1:48 GEMINI TITAN

2210

estesrockets.com



AGES 10+

Skill Level

EXPERT

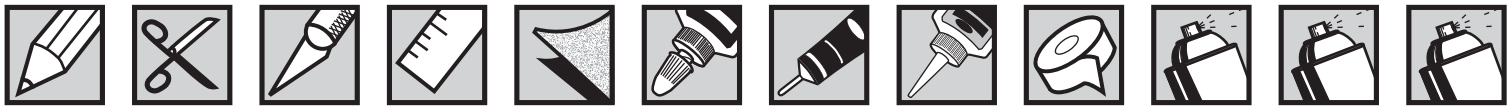
MODEL ROCKET INSTRUCTIONS

KEEP FOR FUTURE REFERENCE

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

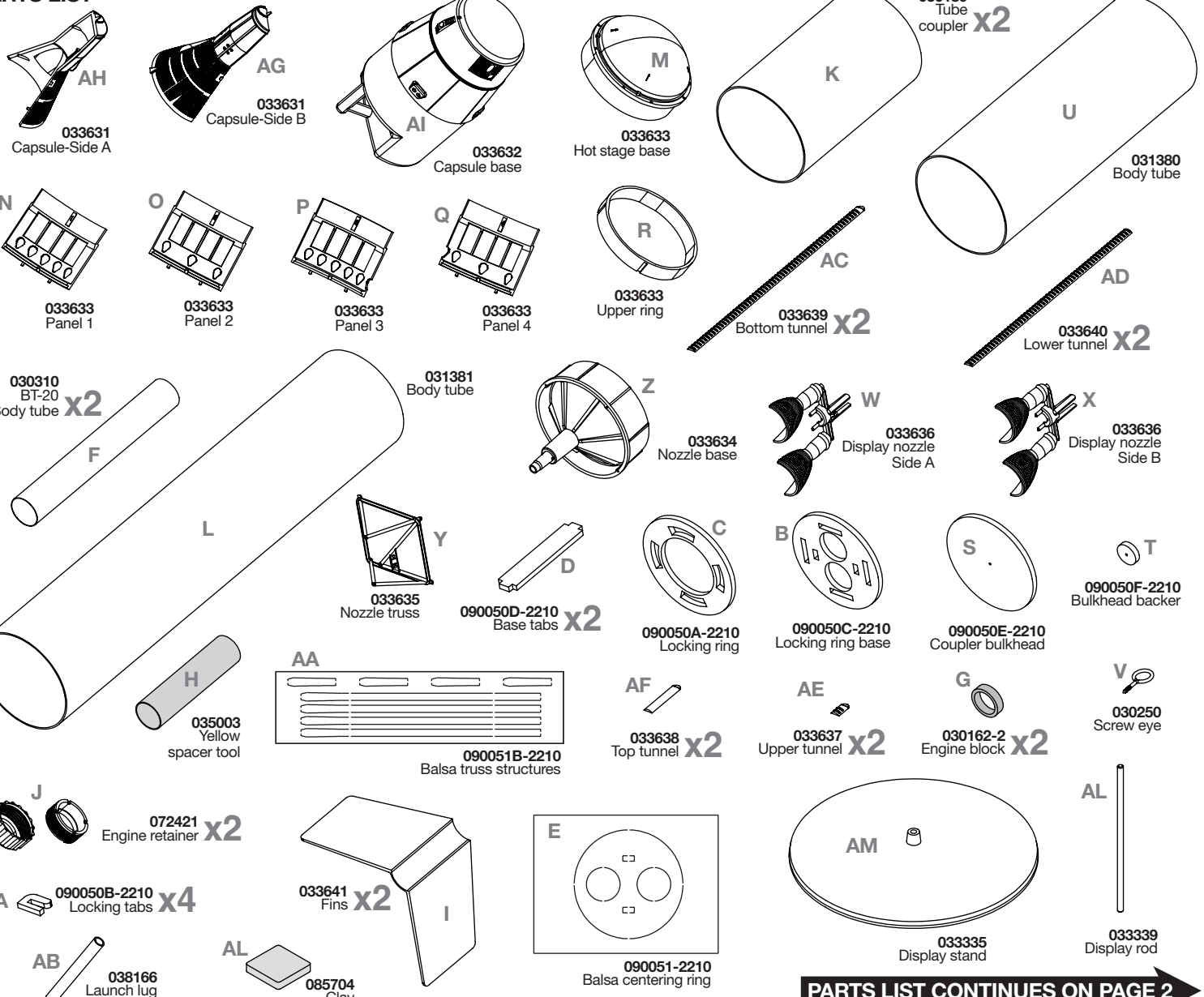
⚠ CAUTION: *May not apply to all kits. For safe handling of plastic cement, epoxy, spray adhesive, CA glue, CA accelerator, paint/finishing materials, see manufacturer's warnings and follow instructions for use. To avoid injury, use extreme caution when using hobby knife, scissors, drills, and any cutting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

SUPPLIES



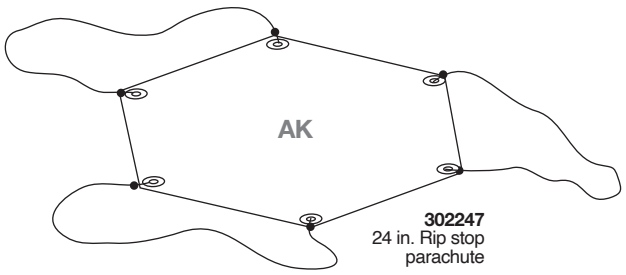
PENCIL | SCISSORS | HOBBY KNIFE | RULER | FINE SANDPAPER | YELLOW GLUE | PLASTIC CEMENT | CA GLUE | MASKING TAPE | WHITE PRIMER | BLACK, WHITE, & SILVER PAINT | CLEAR COAT (OPTIONAL)

PARTS LIST



PARTS LIST CONTINUES ON PAGE 2

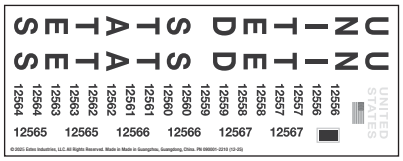
PARTS LIST (CONTINUED)



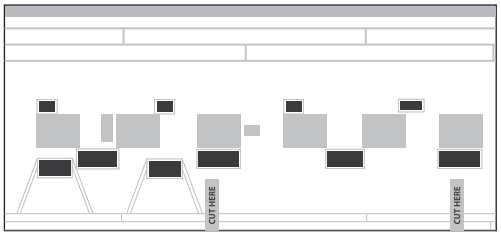
302247
24 in. Rip stop parachute



038374
Shock Cord

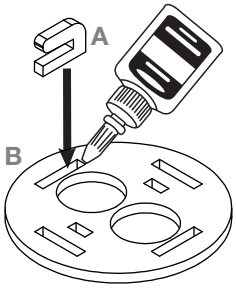


090001-2210
Decals & wrap



ASSEMBLE ENGINE MOUNT (PART 1)

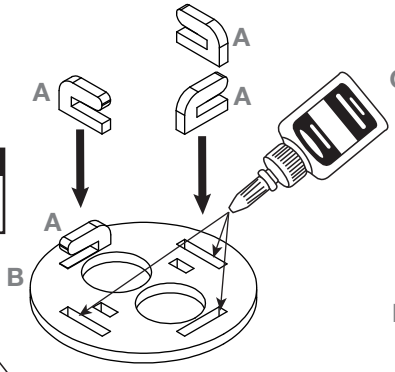
1. Place part B on a flat surface with wax paper. Apply glue to a larger slot in B. Place A pieces into slots in B. Make sure the bottom of A is flush with the bottom of B.



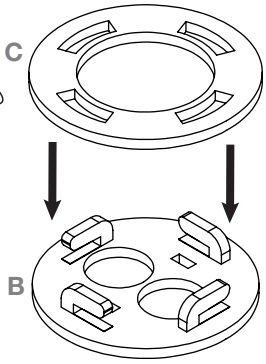
NOTE:

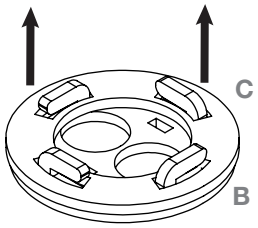
Ensure locking tabs are inserted in the correct orientation.

2. Repeat for remaining A parts.



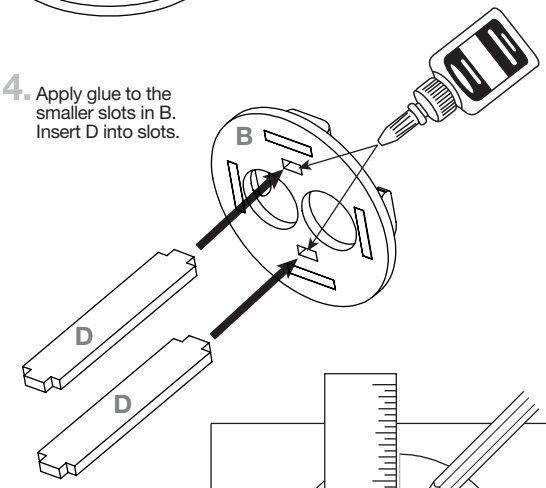
3. Use locking ring C to test that the locking tabs are properly aligned. Remove C and set aside for later.



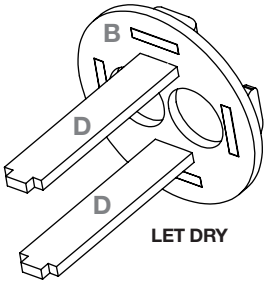


LET DRY

4. Apply glue to the smaller slots in B. Insert D into slots.

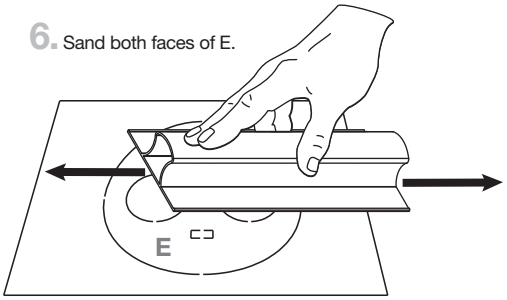


5. Ensure both D parts are perpendicular to B.

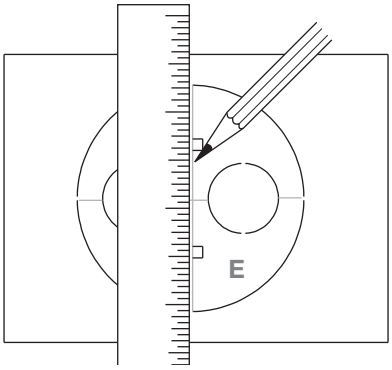


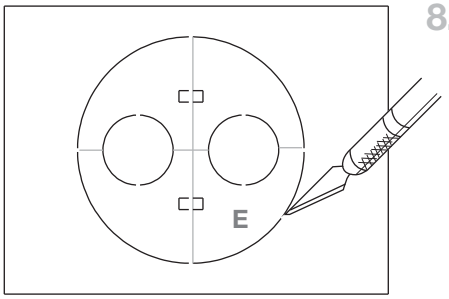
LET DRY

6. Sand both faces of E.

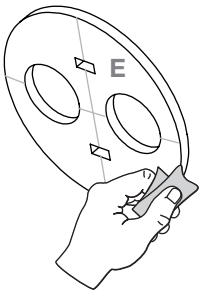


7. Using a pencil and ruler, draw a vertical and horizontal line intersecting the middle of the centering ring.

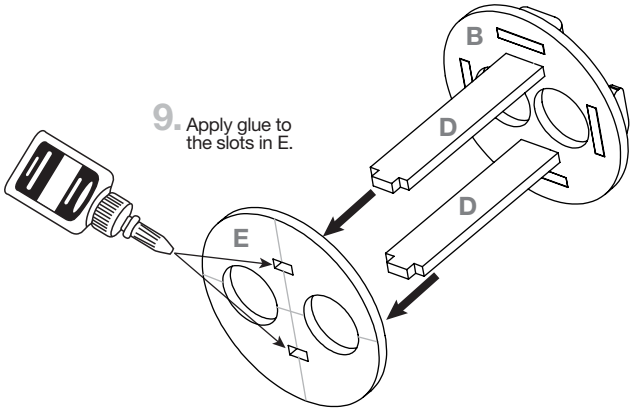




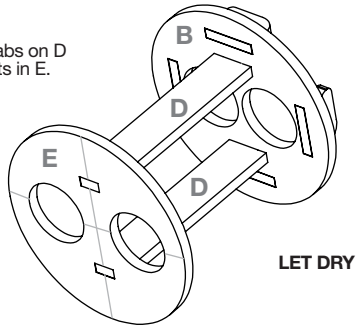
8. Using a sharp hobby knife, cut the centering ring out of the balsa sheet. Sand tabs flush with sand paper.



9. Apply glue to the slots in E.



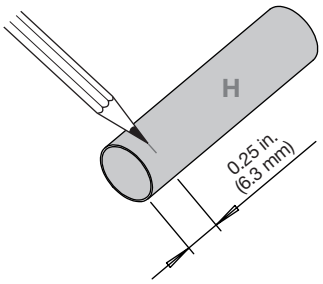
10. Insert tabs on D into slots in E.



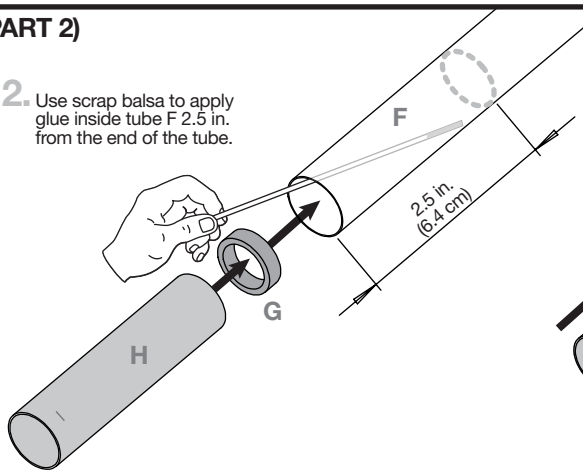
LET DRY

ASSEMBLE ENGINE MOUNT (PART 2)

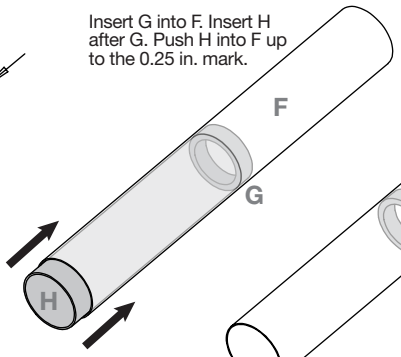
1. Mark yellow spacer tube 0.25 in. from end of tube.



