



EstesRockets.com

PRO SERIES II

9731

AQM-37A JAYHAWK

AGES
18+



Skill Level

EXPERT

MODEL ROCKET INSTRUCTIONS

KEEP FOR FUTURE REFERENCE

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

READ ALL INSTRUCTIONS. Make sure you have all parts and supplies. Test fit all parts before applying glue. Refer to your glue manufacturer's dry times during build.

SUPPLIES



HOBBY KNIFE



DRILL



EPOXY



YELLOW GLUE



CA GLUE



MASKING
TAPE



RULER



SOFT LEAD
PENCIL



FINE
SANDPAPER



WHITE
PRIMER



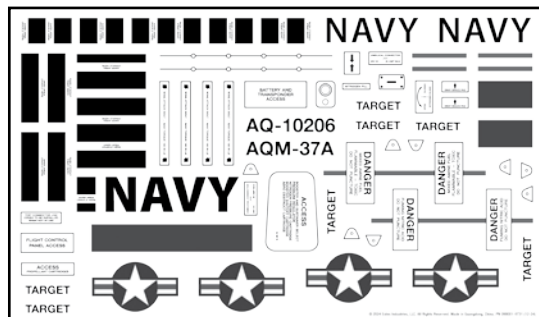
ORANGE
PAINT



BLACK
PAINT



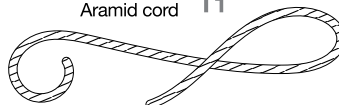
CLEAR COAT
(OPTIONAL)



038382
Elastic shock cord T2

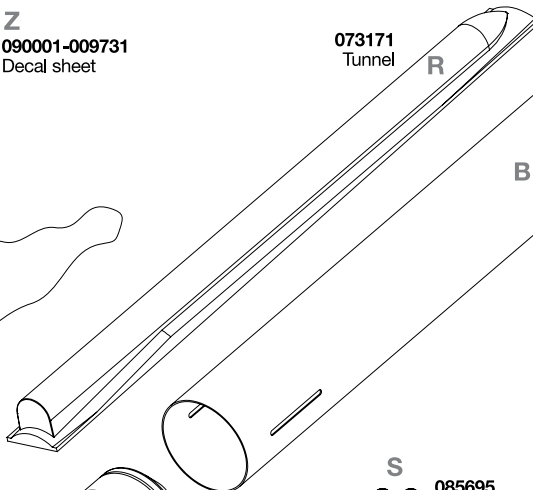


038353
Aramid cord T1

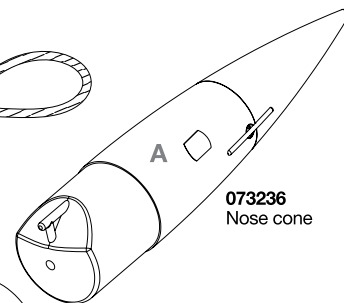


Z
090001-009731
Decal sheet

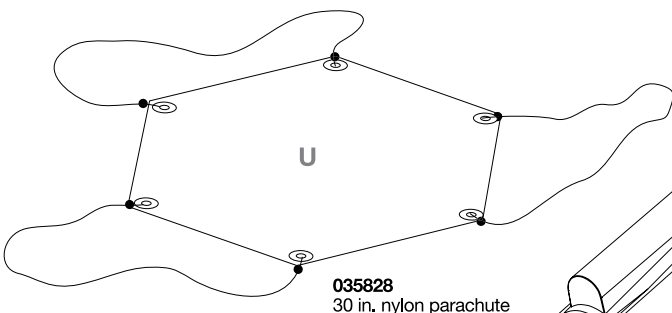
073171
Tunnel



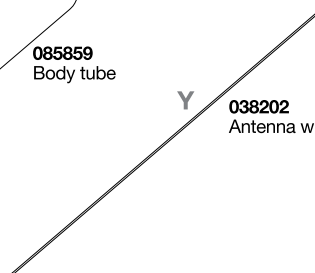
073236
Nose cone



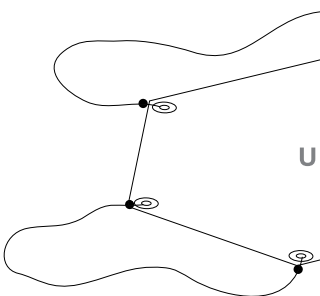
085859
Body tube



038202
Antenna wire stock



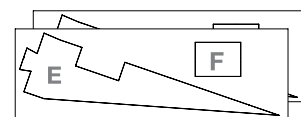
035828
30 in. nylon parachute



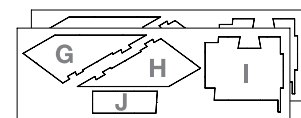
S
085695
Rail buttons



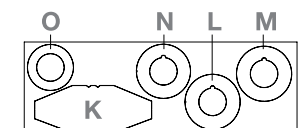
S
038181
Launch lugs



090051A-009731
Laser cut sheet A x2



090051B-009731
Laser cut sheet B x2



090051C-009731
Laser cut sheet C

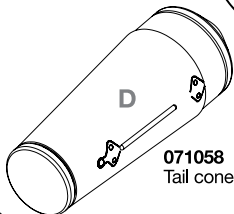
x8
Q 085705
Clay



V
073168
Pitot tube



071058
Tail cone



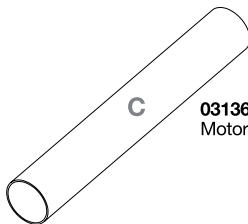
W
073169
Antenna bases
forward



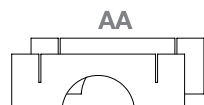
X
073170
Antenna bases
aft



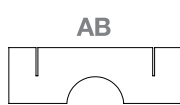
031360
Motor mount



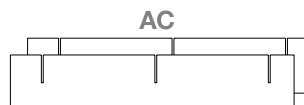
072412
Engine retainer set



090052A-009731
Laser cut cardstock sheet x2



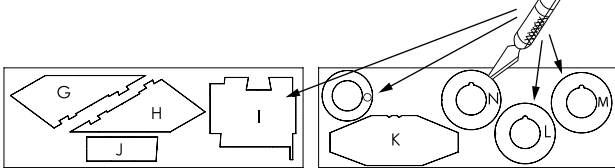
090052B-009731
Laser cut cardstock sheet



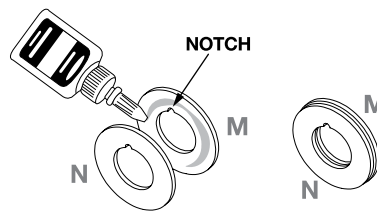
090052C-009731
Laser cut cardstock sheet x2

ASSEMBLE ENGINE MOUNT

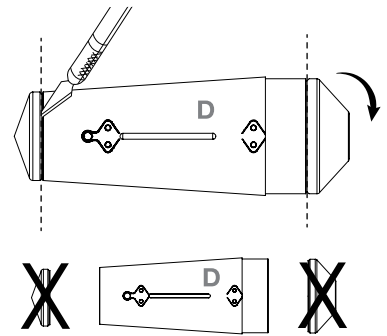
1. Cut out I, L, M, N, and O pieces with a hobby knife.



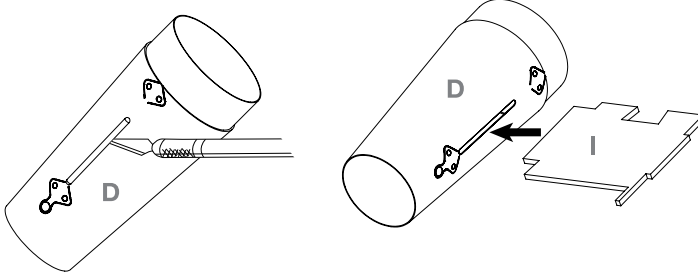
2. Glue M and N together, making sure notches are aligned. Let dry.



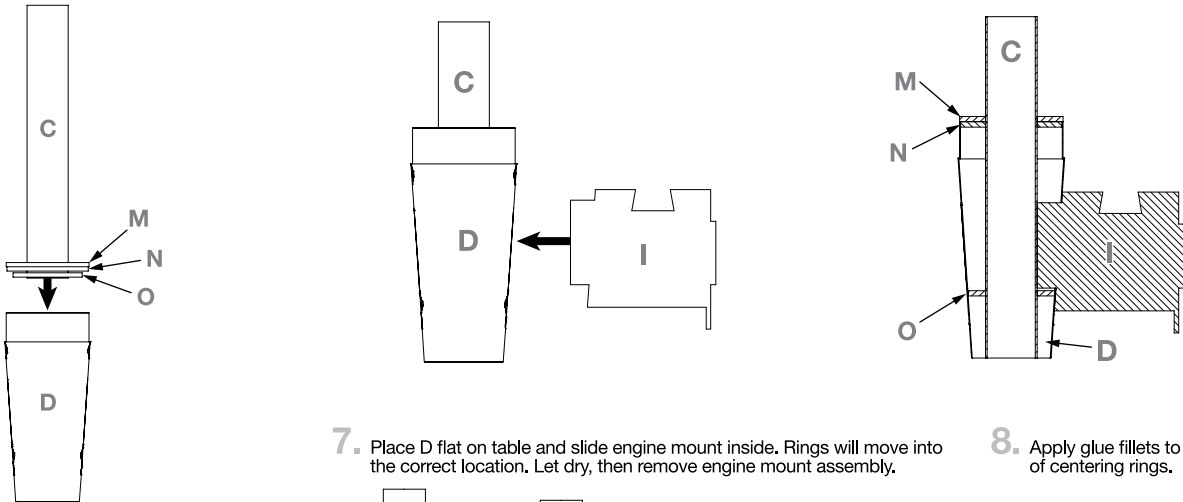
3. Press hobby knife along indicated lines and rotate D slowly until piece separates. Discard end pieces. Remove burr on inside edge of tail cone with sandpaper.



