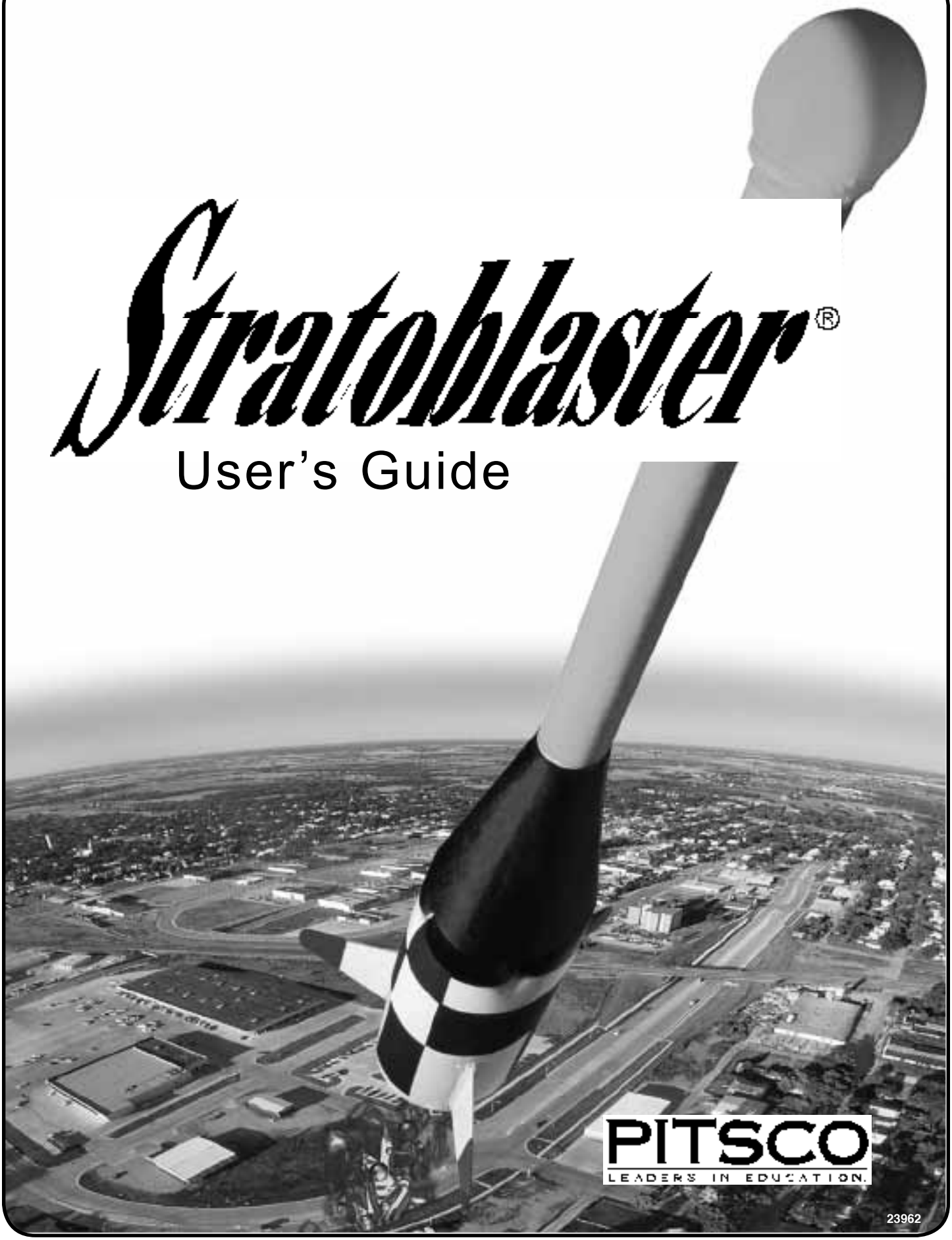
Stratoblaster®

User's Guide



PITSCO
LEADERS IN EDUCATION.

