EstesRockets.com

TimeWarp™

7321



AGES 10+

Skill Level
ADVANCED

MODEL ROCKET INSTRUCTIONS

KEEP FOR FUTURE REFERENCE

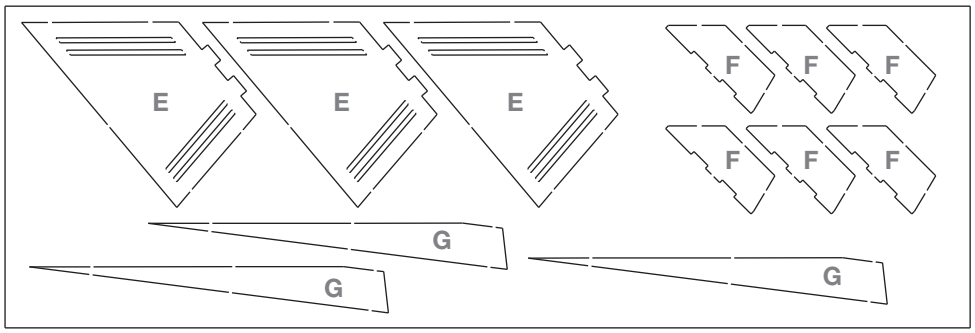
IMPORTANT: Please record date found on decal and keep for future reference. _____

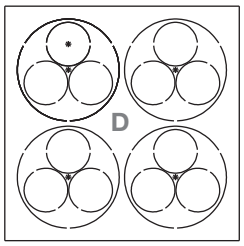
⚠ CAUTION: *May not apply to all kits. For safe handling of plastic cement, epoxy, spray adhesive, CA glue, CA accelerator, paint/finishing materials, see manufacturer's warnings and follow instructions for use. To avoid injury, use extreme caution when using hobby knife, scissors, drills, and any cutting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

SUPPLIES



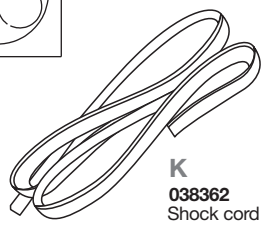
SCISSORS | PENCIL | RULER | FINE SANDPAPER | CARPENTER'S GLUE | HOBBY KNIFE | MASKING TAPE | MEDIUM CA | PRIMER (WHITE) | PAINTS (WHITE, BLACK) | PAINTS (YELLOW, GREY) | CLEAR COAT (OPTIONAL)



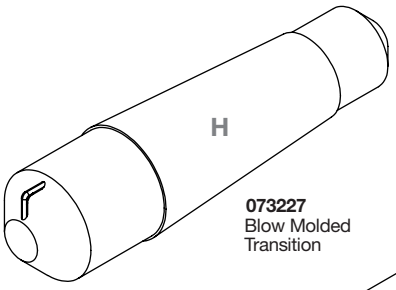


090052-7321
Laser cut card stock

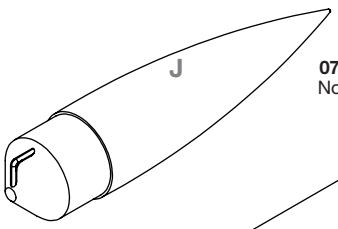
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Laser cut balsa



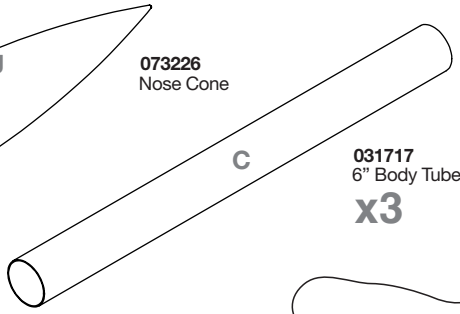
038362
Shock cord



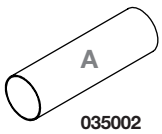
073227
Blow Molded Transition



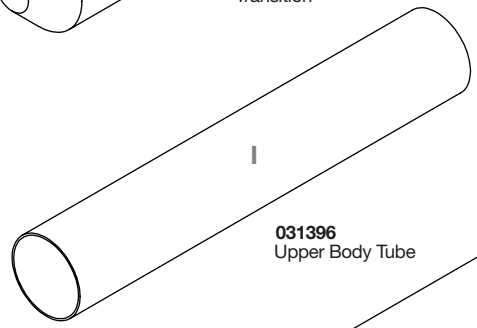
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Nose Cone



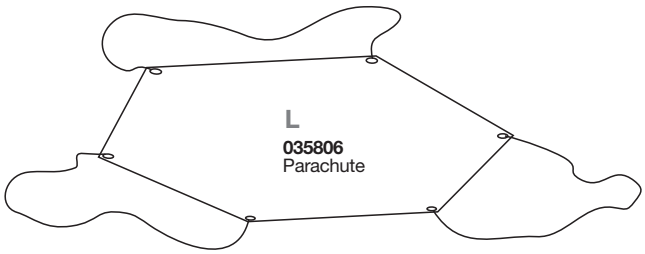
031717
6" Body Tube
x3



035002
Yellow Spacer Tube



031396
Upper Body Tube

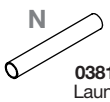


035806
Parachute

030384
Lower Body Tube

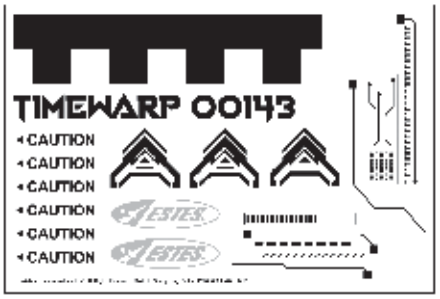
073237
Shock cord anchor

030222-4
13mm engine block
x3



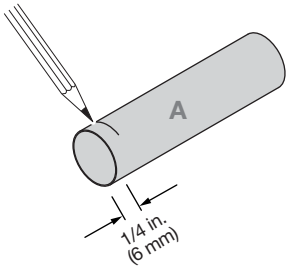
038175
Launch Lug

090001-7321
Waterslide Decal

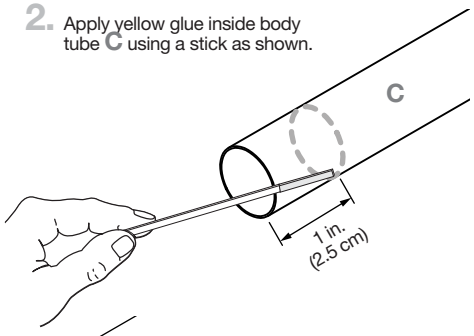


ENGINE MOUNT ASSEMBLY

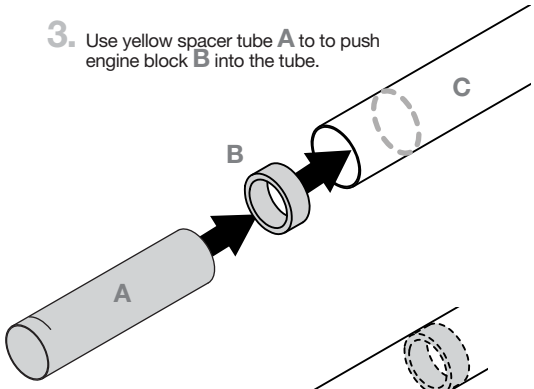
1. Mark **A** 1/4 in. from end.



