ATOMIZER 05054 Skill Level 2 Rocket Instruction Manual

Contents

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The first thing you'll notice on the Atomizer is the ring-tail at the base. This large annular wing provides extra

stability because it increases the amount of fin area. The other thing it does is to protect the fins from a hard landing and makes them much stronger than traditional rockets. What's not to love about a stronger rocket that flies straighter? The Atomizer is easy to build, although it is recommended to those modelers that have previous rocketry experience in the past. The additional ring on the rear of the rocket may require sanding down the tips of the fins just slightly in order to achieve a perfect fit. The rocket has a very simple but attractive color scheme that will remind you of a hot rod for outer space. You'll love the simple vinyl decals that give the rocket lots of appeal with minimum effort. Your friends are going to love this model too!

Atomizer Parts List

Item #	Item Name	Qty
10068	AT-18/2.75″	1
10120	AT-33/9 etched tube	1
13029	CR-13/18 Blue Ring	1
13031	CR-18/24 Green Ring	1
13051	1/8″ Launch Lug 1″ Long	2
13304	CR-18/33 Cardstock Sheet	1
15553	Atomizer Fin Sheet ⅛” x 3″ x 9″	1
19468	PNC-33mm	1
24043	Regular Crimped Engine Hook	1
29124	12″ Parachute Pack	1
29518	100# Kevlar Shock Cord x 5ft	1
31072	Atomizer Instruction Sheet A	1
31073	Atomizer Instruction Sheet B	1
31152	AT-3.71″/1.5″	1
35592	Display Stand Sheet	1
39044	Atomizer Facecard	1
41098	Atomizer Decal	1

Needed Tools and Materials

- Pencil
- Ruler with a straight edge
- Scissors
- Hobby Knife with Sharp Blades

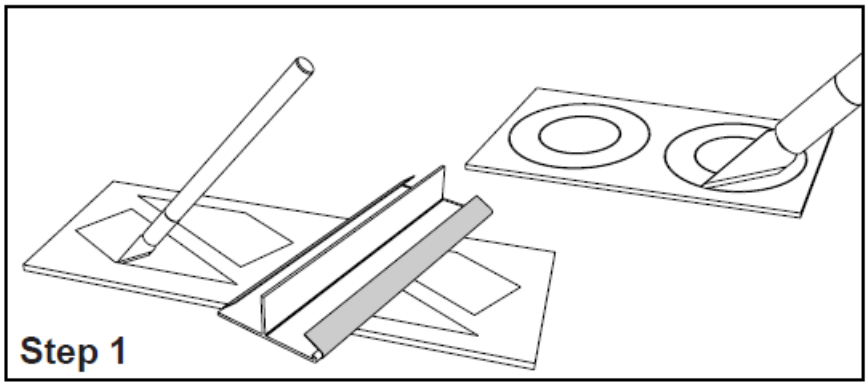
- Wood Glue
- Super Glue (CyA adhesive – medium viscosity)
- Aluminum “Angle” to draw lines on the tube

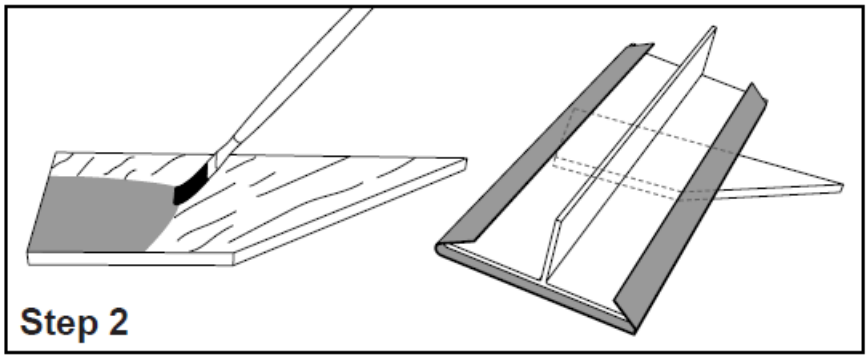
Optional Tools / Finishing Supplies

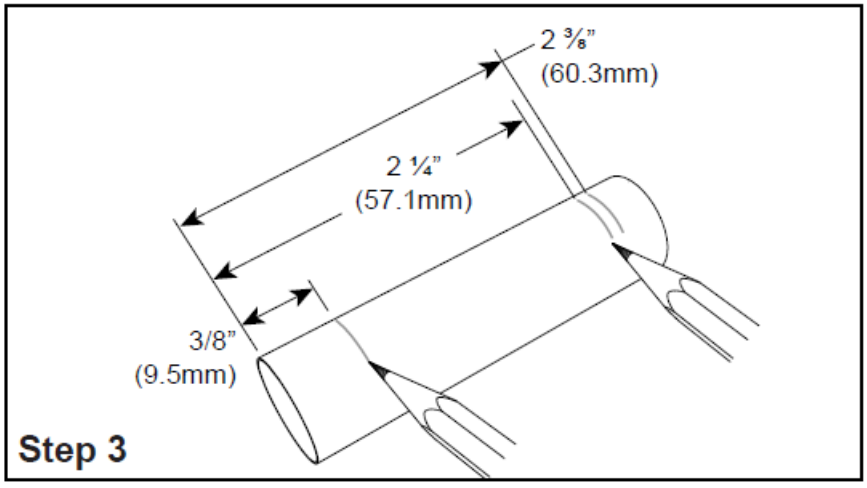
- Masking Tape
- Paper Towels
- Bowl of water with a little dishwashing soap
- Paint Supplies: Spray Paint, Brushes, etc
- Sandpaper 220 grit and 400 grit and Sanding Block

