ESTES

EstesRockets.com

PRO SERIES II

9735

1:100 NEW GLENN



AGES 18+

Skill Level

EXPERT

MODEL ROCKET INSTRUCTIONS

KEEP FOR FUTURE REFERENCE

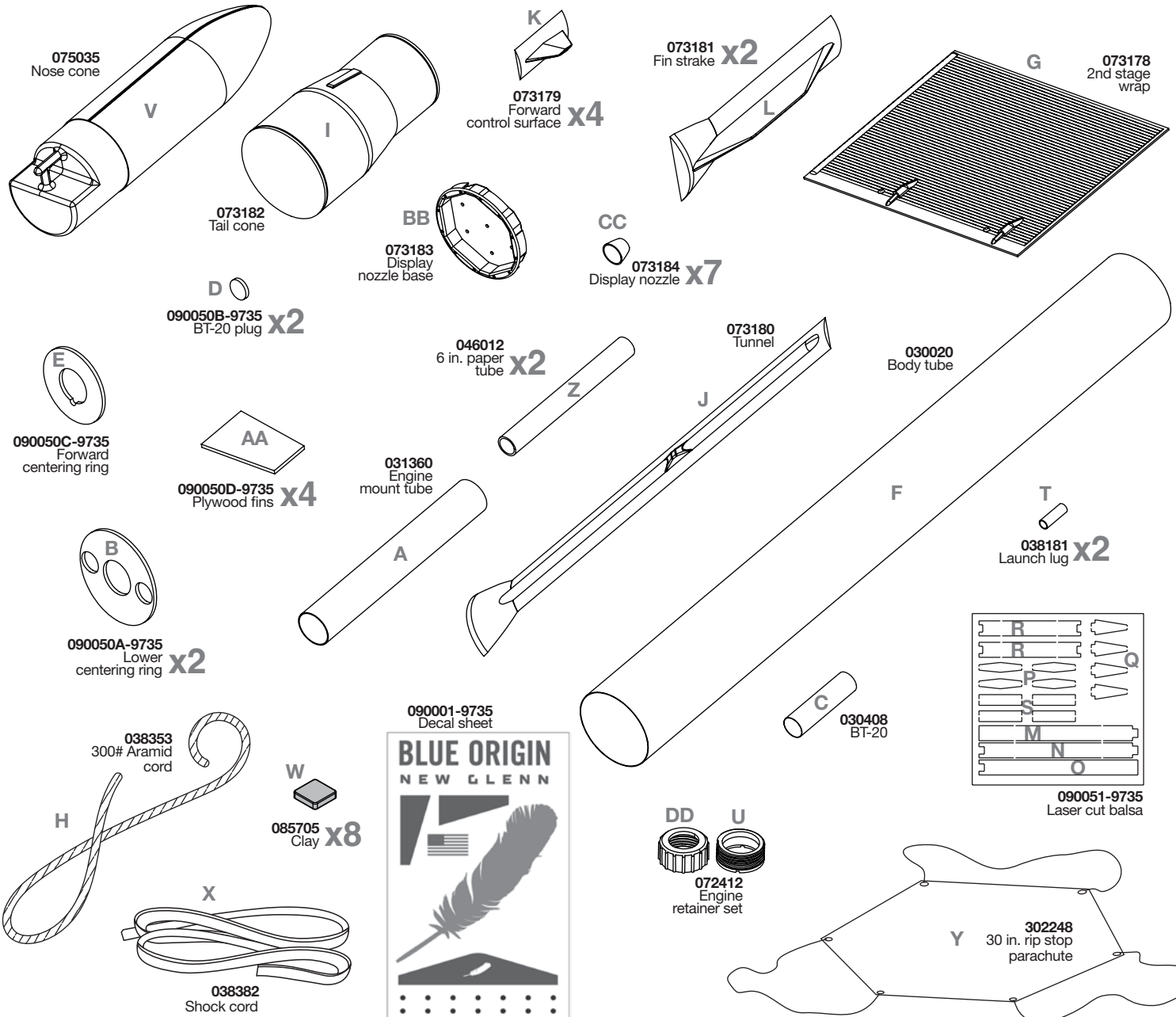
IMPORTANT: Please record date found on decal and keep for future reference. _____

⚠ CAUTION: *May not apply to all kits. For safe handling of plastic cement, epoxy, spray adhesive, CA glue, CA accelerator, paint/finishing materials, see manufacturer's warnings and follow instructions for use. To avoid injury, use extreme caution when using hobby knife, scissors, drills, and any cutting tools.*

SUPPLIES

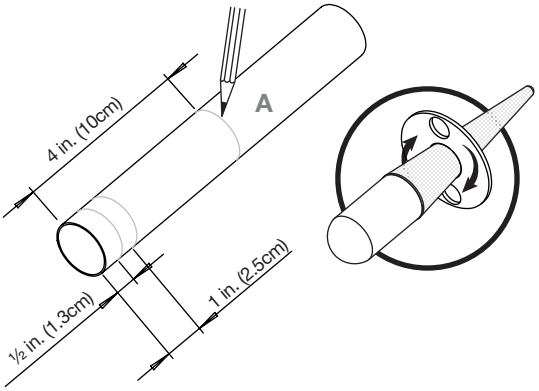


PENCIL | FINE SANDPAPER | RULER | HOBBY KNIFE | SCISSORS | MASKING TAPE | CLEAR TAPE | YELLOW GLUE | CA GLUE | EPOXY | SPRAY ADHESIVE | WHITE PRIMER | PAINT (LISTED ON PG 10) | CLEAR COAT (OPTIONAL)

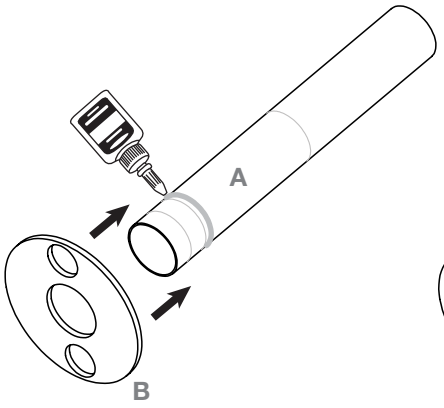


ASSEMBLE ENGINE MOUNT

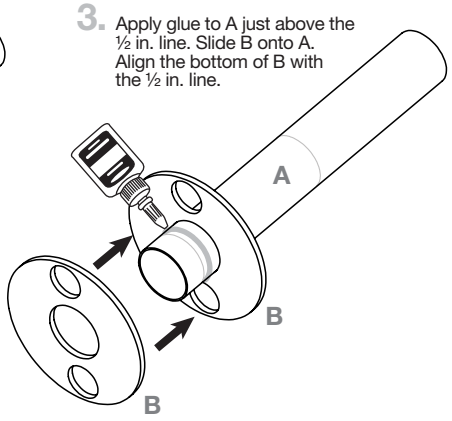
1. Mark engine mount A with a pencil around the circumference at the measurements shown below. Test fit parts A, B & E. Sand inside ring of B & E if needed to fit over A.



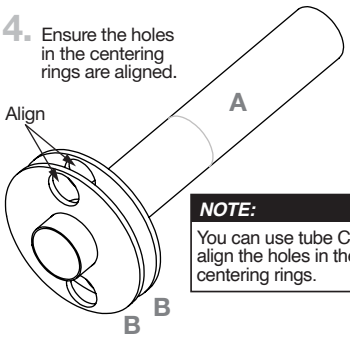
2. Apply glue to A just above the 1 in. line. Slide B onto A. Align the bottom of B with the 1 in. line.



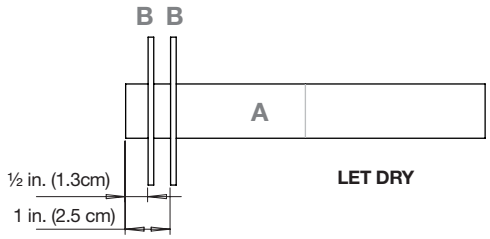
3. Apply glue to A just above the ½ in. line. Slide B onto A. Align the bottom of B with the ½ in. line.



4. Ensure the holes in the centering rings are aligned.

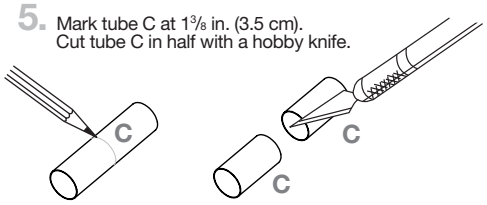


NOTE:
You can use tube C to align the holes in the centering rings.



LET DRY

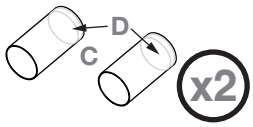
5. Mark tube C at 1⅜ in. (3.5 cm). Cut tube C in half with a hobby knife.



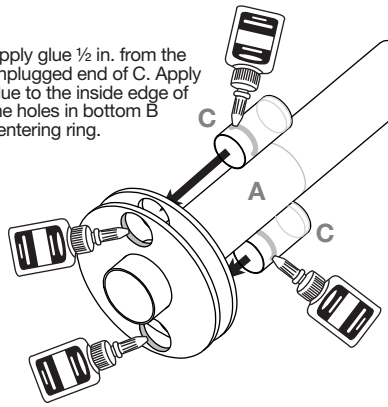
6. Apply glue to the inside edge of C.



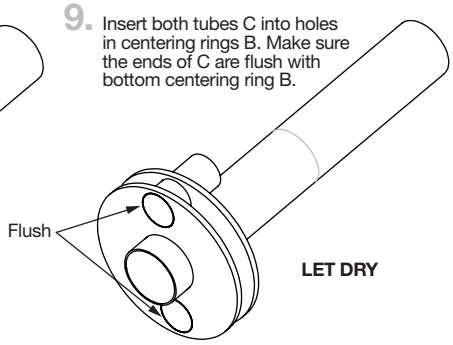
7. Insert D into C making sure the plug is flush with the end of the tube. Repeat for both C tubes.



8. Apply glue ½ in. from the unplugged end of C. Apply glue to the inside edge of the holes in bottom B centering ring.

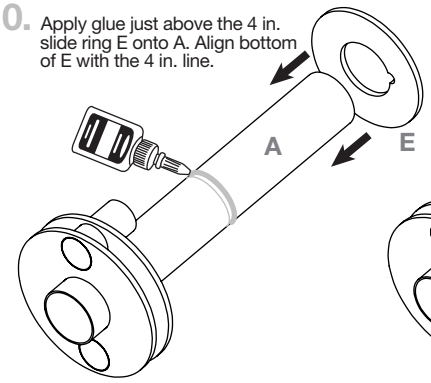


9. Insert both tubes C into holes in centering rings B. Make sure the ends of C are flush with bottom centering ring B.

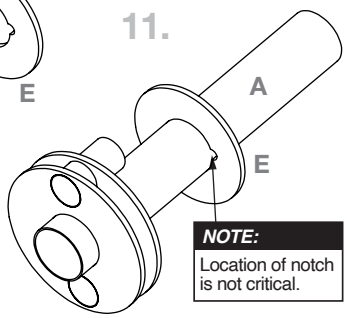


LET DRY

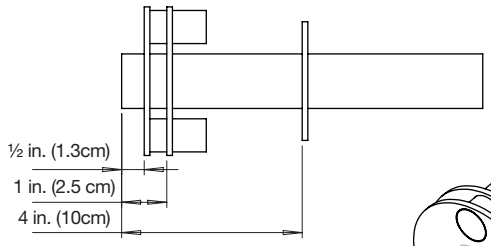
10. Apply glue just above the 4 in. slide ring E onto A. Align bottom of E with the 4 in. line.