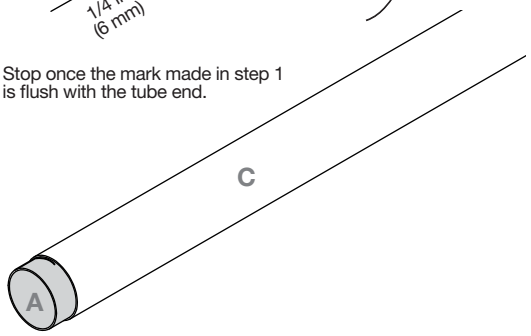
2. Apply yellow glue inside body tube **C** using a stick as shown.



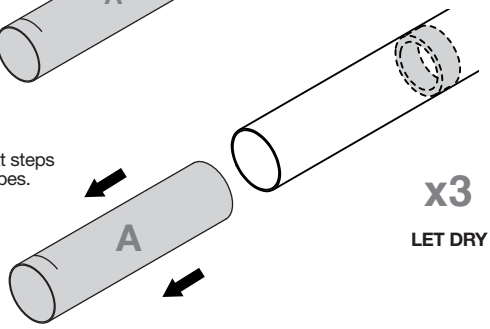
3. Use yellow spacer tube **A** to to push engine block **B** into the tube.



4. Stop once the mark made in step 1 is flush with the tube end.

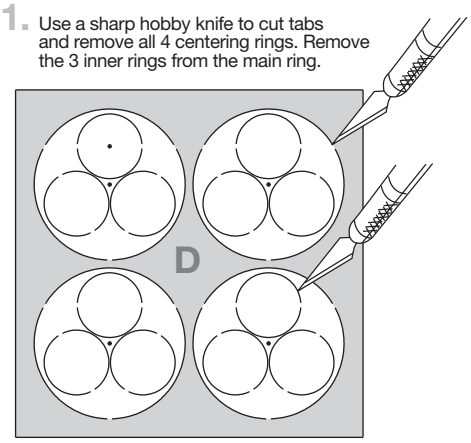


5. Remove **A** immediately and repeat steps 2-5 for remaining engine mount tubes.

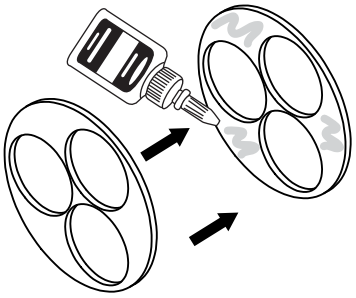


ENGINE MOUNT ASSEMBLY CONT.

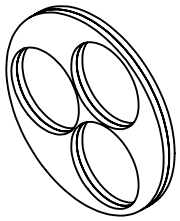
1. Use a sharp hobby knife to cut tabs and remove all 4 centering rings. Remove the 3 inner rings from the main ring.



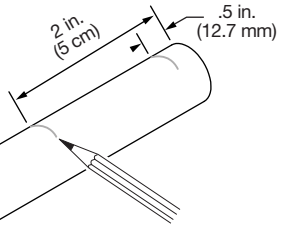
2. Apply yellow glue to the face of centering ring as shown. Use finger to smooth glue covering complete surface of ring face.



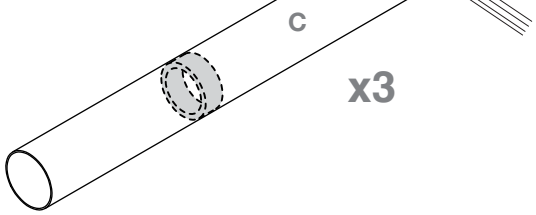
3. Ensure that all 3 holes in rings are aligned and wipe off any access glue.



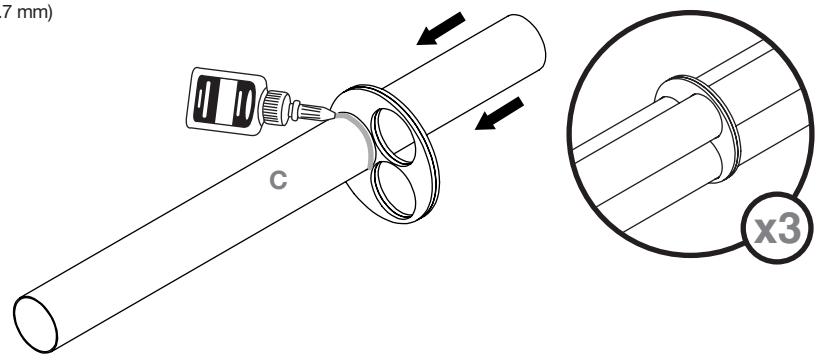
4. Mark the motor mount tubes 0.25" and 2" from the end as shown.



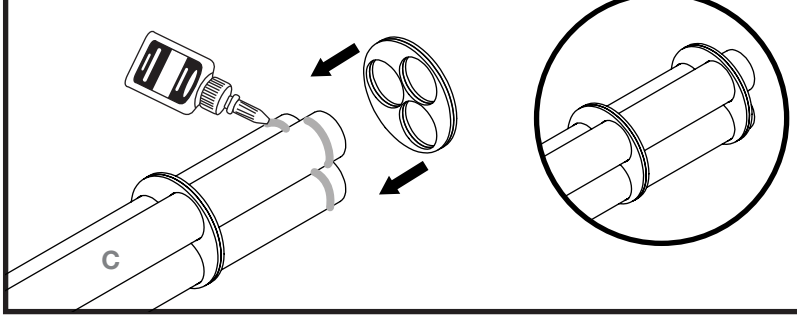
NOTE:
Be sure to mark the opposite end of where the engine block was inserted.



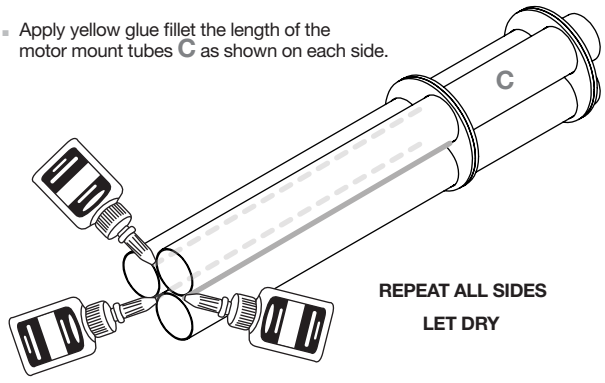
5. Test fit the motor mount tubes into the cetering rings and sand ring holes if nessassary. Apply yellow glue at the 2" mark and slide centering ring until even. Repeat for remaining motor mount tubes.



6. Test fit upper centering ring. Sand holes if nessassary. Apply yellow glue to .5" mark on all motor mount tubes and slide center ring until flush with mark.

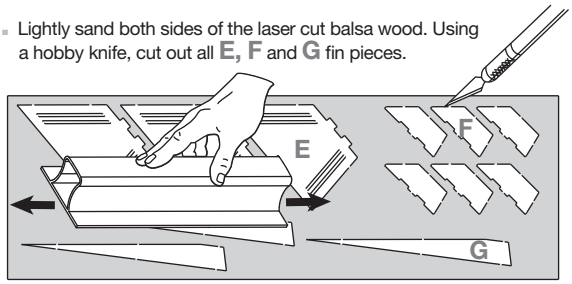


7. Apply yellow glue fillet the length of the motor mount tubes **C** as shown on each side.

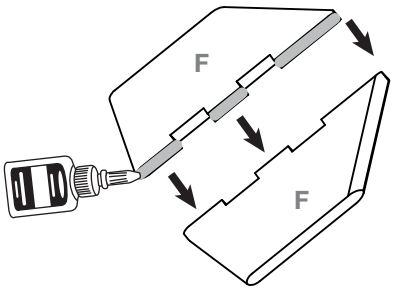


FIN ASSEMBLY

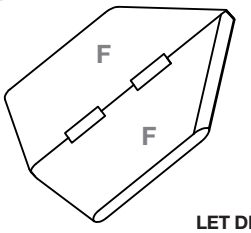
1. Lightly sand both sides of the laser cut balsa wood. Using a hobby knife, cut out all **E, F** and **G** fin pieces.