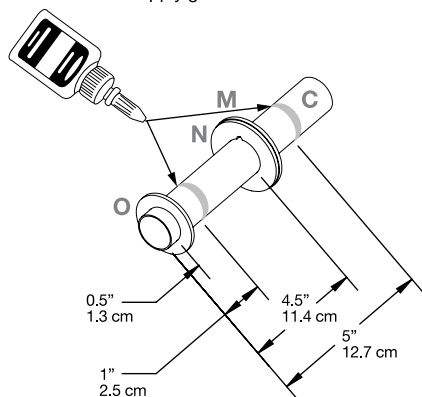
4. Cut away the raised bump on both sides of D to open the fin slots. Test fit wing I into the slots, using a small file to open the slots more if necessary.



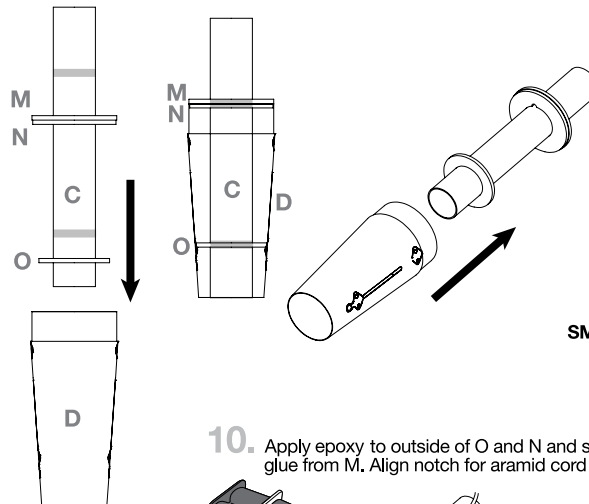
5. TEST FIT: Slide M, N and O just over the end C to create a stepped bulkhead. Slide C down into D until the bottom ends are flush with table. M, N, and O should fall to their correct locations. Slide I into D. If O interferes with fit, sand down outside of O. remove all parts when finished with fit check.



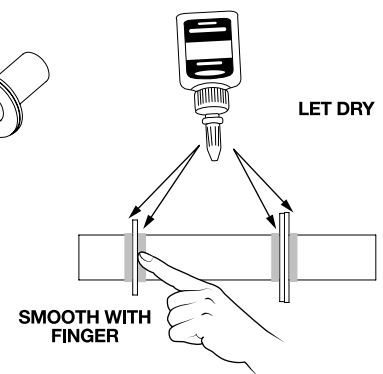
6. Place O 0.5" from the end of C and M/N 4.5" from the end. Apply glue around C at 1" and 5".



7. Place D flat on table and slide engine mount inside. Rings will move into the correct location. Let dry, then remove engine mount assembly.

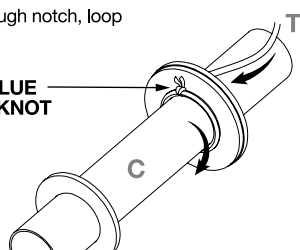


8. Apply glue fillets to both sides of centering rings.

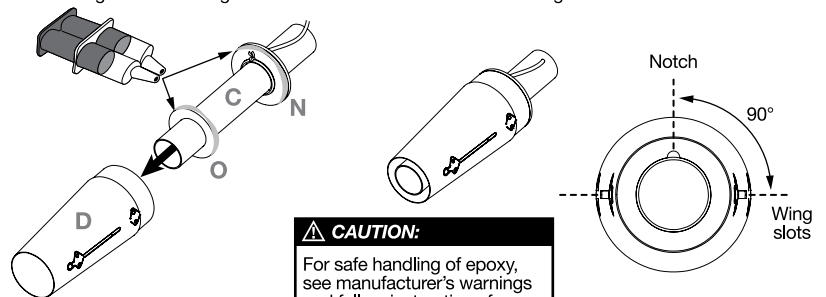


9. Thread aramid cord T through notch, loop around C, and knot.

APPLY GLUE DROP TO KNOT



10. Apply epoxy to outside of O and N and slide engine mount into D. Wipe away any excess glue from M. Align notch for aramid cord 90° from the wing slots in D.

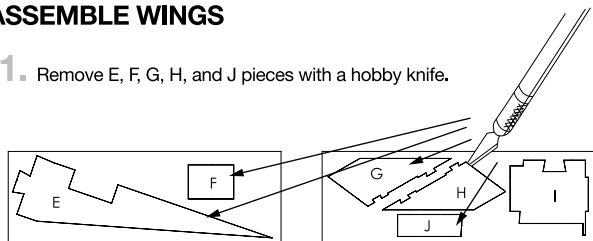


CAUTION:

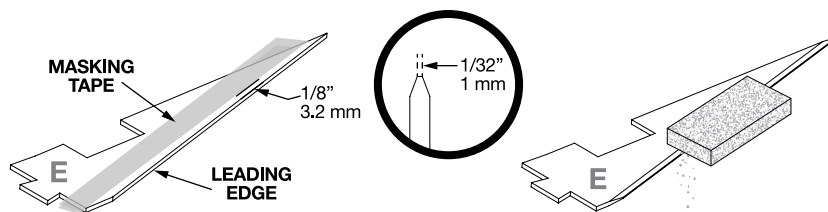
For safe handling of epoxy, see manufacturer's warnings and follow instructions for use.

ASSEMBLE WINGS

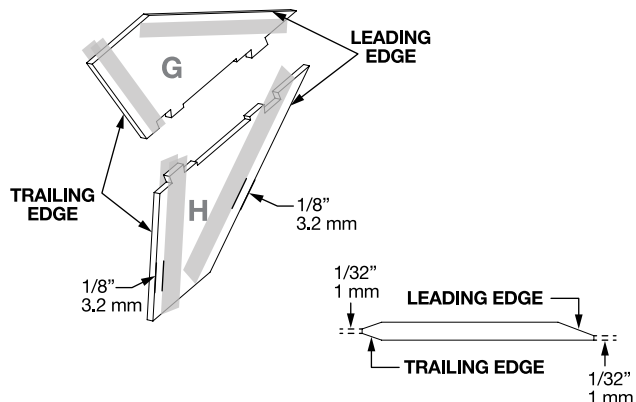
1. Remove E, F, G, H, and J pieces with a hobby knife.



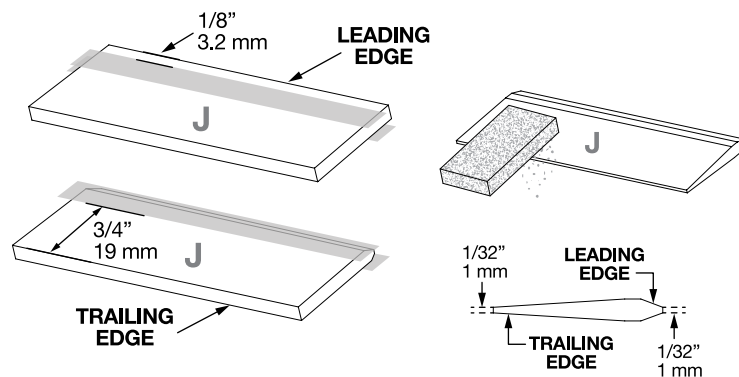
2. Apply masking tape to E 1/8" from leading edges on both sides. Sand edges as shown.



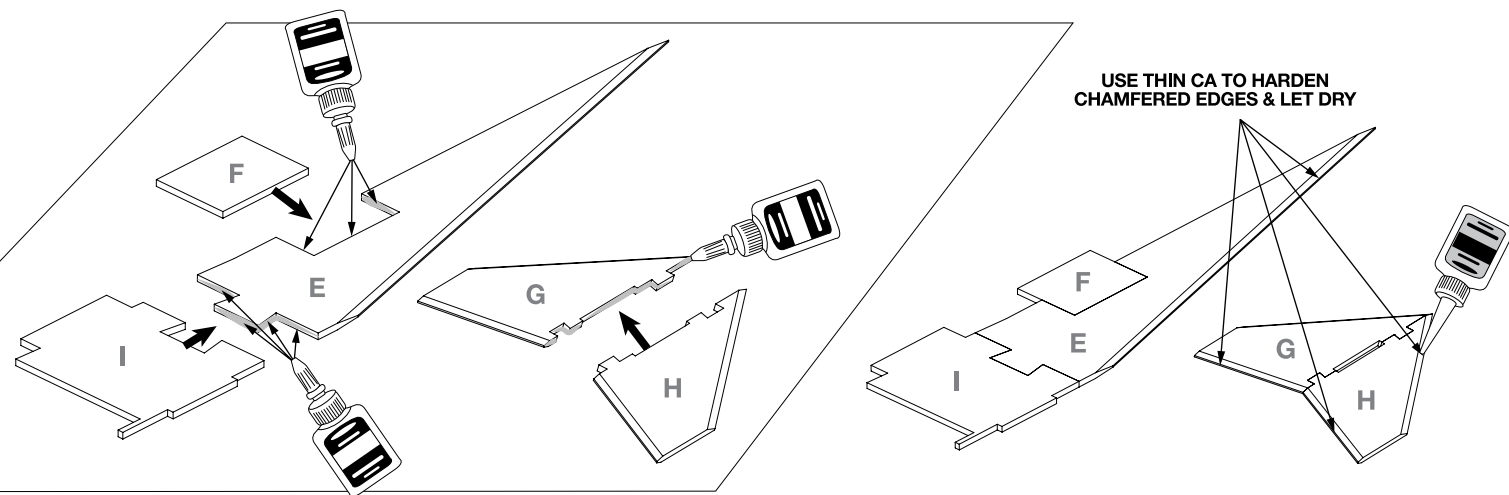
3. Apply masking tape to G and H 1/8" from trailing edges on both sides and 1/8" from leading edge on one side. Sand edges back as shown.