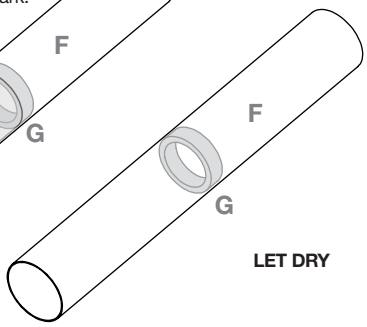
2. Use scrap balsa to apply glue inside tube F 2.5 in. from the end of the tube.



3. Insert G into F. Insert H after G. Push H into F up to the 0.25 in. mark.

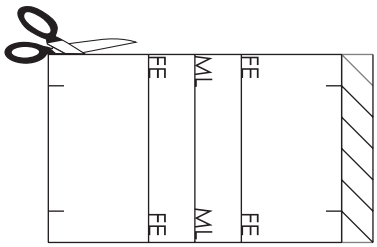


4. Remove H.

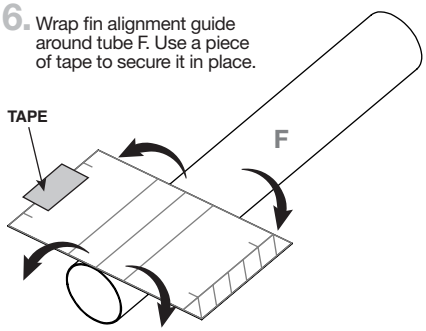


LET DRY

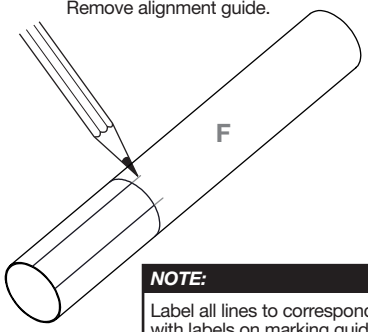
5. Cut out fin alignment guide from page 9.



6. Wrap fin alignment guide around tube F. Use a piece of tape to secure it in place.



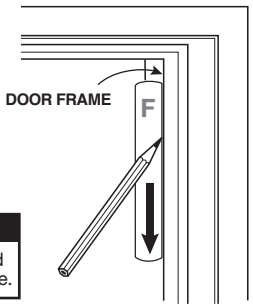
7. Mark all lines from the fin alignment guide onto F. Remove alignment guide.



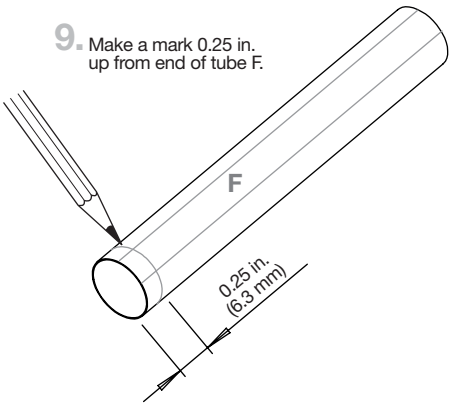
NOTE:

Label all lines to correspond with labels on marking guide.

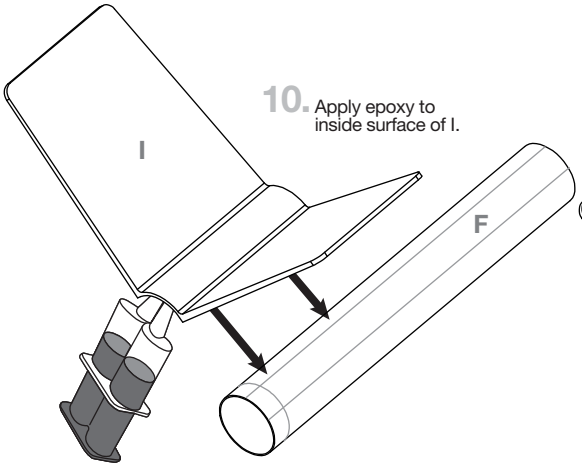
8. Use a door frame to extend all lines down tube F.



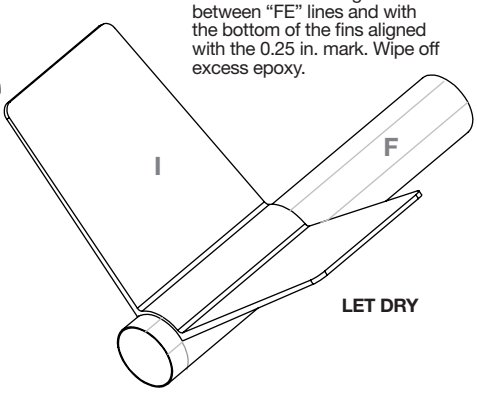
9. Make a mark 0.25 in. up from end of tube F.



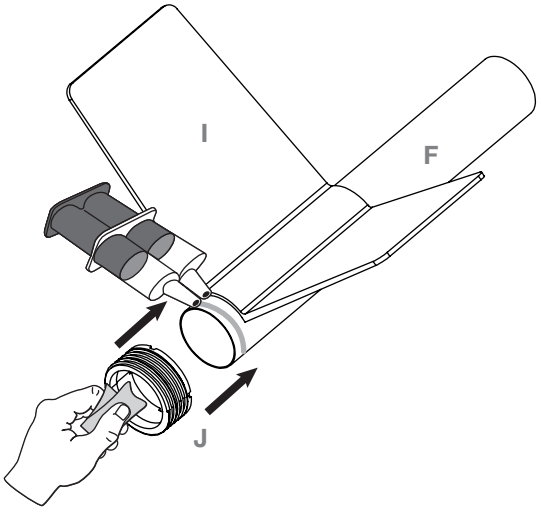
10. Apply epoxy to inside surface of I.



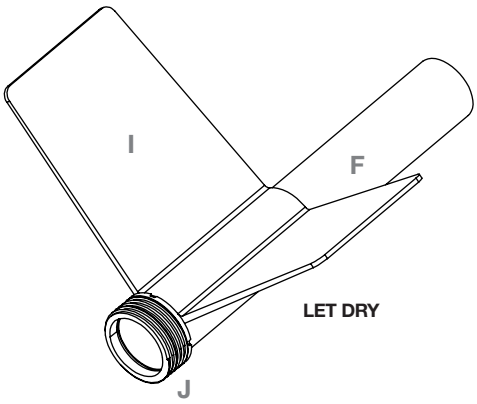
11. Place fins onto F. Align fins between "FE" lines and with the bottom of the fins aligned with the 0.25 in. mark. Wipe off excess epoxy.



LET DRY

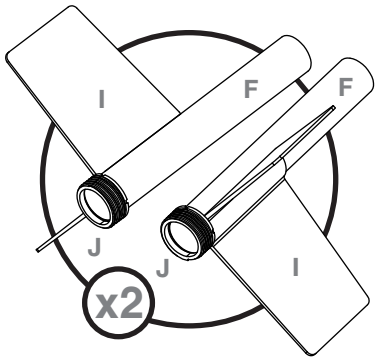


13. Slide J onto F with a twist. Wipe off excess epoxy.

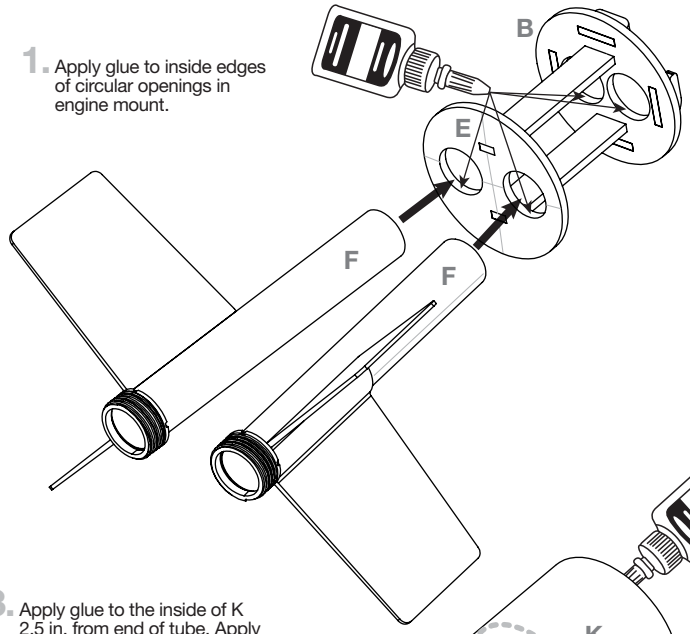


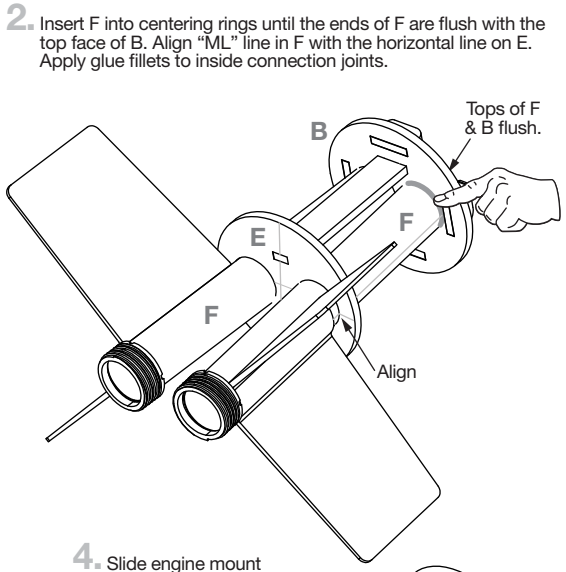
LET DRY

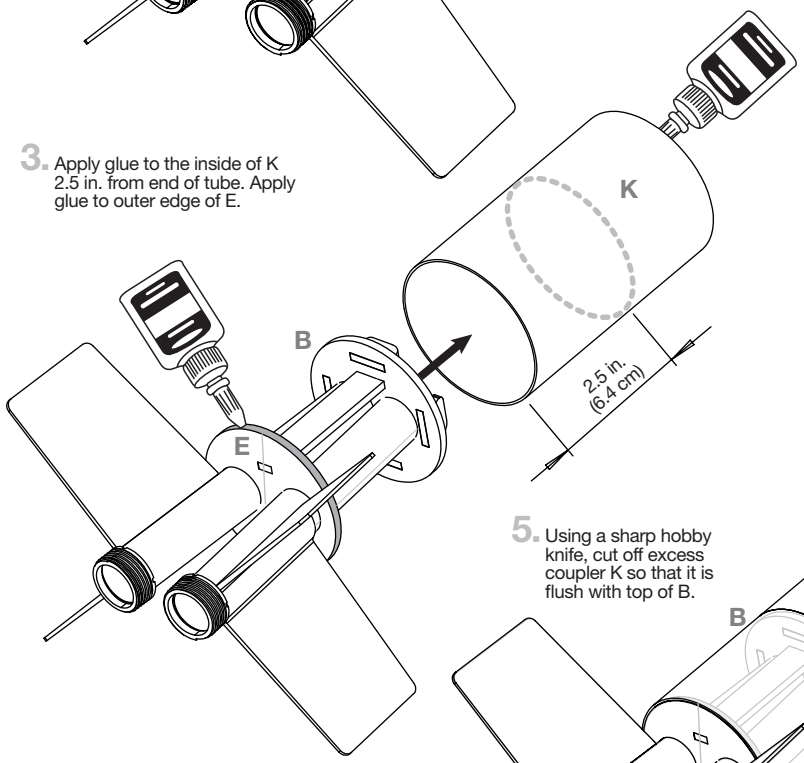
14. Repeat steps 1-13 for second fin assembly.

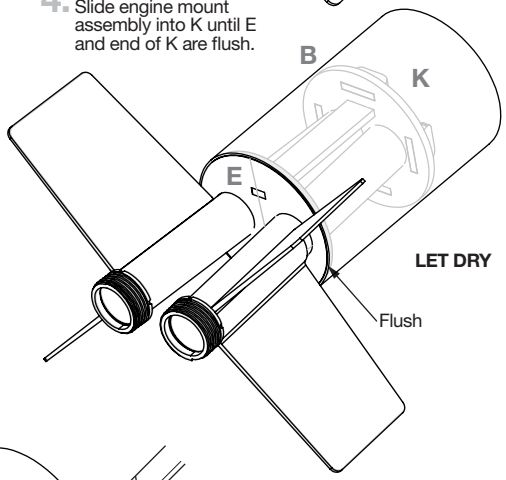


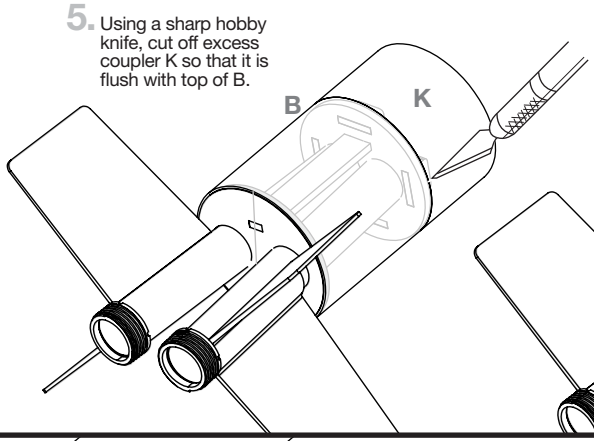
ASSEMBLE ENGINE MOUNT (PART 3)