2. Apply glue to the inside edge of **F** fin pieces.



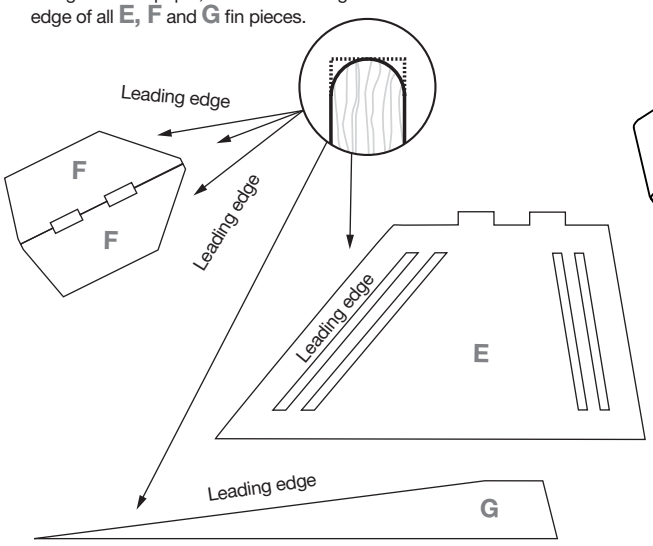
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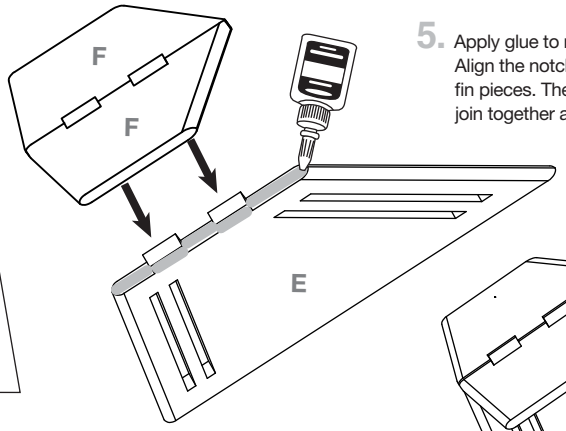


LET DRY

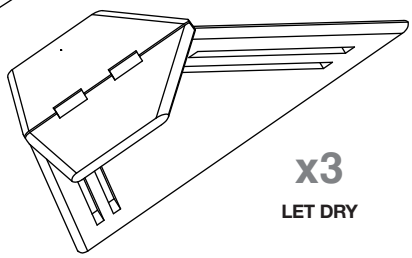
NOTE:
Glue together on wax paper on a flat surface.

4. Using fine sandpaper, round the leading edge of all **E, F** and **G** fin pieces.





5. Apply glue to notches of **E** fin pieces. Align the notches with the cutouts on **F** fin pieces. The **E** and **F** pieces should join together at a 90˚ angle.

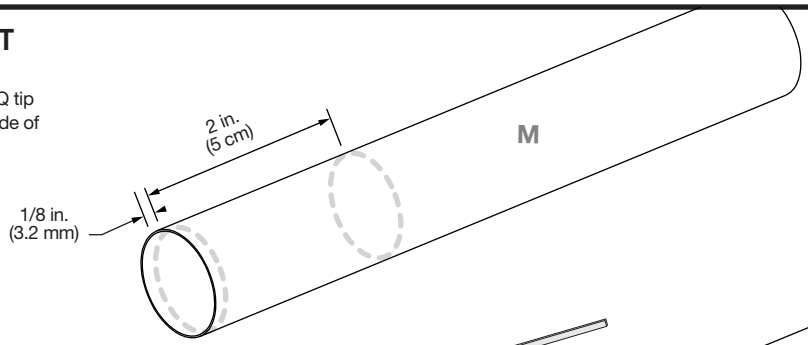


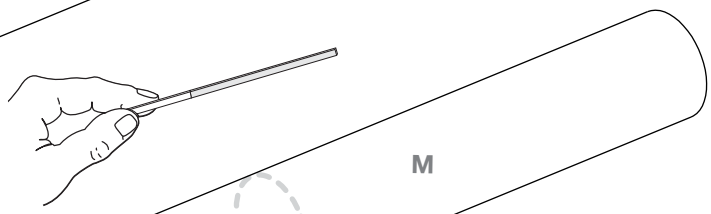
x3

LET DRY

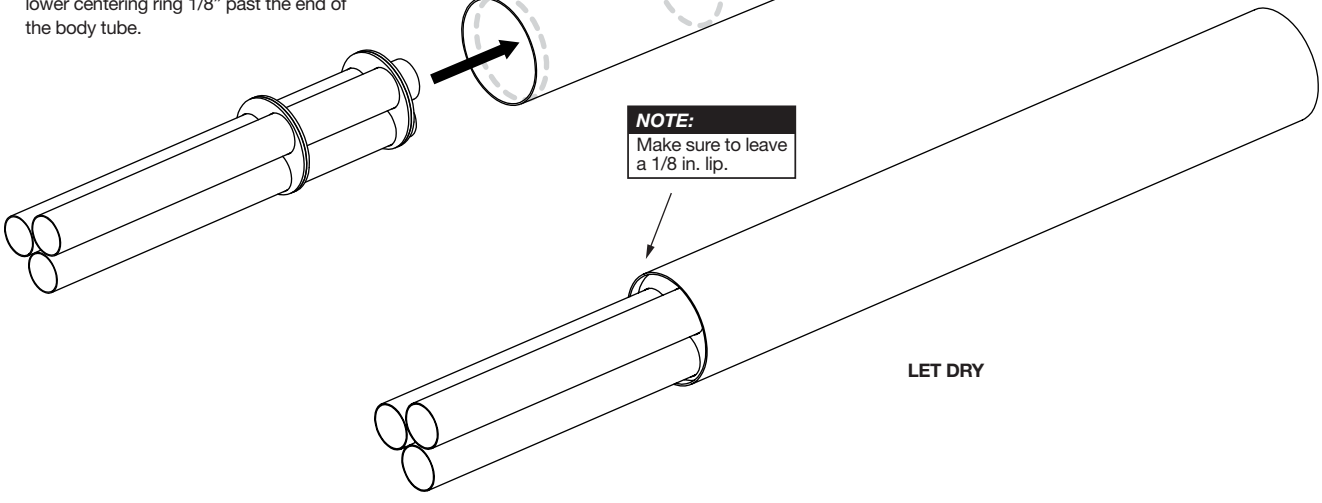
INSTALL MOTOR MOUNT

1. Use a scrap piece of balsa or Q tip to apply yellow glue to the inside of body tube **M** as shown.





2. Insert the motor mount assembly into body tube **M** as shown. Be sure to insert lower centering ring 1/8" past the end of the body tube.