4. Apply masking tape to J 1/8" from leading edges on both sides and sand as shown. Then apply tape 3/4" from trailing edges on both sides and sand as shown.

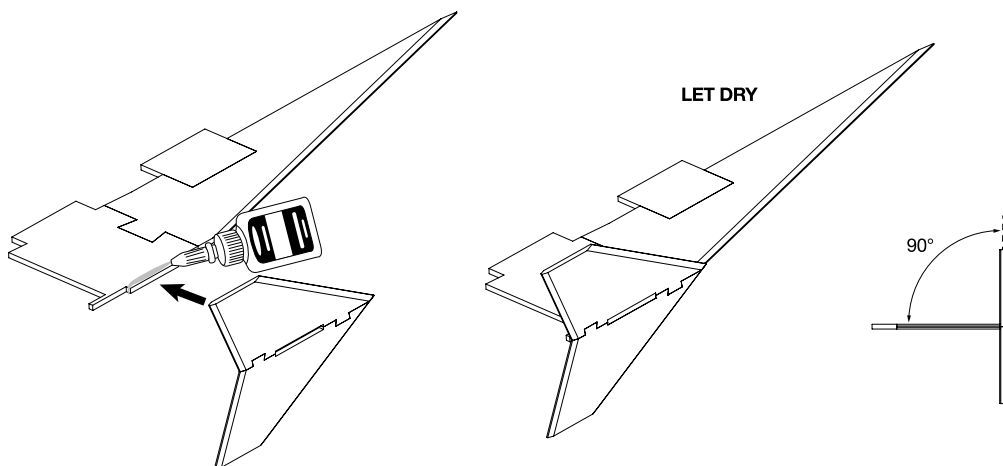


5. Tape down wax paper to flat surface. Test fit all wing parts, then glue edges shown to assemble E, F, I, G, and H. Cover with second piece of wax paper and weighted board. Let dry.



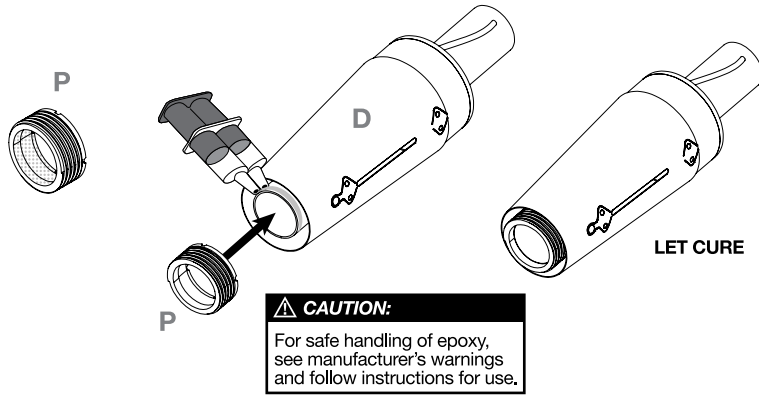
6. Glue the winglet to the wing at a 90° angle. Use the corner of wing alignment card AA to set the angle. Repeat steps 1-6 for second wing.

CAUTION:
For safe handling of CA glue, see manufacturer's warnings and follow instructions for use.

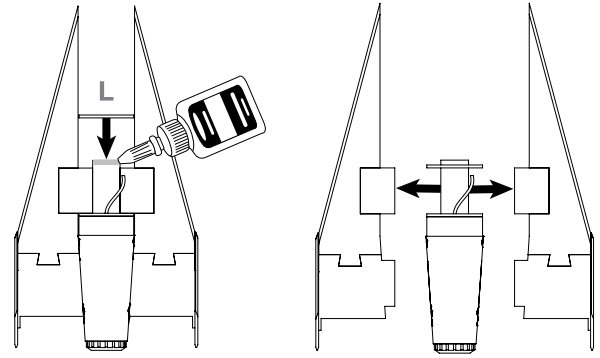


ATTACH RETAINER AND CENTERING RING

1. Roughen inside of P with sandpaper. Apply epoxy to tube C and slide notched end of P over tube.

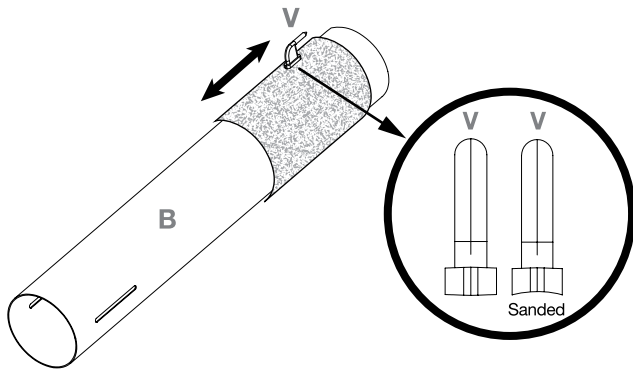


2. Insert wings into tail cone. Apply glue to top of C and slide L into place. Align notches in L and M. Remove wings and let dry.

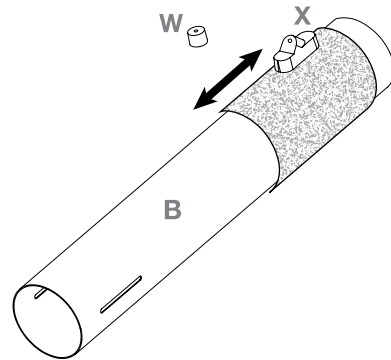


PREPARE PITOT TUBE, ANTENNA BASE, & BODY TUBE

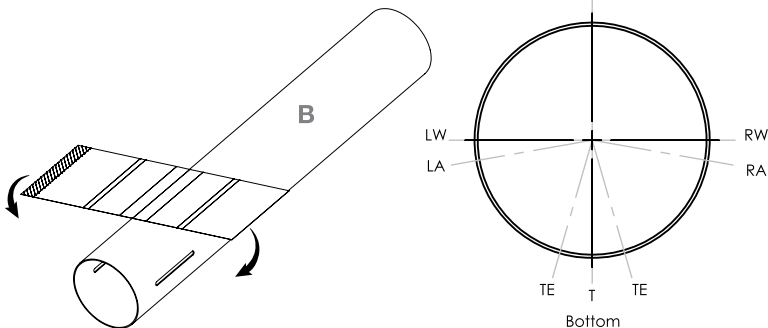
1. Wrap sandpaper around body tube and sand base of V as shown.



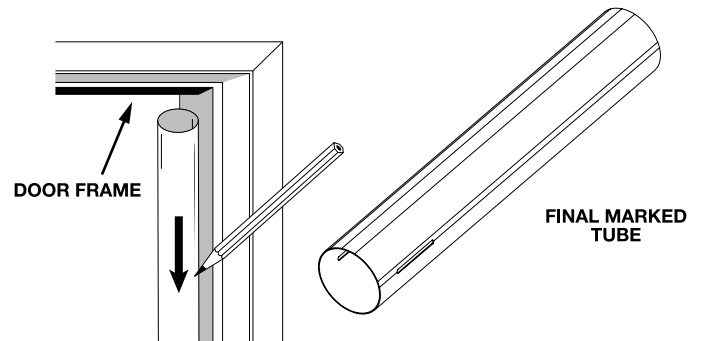
2. Use the same technique to sand antenna bases X and W.



3. Cut out fin marking guide on page 11. Wrap around body tube and tape closed. Align RW and LW with the fin slots in tube.