Assembly Steps

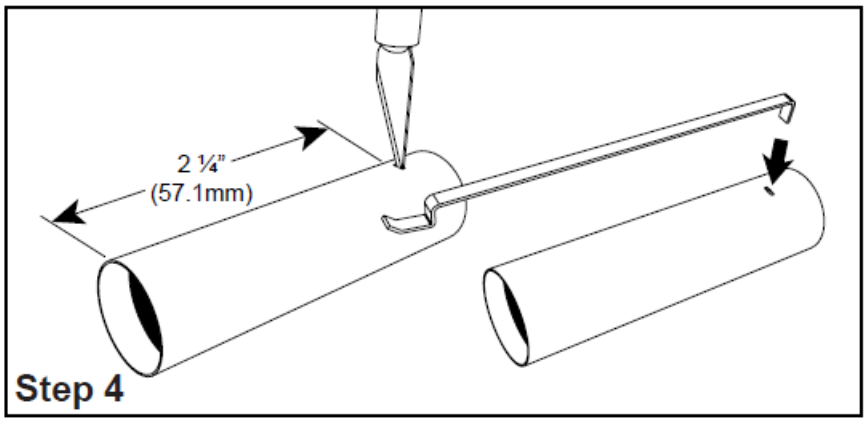
1. Fine sand the balsa fin sheet with 400 grit sandpaper using a sanding block or Apogee’s Sanding Tee. Carefully remove all the fins from the fin sheet by freeing the edges with a sharp hobby knife. Also remove the cardstock centering rings from the sheet.

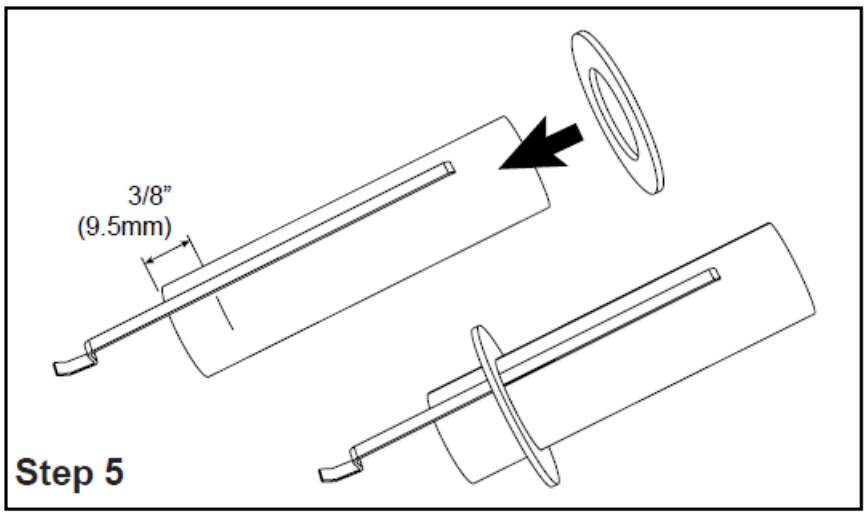




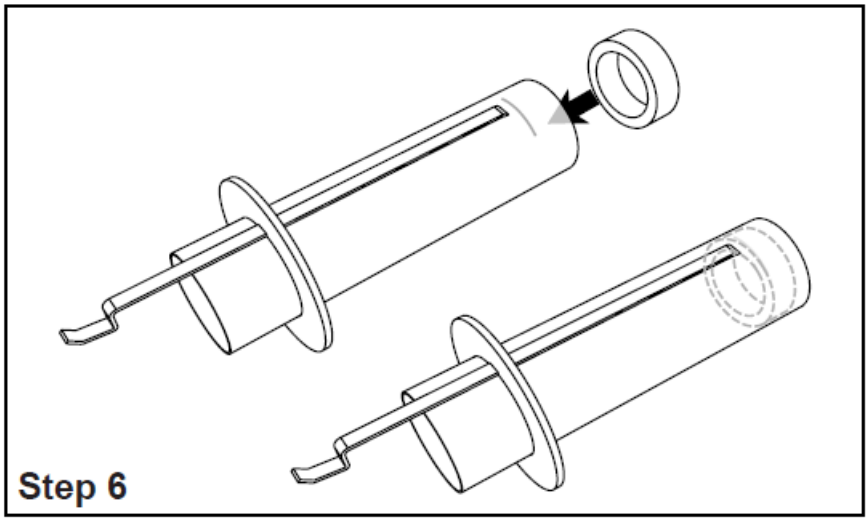


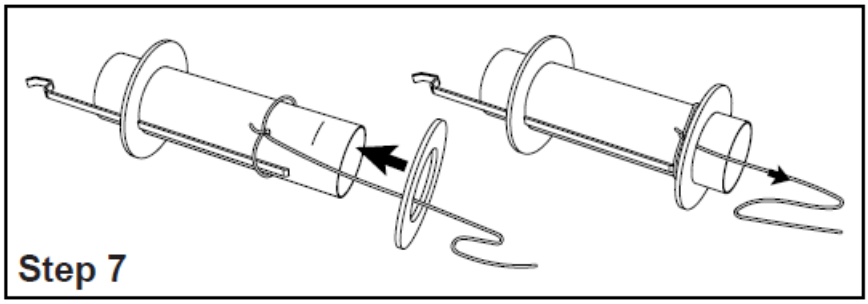
2. Sealing and sanding the balsa fins reduces drag by making the surface very smooth. It also improves the rocket's appearance. Apply a coat of sanding sealer to the fins with a paintbrush. When the sealer is dry, lightly sand the sealed surfaces. Repeat the sealing and sanding procedure until the balsa grain is filled and the fins look and feel smooth.
3. With a pencil, mark the engine mount tube in three locations from one end: 3/8 inch (9.5mm), 2 ¼ inch (57.1mm) and 2 ⅜ inches (60.3mm).
4. Using a hobby knife, make a small slit at the 2 ¼ inch (57.1mm) mark for the engine hook. Insert the tang of the metal engine clip into the slot cut into the engine mount tube as shown.