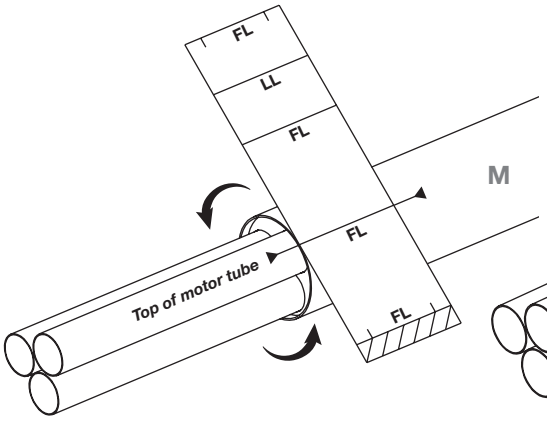


NOTE:
Make sure to leave a 1/8 in. lip.

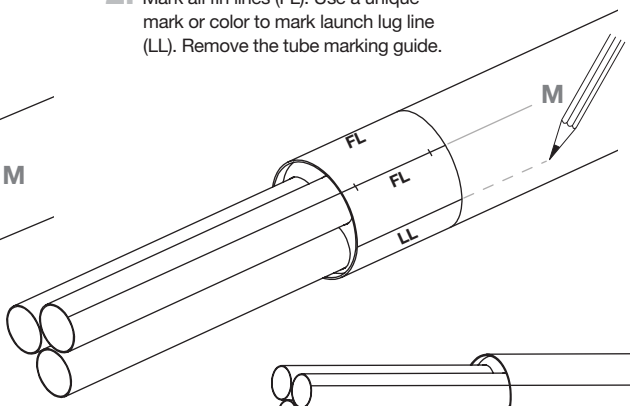
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TUBE MARKING

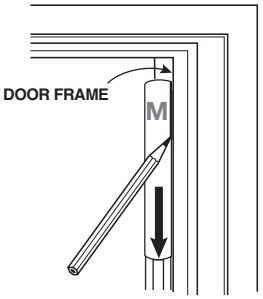
1. Cut out the tube marking guide from page 3. Wrap around the tube making sure that the fin line (FL) locations align with the tops of the motor tubes.

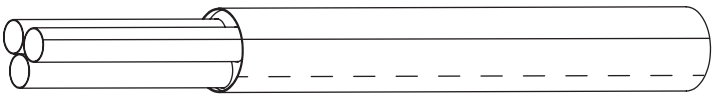


2. Mark all fin lines (FL). Use a unique mark or color to mark launch lug line (LL). Remove the tube marking guide.



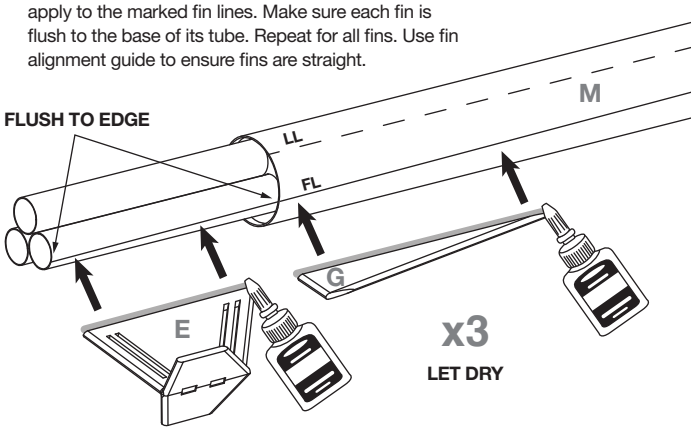
3. Use a door frame as a straight edge to extend all the lines on body tube **M**.



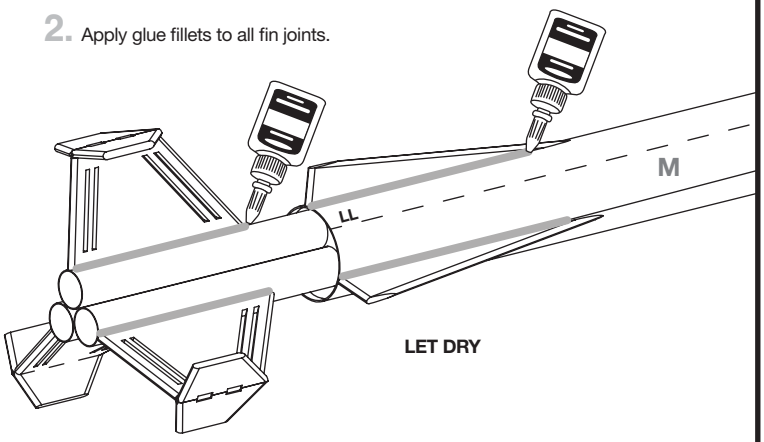


ATTACH FINS & LAUNCH LUG

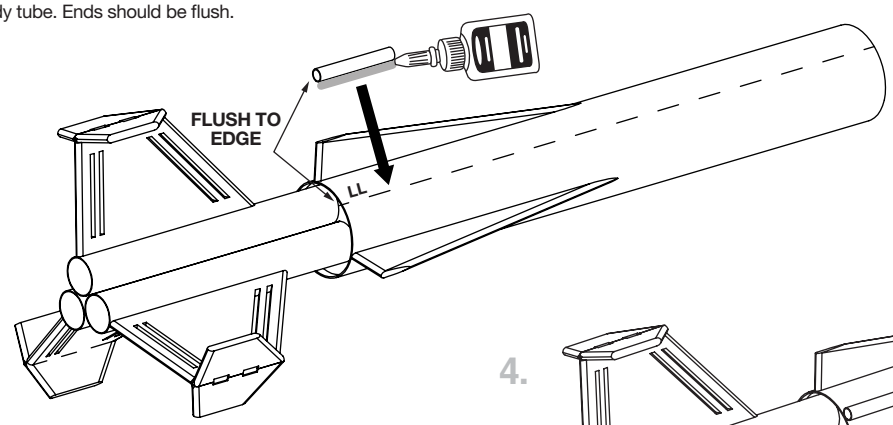
1. Apply yellow glue to the fin edges as shown and apply to the marked fin lines. Make sure each fin is flush to the base of its tube. Repeat for all fins. Use fin alignment guide to ensure fins are straight.



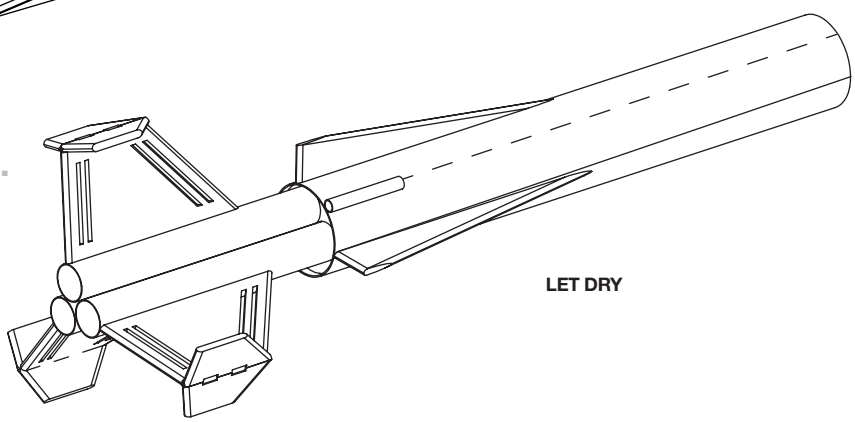
2. Apply glue fillets to all fin joints.