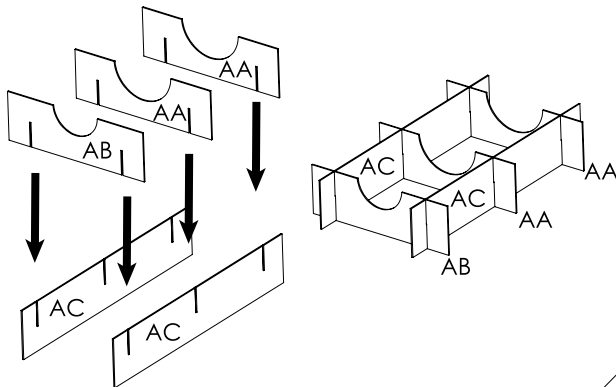


4. Mark all lines and remove guide. Extend lines down length of body tube using door frame.

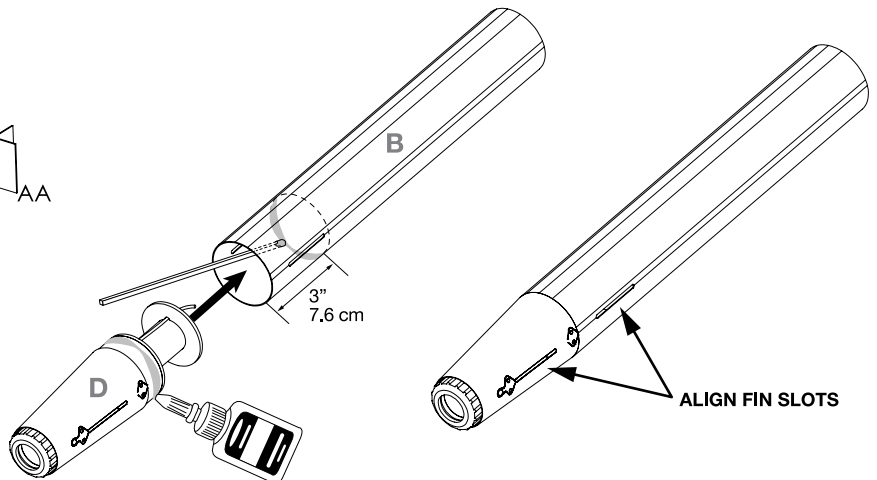


ATTACH TAIL CONE

1. Assemble cradle with alignment cards as shown.

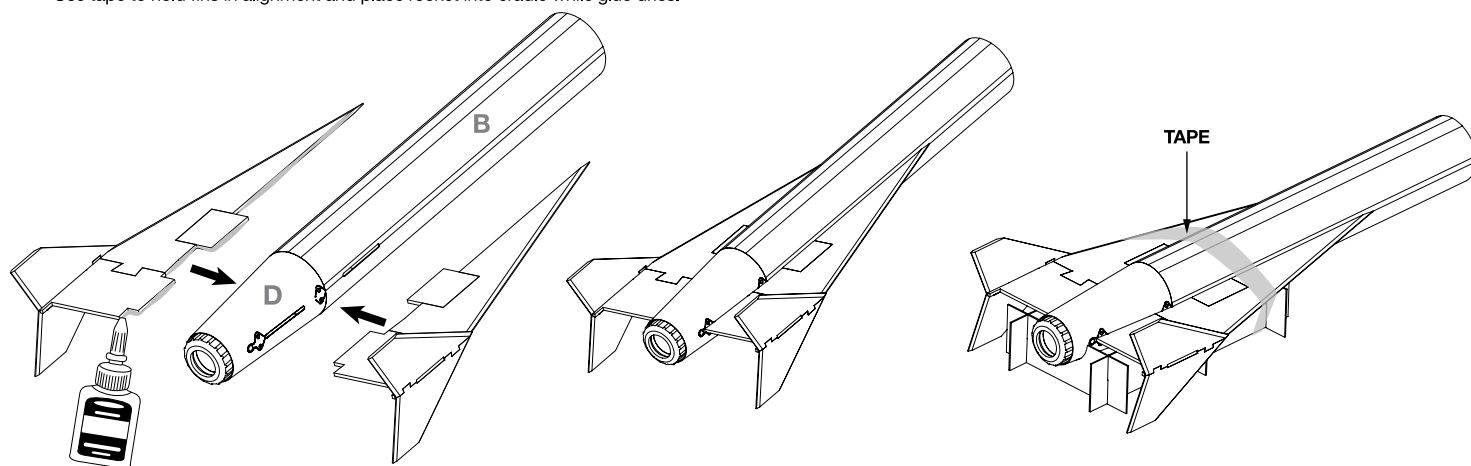


2. Apply glue to shoulder of tail cone D and 3" inside body tube B. Insert D into B and wipe away excess glue.

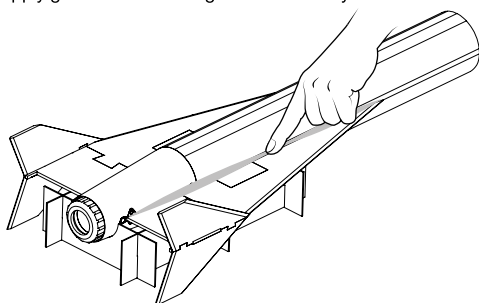


ATTACH WINGS

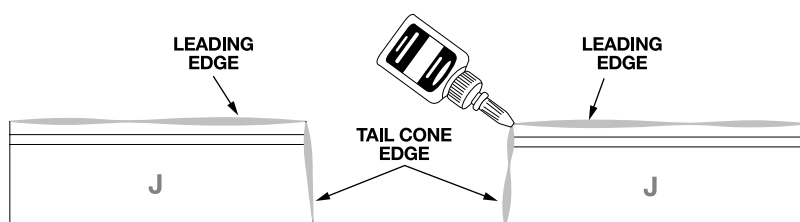
1. Apply glue to all edges of wings that will be in contact with tail cone and insert into rocket body. Ensure entire wing root lines up with its mark on body tube. Use tape to hold fins in alignment and place rocket into cradle while glue dries.



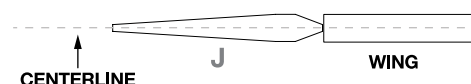
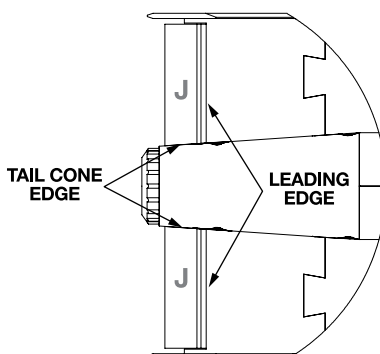
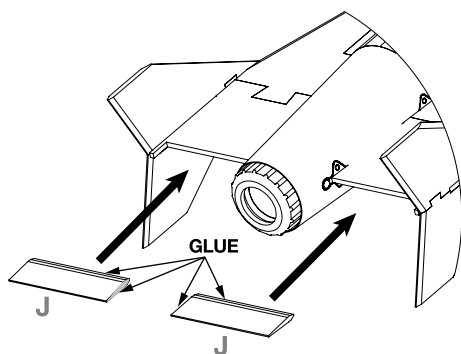
2. Apply glue fillets to all wing roots and let dry.



3. Apply glue to leading and tailcone edges of J.

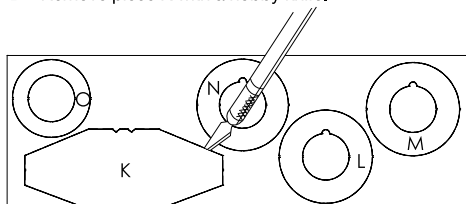


4. Attach aileron J to fins to the wings and tail cone as shown. Ensure ailerons are on the centerline of wings.

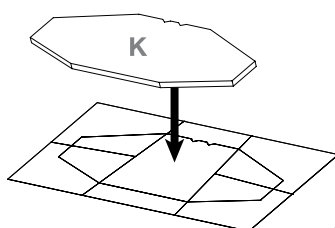


ASSEMBLE NOSE CONE

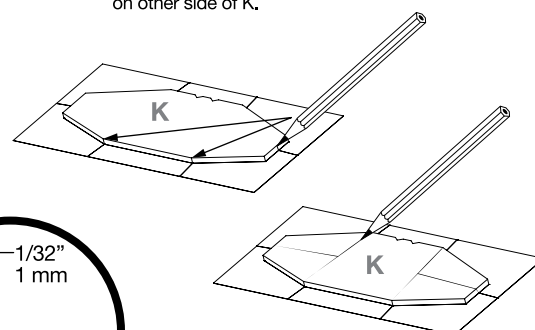
1. Remove piece K with a hobby knife.



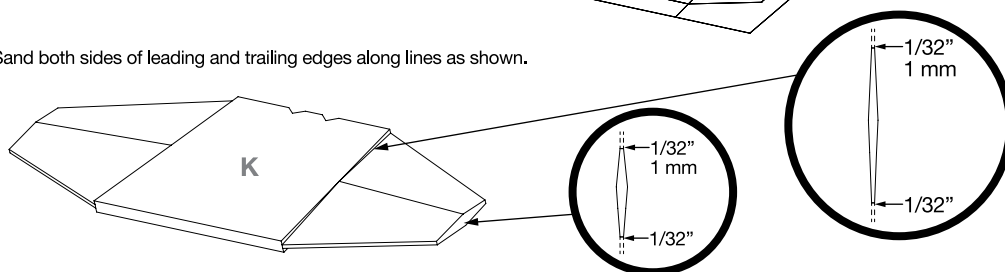
2. Place K over canard template on page 11.