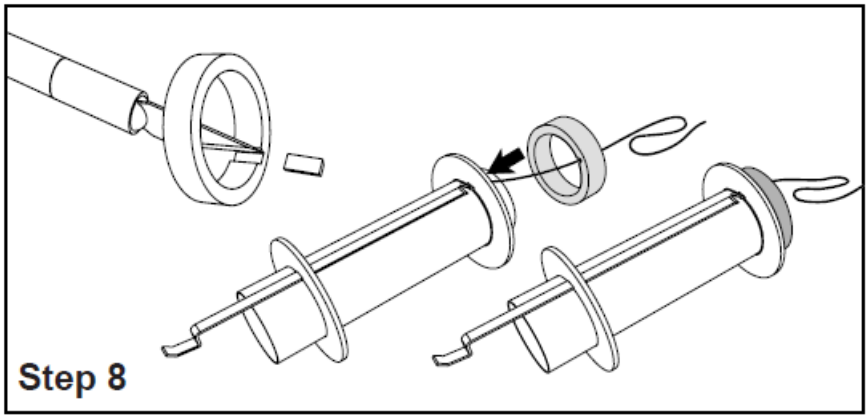




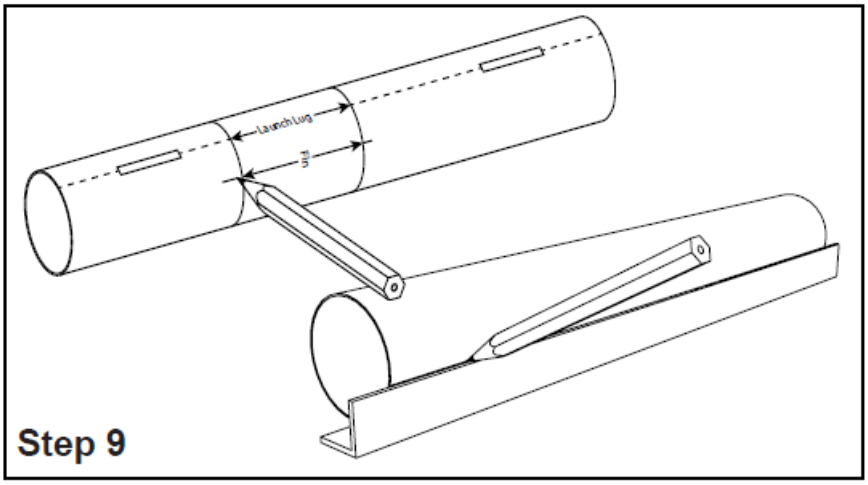
5. Using wood glue, glue one of the cardstock centering rings over the tube and engine hook as shown. The ring is positioned along the 3/8" (9.5mm) line on the tube.
6. Take the blue ring and glue it inside the front end of the tube using wood glue. You can use a rocket engine to push it in until it butts against the metal engine hook tang on the inside of the tube. Remove the rocket engine casing immediately, and wipe away the excess glue on both sides of the engine block. Allow the glue time to dry