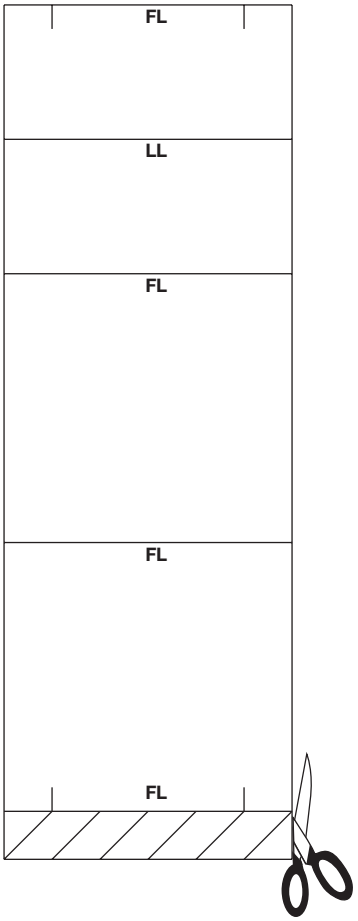
3. Lightly sand one side of the launch lug. Apply yellow glue to rough surface and apply to the marked "LL" line on the body tube. Ends should be flush.



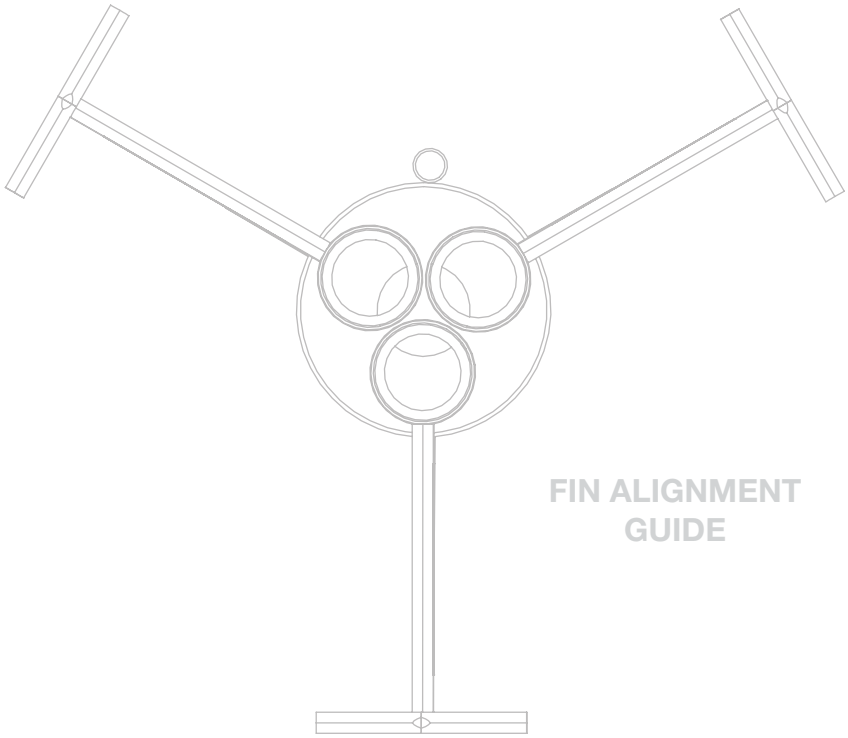
4.



TEMPLATES & GUIDES



TUBE MARKING
GUIDE

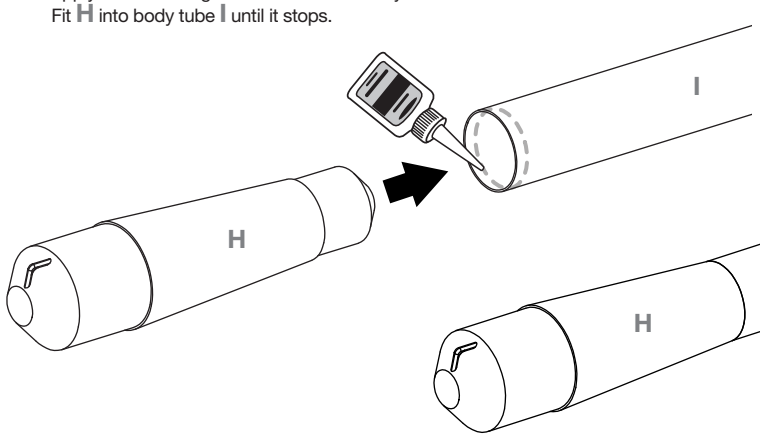


FIN ALIGNMENT
GUIDE

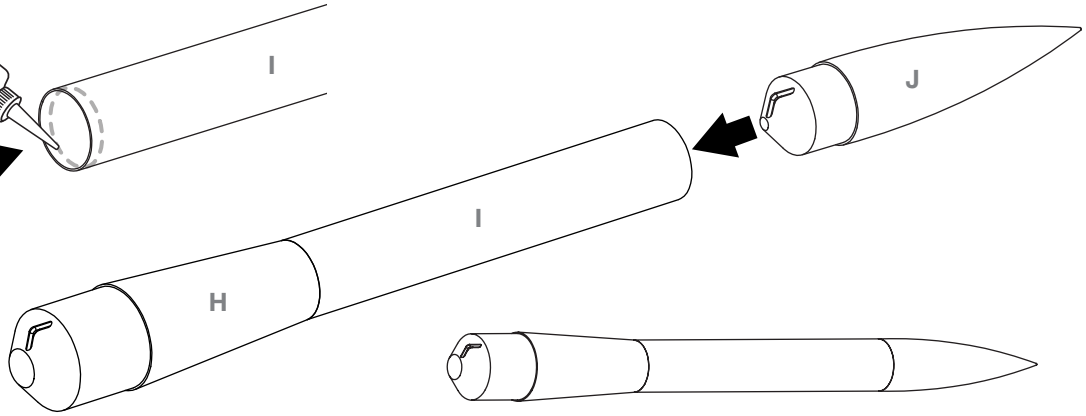
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NOSE CONE & TRANSITION ASSEMLY

1. Apply medium CA glue to the inside of body tube **I** as shown. Fit **H** into body tube **I** until it stops.

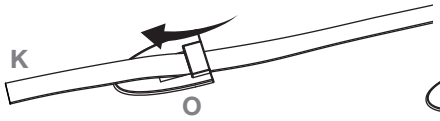


2. Test fit the nose cone to ensure a snug fit so it does not come off during flight. Add masking tape to the shoulder if nessessary.

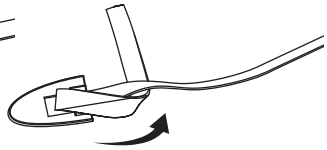


PREPARE SHOCK CORD MOUNT

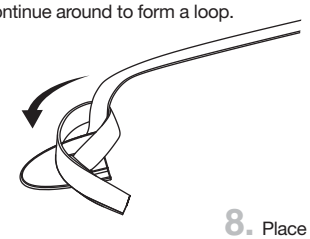
1. Thread end of shock cord **K** through anchor **O**.



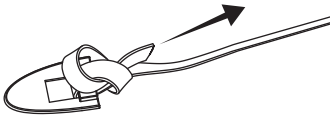
2. Fold shock cord backward and wrap under main length of cord.



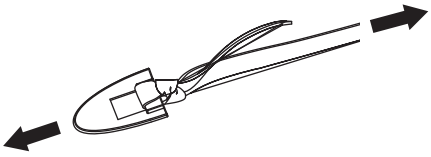
3. Continue around to form a loop.