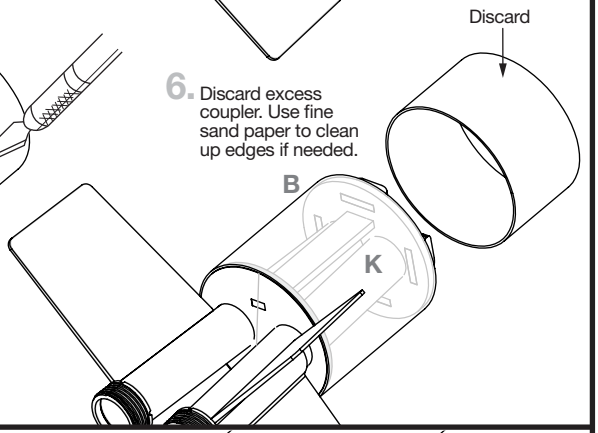




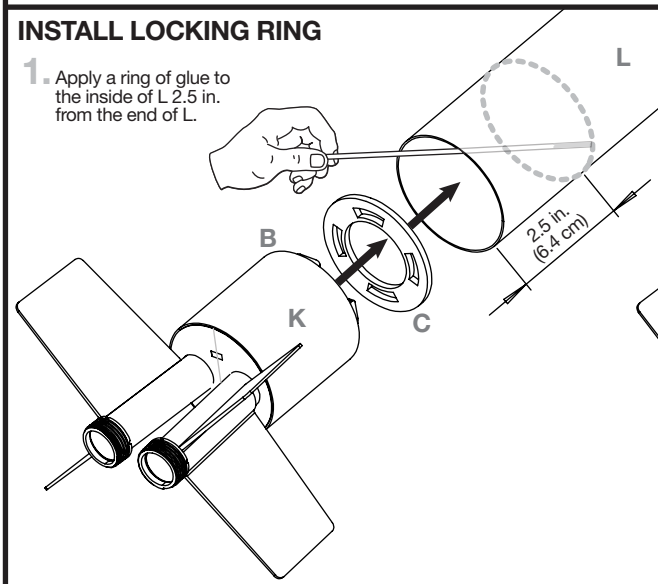


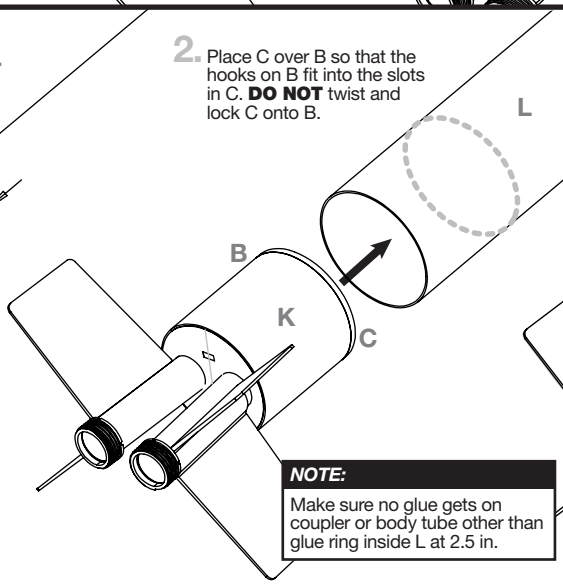


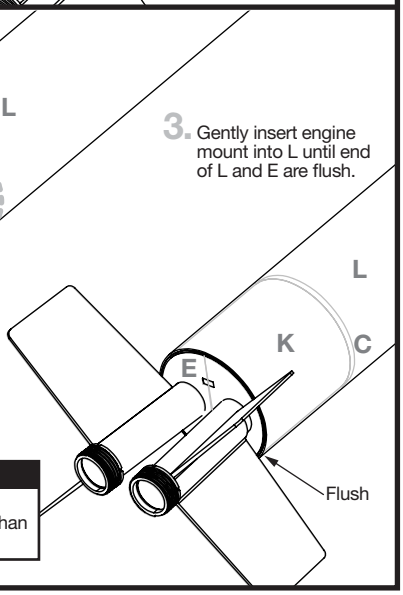




INSTALL LOCKING RING

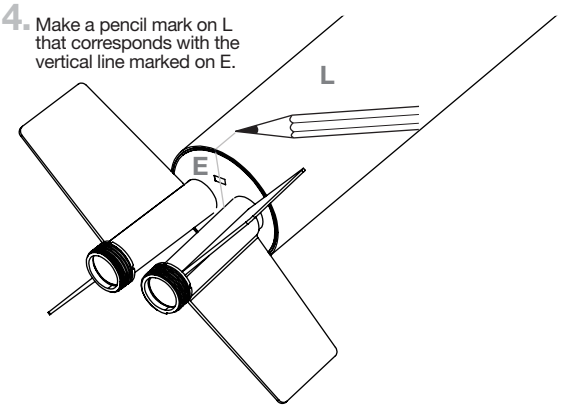




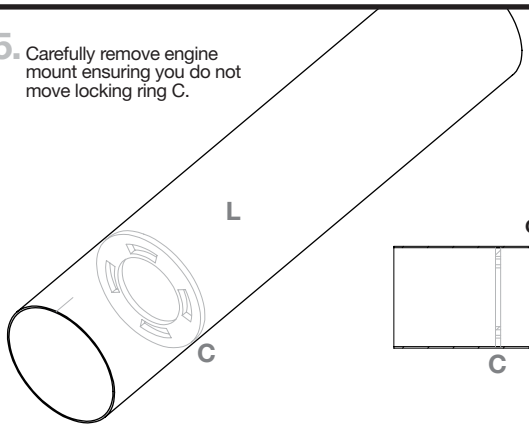


INSTALL LOCKING RING (CONTINUED)

4. Make a pencil mark on L that corresponds with the vertical line marked on E.



5. Carefully remove engine mount ensuring you do not move locking ring C.



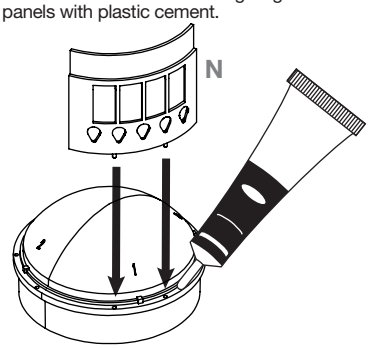
CROSS SECTION SIDE VIEW



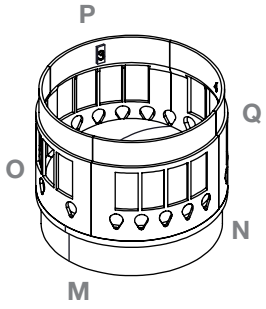
LET DRY

ASSEMBLE HOT STAGE

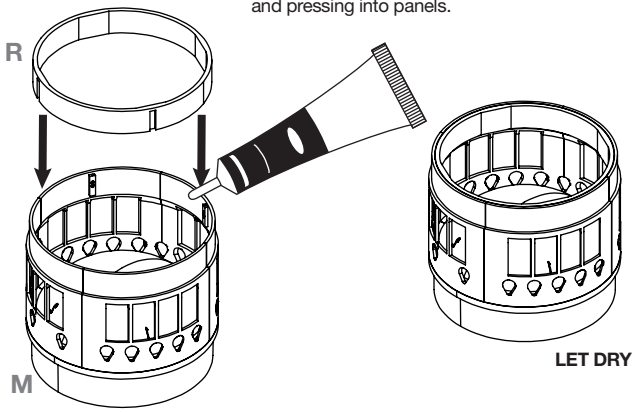
1. Match the numbers on the panels to the numbers on M ***before*** gluing panels with plastic cement.



2. Repeat for all four panels, pressing them together until set.

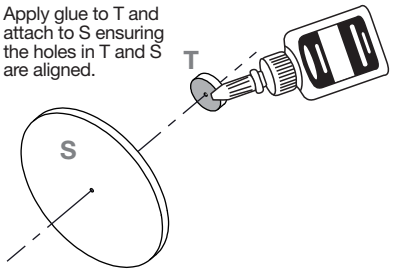


3. Orient R with notches on panels ***before*** applying plastic cement and pressing into panels.

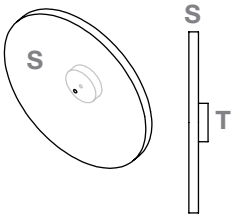


LET DRY

4. Apply glue to T and attach to S ensuring the holes in T and S are aligned.

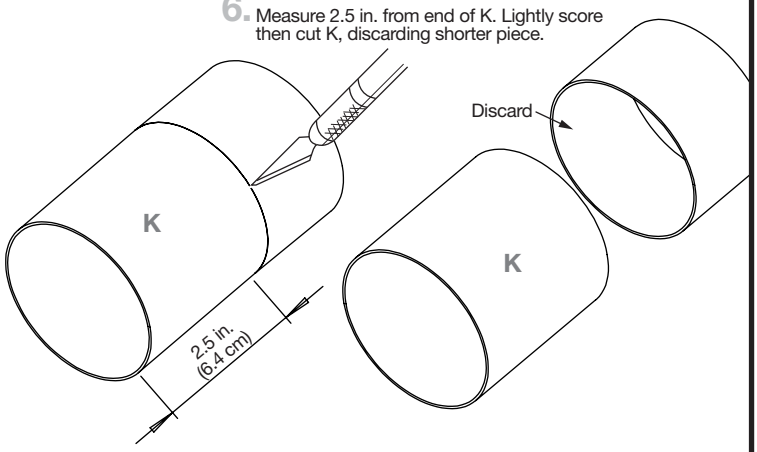


5. Let dry.

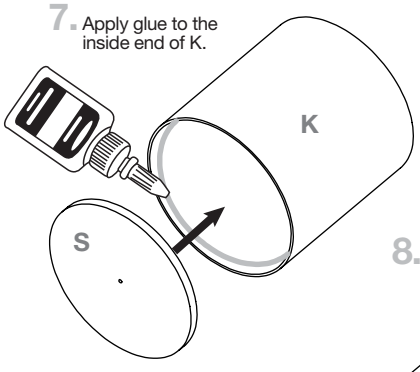


SIDE VIEW

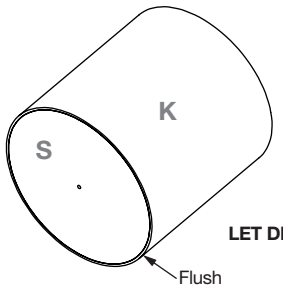
6. Measure 2.5 in. from end of K. Lightly score then cut K, discarding shorter piece.



7. Apply glue to the inside end of K.

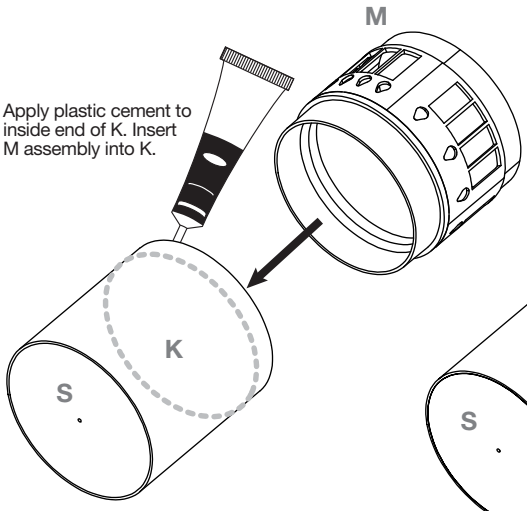


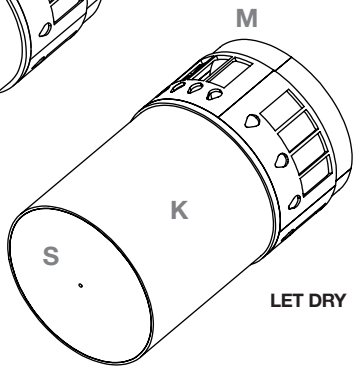
8. Press S into K until they are flush.



LET DRY

9. Apply plastic cement to inside end of K. Insert M assembly into K.

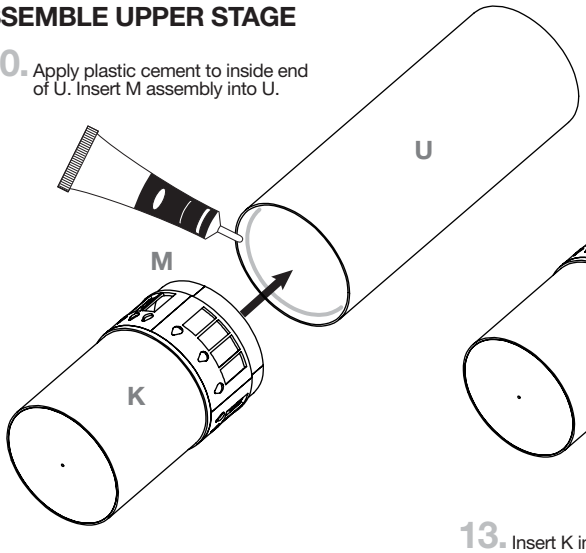




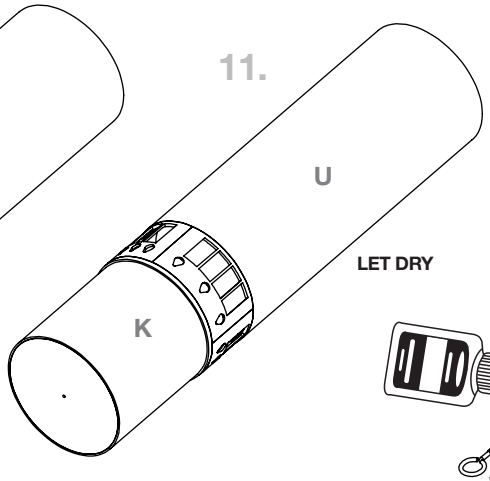
LET DRY

ASSEMBLE UPPER STAGE

10. Apply plastic cement to inside end of U. Insert M assembly into U.

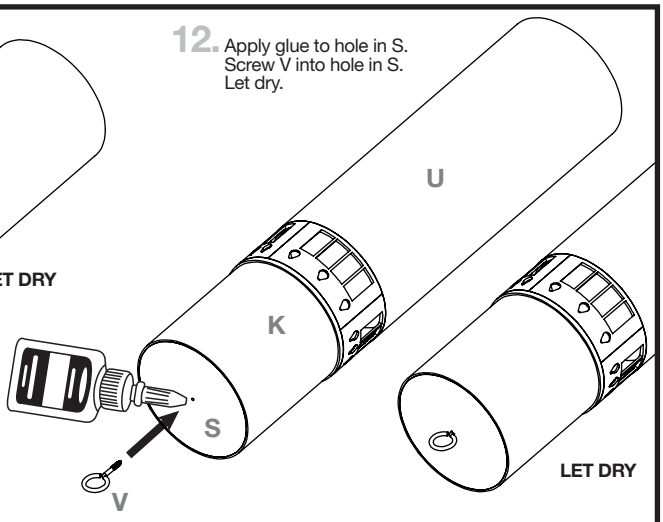


11.