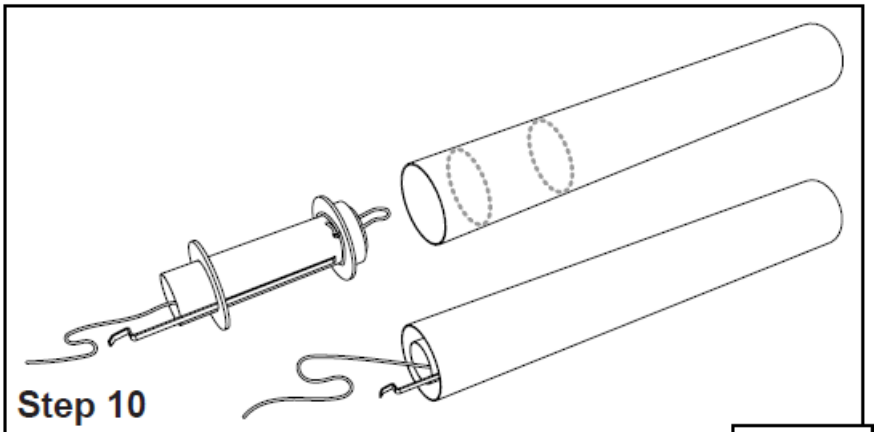




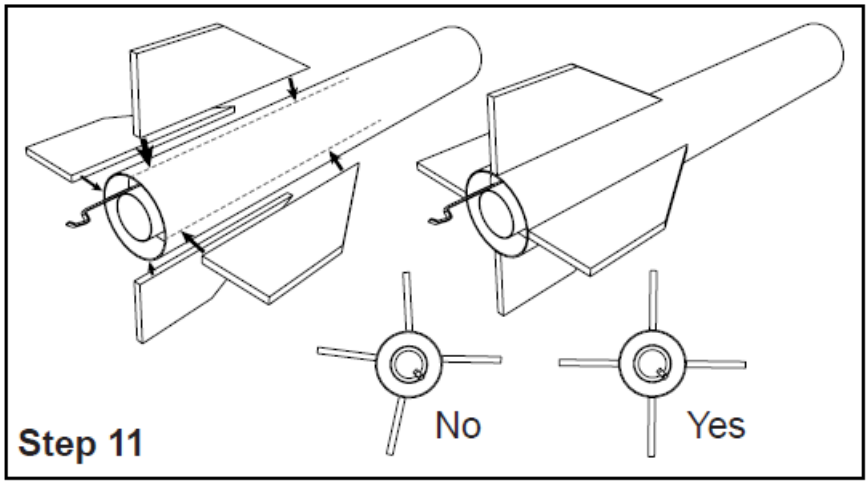


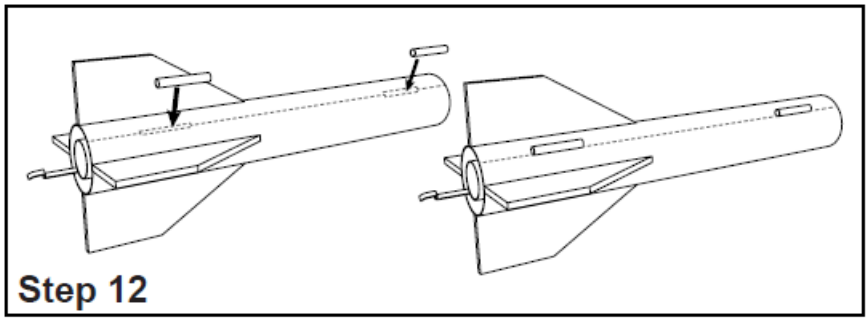
7. Pass one end of the shock cord through the remaining cardstock centering ring and tie the cord around the engine mount tube. Cinch the cord tight to the tube. Run a bead of wood glue around the forward end of the engine mount tube nearest the front end. Slip the ring onto the forward end of the motor mount tube so that the ring aligns with the 2 ⅜ inch (60.3mm) line on the tube as shown. Pull the cord so that the loop is tight up against the side of the centering ring.
8. Cut a small notch on the inside of the green centering ring. This notch will be for the shock cord to fit under the ring. Pass the loose end of the shock cord through the green centering ring and glue the ring over the front of the engine mount tube so that it butts up against the large centering ring. This ring prevents the shock cord from being pulled off the engine mount tube at parachute ejection. Apply glue fillets to both sides of all of the centering rings and allow to dry.
9. Cut out the tube marking guide. Wrap it around the large body tube, and rotate it around so the launch lug line on the wrap aligns with the etched line on the tube. Tape it so it doesn't slide around. Mark the tube where the fins will attach, then extend those lines along the length of both tubes using an aluminum angle. Be sure to notate the launch lug line.

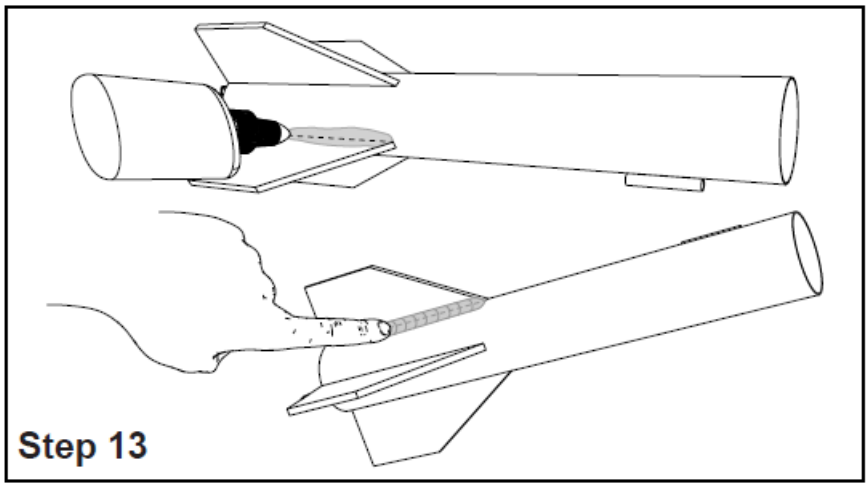




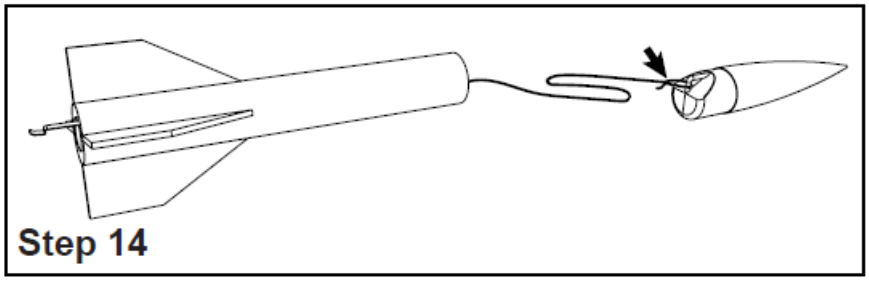
10. Loop the long end of the yellow shock cord through the engine tube so it is temporarily out of the way. Using wood glue, glue the motor mount such that the aft edge of the motor tube (not the centering ring) is flush with the aft edge of the body tube. Once inserted, thread the yellow shock cord back up through the tubes and out the front.
11. Using wood glue, attach the fins to the rocket along the lines drawn previously. The aft edges of the fins should be even with the aft edge of the body tube. For straighter flights, check to make sure the fins are perpendicular to the tube. Allow the glue some time to dry.
12. Using wood glue, attach the two launch lugs to the body tube on the rectangles etched onto the surface. Double check to make sure the two small tubes are straight. You can carefully thread a launch rod through them to make sure they are aligned.