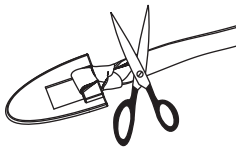
4. Tuck the end through the loop and pull tight.



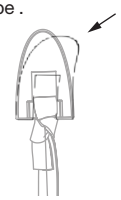
5. Pull from anchor end and main length until a tight knot is formed.



6. Trim off excess if needed.



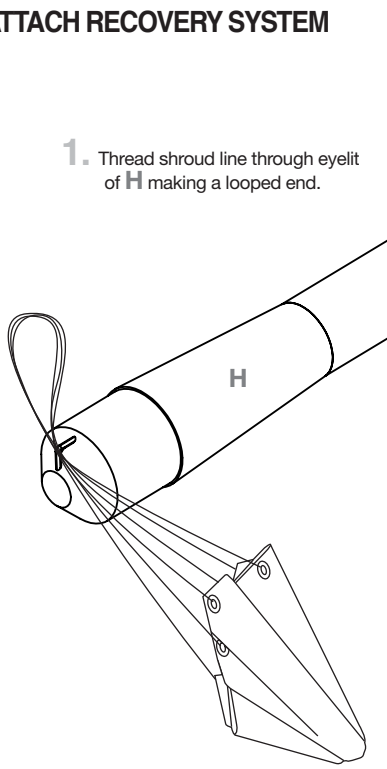
7. Remove backer from double sided tape .



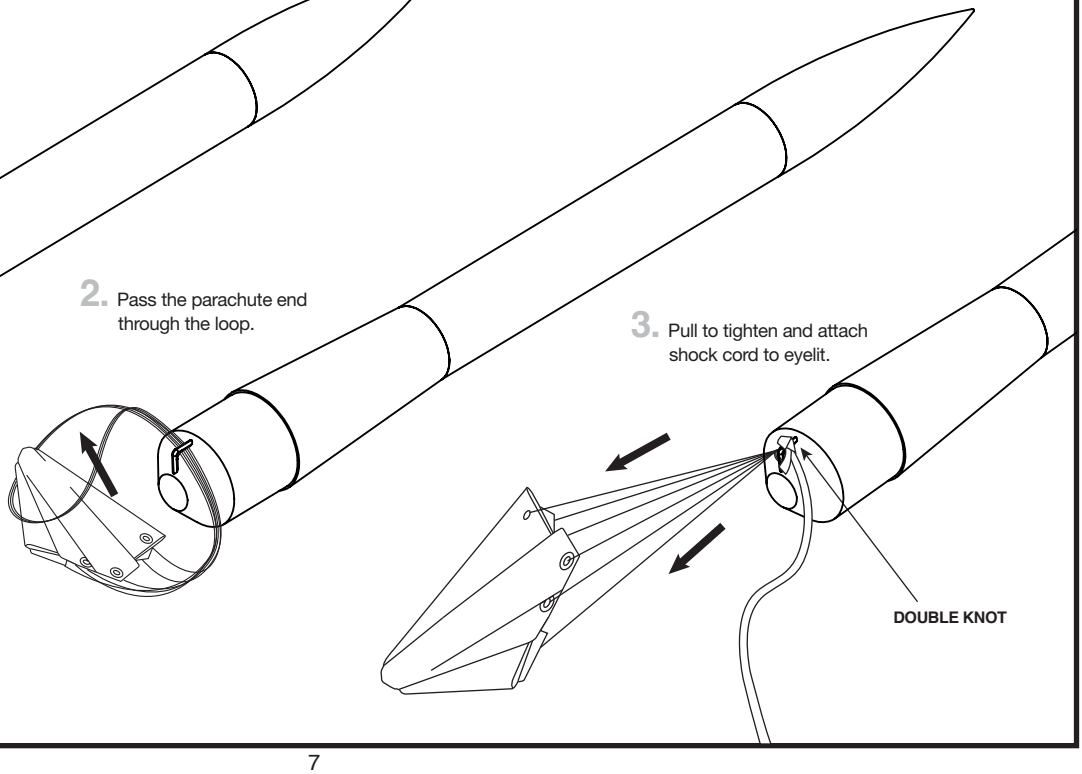
8. Place inside body tube at least 2” down from end .

ATTACH RECOVERY SYSTEM

1. Thread shroud line through eyelit of **H** making a looped end.

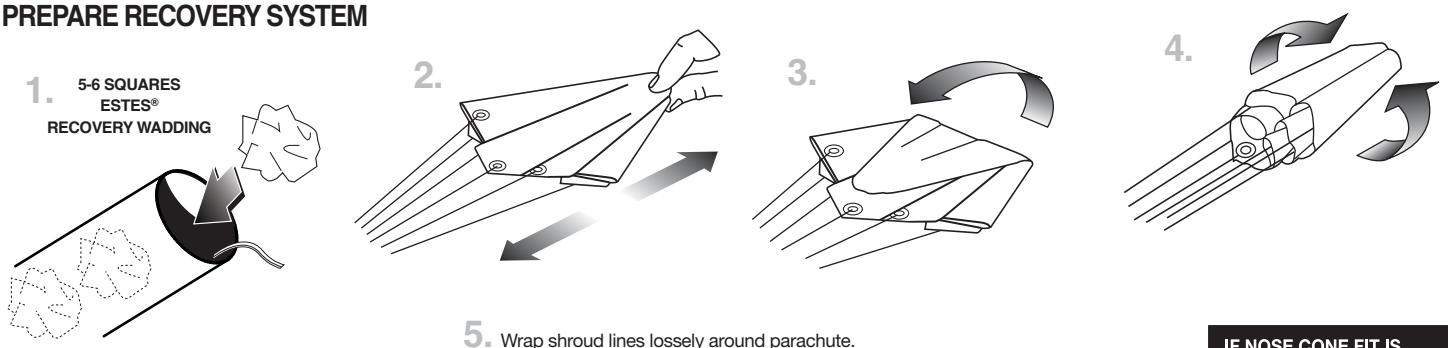


2. Pass the parachute end through the loop.

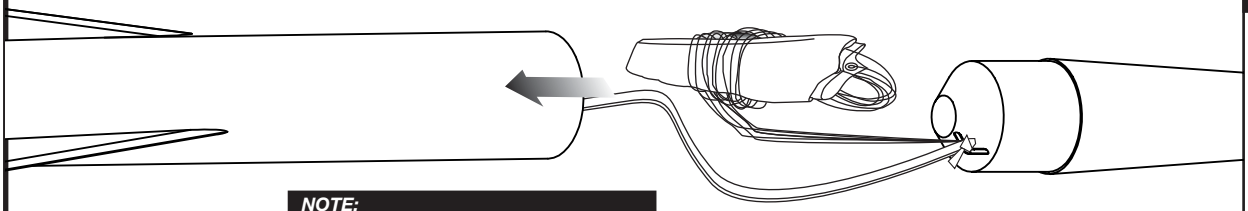


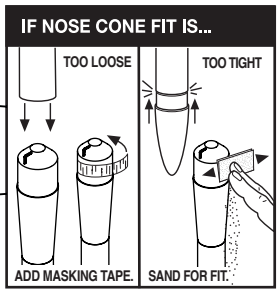
3. Pull to tighten and attach shock cord to eyelit.