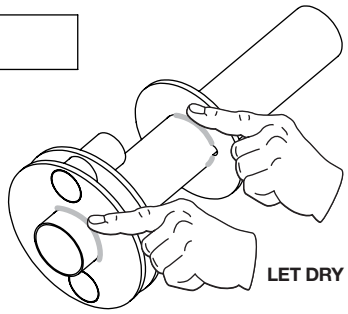
11.



NOTE:
Location of notch is not critical.



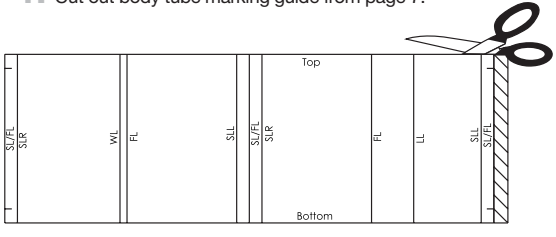
12. Apply glue fillets to all connection points.



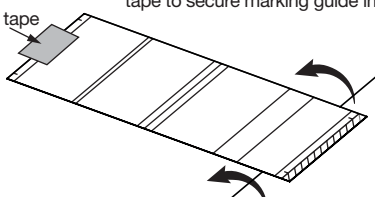
LET DRY

MARK BODY TUBE

1. Cut out body tube marking guide from page 7.



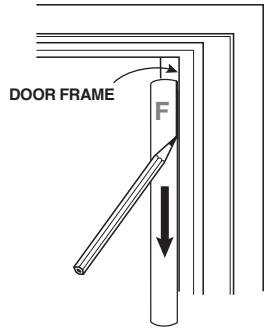
2. Wrap the tube marking guide approx. 4 in. (10 cm) from one end of tube F. Use clear tape to secure marking guide in place.



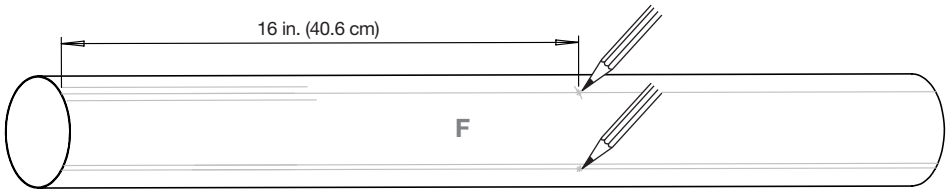
3. Mark and label all guide lines.

MARK BODY TUBE (CONTINUED)

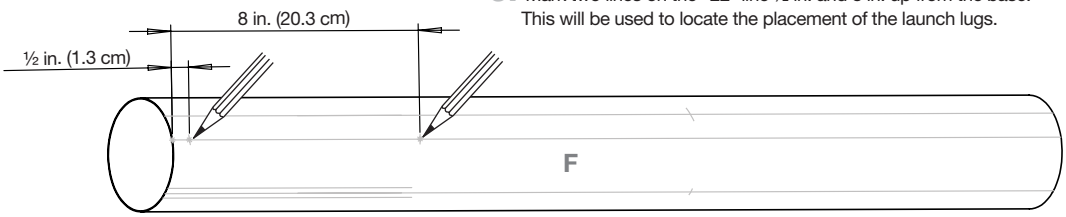
4. Remove the marking guide. Using 2228 Ultimate Tube Marking Guide (sold separately) or a door frame, extend the lines up the entire length of the body tube. The SLL and SLR lines only need to extend up to approx. 10 in. (25.4 cm) from the base.



5. On all "FL" lines, mark a line 16 in. up from the base of the tube. This will be used to locate the placement of the vacuum formed fins.

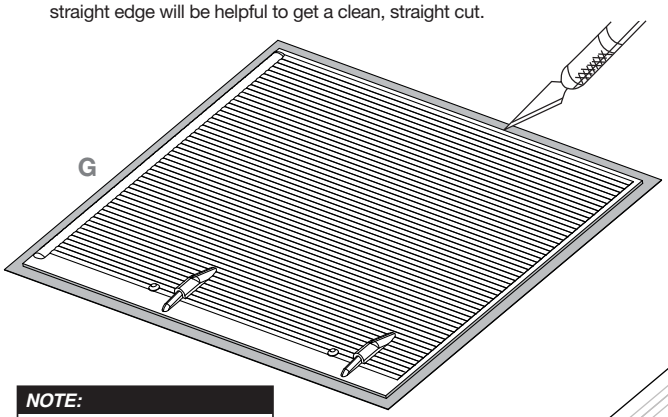


6. Mark two lines on the "LL" line ½ in. and 8 in. up from the base. This will be used to locate the placement of the launch lugs.



ATTACH UPPER STAGE WRAP

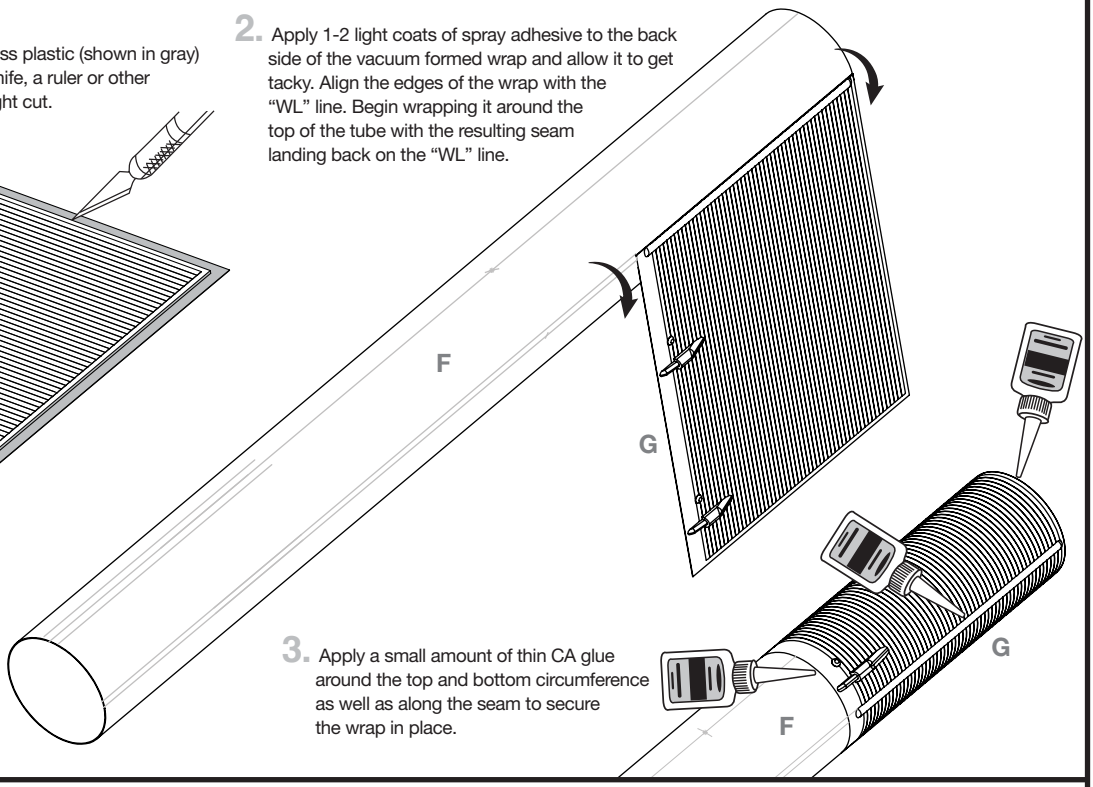
1. Using either a hobby knife or scissors, trim excess plastic (shown in gray) off of 2nd stage wrap G. When using a hobby knife, a ruler or other straight edge will be helpful to get a clean, straight cut.



NOTE:

Use fine grit sandpaper to remove any perimeter lip so that the sheet will wrap cleanly.

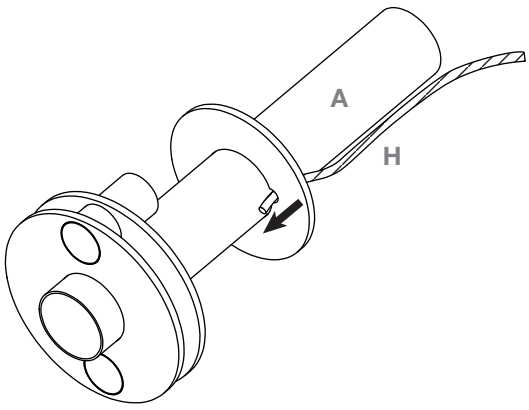
2. Apply 1-2 light coats of spray adhesive to the back side of the vacuum formed wrap and allow it to get tacky. Align the edges of the wrap with the "WL" line. Begin wrapping it around the top of the tube with the resulting seam landing back on the "WL" line.



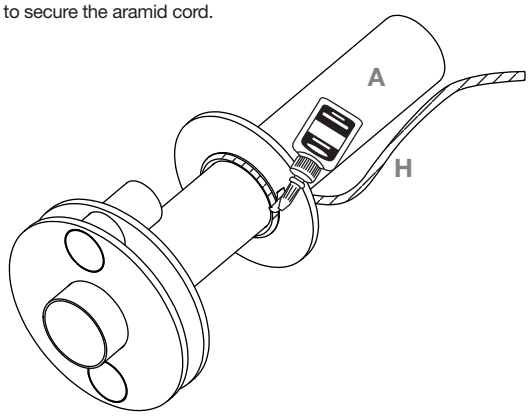
3. Apply a small amount of thin CA glue around the top and bottom circumference as well as along the seam to secure the wrap in place.