23962

Contents of Kit

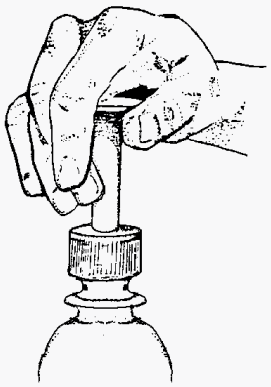
- Instructions
- Plastic 20-ounce bottle
- Air tube
- Air tube holding fixture
- Rocket cone pedestal
- Ping-Pong™ ball
- Fin material
- String
- Sandpaper
- "Transition Cone & Fin Pattern sheet"

Tools and Materials You Will Need

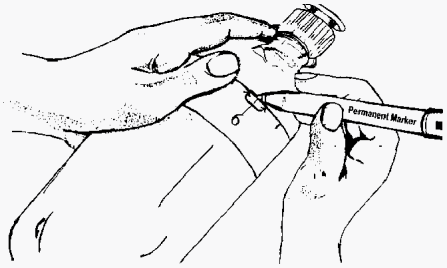
- Cool-melt glue gun
- Cool-melt glue slugs
- Permanent marker
- Transparent tape (1/2" or 3/4")
- Scissors
- Masking tape
- Spray or acrylic paint
- Decals (optional)
- Rocket launcher
- Optional – Bottle pressurizer pumper, available from Pitsco, item 51995, or a fizz keeper

Assembling the Stratoblaster®

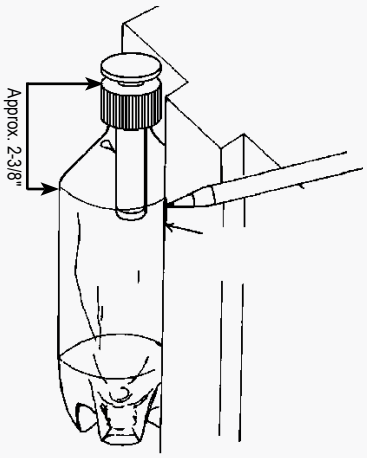
Stage 1: Preparing the Rocket Body



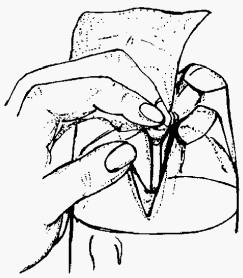
1. If you have a bottle pressurizer, attach it to the bottle and pump it. This will make the bottle firm and easier to work with.
2. Cut out the paper measuring tape printed on the "Transition Cone & Fin Pattern sheet." You will use it to determine the placement of the fins. Wrap the measuring tape around the bottle, just below where the circumference tapers. This is approximately 2-3/8" from the flange of the bottle. Secure the measuring tape with transparent tape.
3. Using a permanent marker, indicate the location for each fin by making a 1/4" horizontal mark at the 3"-, 6"-, and 9"-points. Then, remove the measuring tape.



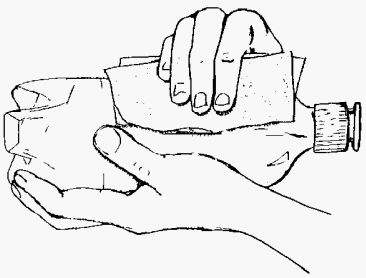
4. To make straight, vertical lines for fin placements, align each of the marks on the bottle against a door frame. Using the permanent marker, draw a 1-3/4" line straight down from the mark.



5. Lightly sand inside of each of the bottle feet where the air tube will fit.

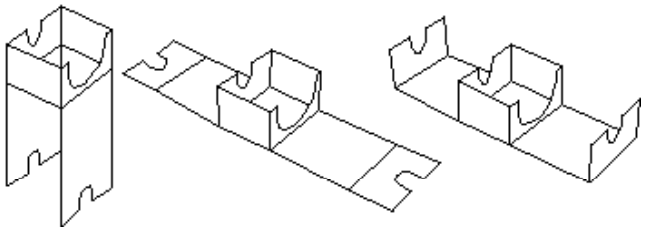


6. Sand the marked areas where the fins will be attached. After sanding, remove the pressurizer.



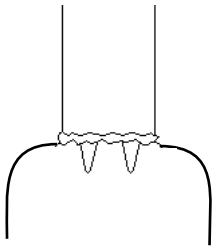
Stage 2: Positioning the Air Tube

1. Fold the hanging flaps of the holding fixture at 90° angles along the four perforations and place it in the Stratoblaster box. This forms the holding fixture alignment guide for the Stratoblaster body.