PREPARE RECOVERY SYSTEM



5. Wrap shroud lines lossely around parachute.





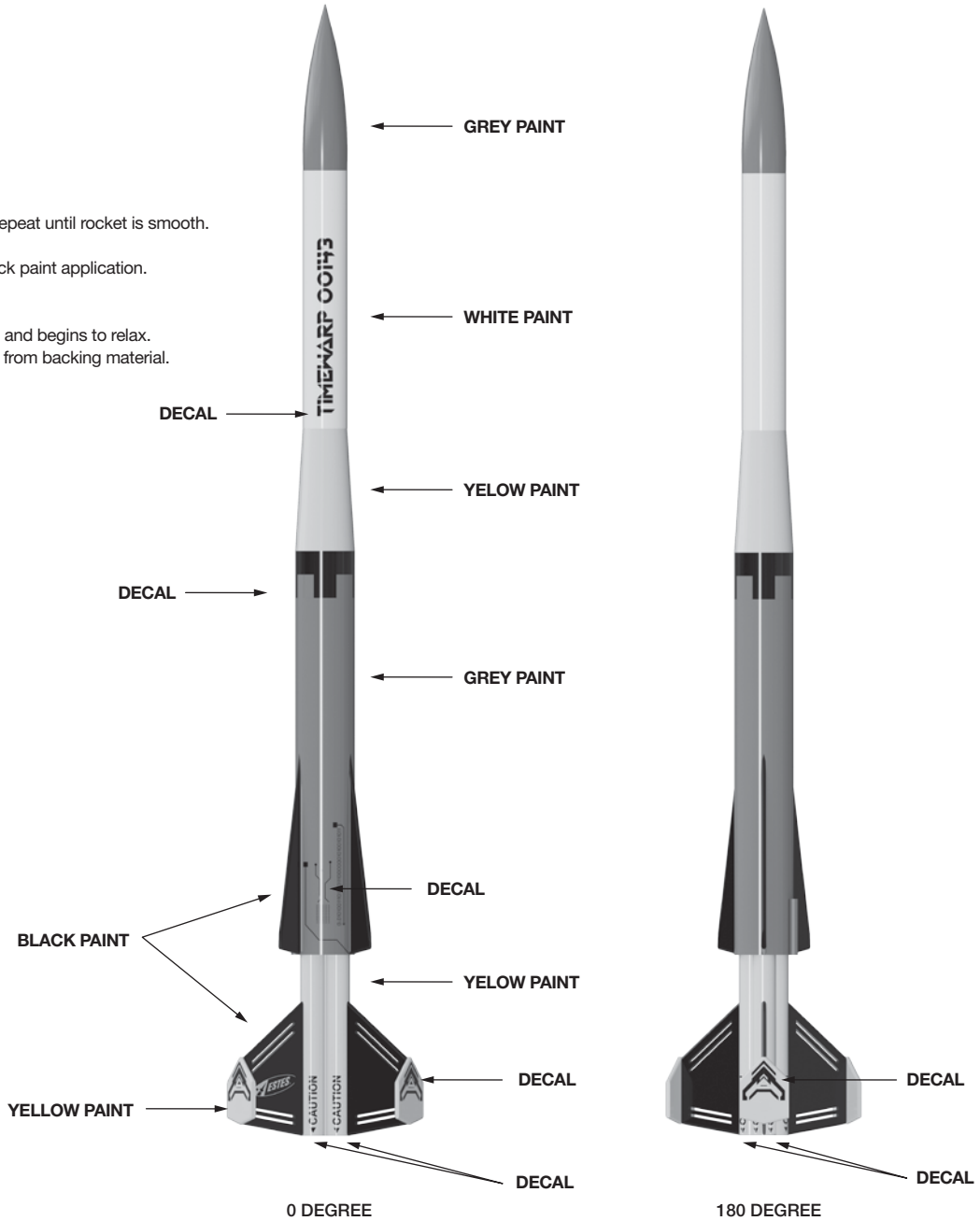
NOTE:
Recovery wadding and parachute must slide easily into body tube. If too tight, redo.

PAINT & DECALS

PAINT COLORS
White Paint
Medium Grey Paint
Sunflower Yellow Paint
Black Paint

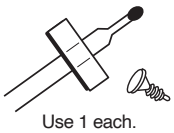
1. Spray rocket with white primer, let dry, and sand. Repeat until rocket is smooth.
2. Paint entire rocket white.
3. Mask off rocket as needed for grey, yellow, and black paint application.
4. Apply decals only after paint is dry.
5. Cut decals from sheet, trimming close to edge.
6. One at a time, place 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.

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



PREPARE ENGINES

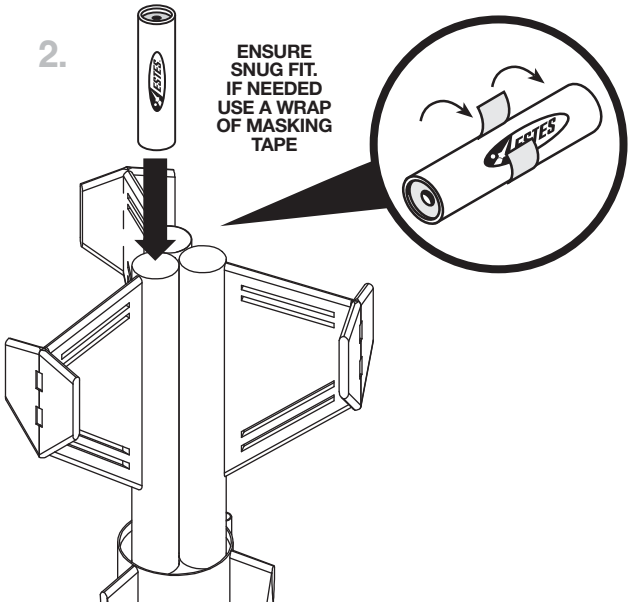
1.



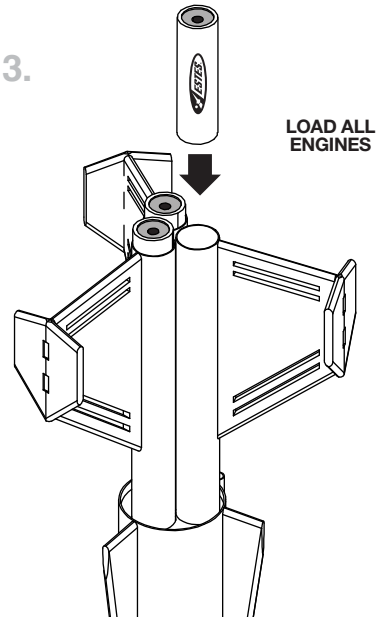
Use 1 each.

x3

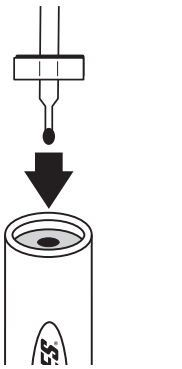
2.

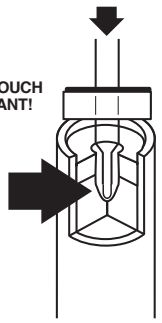


3.



4.





5.



6.