ATTACH ARAMID CORD

1. Thread aramid cord through the notch in the upper centering ring.

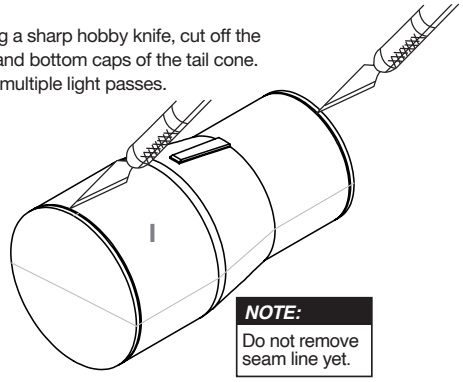


2. Loop aramid cord around the engine mount tube and tie a knot. Apply a drop of glue to secure the aramid cord.



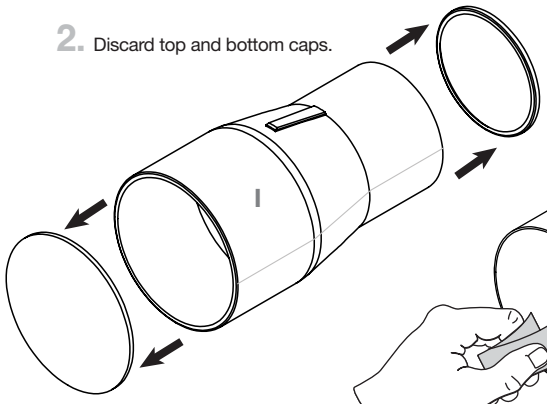
INSTALL ENGINE MOUNT INTO TAIL CONE

1. Using a sharp hobby knife, cut off the top and bottom caps of the tail cone. Use multiple light passes.

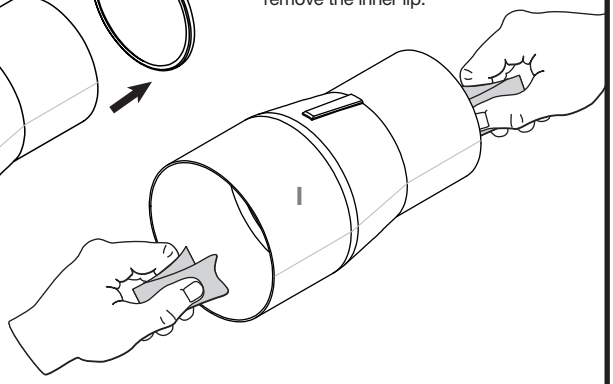


NOTE:
Do not remove seam line yet.

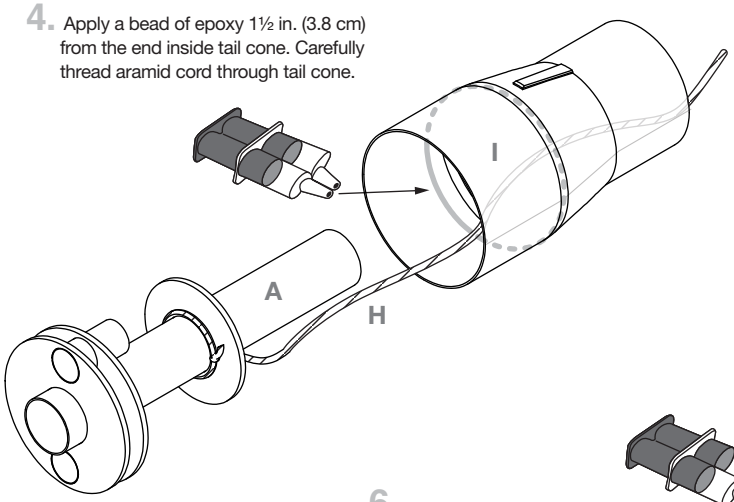
2. Discard top and bottom caps.



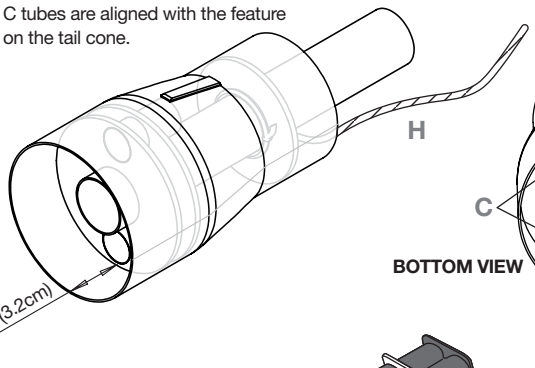
3. Using fine sand paper, sand the inside of both the top and bottom edges to remove the inner lip.

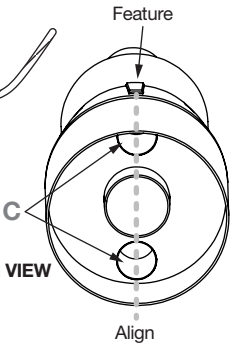


4. Apply a bead of epoxy 1½ in. (3.8 cm) from the end inside tail cone. Carefully thread aramid cord through tail cone.



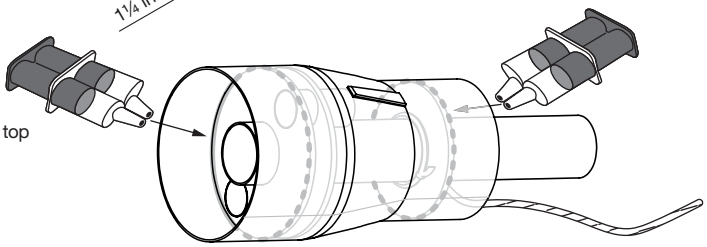
5. Insert engine mount into tail cone until it is 1¼ in. from the end of the tail cone. Ensure C tubes are aligned with the feature on the tail cone.





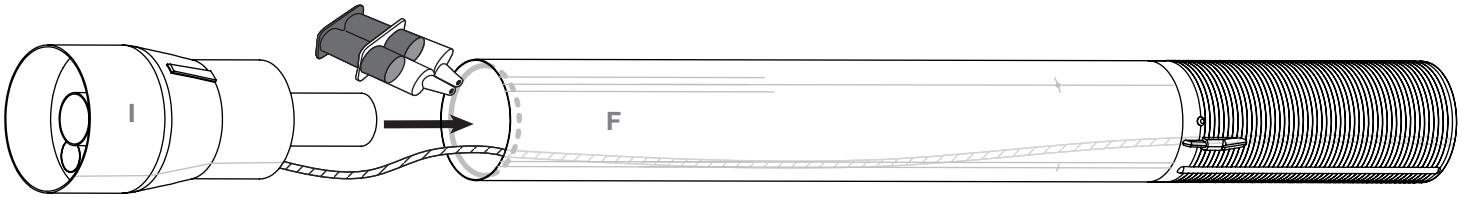
LET DRY

6. Apply an epoxy fillet to the top and bottom centering ring connection joints. Let dry.



INSTALL TAIL CONE INTO BODY TUBE

1. Apply epoxy to inside end of F. Carefully thread aramid cord through F.



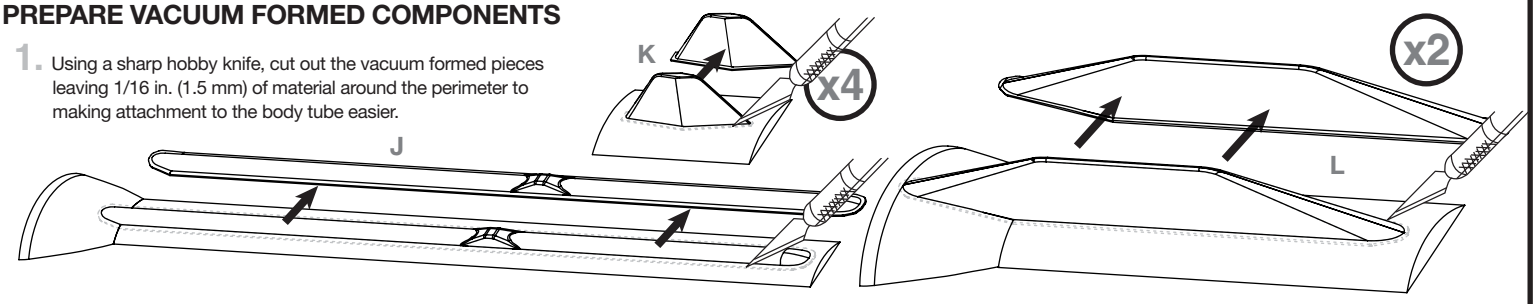
2. Insert tail cone into body tube. Align the seam on the tail cone with the "FL" line.



LET DRY

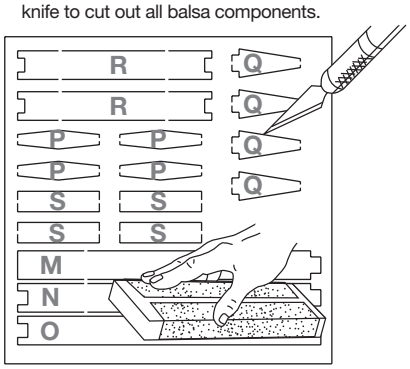
PREPARE VACUUM FORMED COMPONENTS

1. Using a sharp hobby knife, cut out the vacuum formed pieces leaving 1/16 in. (1.5 mm) of material around the perimeter to making attachment to the body tube easier.



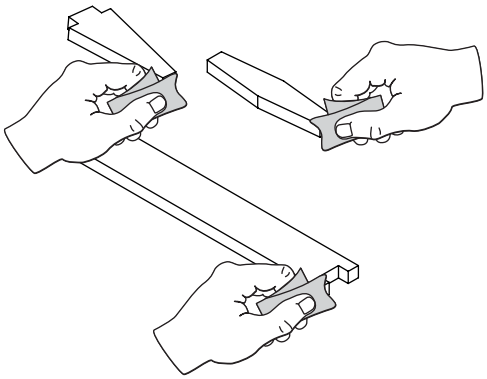
ASSEMBLE BALSA COMPONENTS

1. Sand both sides of the balsa sheet with fine sand paper. Use a sharp hobby knife to cut out all balsa components.

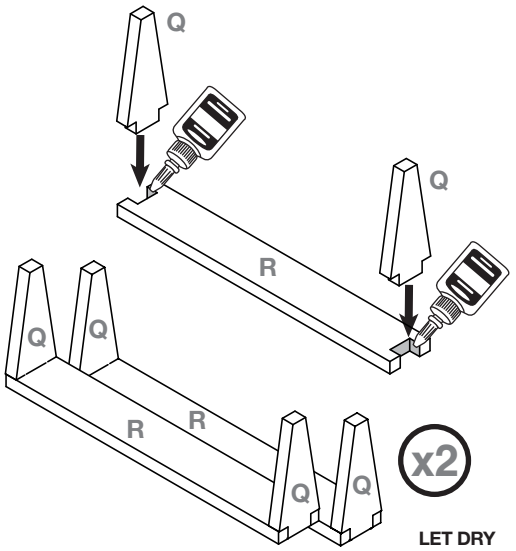


NOTE:
Parts S will be used later when mounting the launch lugs.