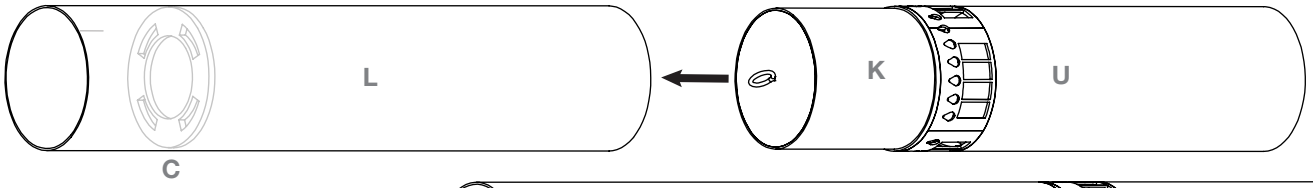
LET DRY

12. Apply glue to hole in S. Screw V into hole in S. Let dry.



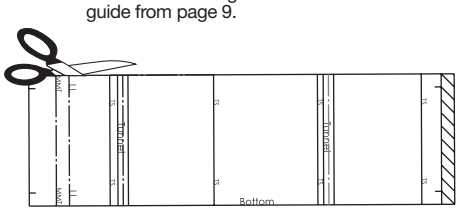
LET DRY

13. Insert K into L. ***DO NOT GLUE.***

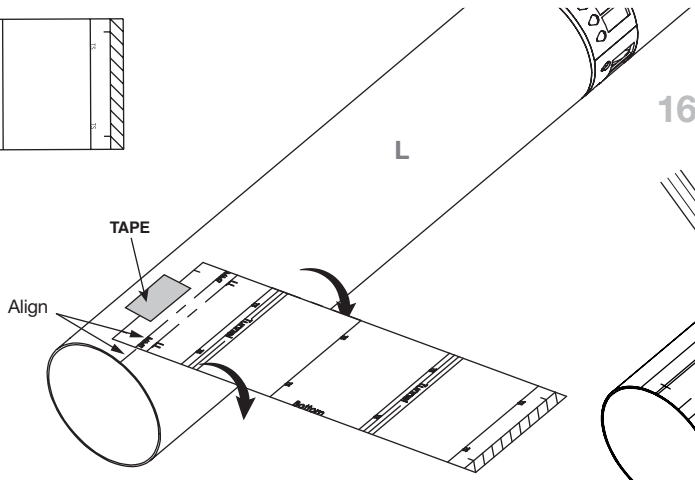




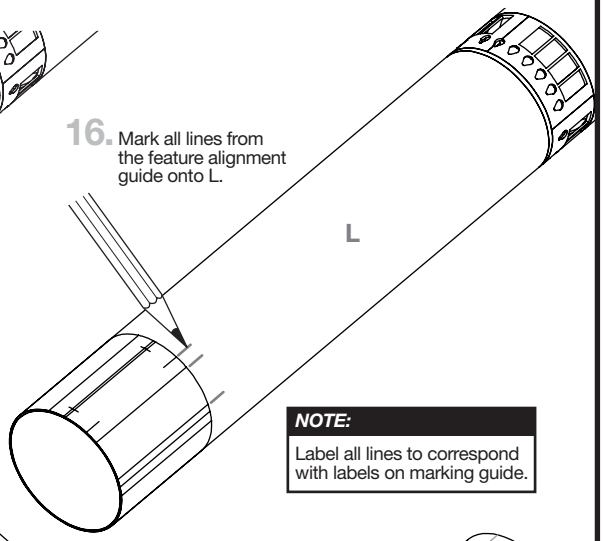
14. Cut out feature alignment guide from page 9.



15. Wrap feature alignment guide around tube L. Align the MMT line on the alignment guide with the line marked on tube L. Use a piece of tape to secure it in place.



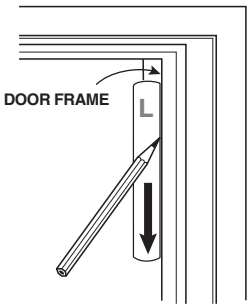
16. Mark all lines from the feature alignment guide onto L.



NOTE:

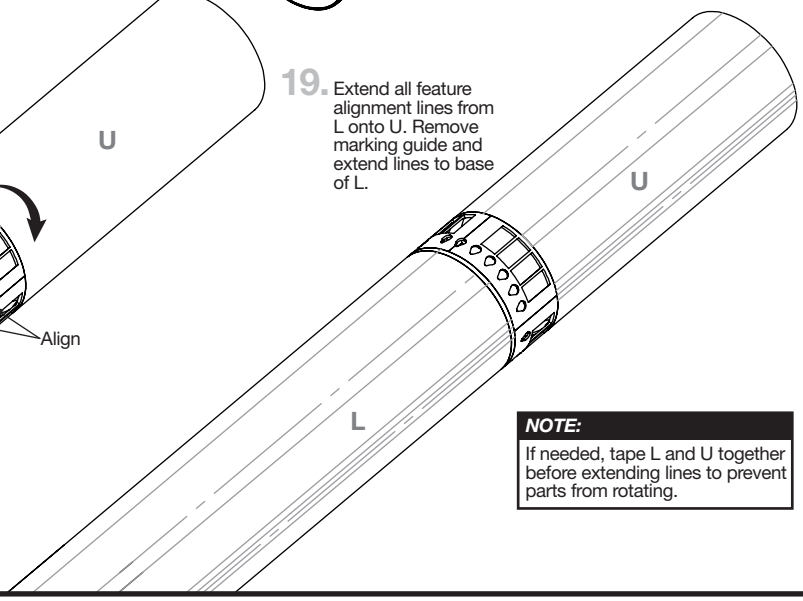
Label all lines to correspond with labels on marking guide.

17. Use a door frame to extend all lines down tube L.



18. Rotate upper assembly until seams between panels 2-3 and 4-1 line up with the "Tunnel" line.

19. Extend all feature alignment lines from L onto U. Remove marking guide and extend lines to base of L.

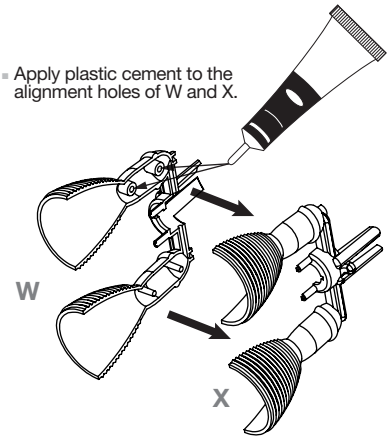


NOTE:

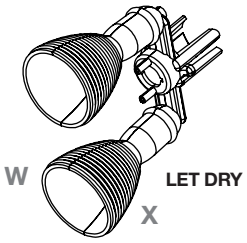
If needed, tape L and U together before extending lines to prevent parts from rotating.

ASSEMBLE DISPLAY NOZZLE

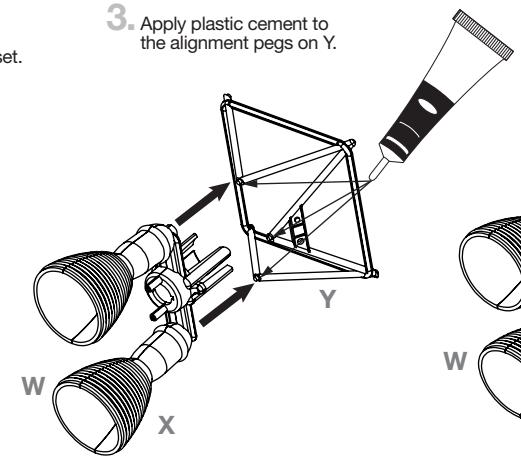
1. Apply plastic cement to the alignment holes of W and X.



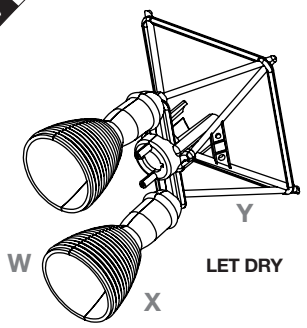
2. Press together and hold until set.



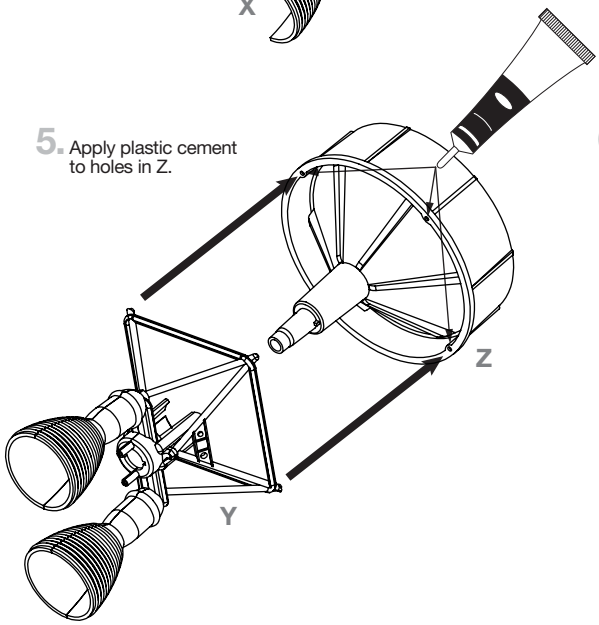
3. Apply plastic cement to the alignment pegs on Y.



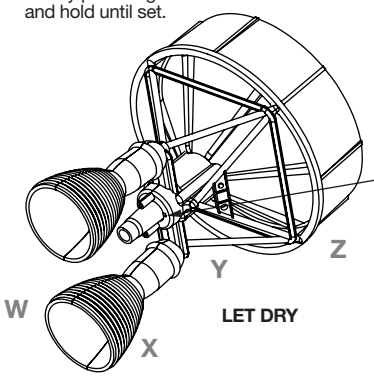
4. Gently press together and hold until set.

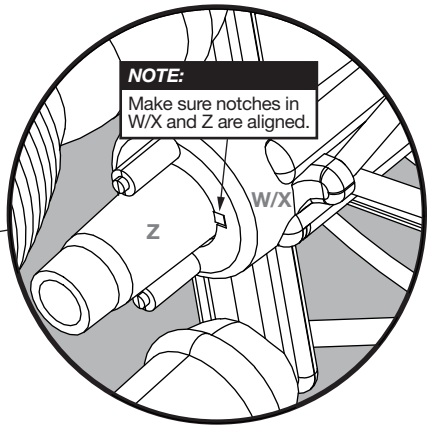


5. Apply plastic cement to holes in Z.



6. Gently press together and hold until set.

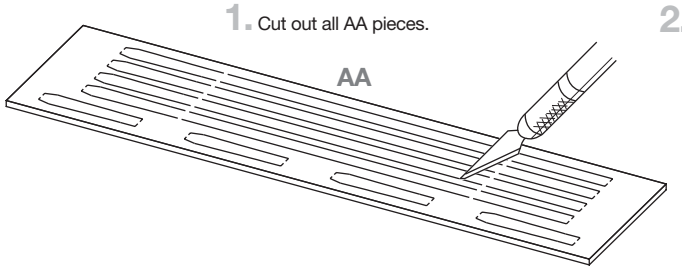




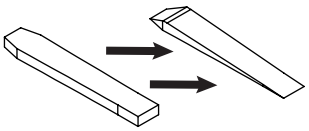
DETAIL

ASSEMBLE TRUSS MOUNTS

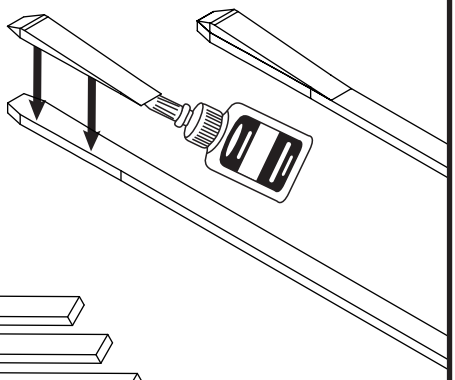
1. Cut out all AA pieces.



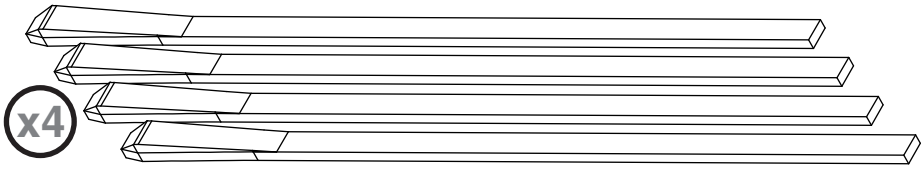
2. Using sand paper, on a flat surface, shape AA pieces as shown.



3. Apply a small amount of glue to short AA piece and place onto end of long AA piece.



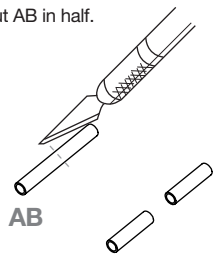
4. Repeat for all four AA pieces.



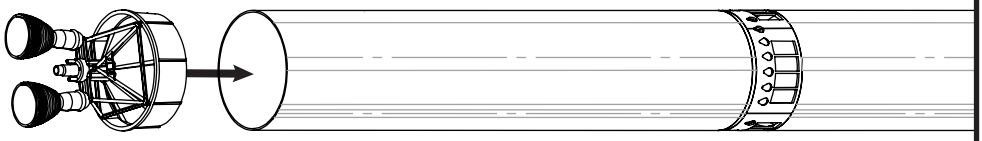
LET DRY

ATTACH EXTERNAL FEATURES

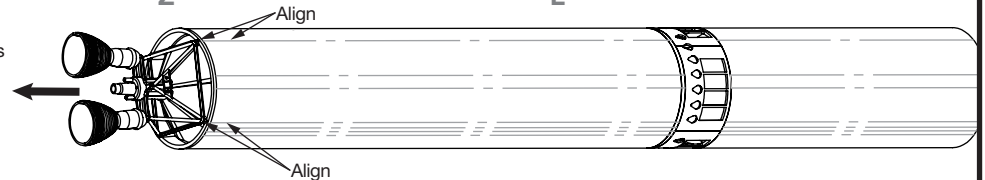
1. Cut AB in half.