3. Mark lines on edges of K and extend across. Repeat on other side of K.

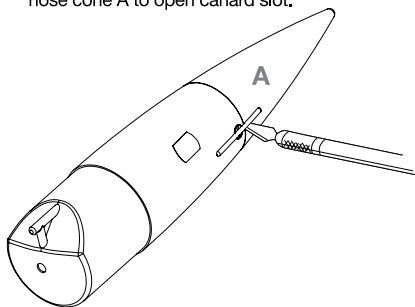


4. Sand both sides of leading and trailing edges along lines as shown.

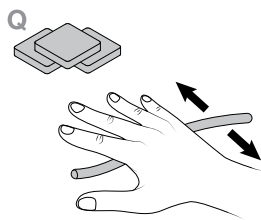


ASSEMBLE NOSE CONE (CONTINUED)

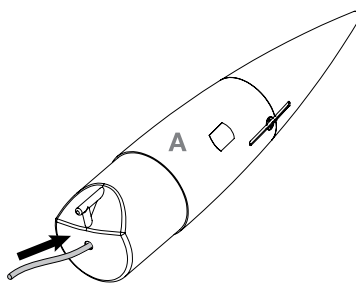
1. Cut away raised bump on both sides of nose cone A to open canard slot.



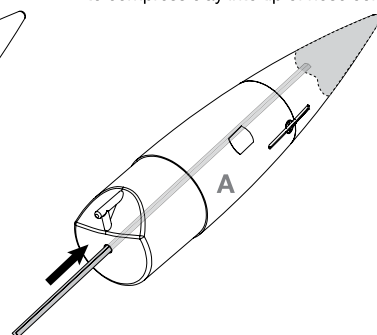
2. Roll all 8 clay pieces into thin tubes.



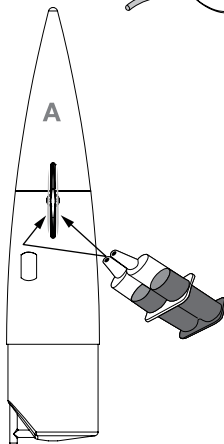
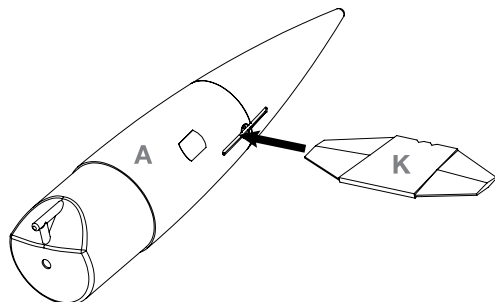
3. Insert clay tubes into nose cone.



4. Use dowel, launch rod, or similar tool to compress clay into tip of nose cone.

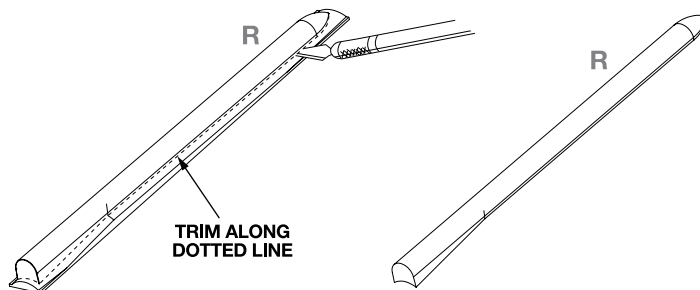
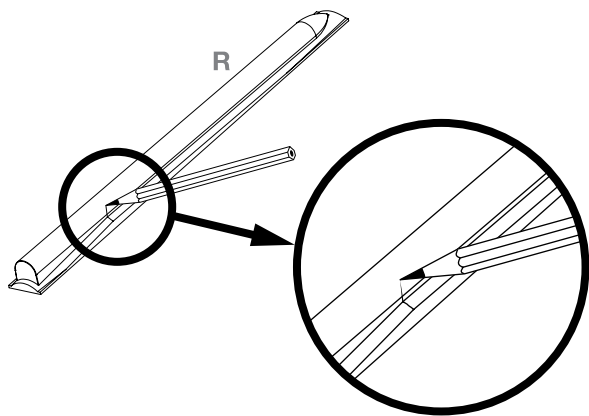


5. Slide canard K through slot in A. Apply glue fillets to each canard root.

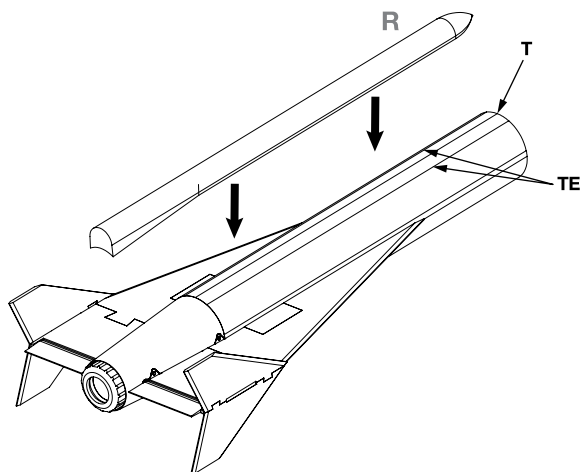


ATTACH TUNNEL

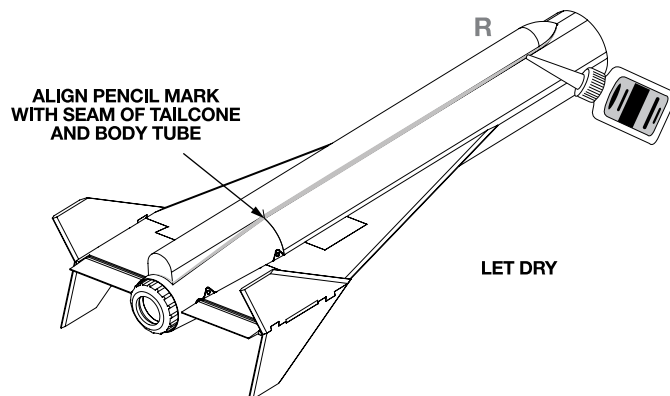
1. Mark tunnel R at indicated location. Carefully cut away excess material.



2. Place R on body tube. Line up the edges of R with body tube marks labeled "TE" and the point of R with the mark labeled "T".



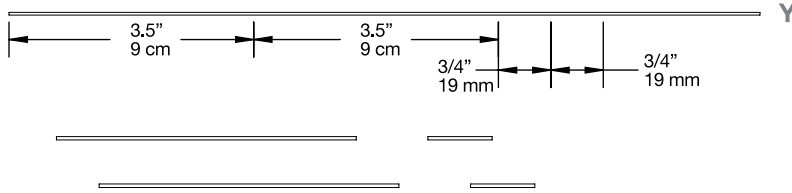
3. Apply thin CA to edges of tunnel R (only a small amount is needed - it will wick around all the edges).



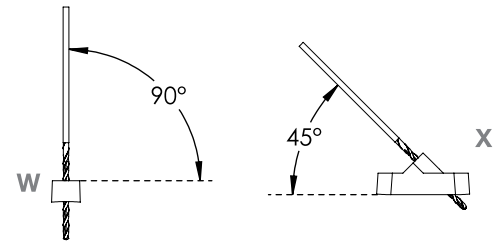
LET DRY

ASSEMBLE ANTENNAE

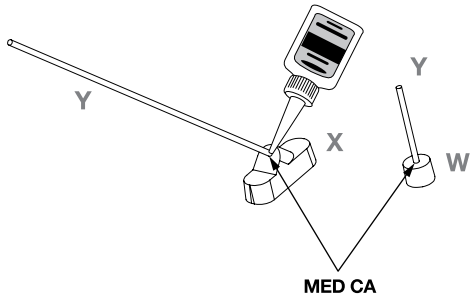
1. Take antenna stock material Y and cut off two sections each 3.5" long and two sections each 0.75" long.



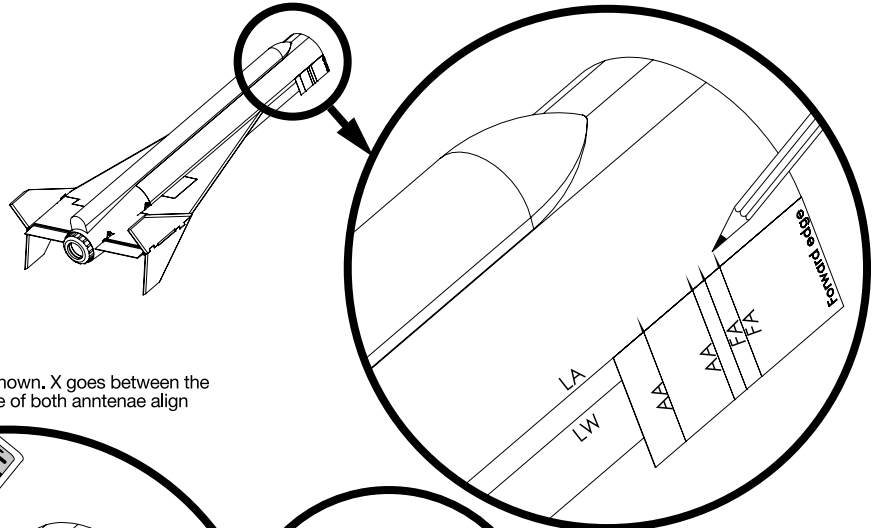
2. Use a 1mm or 3/64" bit to drill through antenna bases X and W at the angles shown. Start at the small divot on each antenna base.



