Assembly and Operation Instructions

BEFORE YOU BEGIN:
- Study the illustrations and sequence of assembly. The sequence of assembly is important. Review the parts list and become familiar with all parts before assembly. If any parts are missing or damaged, contact RCS by phone at 1-435-865-7100 or by email at warranty@aerotech-rocketry.com.

- DO NOT MODIFY THE DESIGN OF THE ROCKET. Changes to the design of the rocket such as, but not limited to, reducing the fin size, shortening the body tube, or modifying the motor tube assembly can adversely affect the flight stability of the rocket.

- Only use AEROTECH™ Composite Model Rocket Motors in this model rocket. See the AeroTech Motor Matrix for recommended AeroTech motors.

Read and follow the Model Rocket Safety Code of the National Association of Rocketry (NAR) and comply with all federal, state and local laws in all activities with model rockets.

PARTS

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Motor Tube Assembly

1. Using the Location Guide, make a mark along the motor tube line 3-1/4" (83 mm) from the back end of the motor tube. This mark locates where the back edge of the front FIN-LOK™ ring will be. Make another mark 1 1/4" (32 mm) from the back end of the motor tube. This mark locates where the front edge of the rear most FIN-LOK™ ring will be.
NOTE: FROM THIS POINT ON DO NOT USE ANY CEMENT UNTIL REACHING ASSEMBLY STEP 5.

1. Slide a FIN-LOK™ ring and then an AERO-FIBRE™ centering ring over the front end of the motor tube. Push on the centering ring until the back edge of the FIN-LOK™ ring is moved to the forward most mark made in Step 3. (NOTE: The rings are designed to be a tight fit on the motor tube. If the rings are difficult to slide onto the motor tube, round the inside edges of the rings with sandpaper. If the FIN-LOK™ rings need to be turned after they are on the motor tube, use a small piece of cloth to provide a better grip.)

2. Slide the other FIN-LOK™ ring over the back end of the motor tube. Push on the FIN-LOK™ ring until the front edge of the FIN-LOK™ ring is at the rear-most mark made in Step 3.

3. Using the line on the motor tube as a guide, gently twist the rear FIN-LOK™ ring so that it is aligned with the fin locks of the front FIN-LOK™ ring.

4. Test the proper positioning and alignment of the FIN-LOK™ rings by snapping the fins into the fin locks. If any fin does not snap into place, check to see that each FIN-LOK™ ring is the correct distance from the back end of the motor tube and that the fin has no plastic flashing left from production that may be preventing a proper fit. Remove any plastic flashing with a hobby knife or sandpaper. After making any adjustments, carefully remove the fins. Check that the front centering ring is still positioned next to and touching the front FIN-LOK™ ring.

5. Apply a bead of cement where the front centering ring meets the motor tube. Without getting cement into any of the fin locks, apply cement only to the areas BETWEEN the finlocks where the front FIN-LOK™ ring meets the front centering ring and the motor tube.

6. Without getting cement into any of the fin locks, apply cement only to the areas BETWEEN the back fin locks where only the front edge of the back FIN-LOK™ ring meets the motor tube. DO NOT apply cement to the back edge of the back FIN-LOK™ ring. (NOTE: The unique AeroTech FIN-LOK™ fin mounting system carries and distributes aerodynamic and thrust loads throughout an integrated rocket structure in a manner found in large aerospace vehicles. Loads are primarily borne by structural members and not cement.)
**Labyrinth™ Assembly**

1. Make four 1/4" (6mm) long cuts, 90 degrees apart, in the front end of the motor tube.

2. Stretch out the cooling mesh to about 6" (15cm) in length. Insert the cooling mesh into the front end of the motor tube. (NOTE: Do not cement the mesh into the motor tube.)

3. Apply a thin film of cement to the front 2/3 of the shoulder of the ejection gas baffle and insert the baffle shoulder into the front end of the motor tube.

4. Apply beads of cement where the baffle meets the motor tube and into each of the cuts in the motor tube.

5. Apply cement to the front surface of the baffle flange and place an AERO-FIBRE™ centering ring over the front end of the baffle so it rests upon the baffle flange.

6. Screw the screw eye all the way into the hole at the front end of the baffle. Securely tie an end of the shock cord to the screw eye with a square knot. CAUTION: Do not put cement on the knot of the shock cord.