2. Sand any burrs off of all balsa components.

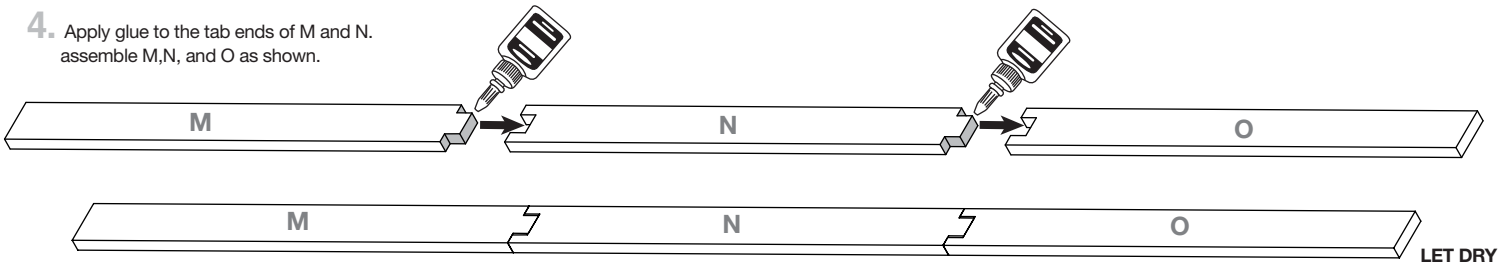


3. Apply glue to the ends of R. Insert Q into R.



LET DRY

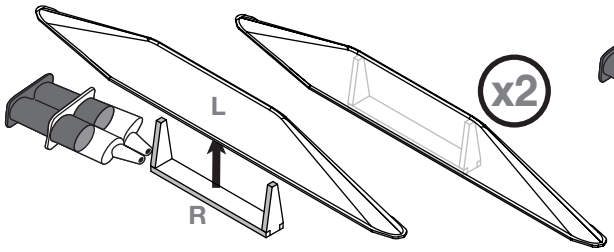
4. Apply glue to the tab ends of M and N. assemble M,N, and O as shown.



LET DRY

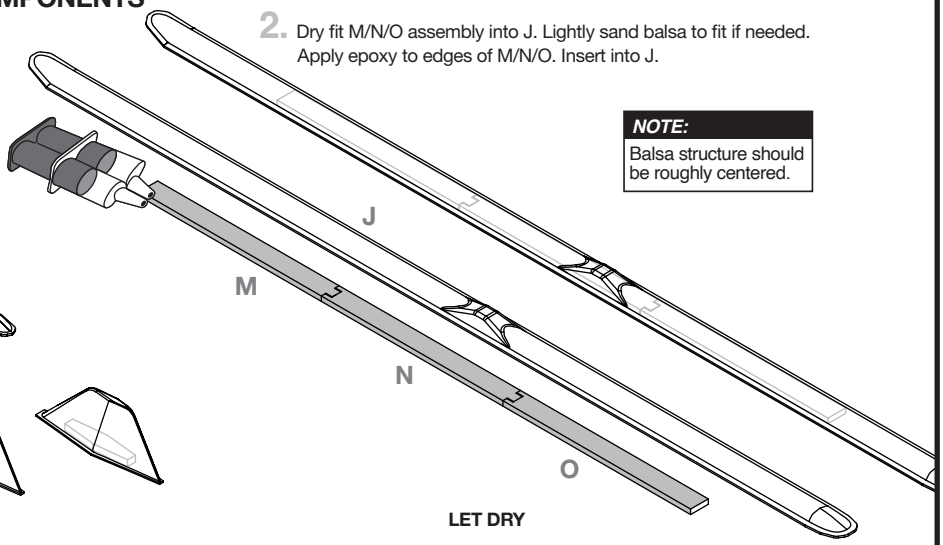
ASSEMBLE VACUUM FORMED AND BALSA COMPONENTS

1. Dry fit Q/R assembly into L. Lightly sand balsa to fit if needed. Apply epoxy to edges of Q and R. Insert into L.



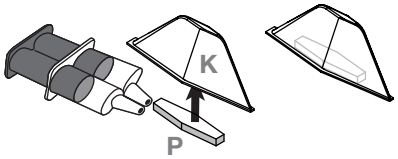
2. Dry fit M/N/O assembly into J. Lightly sand balsa to fit if needed. Apply epoxy to edges of M/N/O. Insert into J.

NOTE:
Balsa structure should be roughly centered.



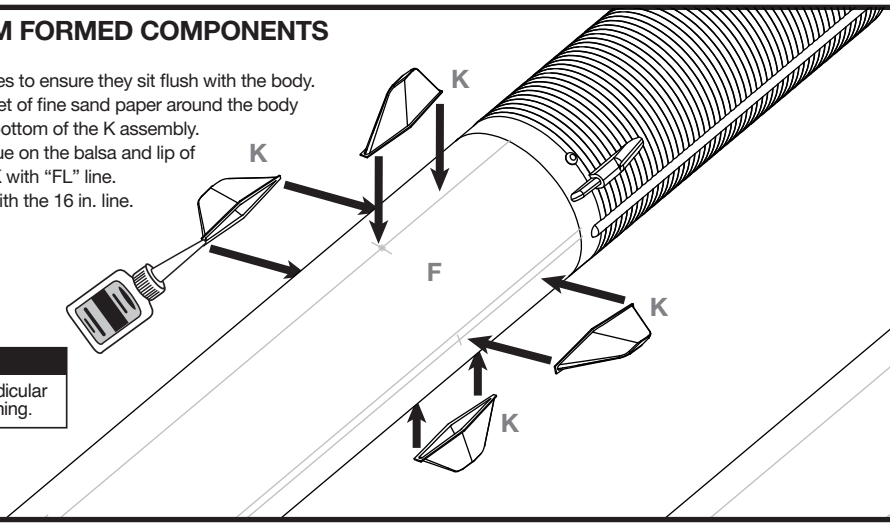
LET DRY

3. Dry fit P assembly into K. Lightly sand balsa to fit if needed. Apply epoxy to edges of P. Insert into K.



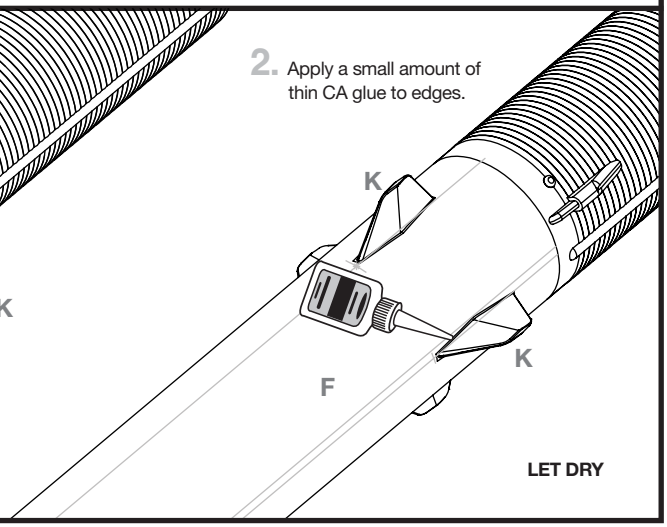
ATTACH VACUUM FORMED COMPONENTS

1. Test fit all K assemblies to ensure they sit flush with the body. If needed, hold a sheet of fine sand paper around the body and lightly sand the bottom of the K assembly. Apply medium CA glue on the balsa and lip of vacuum form. Align K with "FL" line. Align the back of K with the 16 in. line.



NOTE:
Ensure fins are perpendicular to the body when attaching.

2. Apply a small amount of thin CA glue to edges.

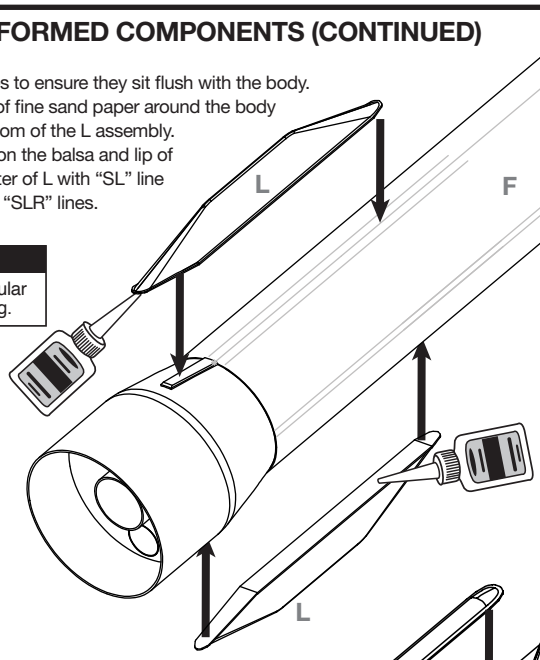


LET DRY

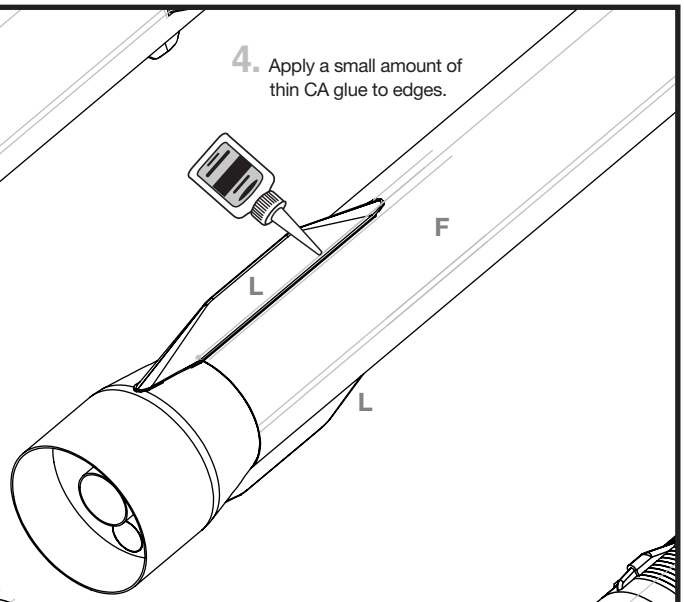
ATTACH VACUUM FORMED COMPONENTS (CONTINUED)

3. Test fit both L assemblies to ensure they sit flush with the body. If needed, hold a sheet of fine sand paper around the body and lightly sand the bottom of the L assembly. Apply medium CA glue on the balsa and lip of vacuum form. Align center of L with "SL" line and between "SLL" and "SLR" lines.