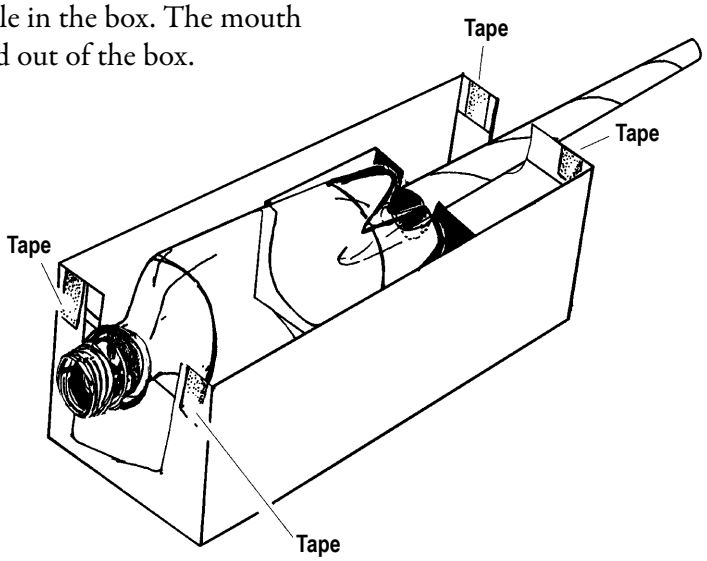


2. Using scissors, cut through the ends of the box to expose the U shaped holding fixture guides. Tape the holding fixture to the box with transparent tape. Place the plastic bottle in the box. The mouth of the bottle should extend out of the box.

3. Using the cool-melt glue gun, run a small bead of glue along one end of the air tube. Press the glued edge of the air tube to the sanded bottom of the plastic bottle. Make sure the holding fixture and tube are aligned and that the tube is straight. Let the glue set for a few minutes.
4. After the glue is dry, remove the bottle and tube assembly from the holding fixture. Run a thick line of cool-melt glue around the base of the tube where it meets the plastic bottle. This will secure the air tube to the body of the Stratoblaster.

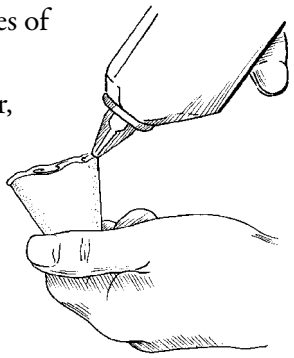


5. Return the bottle and tube assembly to the holding fixture to dry. Make sure the bottle and air tube stay aligned.

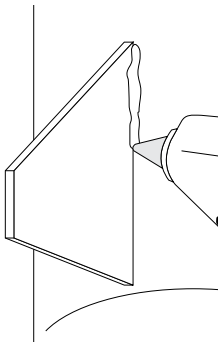


Stage 3: Making and Attaching the Fins

1. Cut out the fin pattern from the "Transition Cone and Fin Pattern sheet." Using the pat- tern, trace three fins on the fin material and cut them out. Sand the edges of the fins.
2. If you are using a pressurizer, again attach it to the bottle and pump it.
3. Dab cool-melt glue on the widest edge of one of the fins. Press the fin into place along one of the marks on the rocket body. Make sure the fin is perfectly aligned with the mark. Let the Stratoblaster set until the glue is dry. Repeat this step for the other two fins, and allow the glue to dry before moving to the next fin.