2. Insert Z into L. ***DO NOT GLUE.***

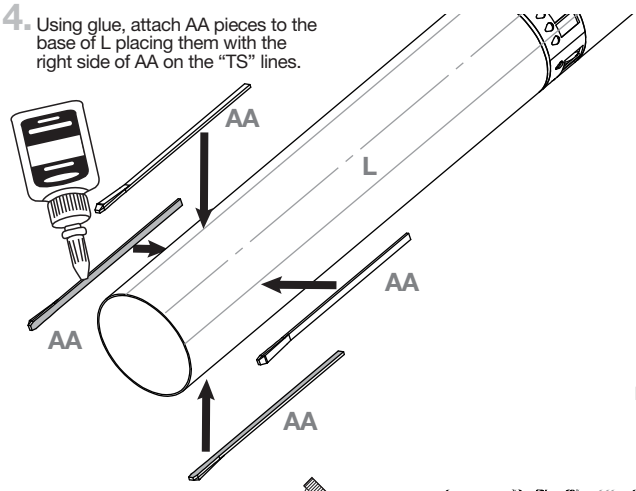


3. Verify that the corners of the truss align with the "TS" (truss structure alignment) line. Remove Z.

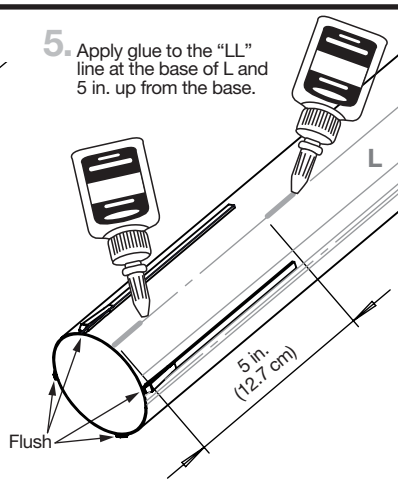


ATTACH EXTERNAL FEATURES (CONTINUED)

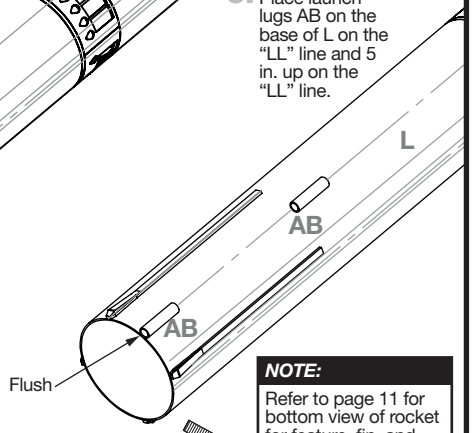
4. Using glue, attach AA pieces to the base of L placing them with the right side of AA on the "TS" lines.



5. Apply glue to the "LL" line at the base of L and 5 in. up from the base.



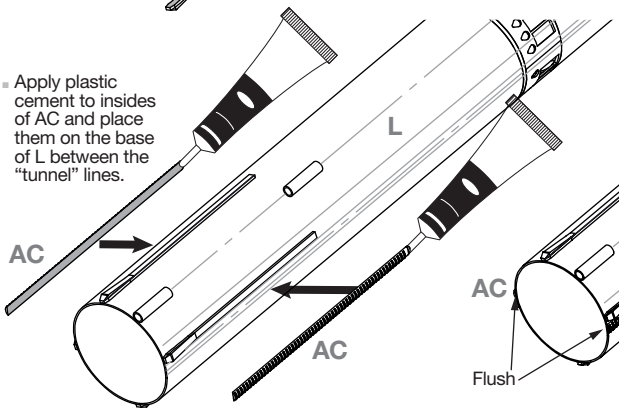
6. Place launch lugs AB on the base of L on the "LL" line and 5 in. up on the "LL" line.



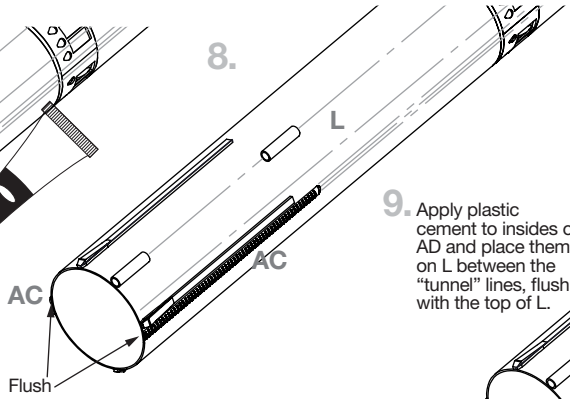
NOTE:

Refer to page 11 for bottom view of rocket for feature, fin, and launch lug alignment.

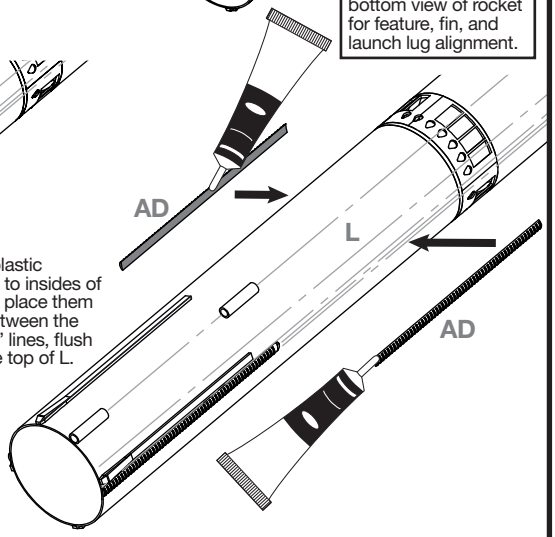
7. Apply plastic cement to insides of AC and place them on the base of L between the "tunnel" lines.



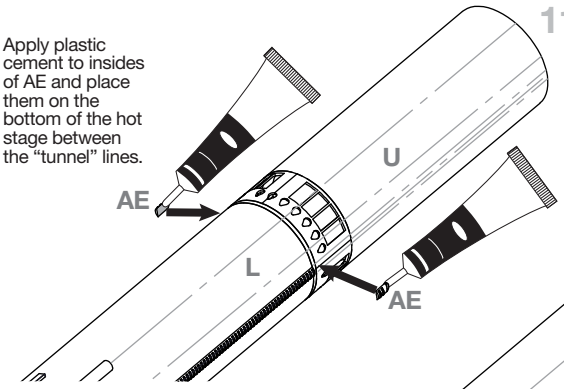
8.



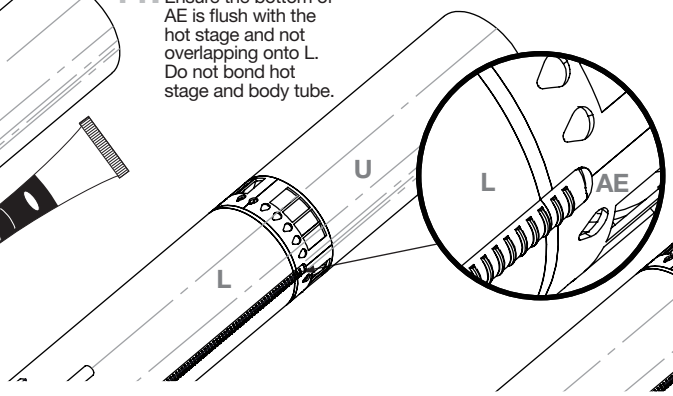
9. Apply plastic cement to insides of AD and place them on L between the "tunnel" lines, flush with the top of L.



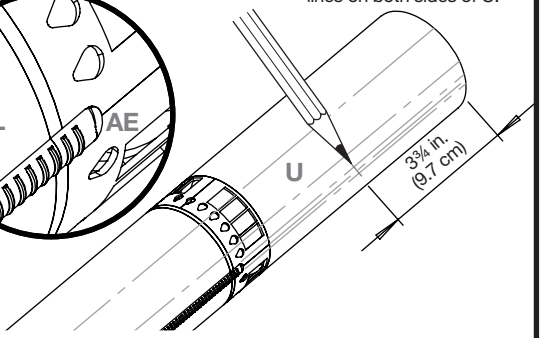
10. Apply plastic cement to insides of AE and place them on the bottom of the hot stage between the "tunnel" lines.



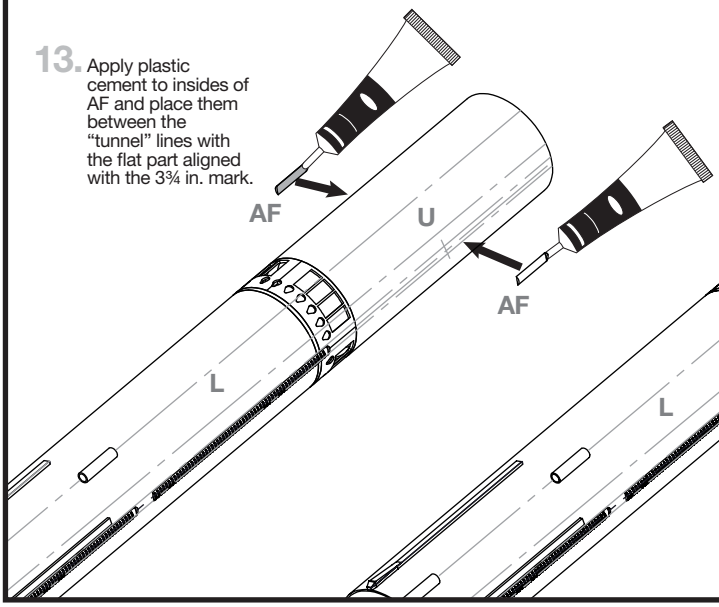
11. Ensure the bottom of AE is flush with the hot stage and not overlapping onto L. Do not bond hot stage and body tube.



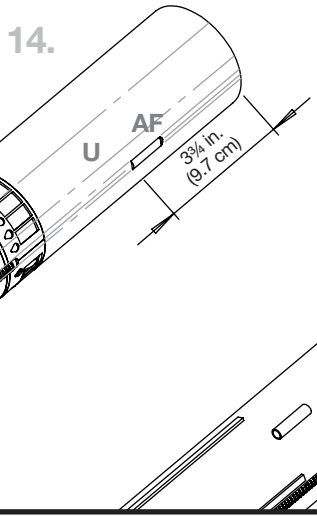
12. Make a mark 3¾ in. from top of U on the "tunnel" lines on both sides of U.



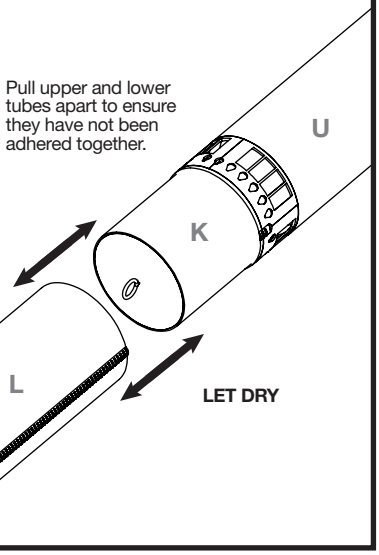
13. Apply plastic cement to insides of AF and place them between the "tunnel" lines with the flat part aligned with the 3¾ in. mark.



14.