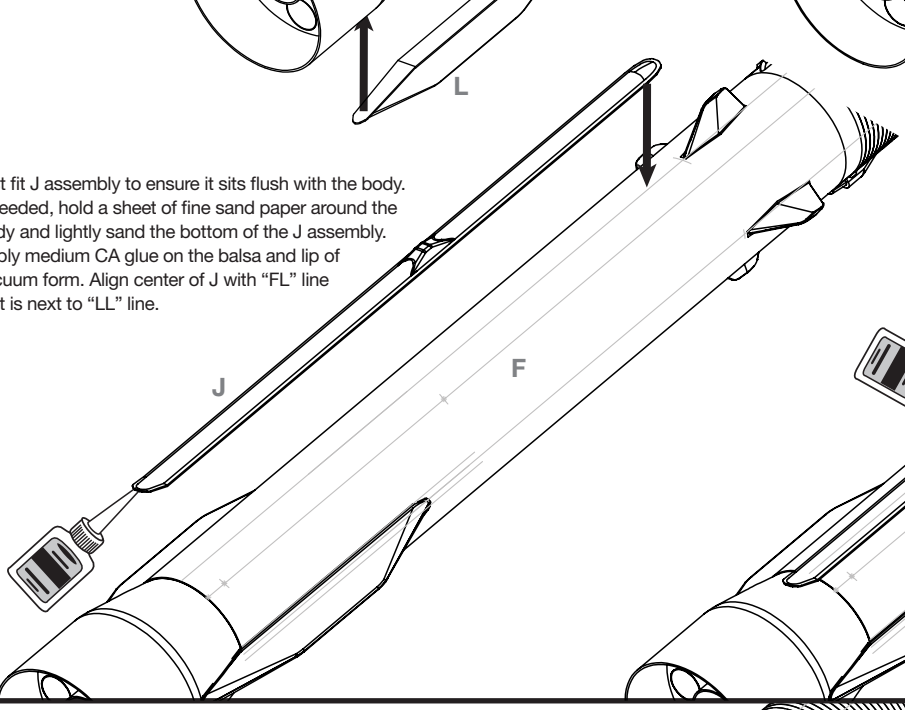
NOTE:
Ensure fins are perpendicular to the body when attaching.



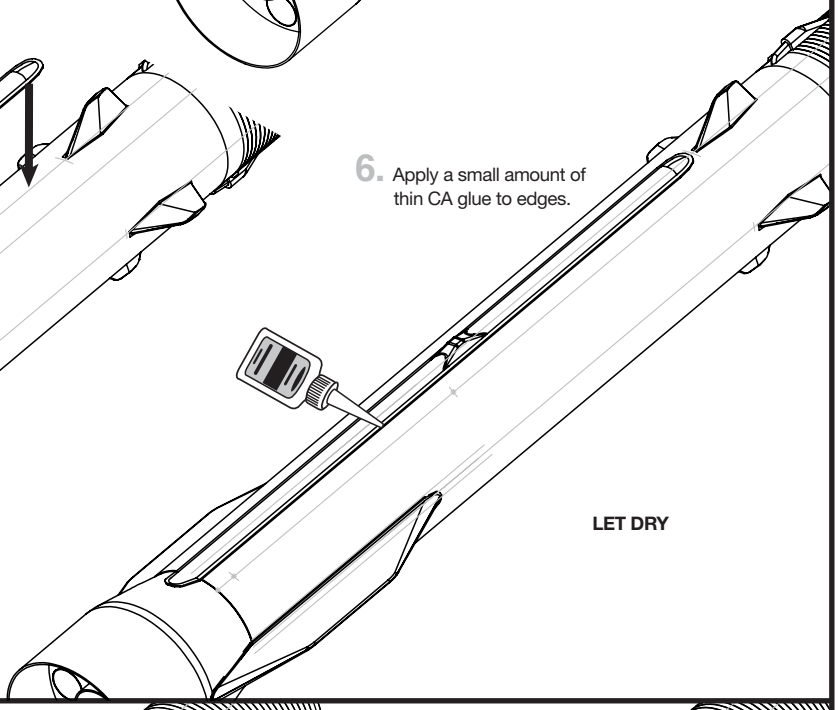
4. Apply a small amount of thin CA glue to edges.



5. Test fit J assembly to ensure it sits flush with the body. If needed, hold a sheet of fine sand paper around the body and lightly sand the bottom of the J assembly. Apply medium CA glue on the balsa and lip of vacuum form. Align center of J with "FL" line that is next to "LL" line.



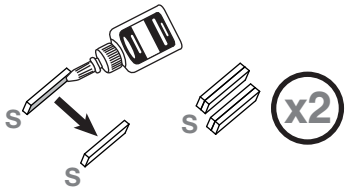
6. Apply a small amount of thin CA glue to edges.



LET DRY

ATTACH LAUNCH LUGS

1. Glue together two S pieces as shown.



2. Apply glue to one long edge of S. Center S pieces along "LL" line, placing one at the ½ in. and 8 in. marks.

3. Apply glue to S and place launch lugs ensuring they are aligned.

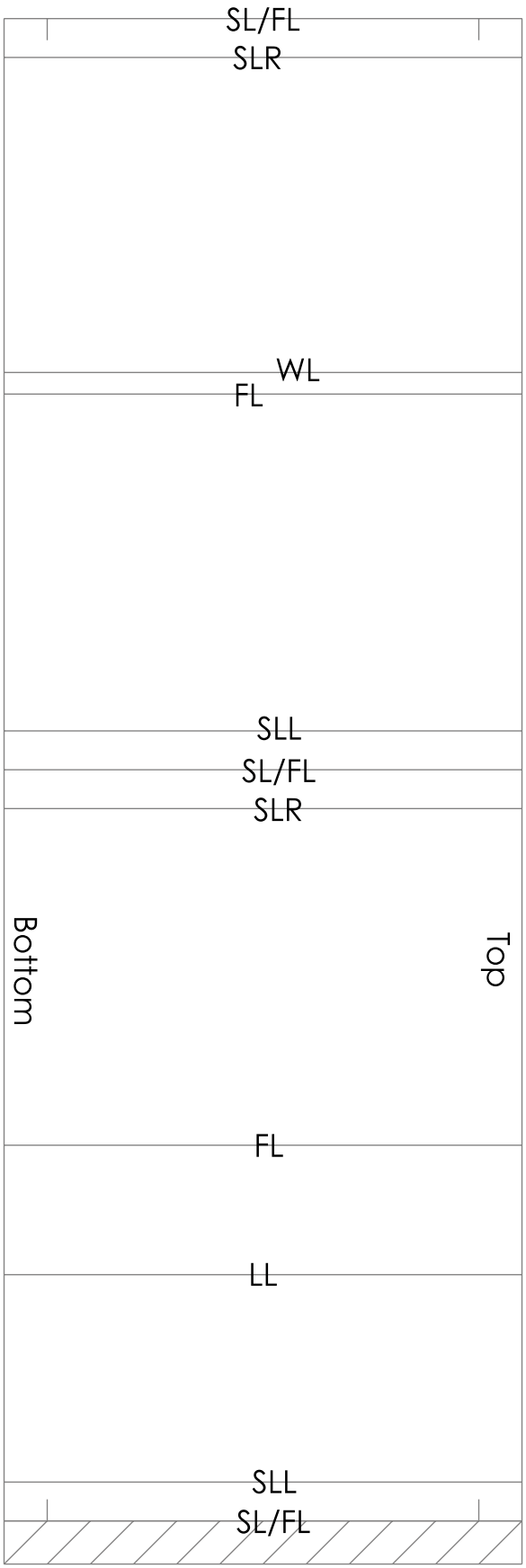
LET DRY

4. Apply glue fillets to S/T contact joints and S/F contact joints.

LET DRY

MARKING GUIDES AND FIN ALIGNMENT GUIDE

BODY TUBE MARKING GUIDE



SLL = STRAKE LINE LEFT

SL = STRAKE LINE

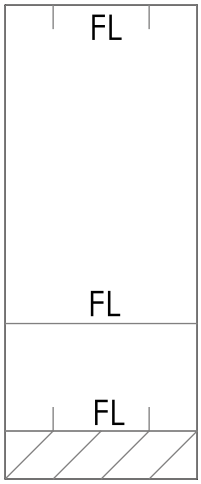
SLR = STRAKE LINE RIGHT

FL = FIN LINE

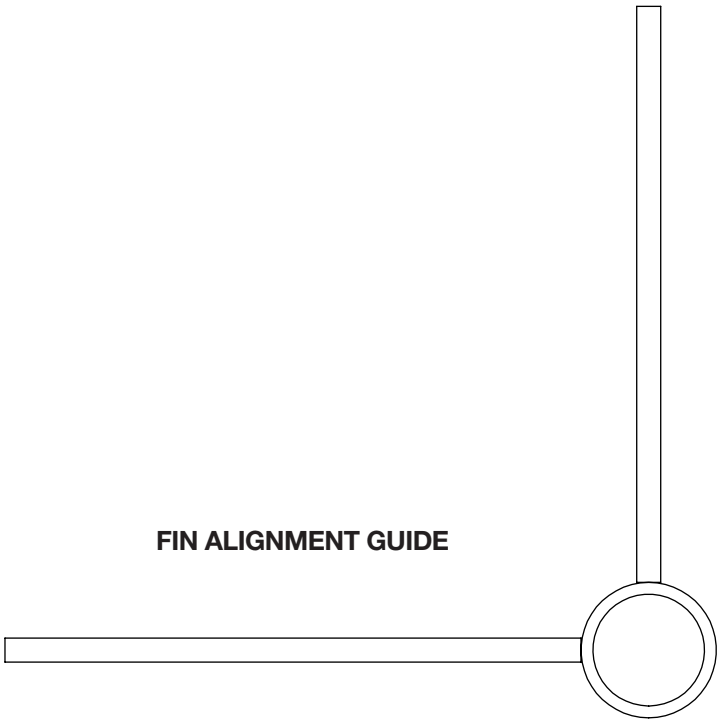
WL = WRAP LINE

LL = LAUNCH LUG

FLIGHT FIN MARKING GUIDE



FIN ALIGNMENT GUIDE

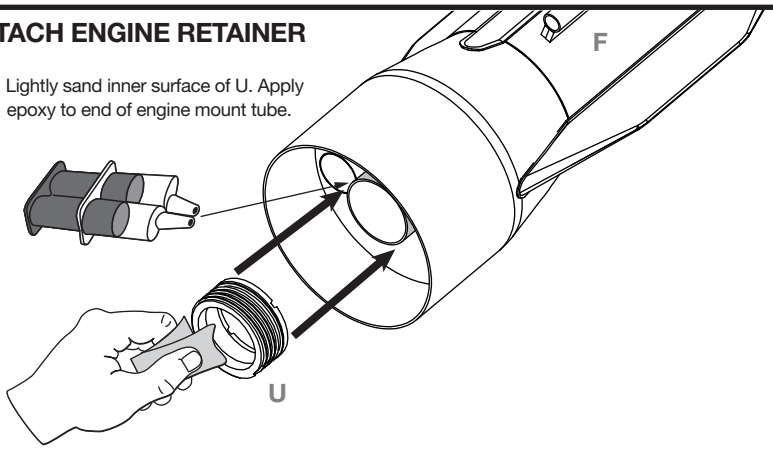


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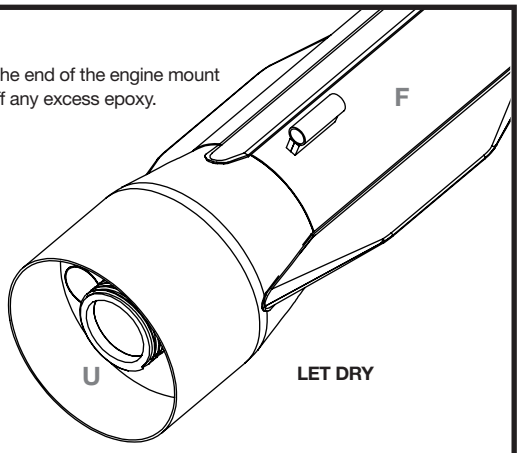
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ATTACH ENGINE RETAINER

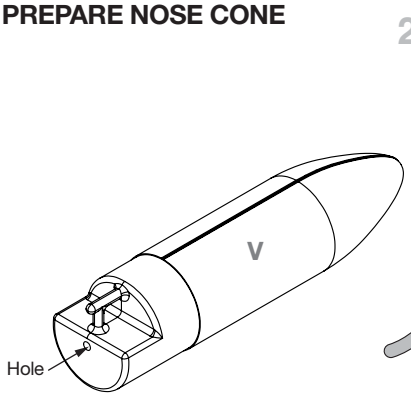
1. Lightly sand inner surface of U. Apply epoxy to end of engine mount tube.