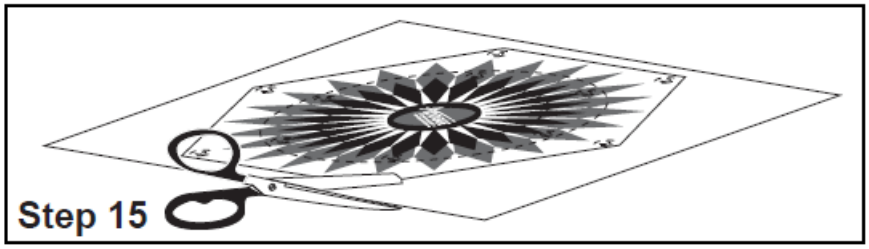


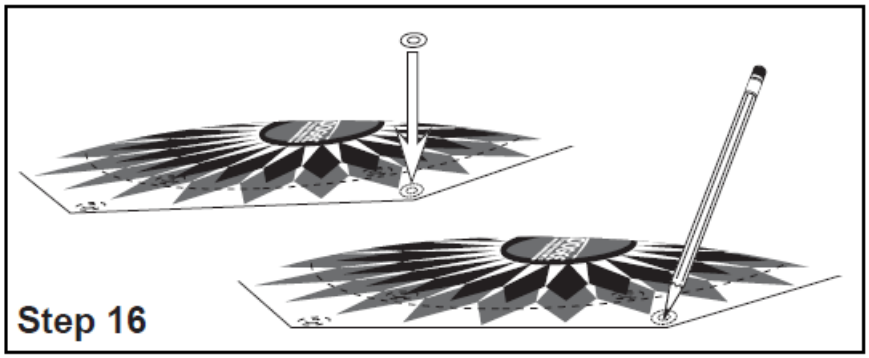




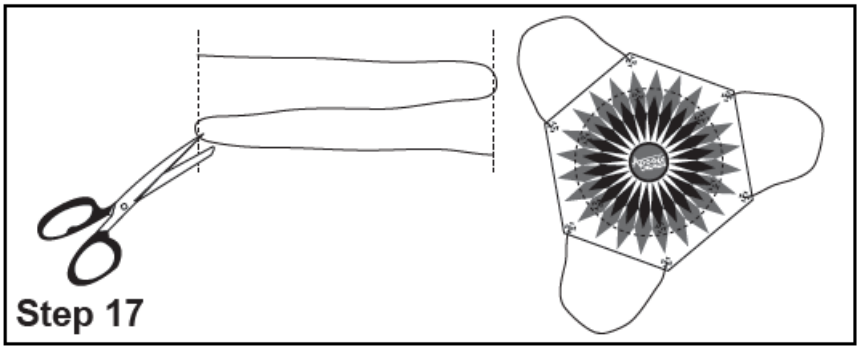
13. Apply a bead of wood glue to both sides of each fin-body tube joint and each launch lug where it attaches to the tube. Pull your finger along the joint to smooth out and remove the excess glue. Lay the tubes horizontally while the glue dries.
14. Tie the free end of the yellow shock cord to the loop on the base of the shoulder of the nose cone. Put a little wood glue on the knot to make it permanent.
15. Cut out the parachute from the plastic sheet using scissors or a hobby knife.
16. Place one reinforcement ring on each of the corners of the plastic parachute canopy. Take a sharp pencil or knife and poke a hole through the plastic in the center of each ring.