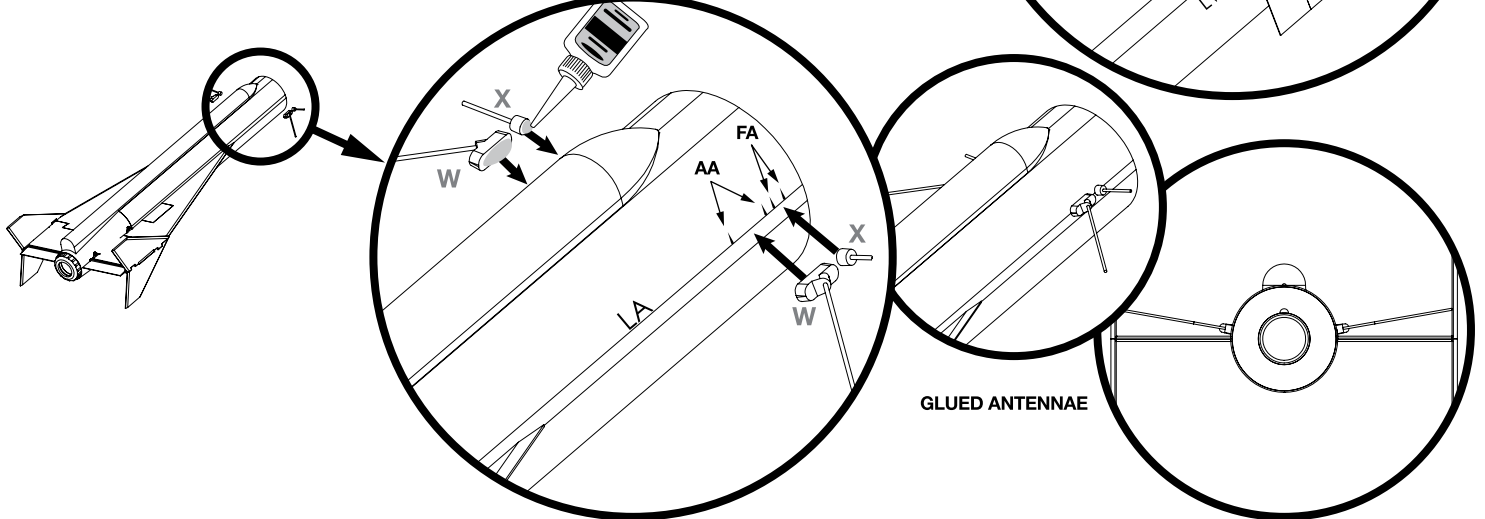
3. Insert the long antenna into X and the short antenna into W. Glue both pieces into place with medium CA. Make sure the antenna does not stick out the bottom of the base.



4. Line up the forward edge of antenna template on page 11 with the forward edge of the body tube. Align edge of template with "LA" mark on body tube. Mark the four lines from the template onto the body tube. Repeat on the other side "RA" mark.

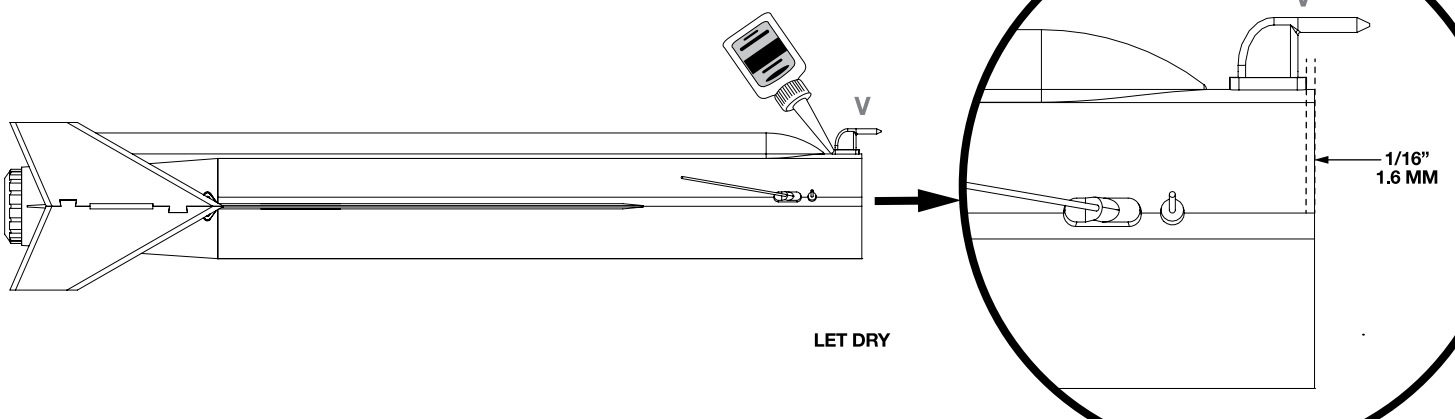


5. Apply medium CA to the bottom of X and W. Align them with marks as shown. X goes between the two "AA" marks and W goes between the two "FA" marks. The centerline of both antennae align with the "RA" and "LA" lines on either side of the body tube.



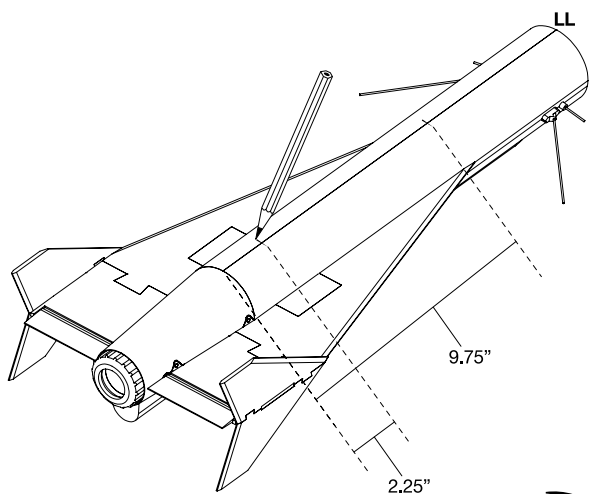
ATTACH PITOT TUBE

1. With medium CA, glue pitot tube V with point facing forwards along "T" mark, 1/16" back from front edge of body tube.

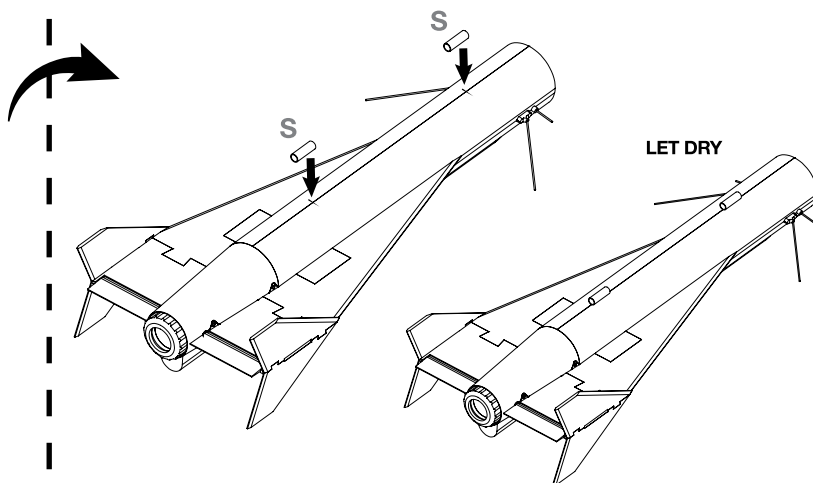


ATTACH LAUNCH LUGS OR RAIL BUTTONS

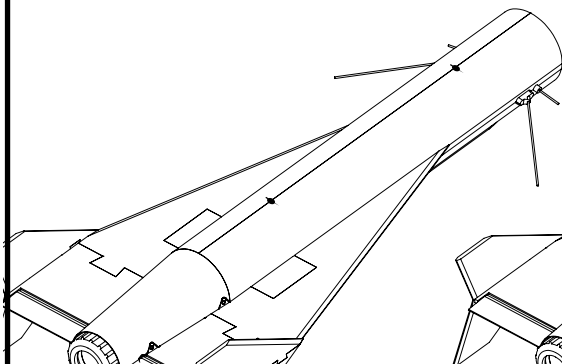
1. Mark 2.25" and 9.75" from the bottom of the body tube along the "LL" line.



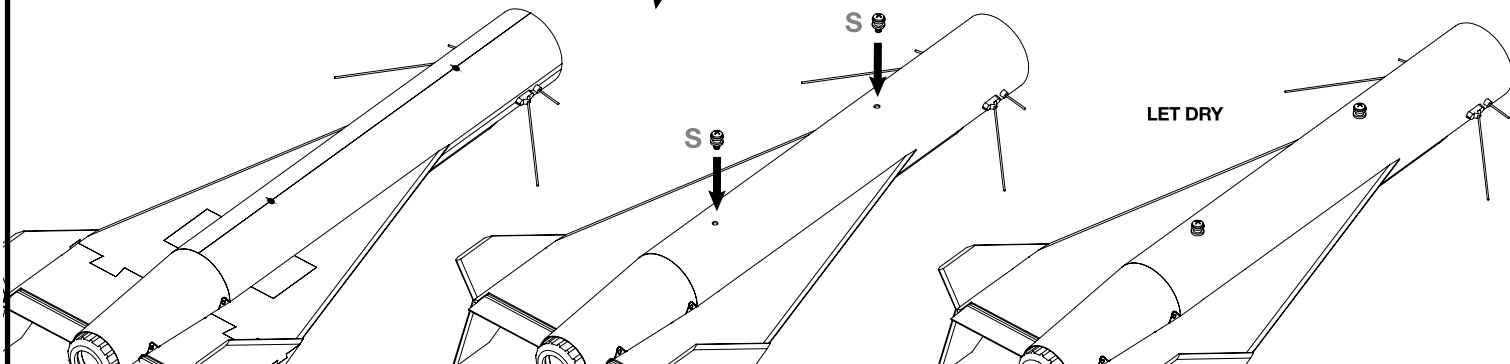
- 2a. Attach launch lugs on marks with yellow glue.



