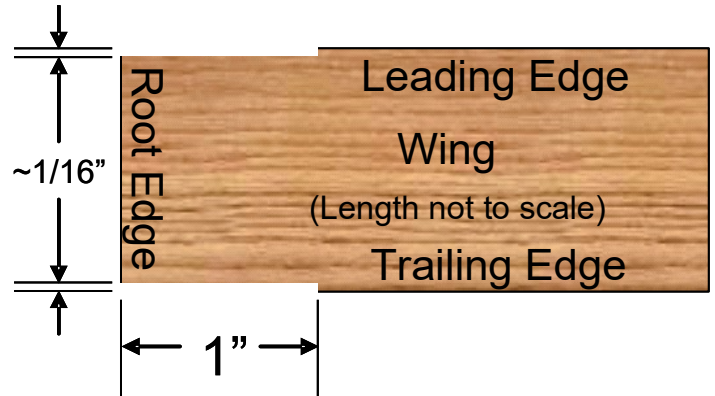
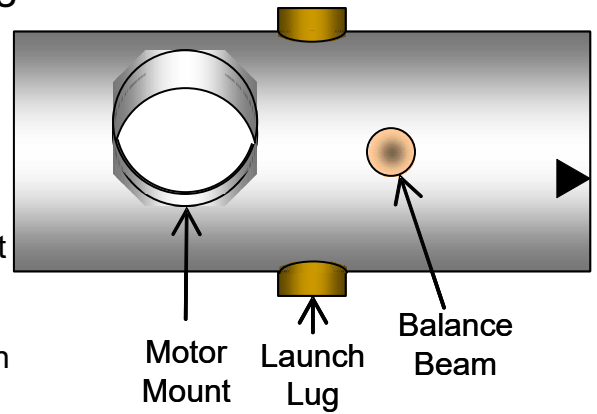
Construction:

1. Cut out the Main Tube Template (last page). Do not cut out the holes yet.
2. Wrap and glue the Main Tube Template to the Main Tube.
3. On the Main Tube, cut out the Motor Mount (M), Launch Lug (L) and Balance Beam (B) holes using a #11 X-Acto® knife with a **NEW** blade. Cut directly on the lines and work slowly and carefully. The holes are shaped like hexagons and octagons (Polygons) to make cutting and assembly easier. The best way to cut out the holes is hold the **#11 X-Acto® knife with a NEW blade** perpendicular to the Main Tube and push the tip into the side of the tube. Push the point slowly in until it cuts the width of one side of a polygon. Then go to the next side of the polygon and repeat until all the sides are cut out. Repeat until all six of the holes are cut out.



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4. Test fit all the parts in their respective holes.
Carefully enlarge the holes as needed for a snug fit.
5. Center the Balance Beam in the 0.25" holes (B).
6. Center the Launch Lug in the 0.35" holes (L).
7. Center the Motor Mount Tube in the 0.75" holes (M).
Note: It is easier to insert the Motor Mount Tube if you put a spent 18mm motor into it first. Apply a fillet of glue on the inside where the Motor Mount Tube and the Main Tube meet.
8. Apply fillets of glue where the Balance Beam, Launch Lug and Motor Mount meet the Main Tube.
9. Trim 1/16" from the leading and trailing edges of the Wing to 1 inch from the root edge. Check that the Wing's fit snugly into the ends of the Main Tube. Trim a little at a time and don't take off too much.
10. Insert the Wing into the end of the Main Tube until it rests against the Balance Beam. The Main Tube should warp slightly out of round and the Wing should fit snugly. Note: Make sure the leading and trailing edges of the Wing are centered on the points of the small triangles at the end of the Main Tube. Before the glue sets, make sure the Wing is sticking straight out from the Main Tube as viewed from both the top, side and end.
11. Run fillets of glue on the inside of the Main Tube at all places where it and the Wing meet. Allow the glue to dry for 24 hours before painting or flying.
12. (Optional) Apply a light coat of enamel to protect the rocket from moisture.



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Recommended Motors: B4-2, B6-0, B6-2, C6-0, C6-3

Note: The casing of the motor may burn through just above the nozzle during some flights. The motor mount of the Helix may also be burned. This is unavoidable but it will always burn in the same place. It won't get any worse and it will not effect the flight of the Helix.

Flight preparation:

Inspect all the glue joints to make sure they are strong before each flight.

Tightly wrap three layers of masking tape 0.625 (5/8") inch from the nozzle end of the motor to form a thrust ring. The motor should be centered in the Motor Mount. Trim off any excess tape.

Insert the motor into the Motor Mount with the nozzle tilting downward and the Balance Beam above the Wing. If the motor is too loose, wrap a little masking tape around it until it fits tight enough not to fall out.

Install the igniter and attach the launch controller clips being careful to keep the wires out of the way of the, soon to be, rapidly rotating wing.

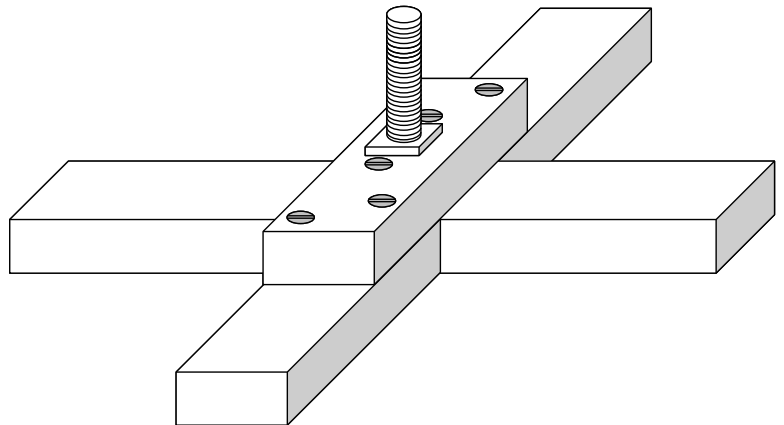
Launch the monocopter from a 1 inch long, 1/4" diameter launch rod. Do not use a longer or narrower rod because the rod can whip around a great deal and cause the rocket to go off in an unpredictable direction.

The launch pad should be sturdy and fixed firmly to the ground. A suitable launch pad can be constructed from the following materials:

Launch Pad Plans

- 4 - 2x4s, three, 18 inches long and one 36 inches long. The lengths need not be exact.
- 1 - 3 inch long, 1/4-20 carriage bolt and nut
- 6 -3 inch long wood screws.

Drill a 1/4" hole in the middle of one of the short 2x4s. Insert the carriage bolt into the hole and secure it tightly with the nut. Attach the long 2x4, perpendicular to the short one with two wood screws. Attach the two remaining short 2x4s to the opposite ends of the first short 2x4 with two wood screws each.



Limitation of Liability: Model rockets are not toys. Model rockets are functional rockets constructed of lightweight materials and launched using pre-manufactured, certified model rocket motors in accordance with the NAR Model Rocket Safety Code. Model rockets, if misused, can cause injury, property damage and even death. Art Applewhite Rockets certifies that it has exercised reasonable care in the design and manufacture of its products. Once sold, we cannot assume any liability for product storage, transportation or usage. Art Applewhite Rockets shall not be held responsible for any property damage or personal injury whatsoever arising from the handling, storage, use or misuse of our product. The buyer assumes all risks and liabilities there from and accepts and uses Art Applewhite Rockets products on these conditions.



18mm Helix Main Tube Template

Print at 100% (full) scaling