**Body and Fin Assembly**

1. Using a hobby knife, carefully remove any body tube material that may still be attached to any pre-cut slots in the body tube.

2. Insert the loose end of the shock cord and then the motor tube assembly into the back of the rocket body tube as shown. Position the motor tube assembly so that the finlocks are located under and visible through the body tube's pre-cut fin slots.

3. Apply cement along the full length of the fin root of a fin (area of the fin that makes contact with the outside surface of the body tube). Carefully insert the fin through a slot in the body tube and snap the fin into place. Repeat this process for the other two fins. NOTE: Each fin should be snug against the body tube.

4. Through the back end of the body tube, apply cement where the fin tabs meet the motor tube, finlocks, front centering ring and body tube. Through the front end of the body tube, apply cement where the baffle assembly centering ring meets the inside surface of the body tube.

5. Lightly sand the surface of the body tube around the launch lug slots. Apply cement to the base of a launch lug/rail guide. With the sloping portion of the launch lug/rail guide toward the front of the body tube, insert the tab on the bottom of the lug into one of the pre-cut launch lug slots in the body tube. Repeat this process for the other launch lug. When using rail guides, center the rail guide over the launch lug slot and cement them in place.
1. Wrap the channel tunnel marking guide around the body tube making sure to line up the alignment arrows with the fins. Using a pencil or pen, make marks at the arrow points shown on the channel marking guide. Remove the marking guide and, using a straight edge, connect the marks made on the tube along the length axis.

2. **NOTE:** Channel tunnels are to be attached with the flat side up. Test fit the channel tunnels and trim to length if necessary using a hobby knife or razor saw. The channel tunnels should run from the front edge of the fin to the front end of the body tube. Apply cement to the base of a channel tunnel and press it against the body tube while aligning the tunnel along one of the lines drawn in step 1. Make sure to butt the aft end of the tunnel against the fin. Repeat this step for the remaining two tunnels.

3. Cut 3 pieces of channel tunnel approximately 1 3/4" long. Apply cement to the base of a 1 3/4" piece of channel tunnel and press it against the body tube while aligning it along one of the lines drawn in step 1. Make sure to butt the aft end of the short channel tunnel against the forward ends of the channels installed in step 2. Repeat this for the remaining two pieces.

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1. Wrap the channel tunnel marking guide around the upper body tube making sure to line up the alignment arrows. Using a pencil or pen, make marks at the arrow points shown on the channel tunnel marking guide. Remove the marking guide and, using a straight edge, connect the marks made on the body tube along the length axis.

2. Make three 10" lengths of channel tunnel using continuous pieces or piece together remaining lengths.

3. **TEMPORARILY** install coupler tube into upper body tube three inches. **DO NOT USE CEMENT!**

4. Insert coupler tube/upper body tube into lower body tube until lower and upper body tubes are flush against each other. Align marks on upper body tube with end of channel tunnels on lower body tube.

5. Apply cement to one of the 10" channel tunnels with the flat side up. Press against the upper body tube, aligning them along the previously drawn lines and butting them against the lower channel tunnels. Repeat for the two remaining 10" channel tunnels.

6. Fill in the opening in the front of each channel tunnel with putty or cement. Sand smooth.
7. Screw the other screw eye all the way into the hole in the bulkhead (1/16"/1.6 mm thick). Apply a bead of cement where the screw eye meets the bulkhead.

8. Pass the free end of the shock cord through the coupler tube (6"/15 cm long) and securely tie it to the screw eye attached to the bulkhead with a square knot. CAUTION: Do not put cement on the knot of the shock cord. Cement will weaken the shock cord.

9. Cement the bulkhead to the end of the coupler tube.

10. Make a pencil mark 3" (76 mm) from an end of the coupler tube. Lightly sand the surface of the tube between the mark and the bulkhead. Use a small dowel to apply a bead of cement around the inside of the upper body tube about 1" (25mm) from the end of the tube. Slide the coupler tube into the payload bay tube up to the pencil mark on the coupler tube.

