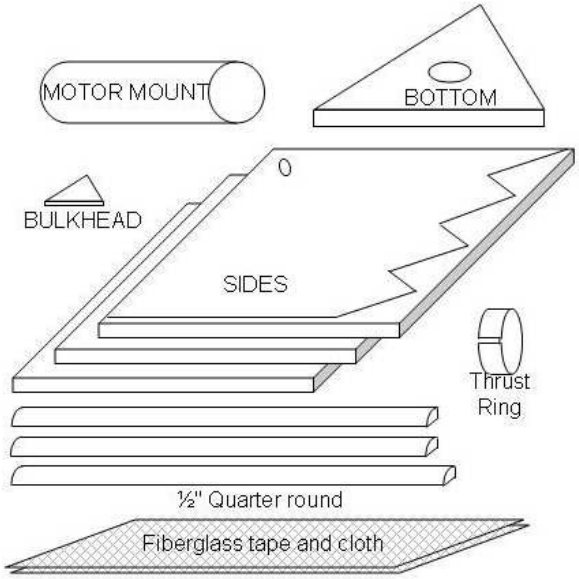
Art Applewhite Rockets

from deep in the heart of Texas

54mm Stealth

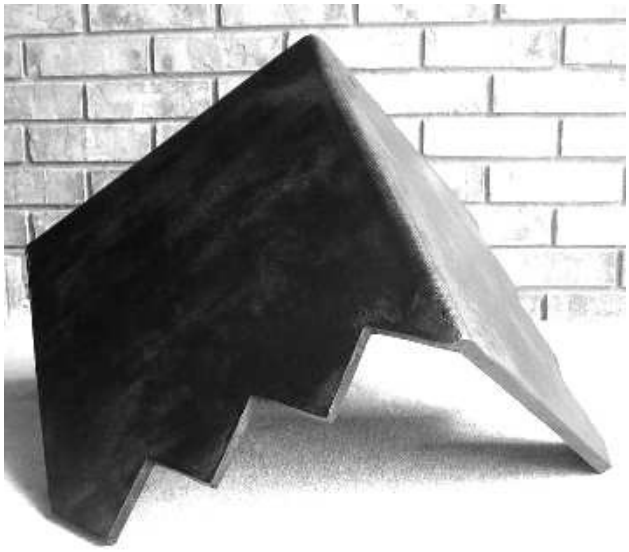
Height – 19 inches
Span – 26 inches
Weight – 32 oz



Parts List
3 SIDEs & BOTTOM – 1/2" foam-backed board
3 x 1/2" quarter round 15.5" long
7" x 54mm LOC Precision motor mount tube
Thrust Ring - 3/4" split 54mm motor mount tube.
1/8" plywood bulkhead
3 - 15" strips of self-adhesive fiberglass tape
36" x 60" 4 oz. Fiberglass cloth

Recommended motors: Cesaroni Pro54, 2, 3 & 4 Grain motors, Aerotech RMS 54.852, RMS 54/1280, some RMS 54/1706 motors. Do not use motors with more than 700 N-sec average thrust.

Tools and supplies needed
Large craft knife, Elmer's Glue-All®, West Systems 105 Epoxy Resin and 206 Slow Hardener, sandpaper. Rust-Oleum High Heat Black Enamel



Please make sure all the parts in the Parts List are present. Contact rocket877@aol.com immediately if any parts are missing or damaged.

Tips:

- Read through the entire instructions before beginning
- Test fit all parts before gluing them.
- Work on a clean surface, in a well-lighted and well-ventilated area.
- Keep your hands clean and free of glue.