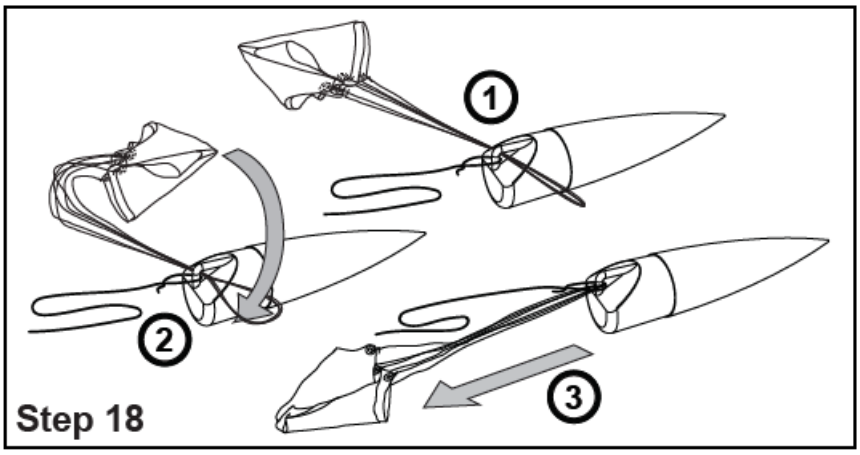


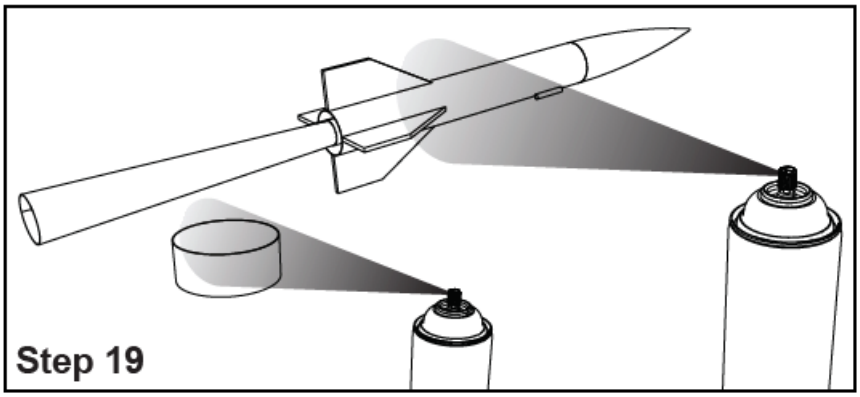




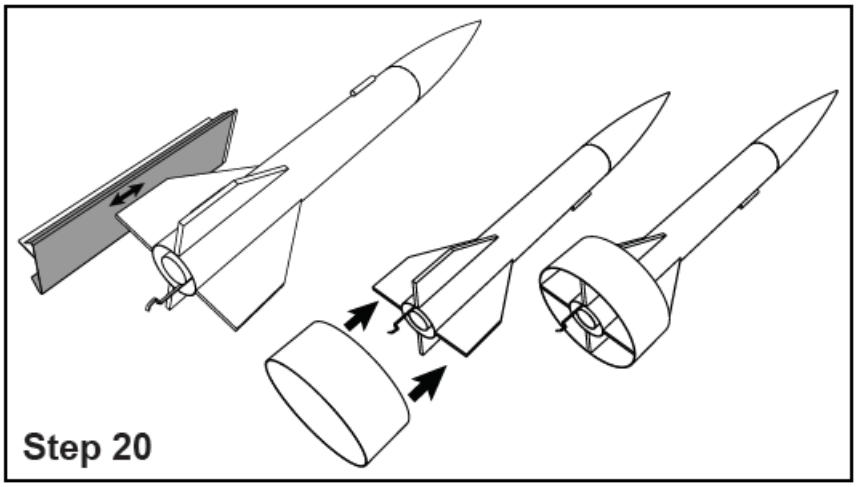
17. Find the white cotton shroud line and cut the string into three equal lengths as shown. Tie the shroud lines through the ring holes as shown. Put a little bit of glue on the knots to secure them in place. Allow the glue to dry.
18. Holding the parachute at the center of its top, pull the lines together to even up the ends. Thread the three looped lines through the plastic loop at the base of the nose cone (1). Take the top of the parachute and thread it through all three string loops (2). Finally, pull on the tip of the canopy to tighten the knot (3). This securely attaches the parachute to the rocket.

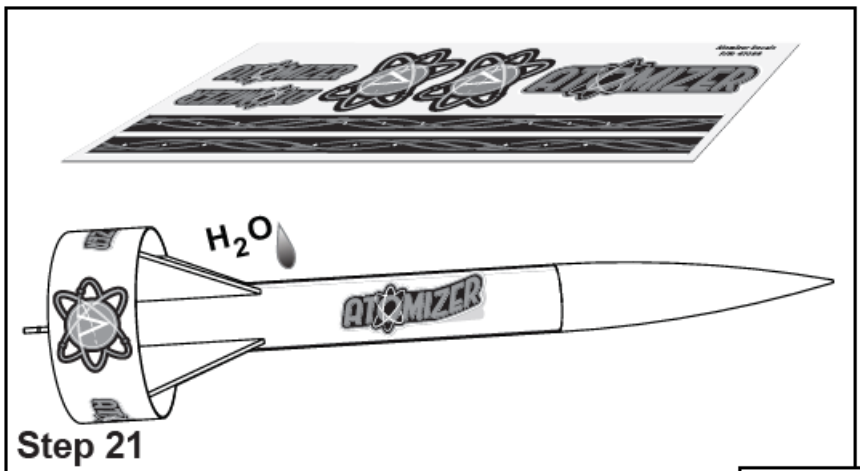






19. When all the glue has completely dried, you can paint the components of the Atomizer rocket. Roll a piece of paper and insert it into the motor mount tube so you can hold the model while painting it. For best results, paint the parts with primer before using the final color paint. Follow the directions on the paint can, and always paint outdoors with the wind against your back. Let the paint harden at least 24 hours before proceeding.
20. Test the fit of the large ring over the fins. If necessary, sand down the edge of the fins to achieve a snug fit. Once the ring fits nicely, glue it in place using the CyA Adhesive (super glue – medium or thick viscosity).

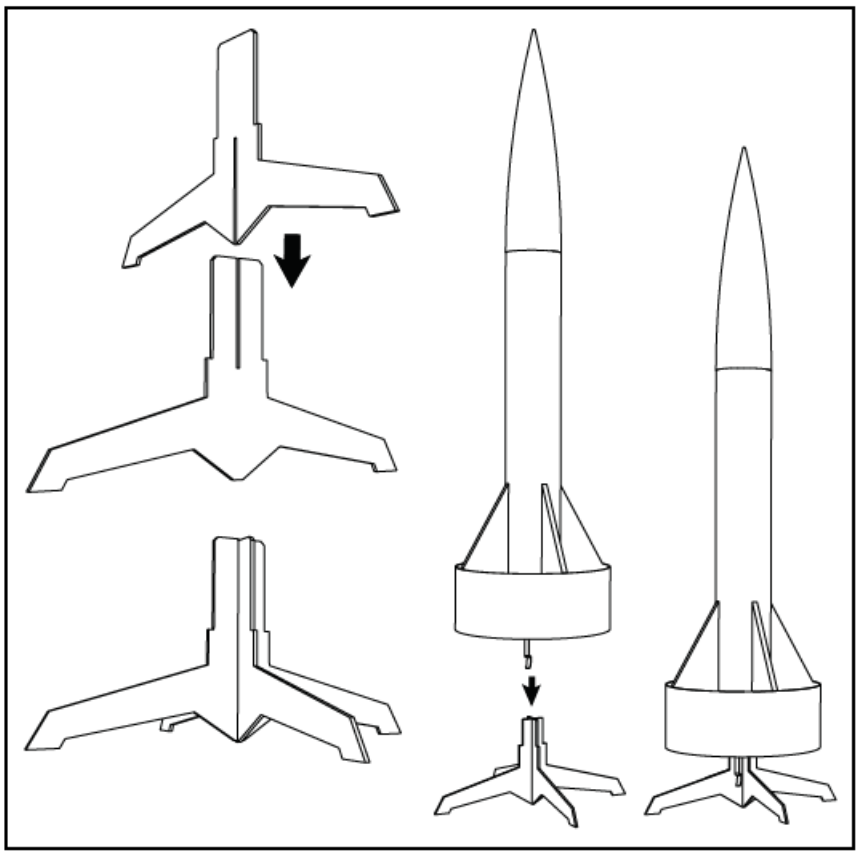




21. Allow the paint to harden at least 1 day before applying the vinyl decals. We recommend removing each one from the paper backing and then dipping them in soapy water to lubricate them so they will slide around and can be repositioned easily. Keep them wet by occasionally dripping some soapy water on the model if they start to grab the rocket too quickly. When the decal is in the right location, press down firmly, and squeegee out any water underneath. When the decal dries, it will be permanently fixed. The soapy water will not affect the adhesion of the glue on the back of the vinyl decal. Congratulations! Your Atomizer rocket is now complete!