11. NOTE: If using the upper body assembly as a payload compartment DO NOT GLUE THE NOSE CONE in place. Insert the nose cone into the upper body tube in order to check the difficulty of removing the nose cone. The nose cone should fit snugly. If the fit is too loose wrap masking tape around the nose cone shoulder until the nose cone is snug.

Small screws (not included) may also be used to secure the nose cone in place. Otherwise, cement the nose cone into the forward end of the upper body tube.

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**Final Assembly and Finishing**

1. Slide the remaining centering ring over the back of the motor tube and push it against the back F'IN-LOK™ ring. Apply a bead of cement where the centering ring meets the body tube.

2. Apply one or two coats of gray sandable primer to the rocket, sanding primer coat after it has dried to fill in seams on the body tubes.


4. Paint one fin flat black and two fins flat white.

5. Paint lower 10" of upper body tube orange. Let dry completely.

6. Paint remaining area of upper body tube and nose cone silver. Let dry.

7. Carefully cut out the self-adhesive decals and apply them to the rocket body and fins. Use the picture on page 1 and the photo on the box as a guide to proper positioning.

8. Fasten the fabric parachute to the shock cord at a point about one (1) foot away from the payload bay in the following manner: stretch out the shroud lines of the parachute so that the lines form three (3) loops on top of the other. Lay the shock cord across all the shroud lines. Pass the canopy of the parachute over the shock cord and through the three (3) loops made by the shroud lines and pull tight. Pack the parachute and insert the coupler tube into the lower body tube.
**Motor Retainer Installation**

**Step 1.**
- a. Test fit before applying any epoxy.
- b. Lightly sand the inside surface of the retaining ring to rough it up.
- c. Should be a snug fit.

**Step 2.**
- a. Use J.B. Weld or other similar epoxies.
- b. Apply the epoxy to inside of the retainer.
- c. Slide into place being careful to not get any epoxy on the threads.
- d. Allow to cure 24 hours before use.

**USING A 24MM MOTOR WITH YOUR MOTOR RETAINER**
1. Place the fibre ring on top of the motor retainer.
2. Insert a 24mm motor into the motor mount tube.
3. Screw on the retaining cap.

**Flying Your Arreauxbee-Hi**

**PRE-LAUNCH CHECKLIST**

Before EVERY flight, perform a complete pre-launch checkout of your rocket;

- Check that all fins and launch lugs are mounted securely and not damaged.
- Examine the body tube, nose cone and payload bay to make sure they are free of damage.
- Check that the shock cord is securely mounted to the ejection gas baffle and nose cone (or payload bay bulkhead).
- Check that the parachute is securely tied to the shock cord.
- Check that the shock cord and parachute are free of any damage.
- See that the nose cone (or payload bay), packed parachute and shock cord move freely. After awhile, an ejection charge residue may build up at the top inside the surface of the body tube. Wipe this residue away with isopropyl ("rubbing") alcohol.
- With the tail of the rocket pointed down and the motor tube empty, shake the rocket to remove any loose ejection charge debris left from a previous flight. Periodically, fluff up the cooling mesh using a bent wire inserted through the back end of the motor tube.
- Be certain the motor to be used is a recommended AEROTECH model rocket motor and of a size appropriate for the launch area.
- Be sure the motor retainer and motor tube are not damaged and hold the motor securely in place.
- If the pre-launch checkout reveals any damage, repair the damage before the rocket is flown again.

NOTICE: As we cannot control the storage and use of our products, once sold we cannot assume any responsibility for product storage, transportation or usage. RCS shall not be held responsible for any personal injury or property damage resulting from the handling, storage or use of our product. The buyer assumes all risks and liabilities therefrom and accepts and uses AeroTech/RCS products on these conditions.

No warranty either expressed or implied is made regarding AeroTech/RCS products, except for replacement or repair, at RCS’s option, of those products that are proven to be defective in manufacture within one year from the date of original purchase. For repair or replacement under this warranty, please contact RCS. Proof of purchase will be required. Note: Your state may provide additional rights not covered by this warranty. NOTICE: As we cannot control the storage and use of our products, once sold we cannot assume any responsibility for product storage, transportation or usage. RCS shall not be held responsible for any personal injury or property damage resulting from the handling, storage or use of our product. The buyer assumes all risks and liabilities therefrom and accepts and uses AeroTech/RCS products on these conditions.