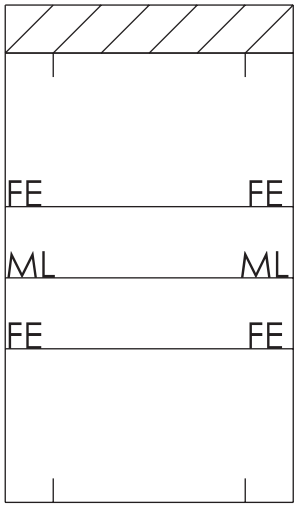


15. Pull upper and lower tubes apart to ensure they have not been adhered together.



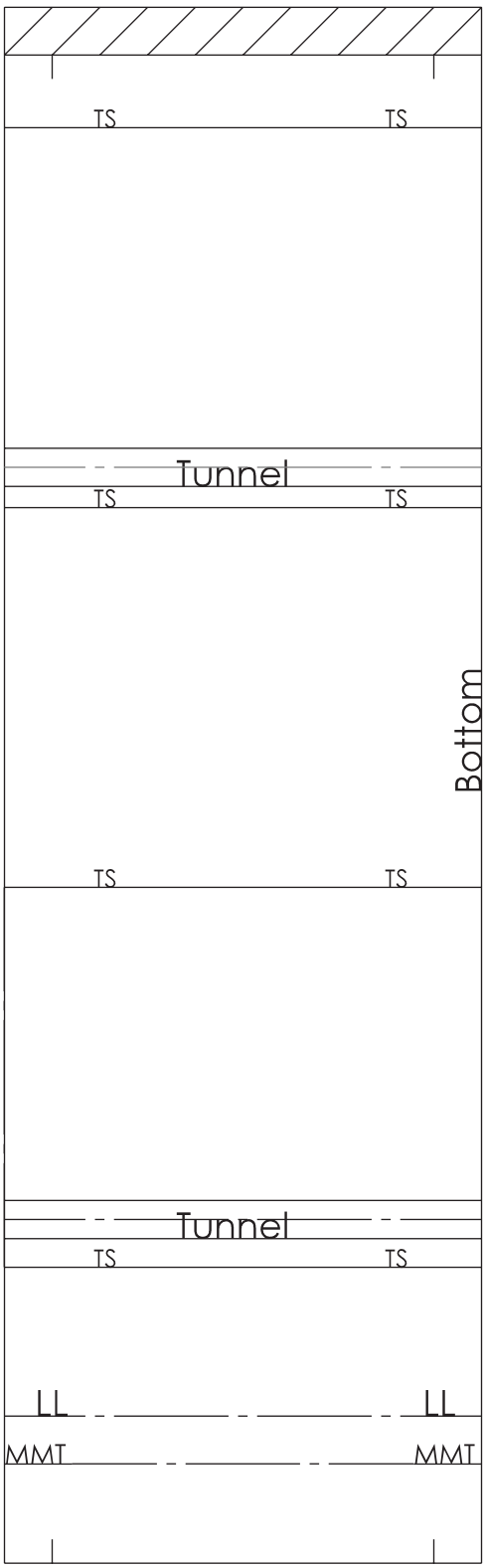
MARKING GUIDES AND SHOCK CORD ANCHOR

FIN ALIGNMENT GUIDE



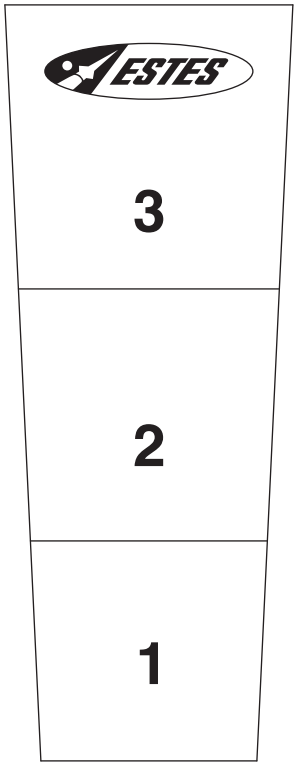
FE - FIN EDGE
ML - MIDDLE LINE

FEATURE ALIGNMENT GUIDE

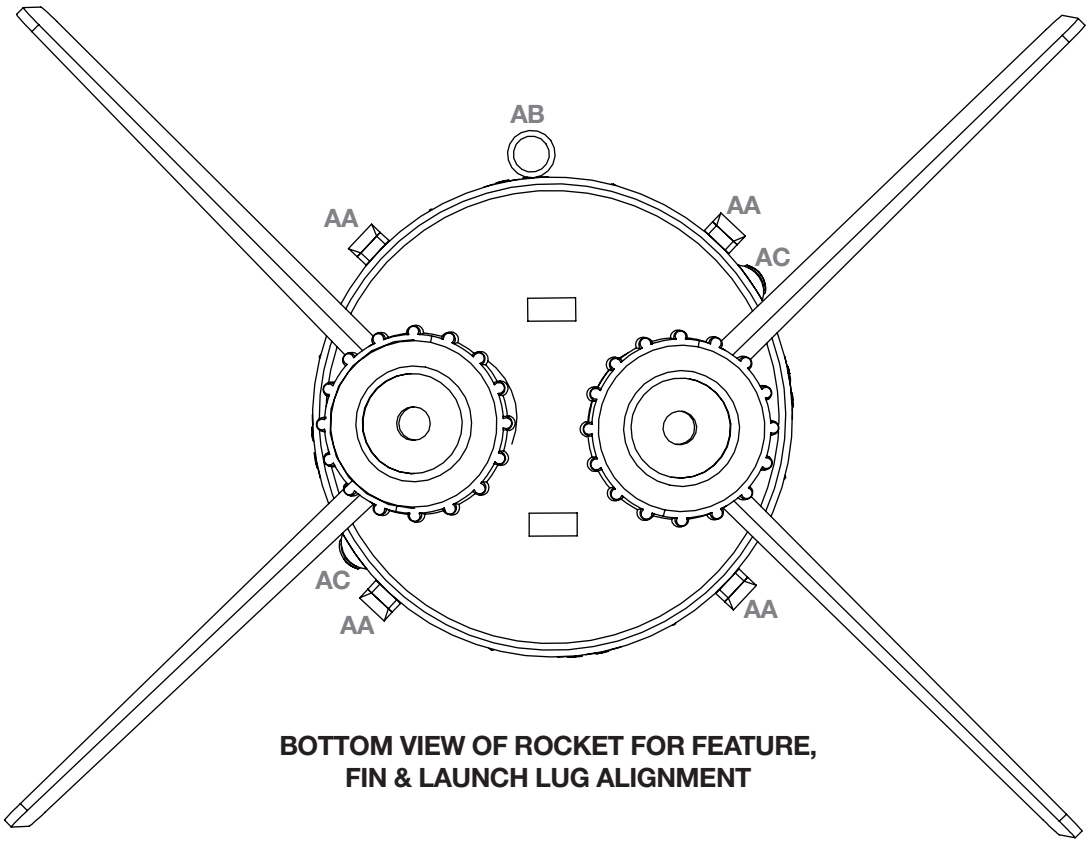


MMT - MOTOR MOUNT ALIGNMENT
LL - LAUNCH LUG ALIGNMENT
TS - TRUSS STRUCTURE ALIGNMENT
TUNNEL - TUNNEL ALIGNMENT

SHOCK CORD ANCHOR

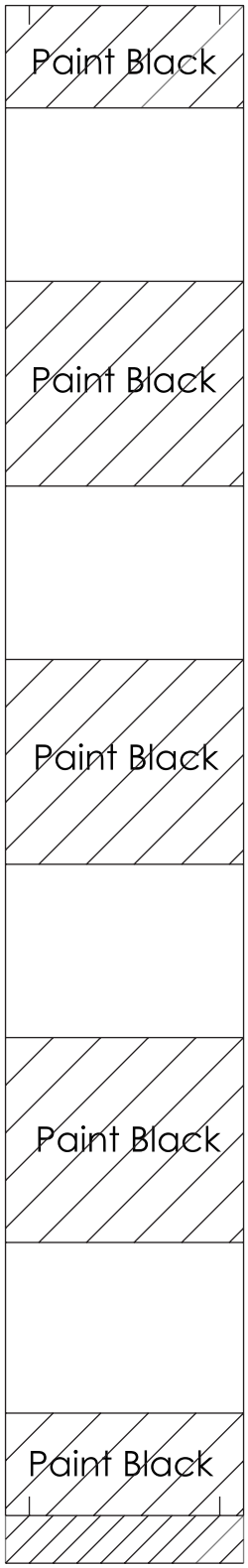


THIS PAGE
INTENTIONALLY
LEFT BLANK

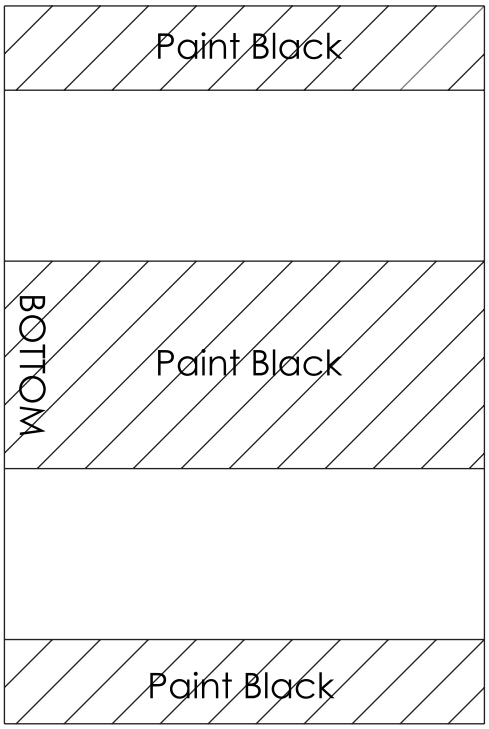


BOTTOM VIEW OF ROCKET FOR FEATURE, FIN & LAUNCH LUG ALIGNMENT

UPPER ROLL PATTERN MARKING GUIDE



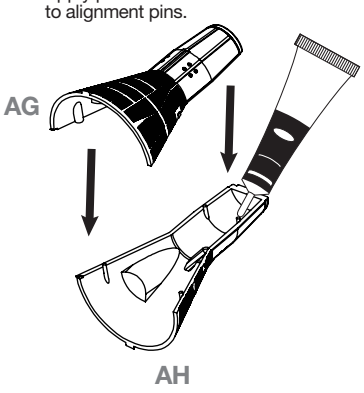
LOWER ROLL PATTERN MARKING GUIDE



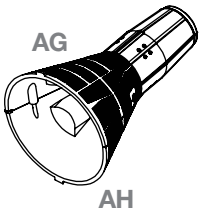
THIS PAGE
INTENTIONALLY
LEFT BLANK

ASSEMBLE CAPSULE

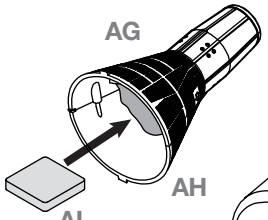
1. Apply plastic cement to alignment pins.



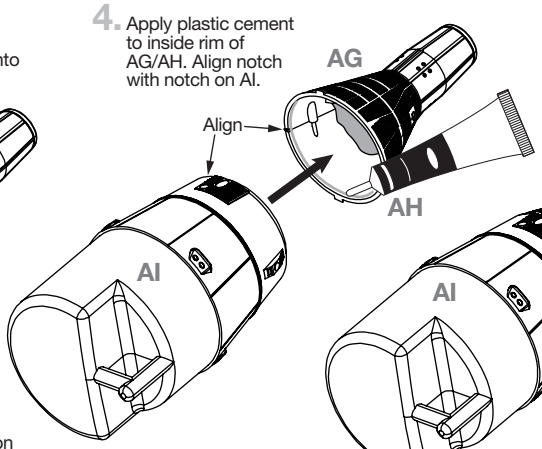
2. Press the two halves together and hold until set.



3. Insert clay into the capsule.

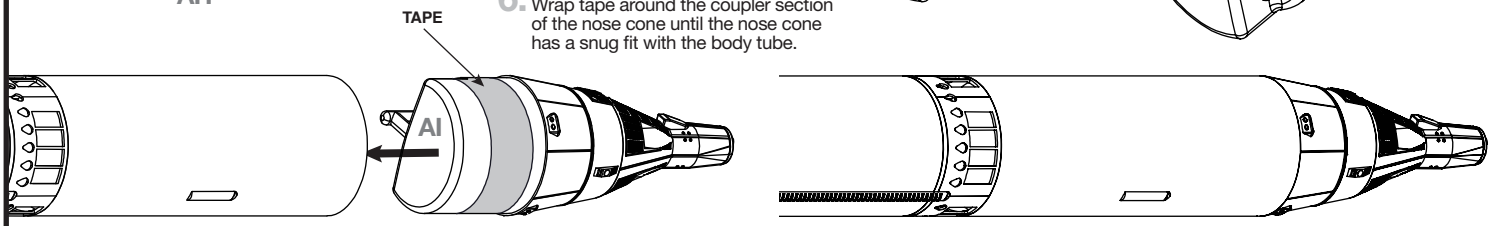


4. Apply plastic cement to inside rim of AG/AH. Align notch with notch on AI.



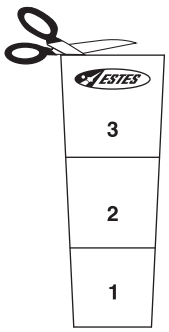
5. Press and hold until set.

6. Wrap tape around the coupler section of the nose cone until the nose cone has a snug fit with the body tube.

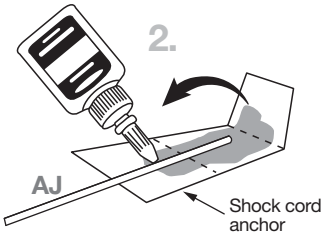


INSTALL RECOVERY SYSTEM

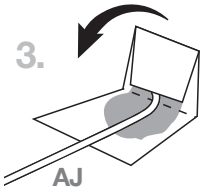
1. Cut out shock cord anchor from page 9.



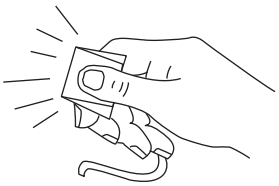
2.



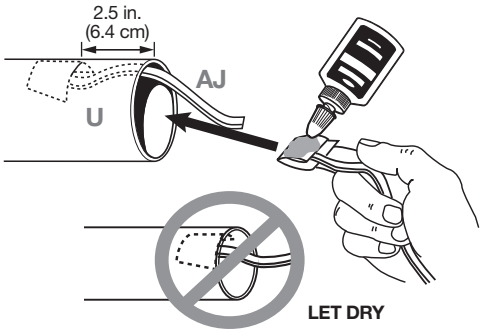
3.



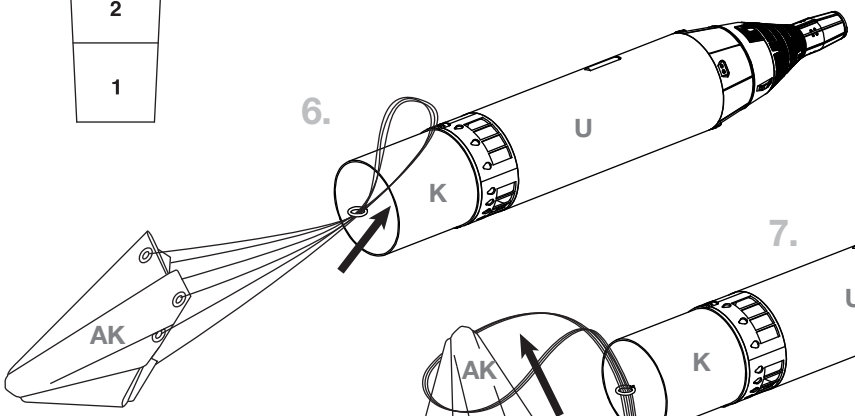
4. Hold until set.



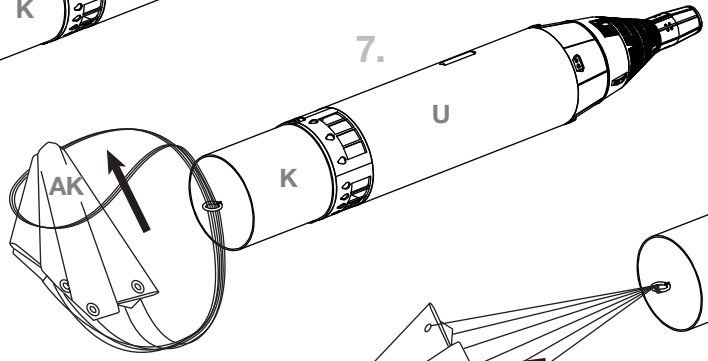
5. Apply glue to shock cord anchor and insert into body tube ½ in. from the end. Hold until set.



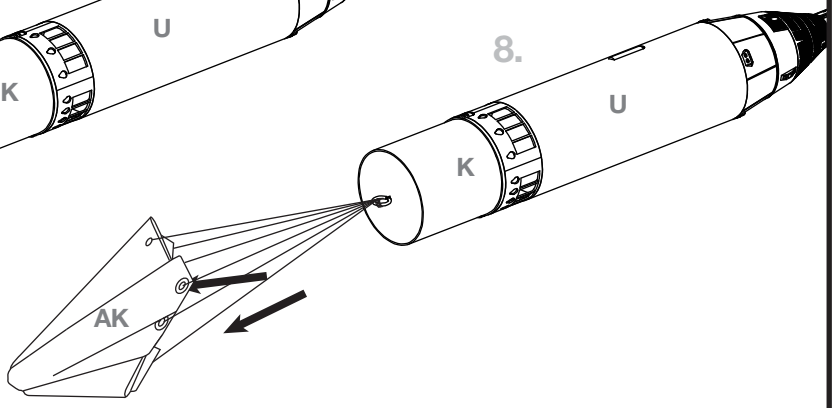
6.



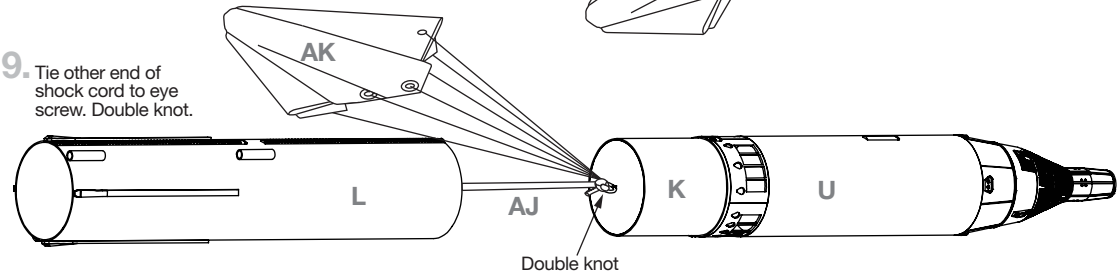
7.