Display Stand Assembly

- Remove the display stand pieces from the laser-cut sheet. Assemble the leg pieces together. Run a thin bead of wood glue along all the joints between the pieces. When the glue is dry, the stand can be painted and a rocket can be placed on it.



Launch Supplies Needed

To launch your rocket you will need the following:

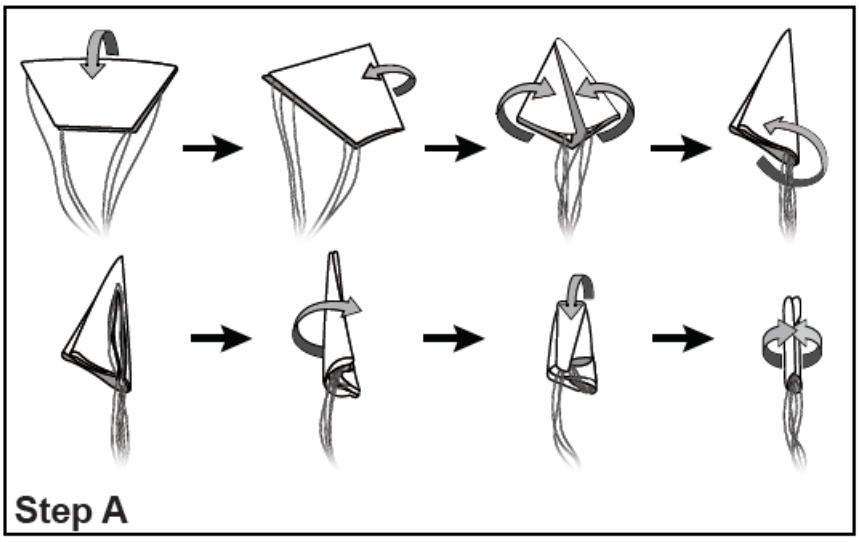
- A model rocket launch pad with a 1/8-inch (3.175mm) launch rod and launch controller
- Rocket Recovery Wadding
- Several recommended 18mm Rocket Engines for the Atomizer are listed in the motor chart.* Go to our website for a broader motor selection for this kit at https://www.apogeerockets.com/Model-Rocket-Kits/Skill-Level-2-Model-Rocket-Kits/Atomizer#motors

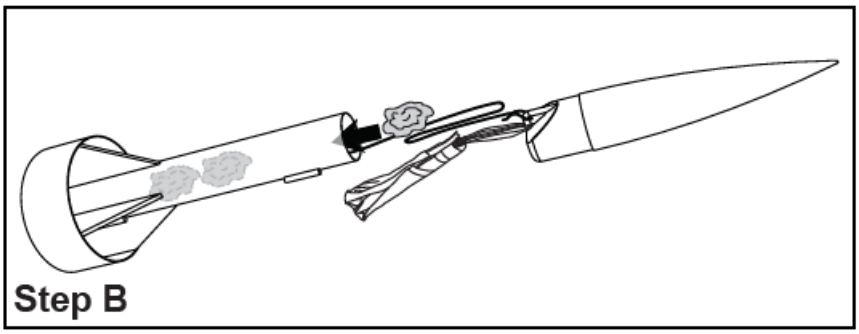
Atomizer Suggested Motor Chart

Manufac- turer(s)	Engine Loaded	Motor Type	Est. Altitude	
			Ft	m
Estes	A8-3	Single Use	92	28.0
Estes	B4-4	Single Use	204	62.2
Quest	C18-4	Single Use	390	118.9
Quest	D20-4	Single Use	487	148.4
Aerotech	D13-5	Single Use	650	198.1