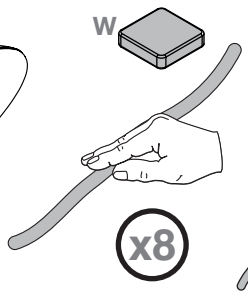
2. Slide U over the end of the engine mount tube. Wipe off any excess epoxy.



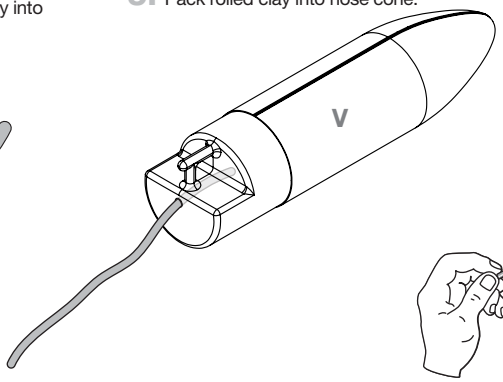
PREPARE NOSE CONE



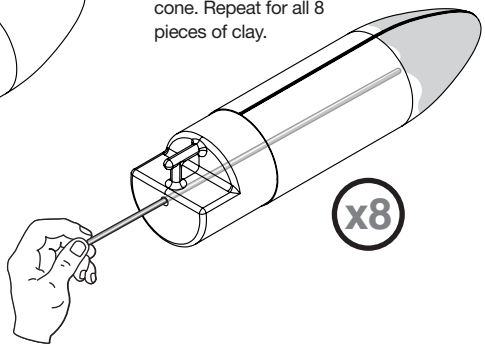
2. Roll each piece of clay into a thin noodle shape.



3. Pack rolled clay into nose cone.



4. Use a thin dowel or bamboo skewer to pack clay to the front of the nose cone. Repeat for all 8 pieces of clay.



MASK, PAINT, AND APPLY DECALS

PAINT COLORS

- White
- Silver
- Bronze
- Black

NOTE:

Please refer to packaging for suggested paint scheme and/or decal placement.

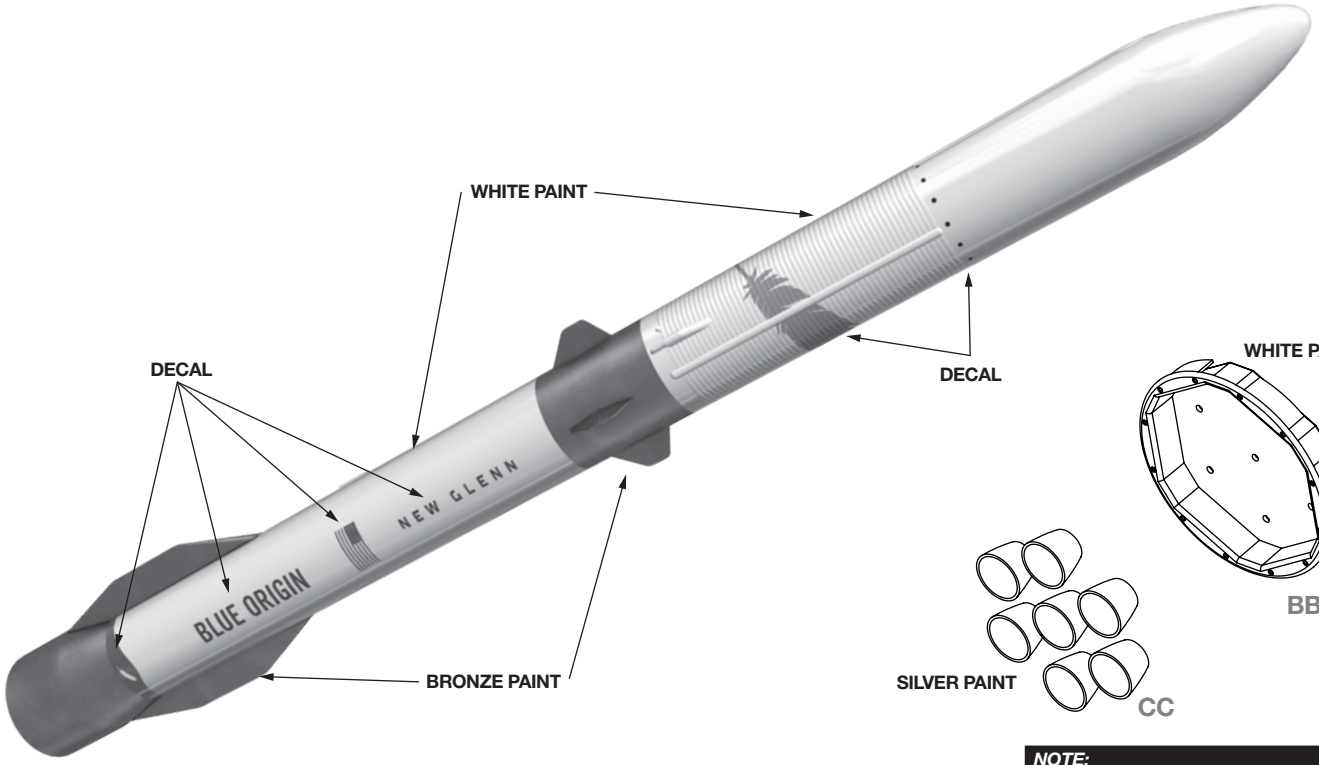
1. Spray rocket with white primer, let dry, and sand. Repeat until rocket is smooth.
2. Paint entire rocket white.
3. Mask off rocket as needed for silver and bronze paint application.
4. Apply decals only after paint is dry.
5. Cut decals from sheet, trimming close to edge.
6. One at a time, place in warm water until decal curls and begins to relax.
7. Remove and position on rocket, sliding decal away from backing material.
8. Blot with clean paper towel. Let set overnight.
9. OPTIONAL: Apply protective clear coat.

⚠ CAUTION:

For safe handling of spray paints, see manufacturer's warnings and follow instructions for use.

NOTE:

The feather decal will need to be split to go over the raceway.

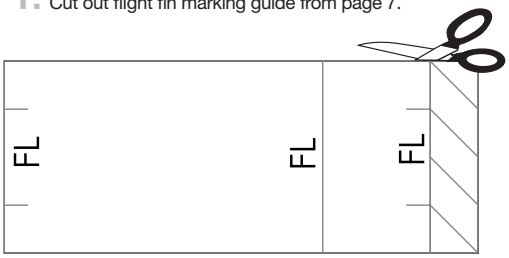


NOTE:

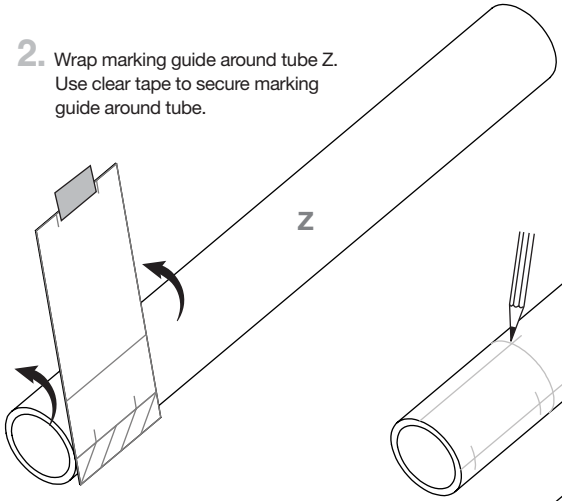
Use paper towel and tape to avoid getting paint on the pins and in the holes.

ASSEMBLE FLIGHT FINS

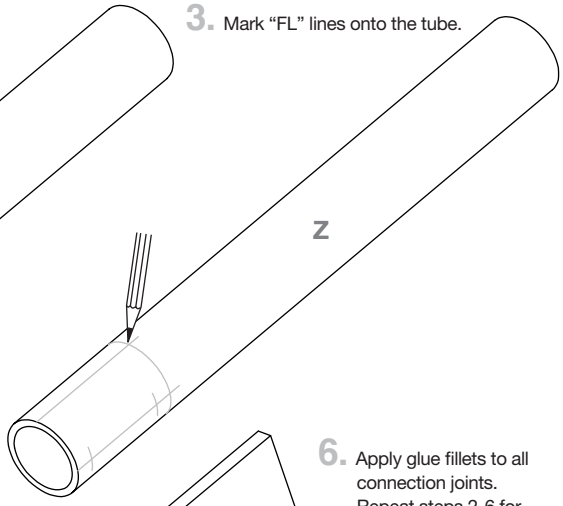
1. Cut out flight fin marking guide from page 7.



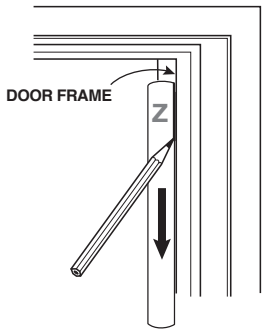
2. Wrap marking guide around tube Z. Use clear tape to secure marking guide around tube.