8.



9. Tie other end of shock cord to eye screw. Double knot.

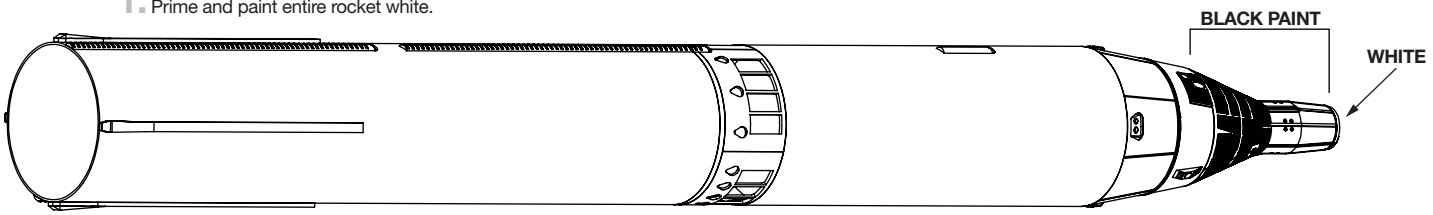


PAINTING

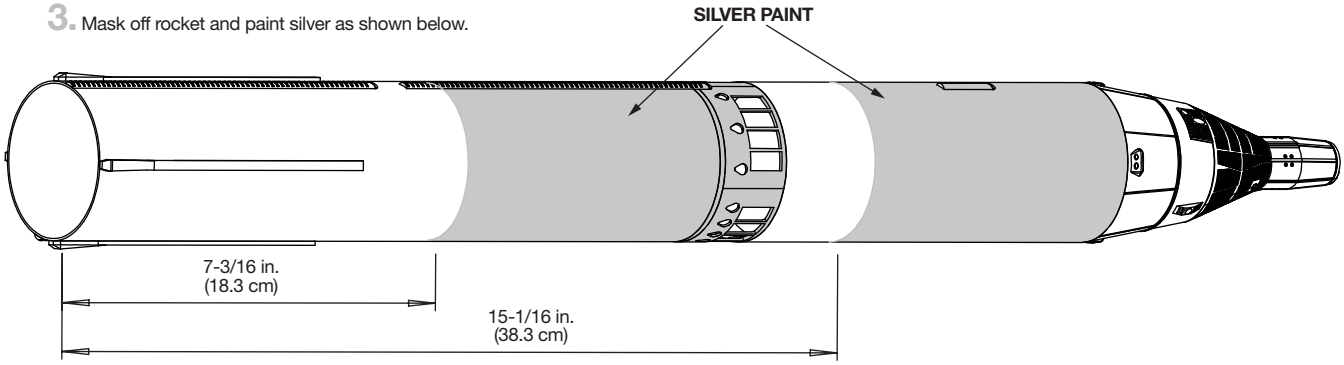
⚠ CAUTION:
For safe handling of spray paints, see manufacturer's warnings and follow instructions for use.

1. Prime and paint entire rocket white.

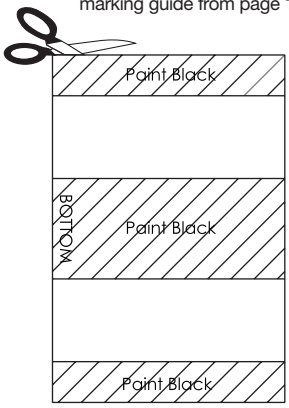
2. Paint this section black. Leave tip white.



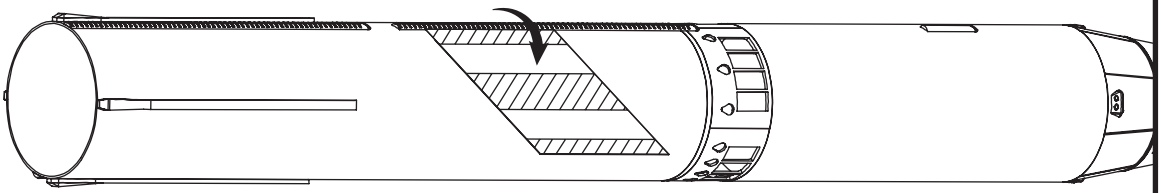
3. Mask off rocket and paint silver as shown below.



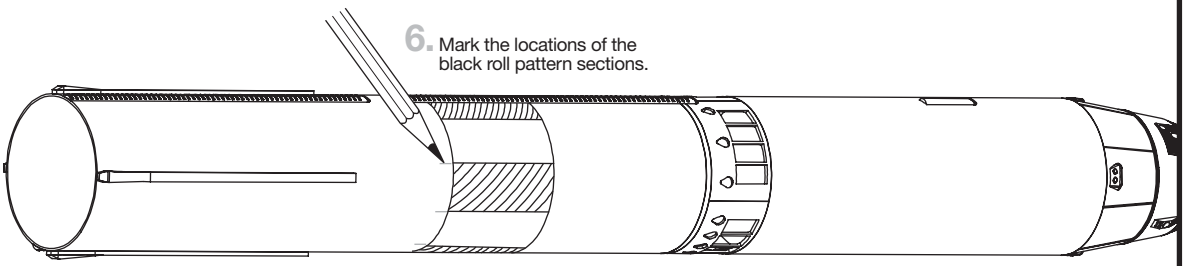
4. Cut out lower roll pattern marking guide from page 11.



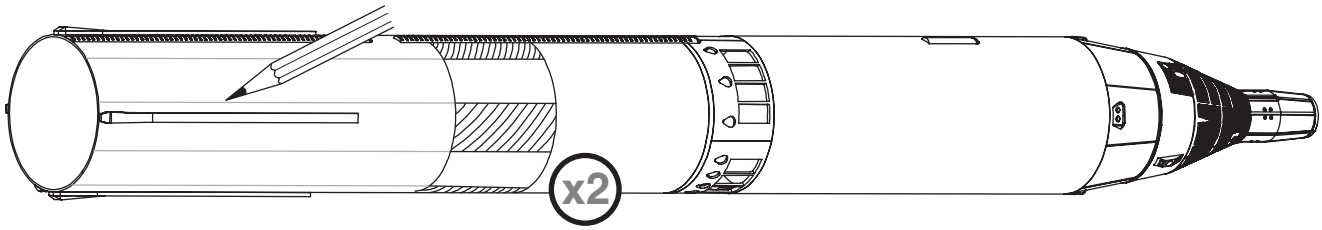
5. Wrap marking guide around body tube between the two tunnels.



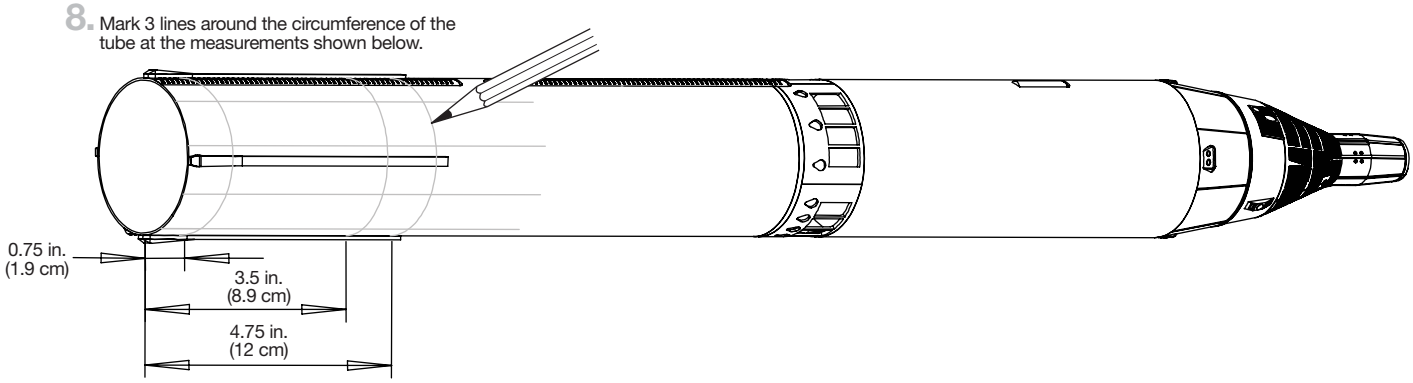
6. Mark the locations of the black roll pattern sections.



7. Using a ruler or straight edge, extend the lines down to the base of the rocket. Repeat steps 5-7 for the other side of the body tube between the two tunnels.

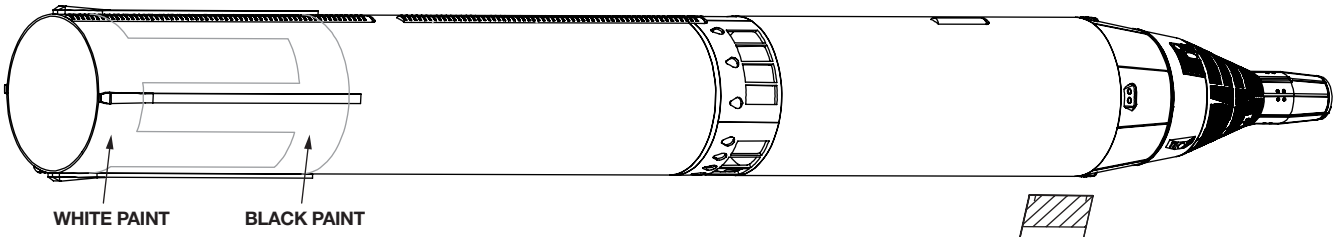


8. Mark 3 lines around the circumference of the tube at the measurements shown below.

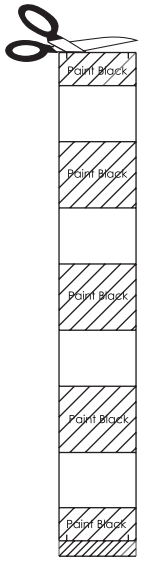


PAINTING (CONTINUED)

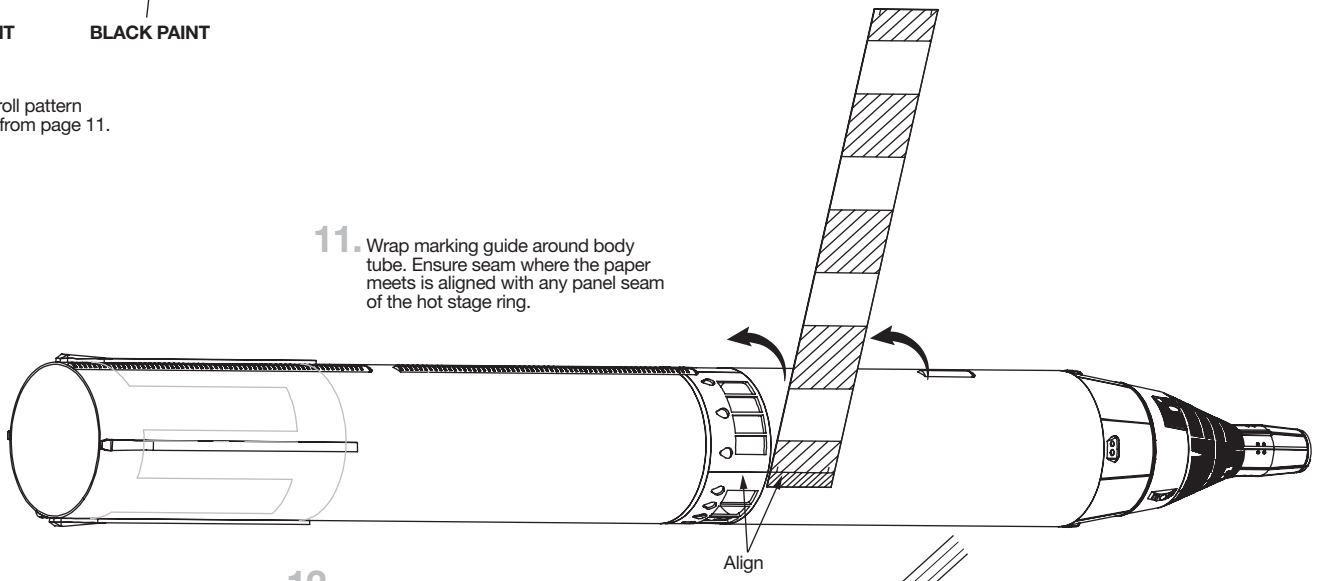
9. Erase all unnecessary lines as shown and use these lines as guides for paint masking.



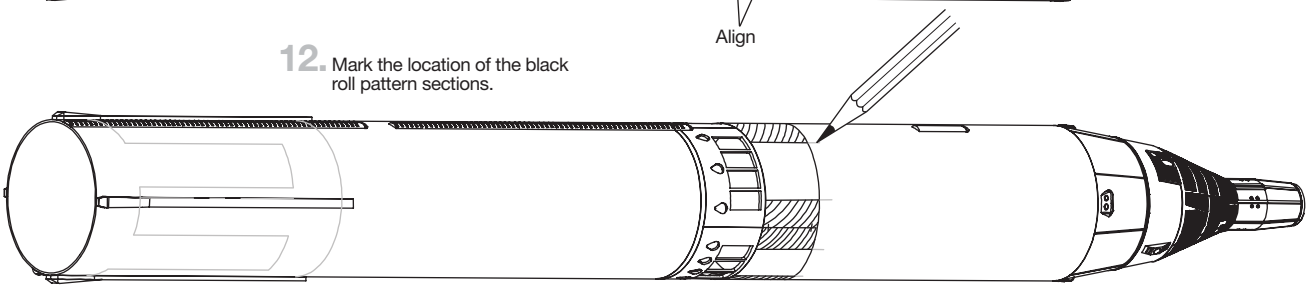
10. Cut out upper roll pattern marking guide from page 11.