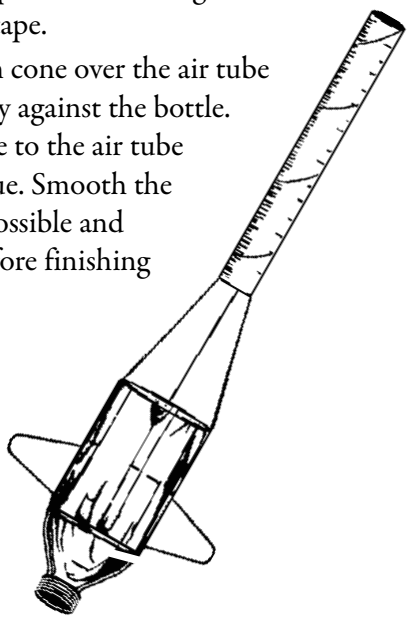
4. When the glue on all the fins is dry (and not before!), anchor them to the tube by running a thick line of cool-melt glue along each side of each fin. Allow the glue to dry thoroughly.



Stage 4: Making and Attaching the Transition Cone

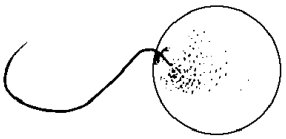
1. Cut out the transition cone from the "Transition Cone and Fin Pattern sheet." Crease it along the dotted line.
2. Slide the transition cone across the edge of a table or workbench.
3. Roll the transition cone semi-tightly in your hand. Then, carefully unroll it and align the dotted line to the opposite edge of the cone. The small opening at the top of the cone will be 1" in diameter. Tape the cone along the seam with transparent tape.

4. Slide the transition cone over the air tube until it rests snugly against the bottle. Spot glue the cone to the air tube with cool-melt glue. Smooth the glue as much as possible and allow it to dry before finishing the Stratoblaster.

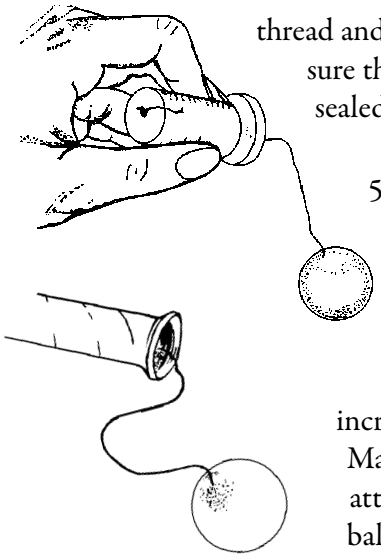


Stage 5: Finishing Touches

1. If using the pressurizer, remove it from the bottle. Cover the entire mouth of the bottle with masking tape to protect it from paint.
2. Paint the Stratoblaster and add decals or stickers. *Do not paint the plastic rocket cone pedestal.*
3. Locate the Ping-Pong ball, rocket cone pedestal, and the piece of string. Glue one end of the string to the Ping-Pong ball with cool-melt glue.



4. Thread about 1/2" of the other end of the string through the rocket cone pedestal. Use a large spot of glue to secure the thread and seal the hole. Make sure the hole is completely sealed by the glue.



5. Carefully push the rocket cone pedestal into the end of the air tube. If the fit is loose, put some tape around the pedestal to increase its diameter. **Note:** Make sure that the string attached to the Ping-Pong ball is not tangled.

Countdown!

Now you are ready to launch your Stratoblaster rocket! Fill the bottle with 4 to 10 ounces of water. You can vary the amount from launch to launch to determine the exact amount that works best with your rocket. Then, place the rocket on your launcher according to the manufacturer's instructions and launch! A properly assembled Stratoblaster will float back to Earth after reaching its apogee.

Remember to stand well away from the launcher and follow all safety precautions recommended by the manufacturer of your launcher.

Be sure to check the Pitsco catalog for other rocketry-related products including *Bottle Rockets* by Brian Rutherford. *Bottle Rockets* covers the basics of flight theory, rocket design, and the use of throwaway packaging to construct a rocket. Students learn how to stabilize fins, conduct a test flight, and determine the right amount of water for their rockets, and more. Includes instructions for building Pitsco's *R2K* rocket and an "egg in space" activity.
Level: Intermediate-High School
57057 Brian Rutherford Bottle Rockets book