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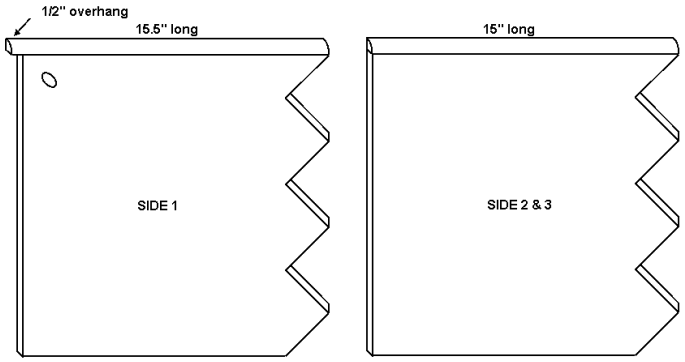
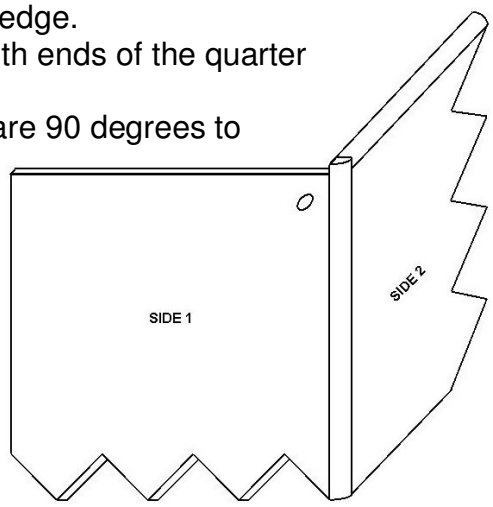
Assembly

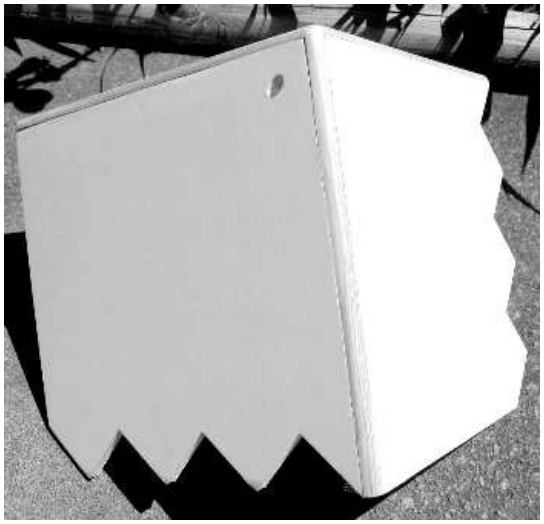
Note:Please test fit all parts before gluing them together.

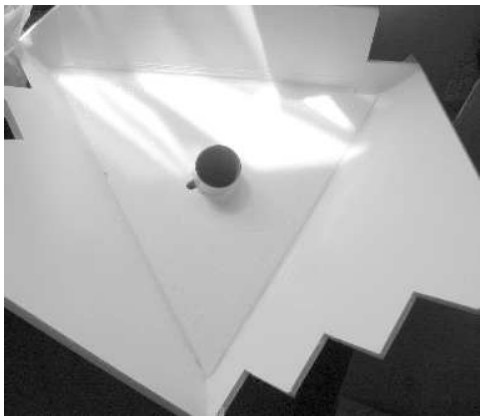
1. Cut each SIDE on the lines to make a serrated edge. Make the cuts a cleanly as possible.
2. On SIDE 1 carefully cut out the Inside and Outside Launch Rod Holes. Cut only through the posterboard and not into the foam. Remove the oval shaped cutouts.
3. Poke through the INSIDE LAUNCH ROD HOLE (the one closest to the corner) to the OUTSIDE LAUNCH ROD HOLE with something sharp. It should go through the foam at a 36-degree angle. Carefully enlarge the hole until a 1/2" launch rod passes through it smoothly. This is SIDE 1



4. Elmer's Glue-All or Carpenter's Glue can be used for this part of the assembly. Glue the 15.5" piece of quarter round to the edge of SIDE 1 (the side with the Launch Rod Hole) as shown in the picture. The Outside Launch Rod hole is shown. The quarter round should overhang on the left side by 1/2" and be even with the serrated edge.
5. Glue the 15" pieces of quarter round to the other two SIDEs, Both ends of the quarter round should be even with edges of SIDEs.
6. Glue SIDE 1 to one of the other SIDEs. Make sure the SIDES are 90 degrees to each other.
7. Glue the remaining SIDE to first two SIDEs. These assembled parts form the TOP.
8. Lay the FIBERGLASS TAPE on the inside of the joints.
9. Make a generous fillet of epoxy on all three inside joints.
10. Strengthen the "nose" by inverting the TOP and partially filling the inside of the nose with epoxy. Do not fill past the LAUNCH ROD HOLE.
11. Sand the quarter round at the tip of the TOP to blend the 3 rounded edges together.