- 2b. Drill a 1/8" in. hole on marks. Paint and finish the model.



- 3b. After the model is painted, apply a drop of med CA to each hole and screw in rail buttons.



FINISHING

Spray rocket with white primer, let dry, and sand. Repeat until rocket is smooth.

Paint entire rocket orange. Mask off rocket to apply black paint to nose cone, antennae, and engine retainer cap.

Cut decals from sheet, trimming close to edge. One at a time, place in warm water until decal curls and begins to relax. Remove and position on rocket, sliding decal away from backing material.

Blot with clean paper towel. Let set overnight.

OPTIONAL: Apply protective clear coat.

CAUTION:

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

FRONT



LEFT SIDE



BACK

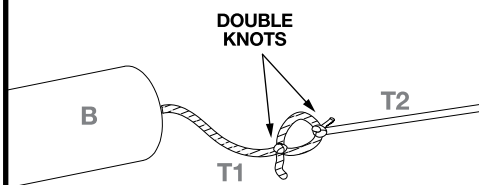


RIGHT SIDE

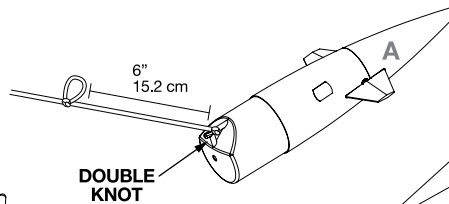


ATTACH RECOVERY SYSTEM

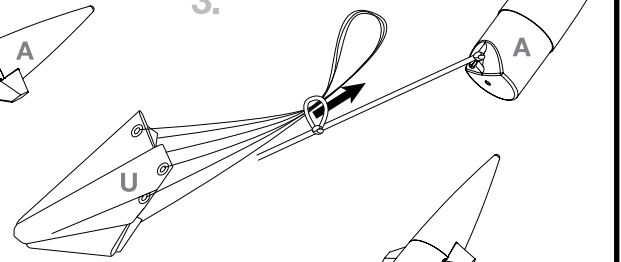
1. Tie loop at end of aramid cord. Tie shock cord to loop.



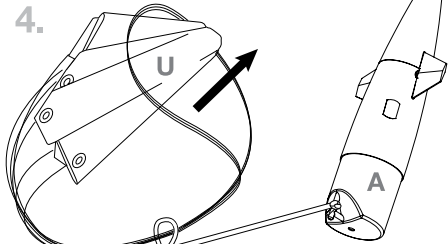
2. Tie loop 6" from free end of shock cord. Tie free end of shock cord to nose cone.



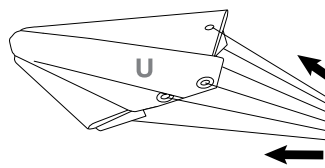
3.



4.

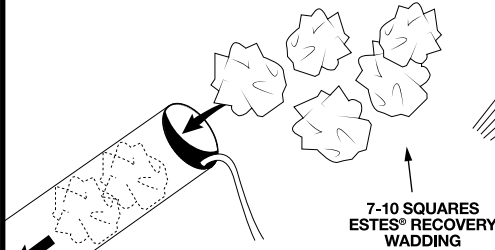


5.

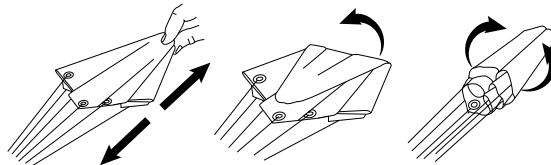


PREPARE FLIGHT RECOVERY

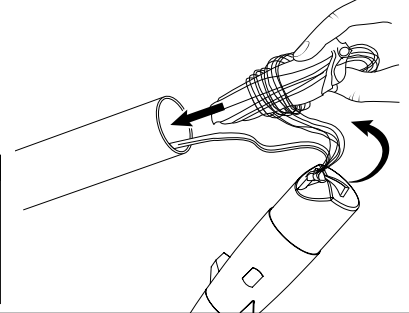
1. Push recovery wadding down into body tube.



2. Fold parachute as shown.



3. Wrap lines loosely and insert into body tube. Recovery wadding and parachute must slide easily into body tube; redo if too tight.

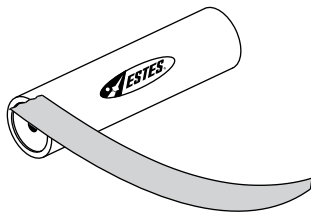


IF NOSE CONE FIT IS...

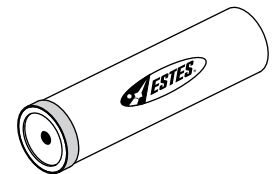
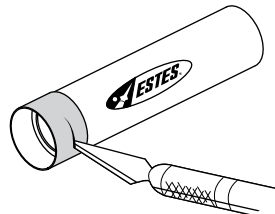


PREPARE 29MM ENGINE RETENTION

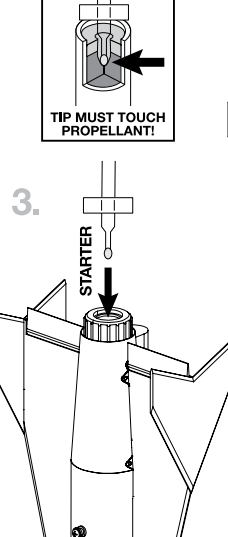
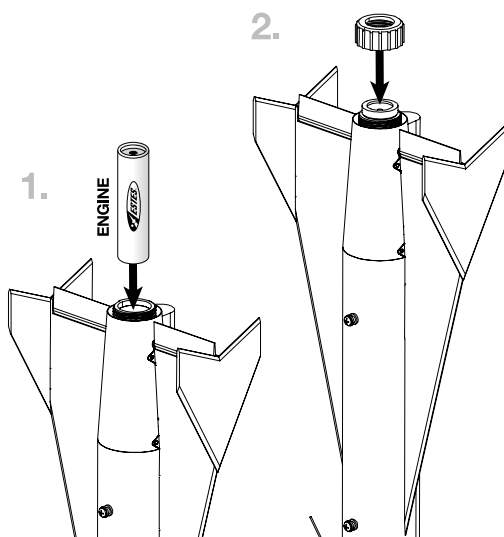
1. Wrap 6 to 8 layers of masking tape over nozzle end of motor. Overlap end of engine by 1/4 inch (6 mm).



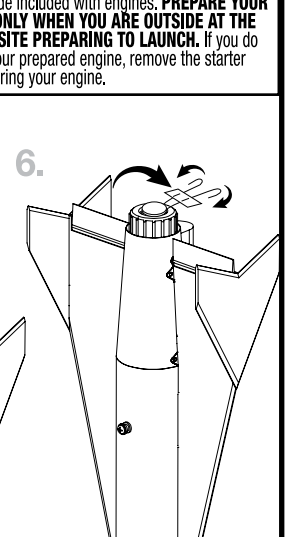
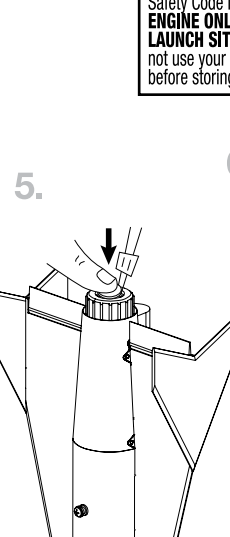
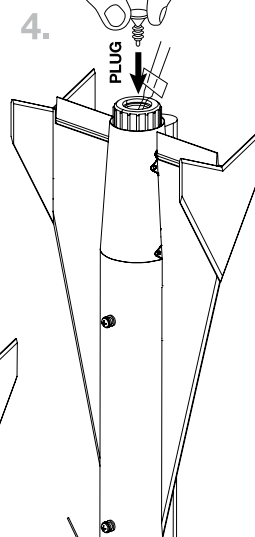
2. Trim off excess tape.



PREPARE ENGINE



TIP MUST TOUCH PROPELLANT!