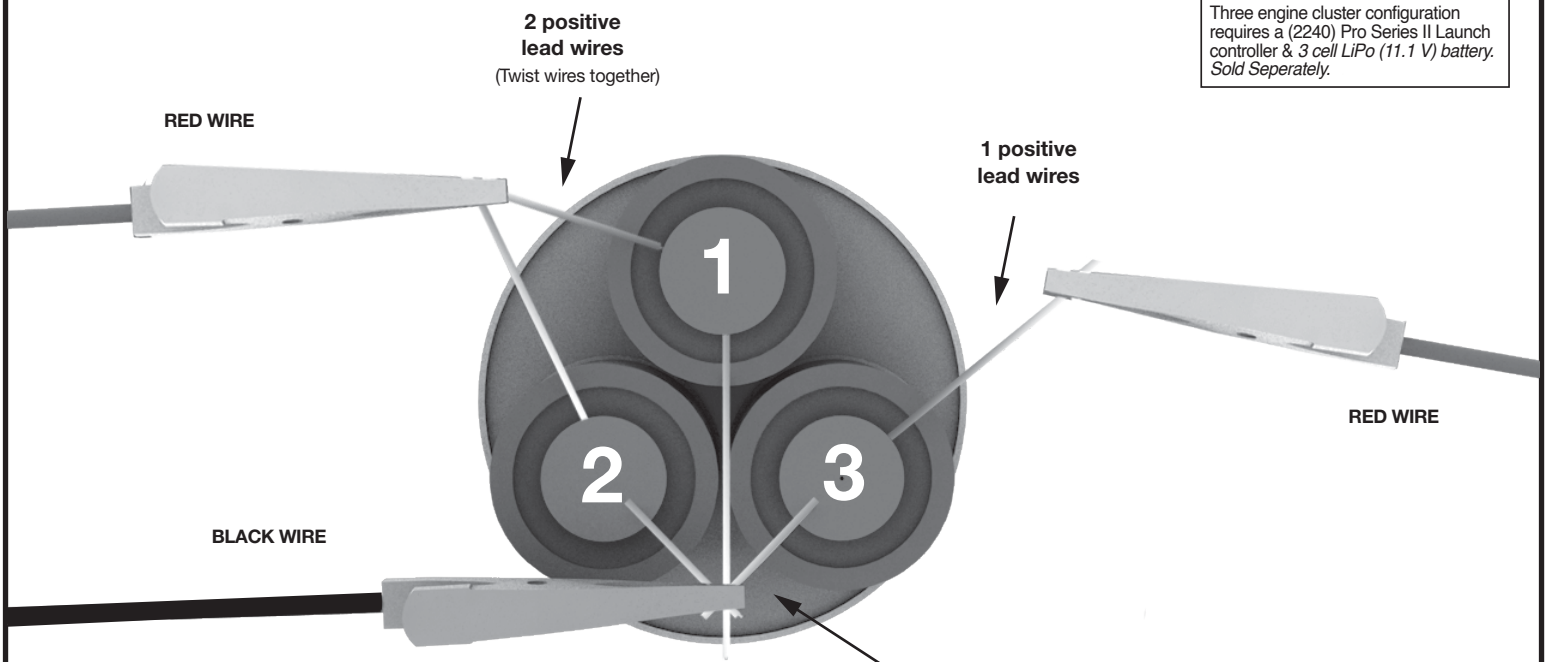
⚠ WARNING: FLAMMABLE

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.

3 ENGINE CLUSTER WIRING

NOTE:

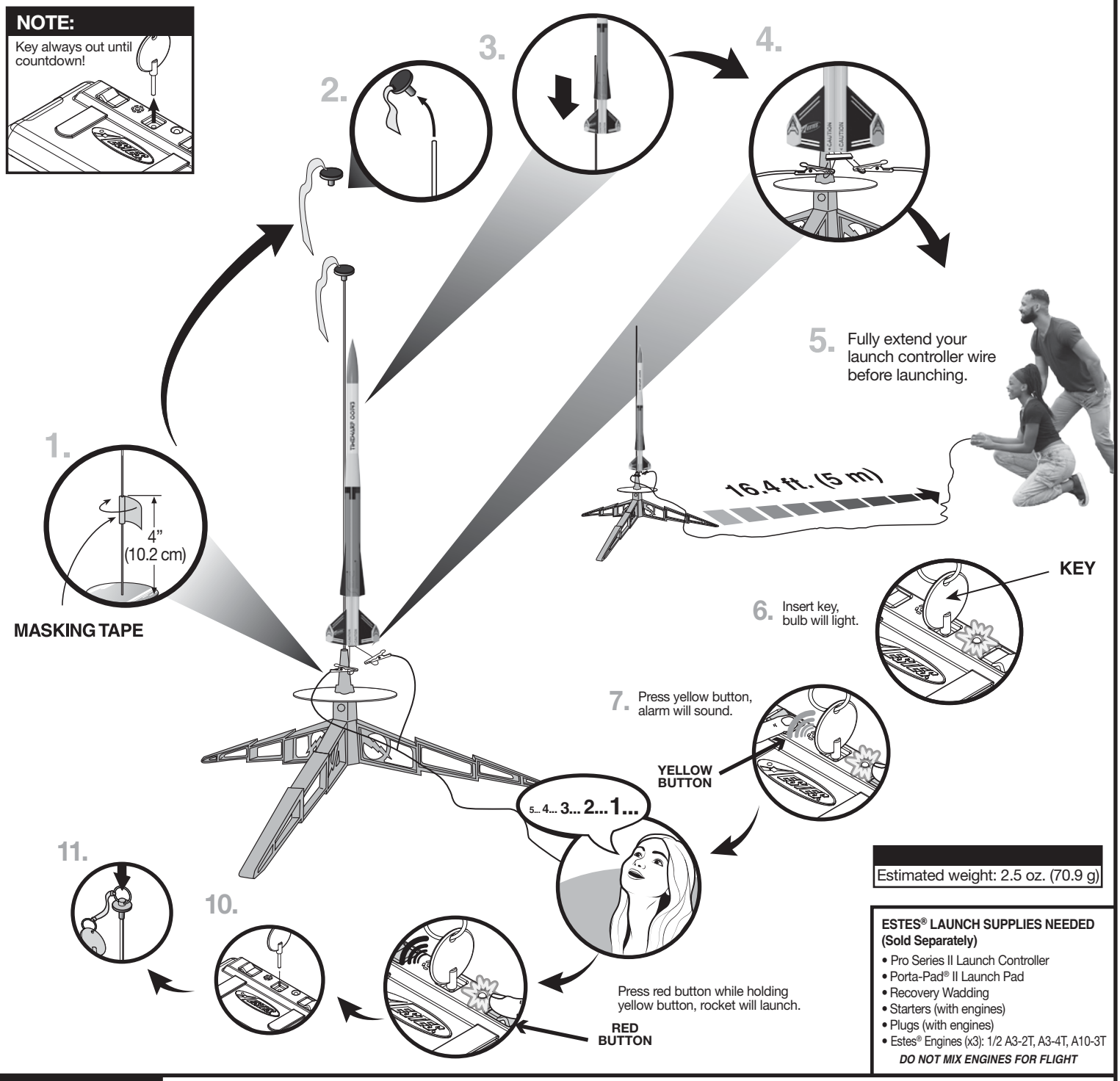
Three engine cluster configuration requires a (2240) Pro Series II Launch controller & *3 cell LiPo (11.1 V) battery. Sold Seperately.*



⚠ CAUTION:

DO NOT MIX ENGINE TYPES. Doing so can create uneven thrust causing instability in the rockets flight.

COUNTDOWN AND LAUNCH



Estimated weight: 2.5 oz. (70.9 g)

ESTES® LAUNCH SUPPLIES NEEDED (Sold Separately)

- Pro Series II Launch Controller
- Porta-Pad® II Launch Pad
- Recovery Wadding
- Starters (with engines)
- Plugs (with engines)
- Estes® Engines (x3): 1/2 A3-2T, A3-4T, A10-3T

DO NOT MIX ENGINES FOR FLIGHT

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 (500 ft. [152 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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2 PAP

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