12. Glue the THRUST RING (3/4" split 54mm tube) inside and even with the forward end of the MOTOR MOUNT. This will reinforce the motor mount and prevent the motor casing from damaging the BULKHEAD.
13. Center the forward end (the one with the thrust ring inside) of the 54mm MOTOR MOUNT flat against the 1/8" plywood BULKHEAD and glue them together. Reinforce the joint to make it airtight. This prevents hot gasses coming out of the forward closure of the motor from damaging the foamboard.
14. Cut out the MOTOR MOUNT HOLE and the LAUNCH ROD NOTCH in BOTTOM.
15. **Test fit** the aft end of the MOTOR MOUNT into the hole in the BOTTOM and the BULKHEAD into the apex of the TOP. Test fit the BOTTOM into the TOP. Trim and sand the corners of the BOTTOM and BULKHEAD as necessary to get a good fit in the joints of the TOP.
16. Fit the BULKHEAD into apex of the TOP. The 3 edges of the BULKHEAD should be resting flat against the inside surface of all three SIDES. Spread epoxy over the edges of the BIULKHEAD where it rests against the inside of the TOP. Without disturbing the placement of the BULKHEAD, slide the BOTTOM over the aft end of the MOTOR MOUNT. Make sure the LAUNCH ROD NOTCH in the BOTTOM lines up with the LAUNCH ROD HOLE in the TOP and the BULKHEAD remains in place.
17. Run a fillet of epoxy into the joint between the edges of the BOTTOM and the inside of the TOP.
18. Run a fillet of epoxy around the joint between the MOTOR MOUNT and the BOTTOM but be careful not to get epoxy in the LAUNCH ROD HOLE.
19. Check the clearances of the Launch Rod Holes by running a 1/2” launch rod from the BOTTOM to the TOP through the Launch Rod Holes. The rocket should slide easily on the launch rod.
20. Cover the outside of the TOP with a 32" x 32" piece of fiberglass cloth. Cut out the section that overlaps leaving about 1" overlap on one of the quarter round edges.
21. Spread epoxy thinly and evenly over the fiberglass. **NOTE:** Do not roll the fiberglass cloth over the trailing edges of the foamboard, let it stand out straight. Make sure the cloth is completely wetted with the epoxy and lays flat against the surface of the foamboard. Do not use too much epoxy as this will only increase the weight of the finished rocket without improving its strength. The 36" x 60" fiberglass cloth provided should be enough to cover the SIDES and BOTTOM with a little left.
22. Once the epoxy is set, use a craft knife to trim the fiberglass cloth even with the edges of the foamboard.
23. Fiberglass and trim the entire BOTTOM as you did the TOP.
24. Spread a thin layer of epoxy over all the exposed foam edges to protect the foam from paint and heat.
25. The recommended paint is Rust-Oleum High Heat Black Enamel.

Launch Preparation:

Recommended motors: Cesaroni Pro54, 2, 3 & 4 Grain motors, Aerotech RMS 54.852, RMS 54/1280, some RMS 54/1706 motors. Do not use motors with more than 700 N-sec average thrust.

- Never fly this rocket with an ejection charge installed. Using a motor with an ejection charge in place will damage the rocket and may cause the motor to be ejected in flight.
- The forward closure of the motor casing should be plugged with recovery wadding and masking tape to prevent hot gasses from burning the inside of the motor mount and melting the foamboard.
- Friction fit the motor into the MOTOR MOUNT. A tight fit is not necessary.
- The motor should be installed as far forward as possible and it should never extend below the bottom of the SIDES. The practical limit for motor casing length is about 16".
- To avoid damage to the foamboard from the motor exhaust, support the rocket at least 12 inches above the blast deflector.