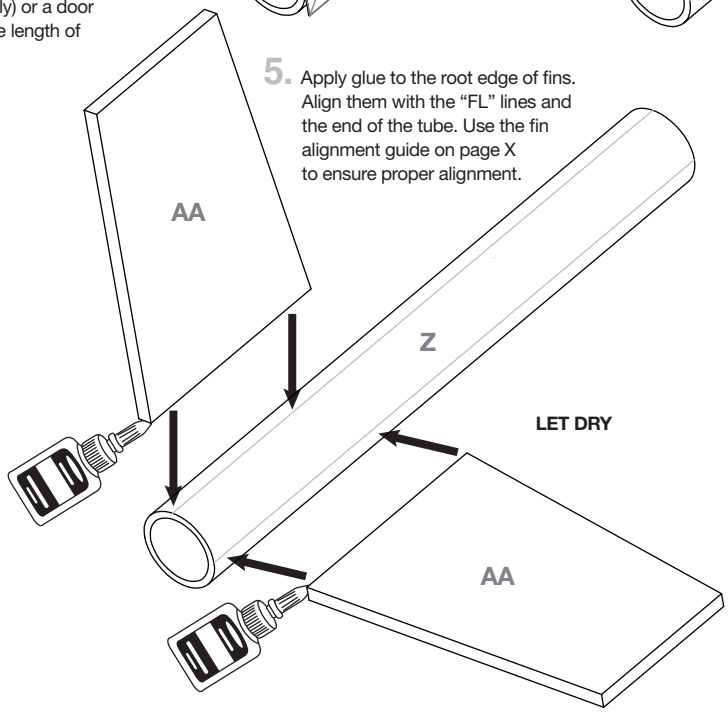
3. Mark "FL" lines onto the tube.



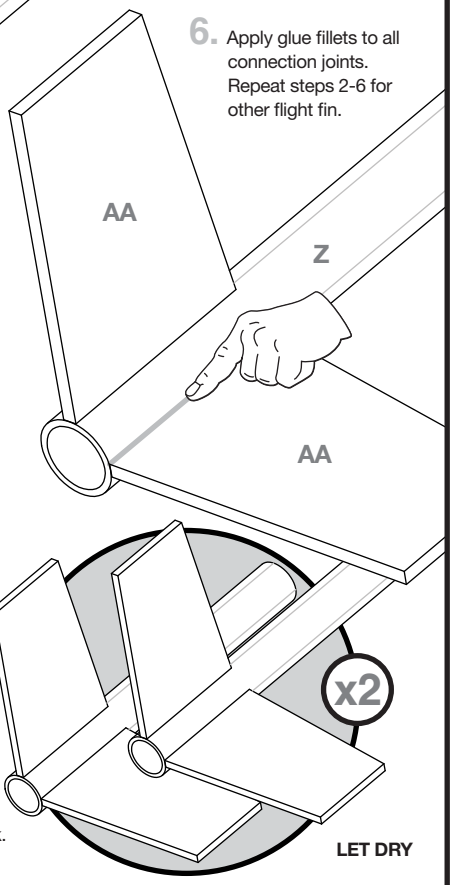
4. Remove the marking guide. Using 2228 Ultimate Tube Marking Guide (sold separately) or a door frame, extend the lines up the entire length of the tube Z.



5. Apply glue to the root edge of fins. Align them with the "FL" lines and the end of the tube. Use the fin alignment guide on page X to ensure proper alignment.



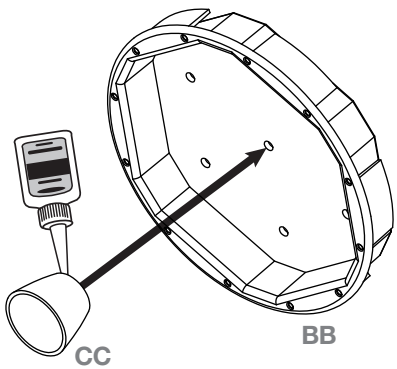
6. Apply glue fillets to all connection joints. Repeat steps 2-6 for other flight fin.



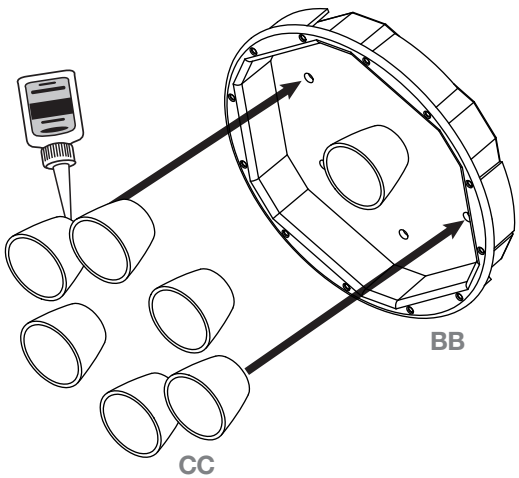
7. Paint flight fins all black.

ASSEMBLE DISPLAY NOZZLE

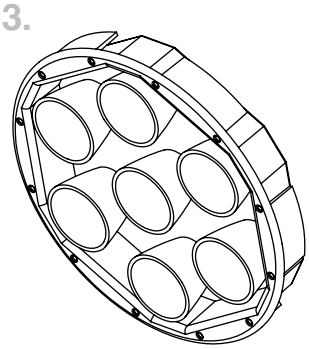
1. Apply a drop of medium CA glue to pin on CC. Insert CC into hole in BB as shown.



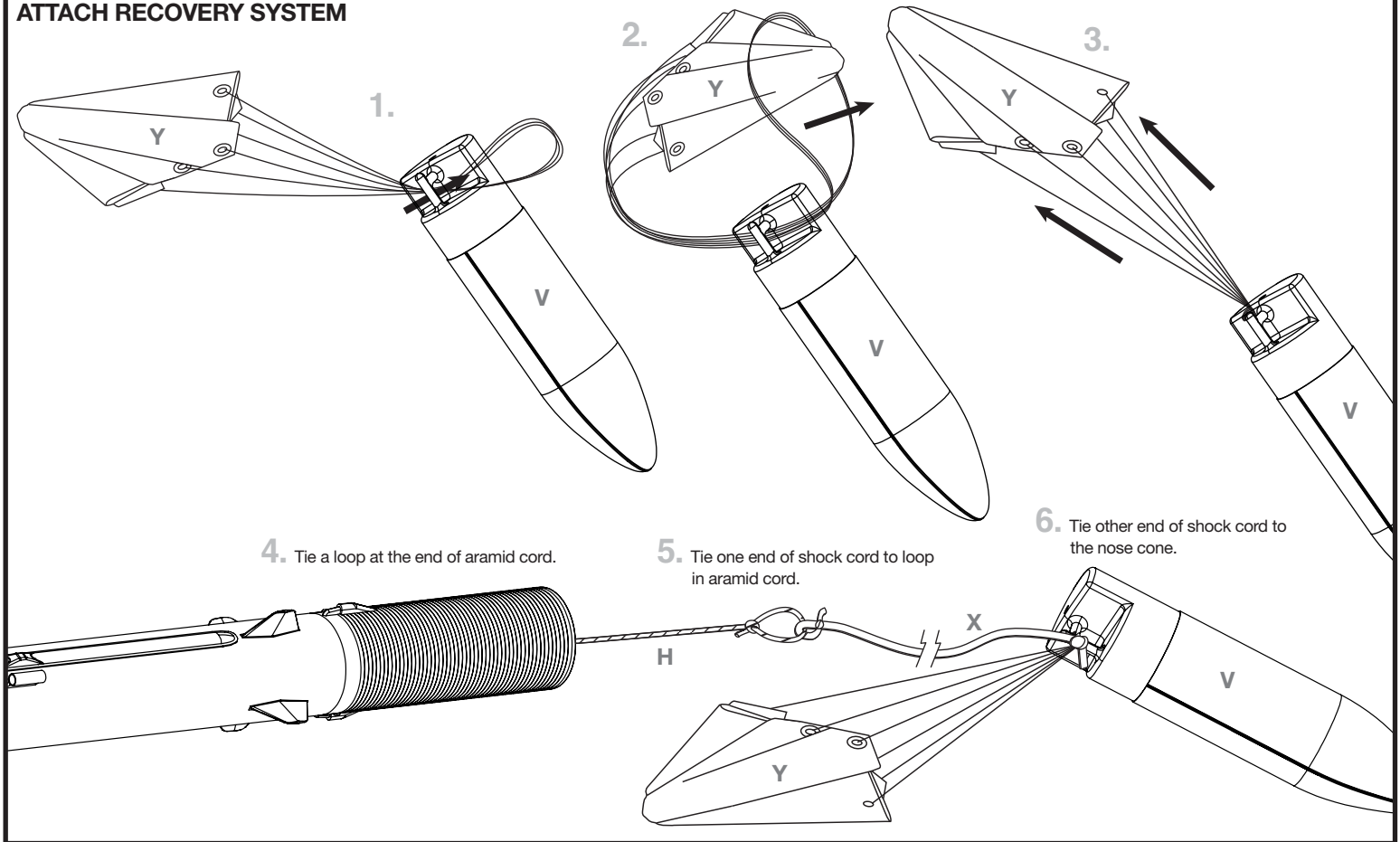
2. Repeat step 1 for the rest of the CC parts.



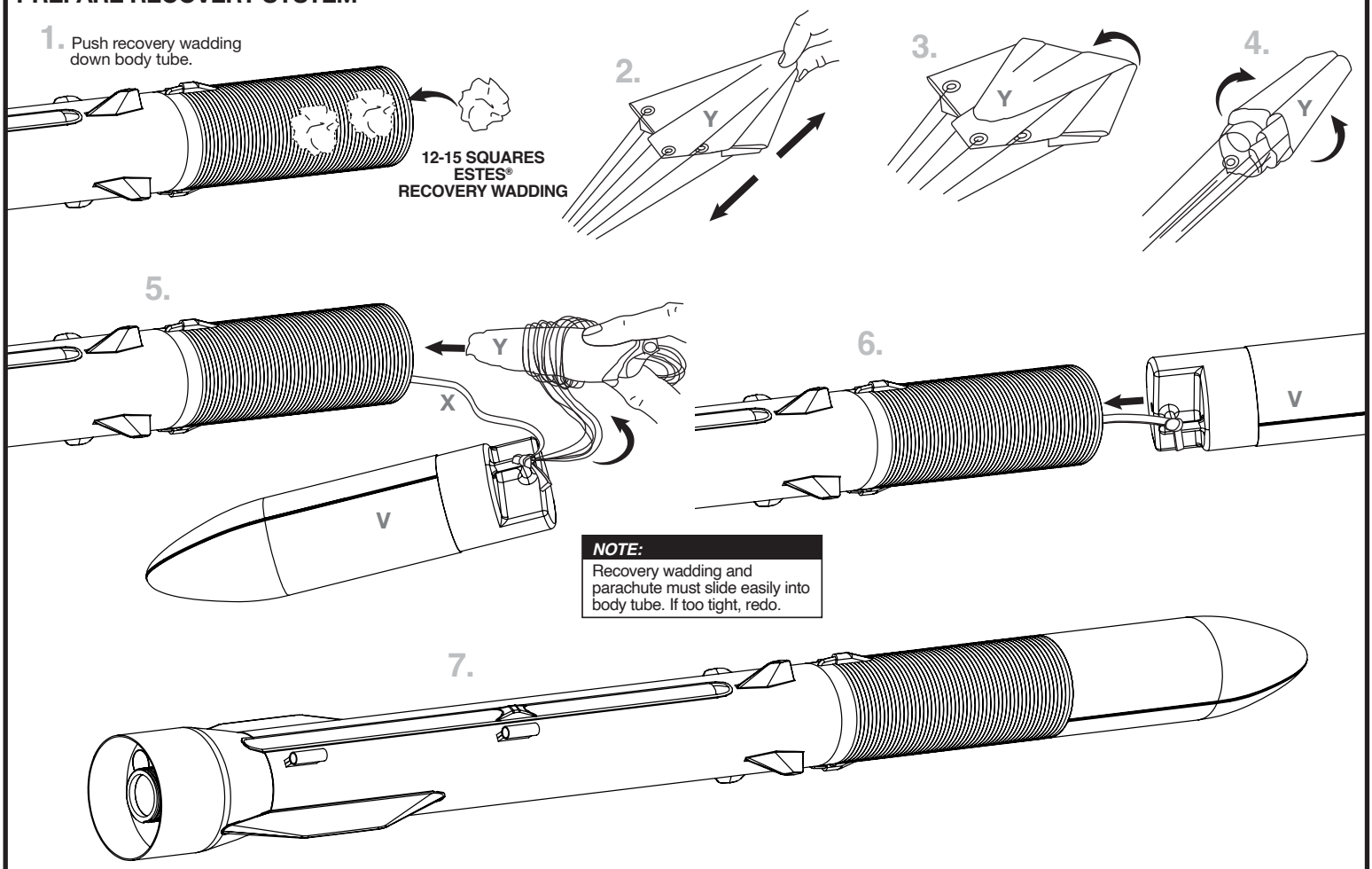
3.