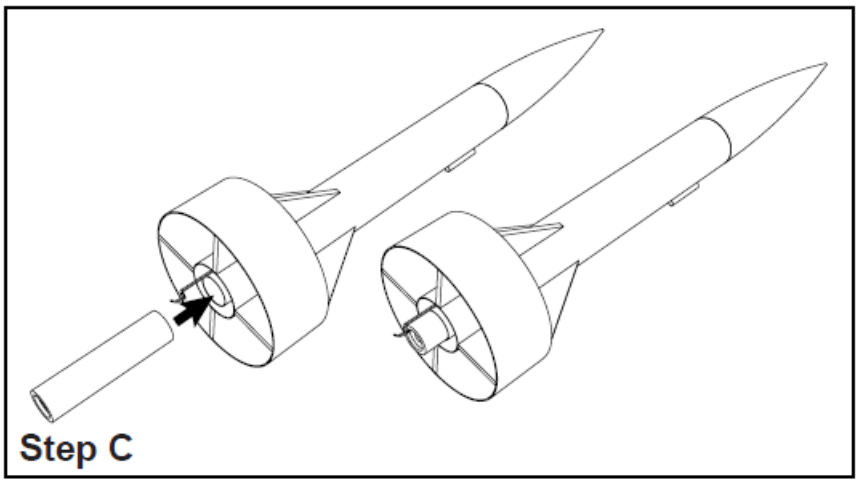
Rocket Preflight

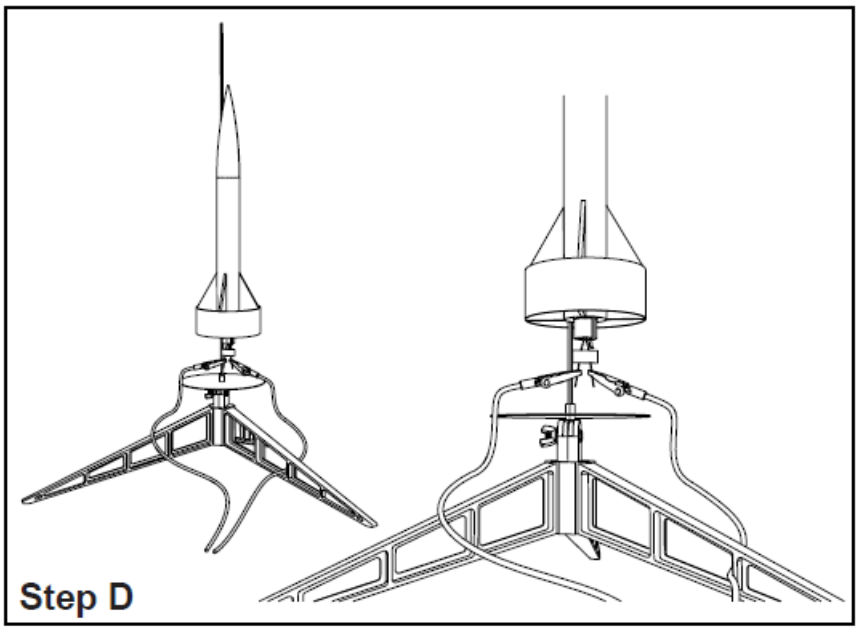
A. Fold the parachute as shown.





B. Crumple and insert 2 or 3 sheets of recovery wadding into the tube with a dowel. Slide the folded parachute into the tube behind the recovery wadding. Then slide the nose cone into the main body tube.
C. When you are ready to launch your rocket, slide the rocket motor into the engine mount tube until the engine hook clicks into place as seen below.

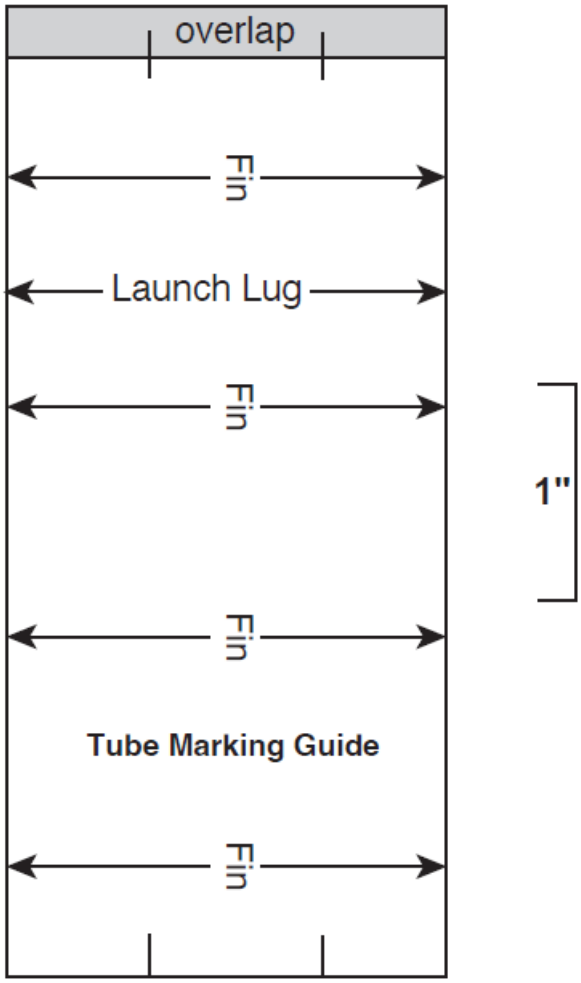




D. Insert and secure the engine igniter as directed on the package the engines came with.
At this point, the assembly of the rocket is complete and ready for flight. Continue to follow the countdown and launch procedures.

Countdown and Launch Procedure

- The Atomizer rocket flies off of a 1/8” launch rod. Fly your rocket on a large field that is far from any power lines, trees, or low flying aircraft. The larger the field, the greater your chances of recovering your rocket. The launch area around the pad must be free of dry weeds and brown grass. Launch only during calm weather with very little or no wind and good visibility.
- 10. Remove the safety key from the launch controller.
- 9. Slide the rail buttons over the launch rail to place the rocket on the pad. The rocket should slide freely along the launch rod.
- 8. Attach the micro-clips to the igniter wires. The clips must not touch each other or the metal blast deflector.
- 7. Stand back from your rocket as far as the launch wire allows (at least 40 feet for E motors and larger).
- 6. Insert the safety key to arm the launch system. The light (or buzzer) on the controller should come on.
- Give a loud countdown! 5… 4… 3… 2… 1… LAUNCH!
- Push and hold the button until the engine ignites. Then remove the safety key and place the safety cap on the launch Rod.



Misfire Procedure

Occasionally the igniter will burn, but the motor will fail to ignite. If this happens, the cause is that the pyrogen on the igniter was not in contact with the engine's propellant. When an ignition failure occurs, remove the safety key from the launch controller and wait 60 seconds before approaching the rocket. Remove the old igniter from the engine and install a new one. Make sure that the igniter is inserted fully into the engine and touches the propellant. Secure the igniter as directed on the engine package and repeat the countdown and launch procedure. Always follow the NAR* Model Rocket Safety Code when launching model rockets.

*National Association of Rocketry **Kevlar® is a brand name of E.I. DuPont for their selection of aramid fibers. Only DuPont makes Kevlar®

Need parts or Accessories to go along with this kit?
Go online and order at www.ApogeeRockets.com or call us and order at **719-535-9335**. We're available M-F: 9:00am-5:00pm MST

Documents / Resources

	ATOMIZER 05054 Skill Level 2 Rocket [pdf] Instruction Manual 05054, Skill Level 2 Rocket, 05054 Skill Level 2 Rocket, Rocket

References

- Model Rockets & How-To Rocketry Information