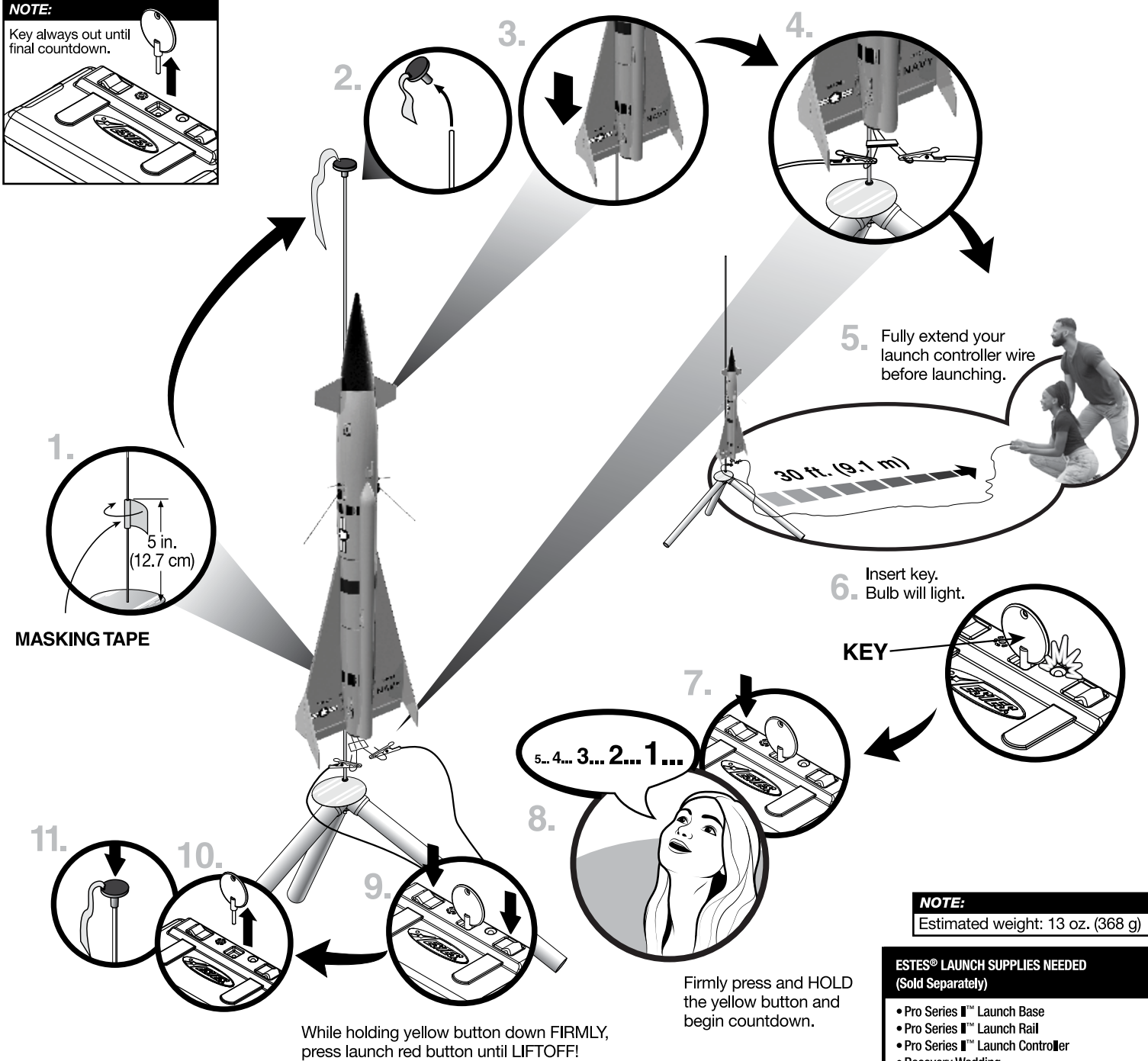
⚠ WARNING: FLAMMABLE

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.

COUNTDOWN AND LAUNCH

NOTE:

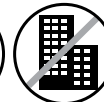
Key always out until final countdown.



PRECAUTIONS



NAR SAFETY CODE



NO DRY GRASS OR WEEDS

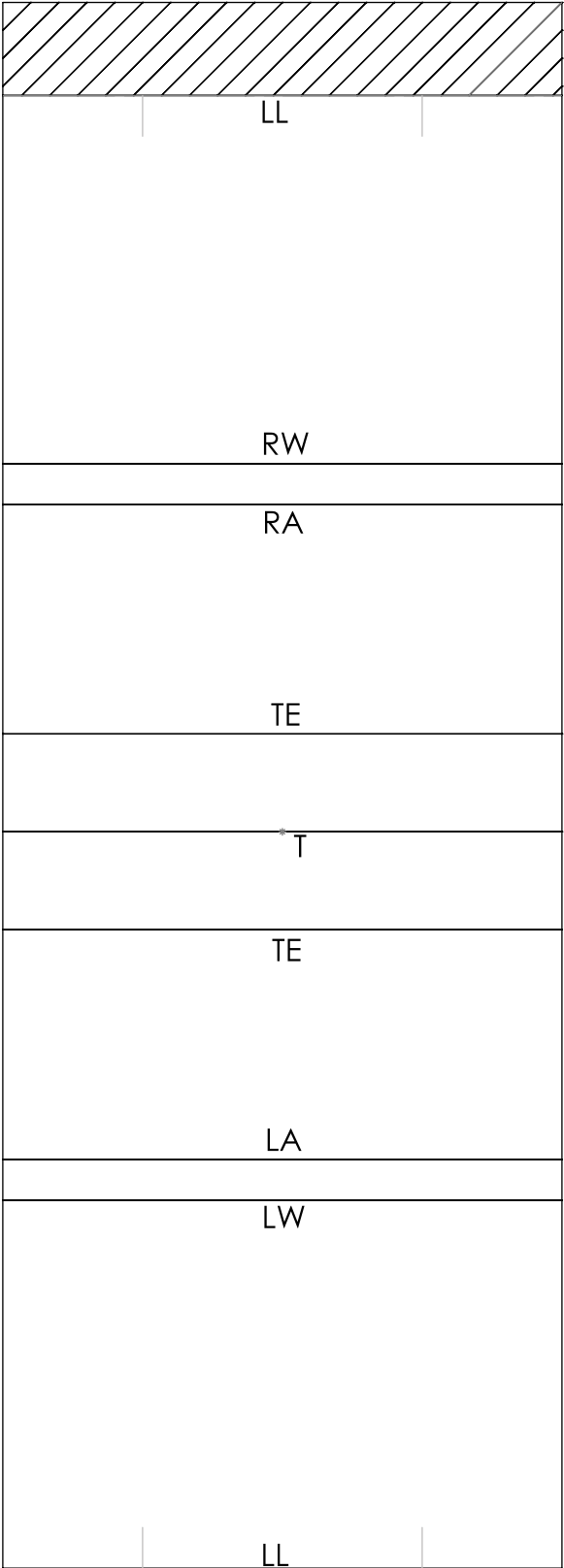
PRE-LAUNCH CHECK For safety, never launch a damaged rocket. Check the rocket's body, nose cone and fins. Also, check the engine mount, recovery system and launch lug(s). Repair any damage before launching the rocket.

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).

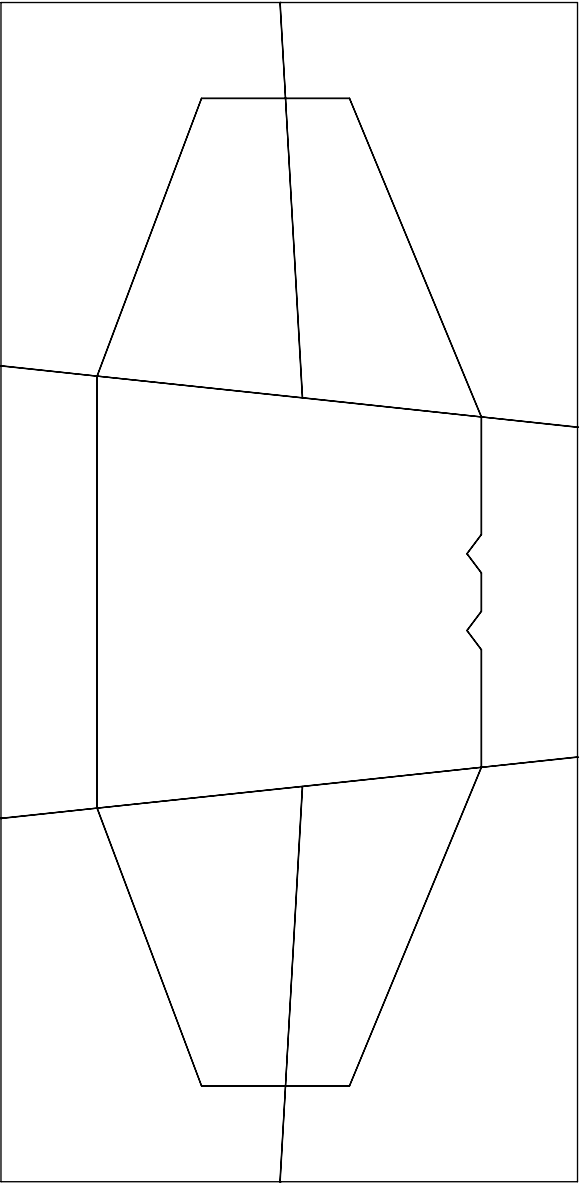
MISFIRES TAKE THE KEY OUT OF THE CONTROLLER. WAIT ONE MINUTE BEFORE GOING NEAR THE ROCKET. Disconnect the micro-clips and remove the engine. Take the plug and starter out of the engine. A burned starter means the starter tip was not touching engine propellant. Install a new starter; be sure the tip is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



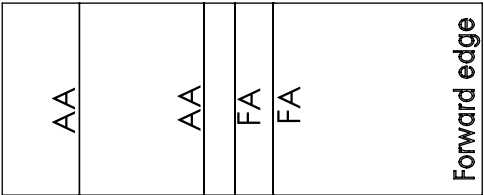
TUBE MARKING GUIDE



CANARD TEMPLATE



ANTENNA TEMPLATE



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