ATTACH RECOVERY SYSTEM



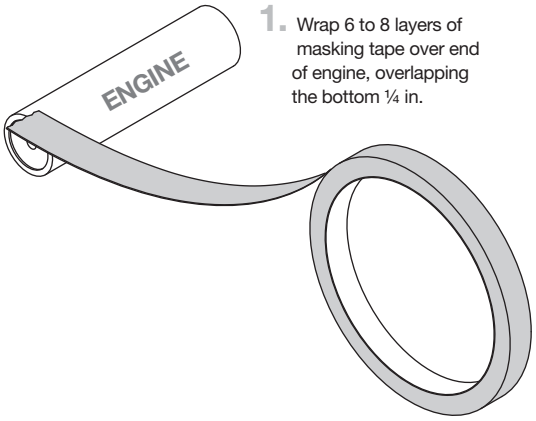
PREPARE RECOVERY SYSTEM



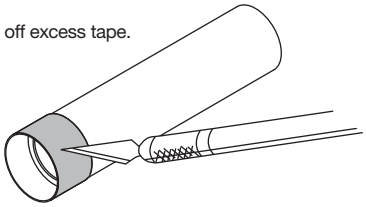
NOTE:

Recovery wadding and parachute must slide easily into body tube. If too tight, redo.

FLIGHT PREPARATION

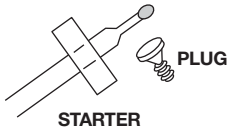


1. Wrap 6 to 8 layers of masking tape over end of engine, overlapping the bottom ¼ in.

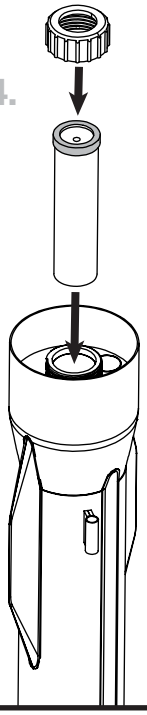


2. Trim off excess tape.

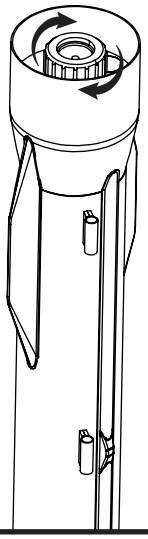
3. Use one each.



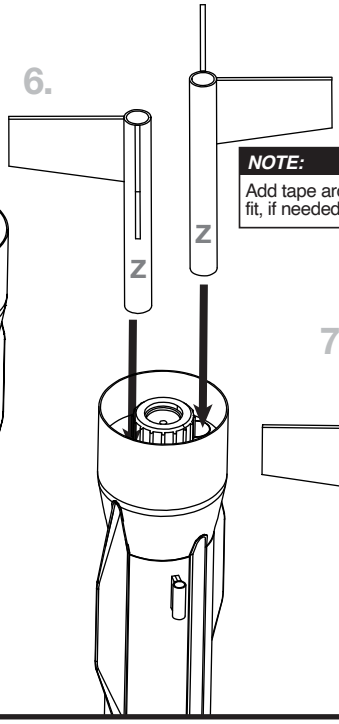
4.



5.



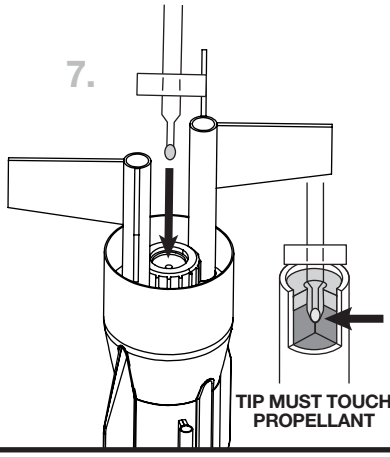
6.



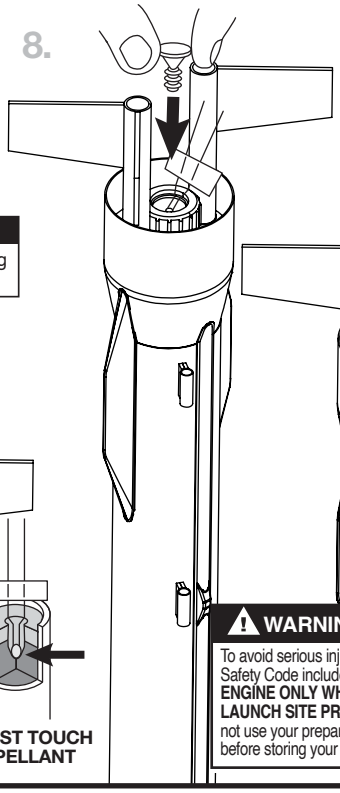
NOTE:

Add tape around tube Z for a more snug fit, if needed. Lightly sand if too snug.

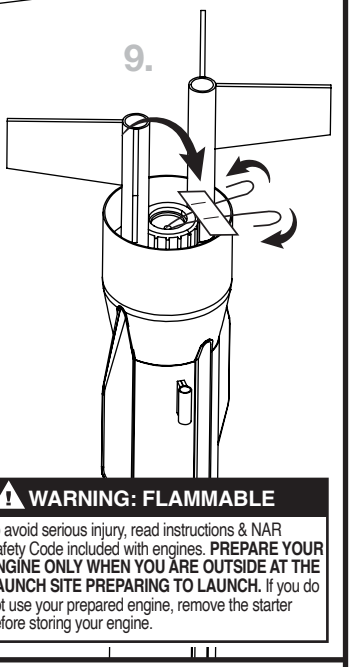
7.



8.



9.

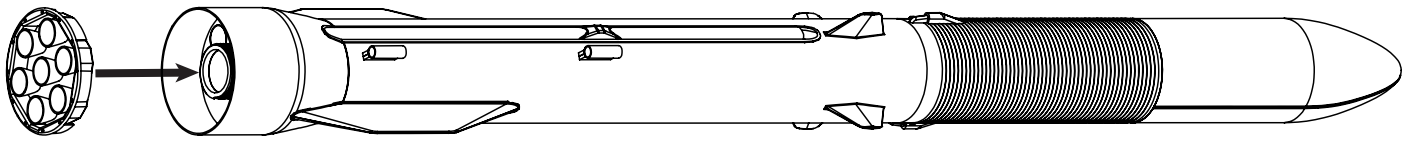


⚠ WARNING: FLAMMABLE

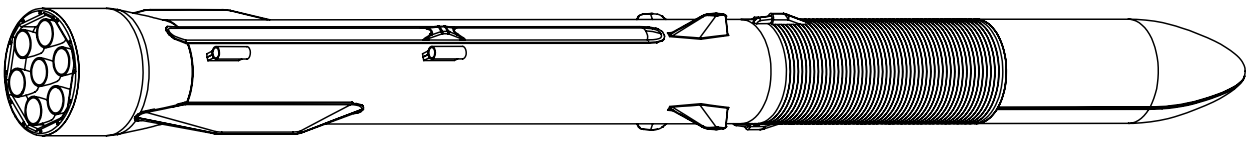
To avoid serious injury, read instructions & NAR Safety Code included with engines. **PREPARE YOUR ENGINE ONLY WHEN YOU ARE OUTSIDE AT THE LAUNCH SITE PREPARING TO LAUNCH.** If you do not use your prepared engine, remove the starter before storing your engine.

DISPLAY NOZZLE INSTALLATION

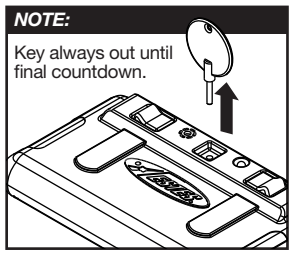
1. Remove flight fins and engine retainer cap prior to installing display nozzle.



2. Insert display nozzle assembly.



COUNTDOWN AND LAUNCH



NOTE:
Estimated weight: 15 oz. (425 g)

ESTES® LAUNCH SUPPLIES NEEDED
(Sold Separately)

- Pro Series II™ Launch Base
- Pro Series II™ Launch Controller
- Recovery Wadding
- Starters (with engines)
- Plugs (with engines)
- Recommended Estes® Engines: F15-4

PRECAUTIONS



PRE-LAUNCH CHECK For safety, never launch a damaged rocket. Check the rocket's body, nose cone and fins. Also, check the engine mount, recovery system and launch lug(s). Repair any damage before launching the rocket.

FLYING YOUR ROCKET Choose a large field (1000 ft. [305 m] square) free of dry weeds and brown grass. The larger the launch area, the better your chance of recovering your rocket. Launch only with little or no wind and good visibility. Always follow the National Association of Rocketry (NAR) SAFETY CODE (enclosed).

MISFIRES TAKE THE KEY OUT OF THE CONTROLLER. WAIT ONE MINUTE BEFORE GOING NEAR THE ROCKET. Disconnect the micro-clips and remove the engine. Take the plug and starter out of the engine. A burned starter means the starter tip was not touching engine propellant. Install a new starter; be sure the tip is touching propellant inside the engine. Push the plug in place. Repeat steps under Countdown and Launch.

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