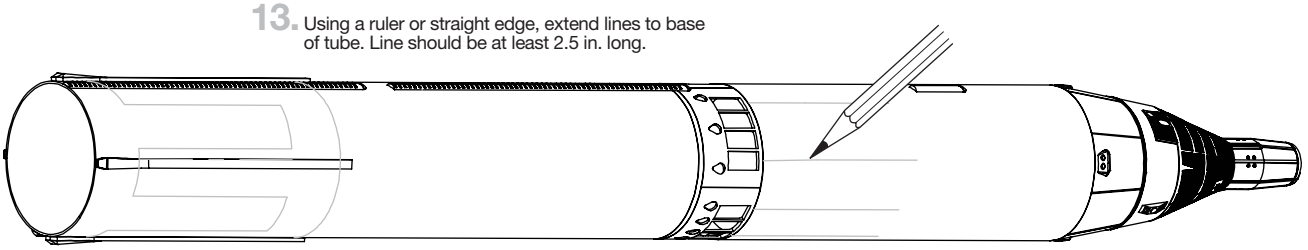
11. Wrap marking guide around body tube. Ensure seam where the paper meets is aligned with any panel seam of the hot stage ring.



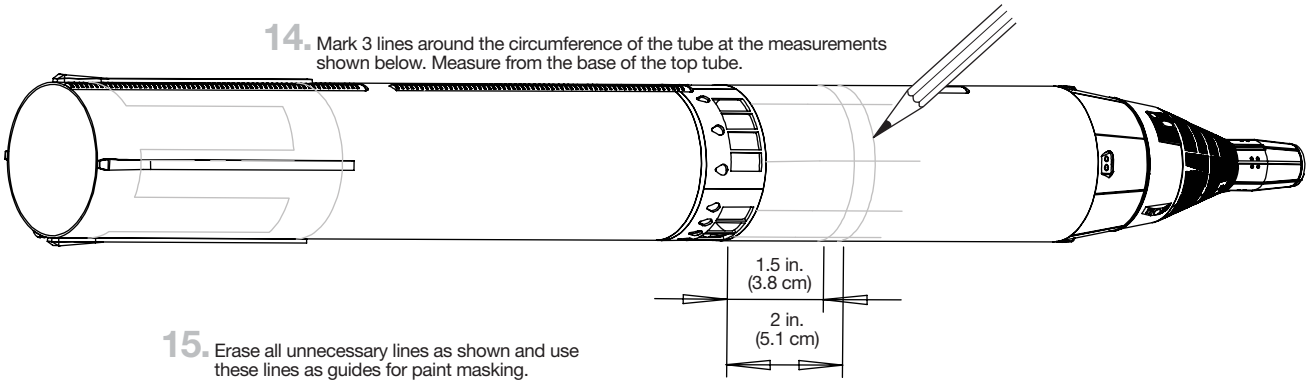
12. Mark the location of the black roll pattern sections.



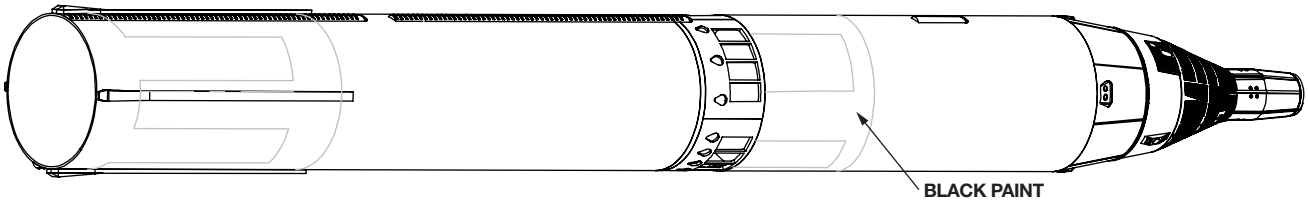
13. Using a ruler or straight edge, extend lines to base of tube. Line should be at least 2.5 in. long.



14. Mark 3 lines around the circumference of the tube at the measurements shown below. Measure from the base of the top tube.

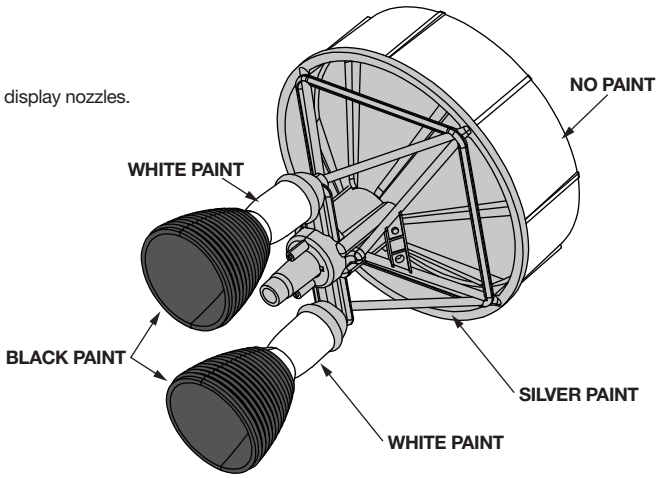


15. Erase all unnecessary lines as shown and use these lines as guides for paint masking.

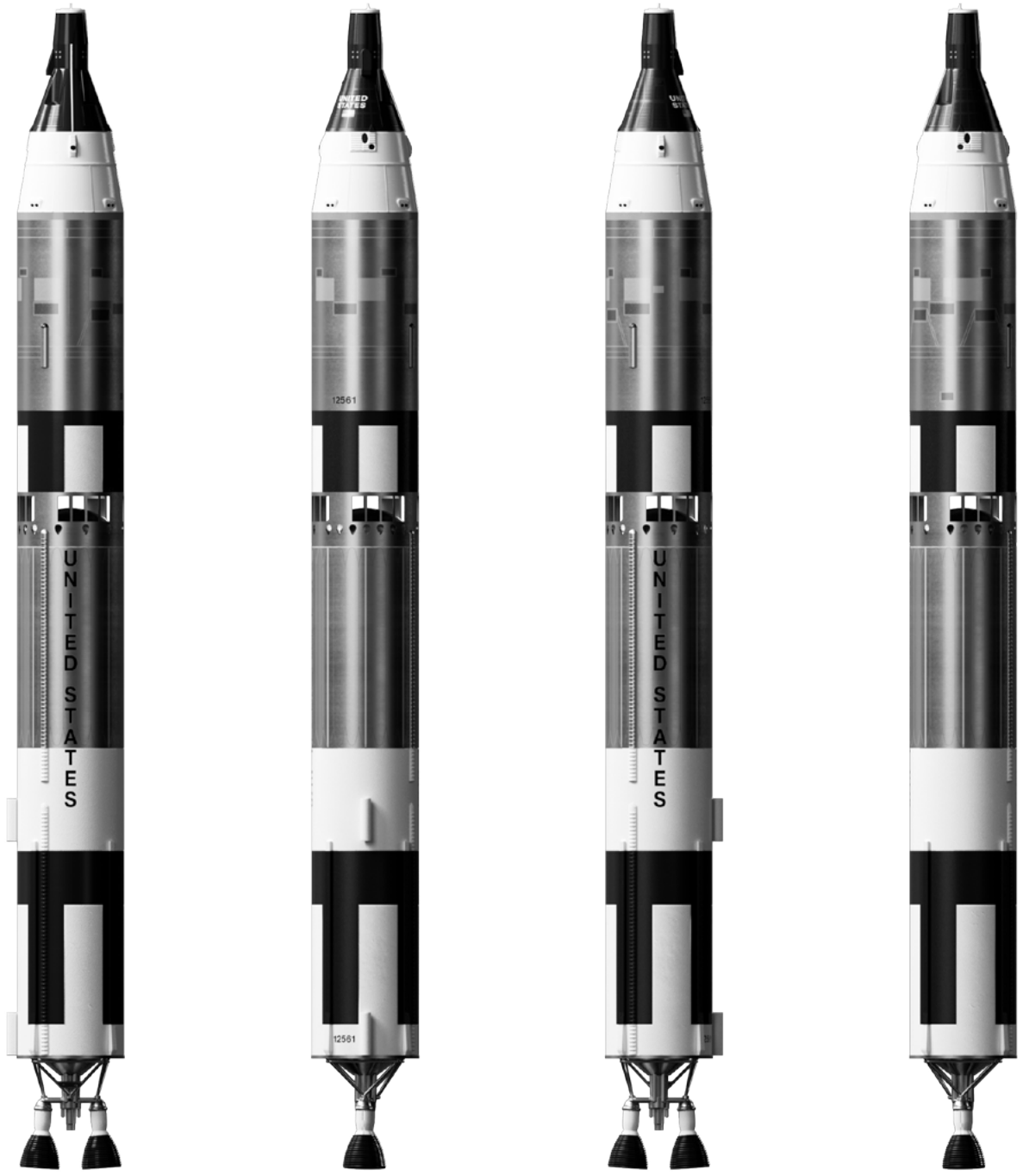


PAINTING (CONTINUED)

16. Mask off and paint display nozzles.



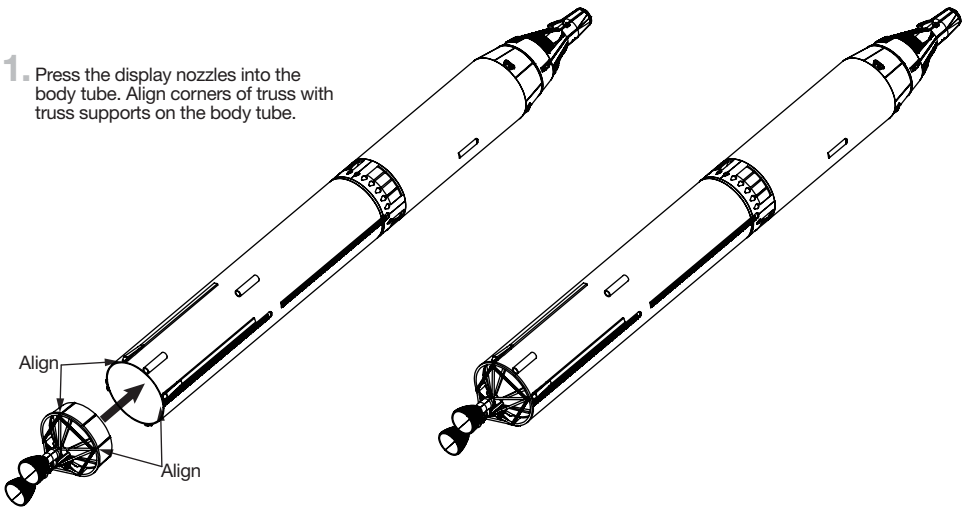
APPLY DECALS



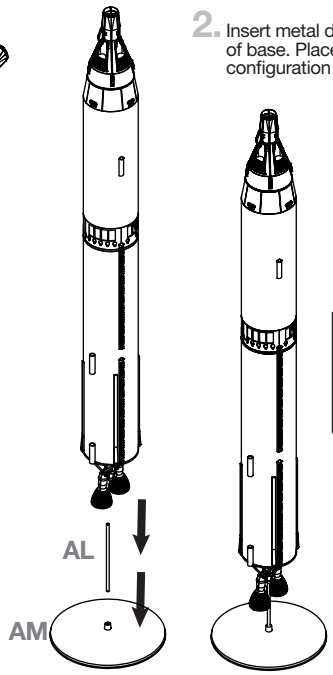
0° 90° 180° 270°

ASSEMBLE DISPLAY STAND

1. Press the display nozzles into the body tube. Align corners of truss with truss supports on the body tube.



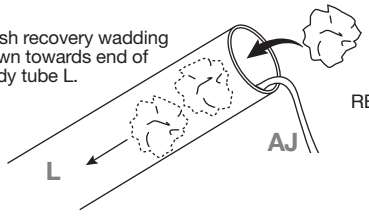
2. Insert metal display rod into center of base. Place rocket in its display configuration on the stand.



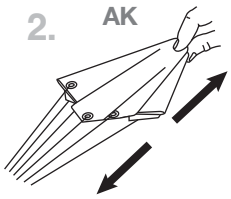
NOTE:
If display nozzle has a loose fit on the display rod, add tape to rod until fit is snug.

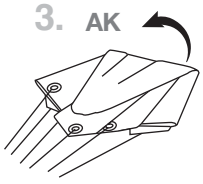
PREPARE RECOVERY SYSTEM

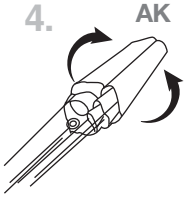
1. Push recovery wadding down towards end of body tube L.



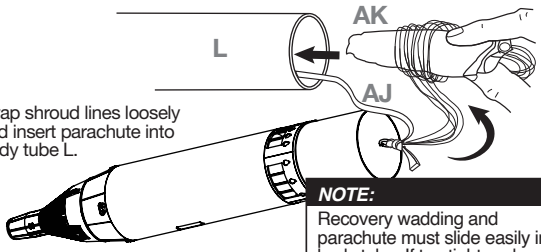
10-12 SQUARES ESTES® RECOVERY WADDING

2. 

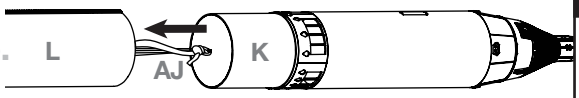
3. 

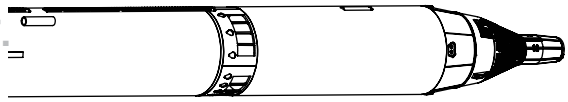
4. 

5. Wrap shroud lines loosely and insert parachute into body tube L.

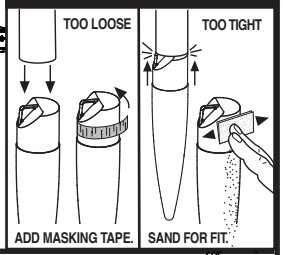


NOTE:
Recovery wadding and parachute must slide easily into body tube. If too tight, redo.

6. 

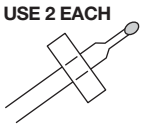
7. 

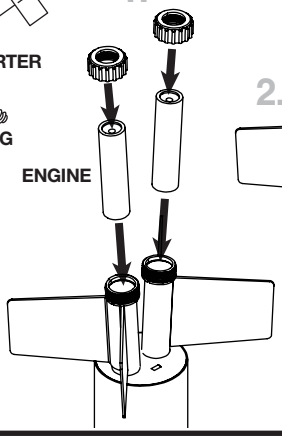
IF NOSE CONE FIT IS...

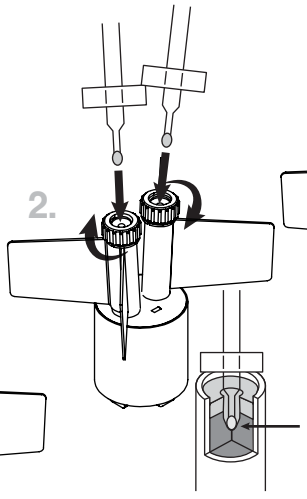


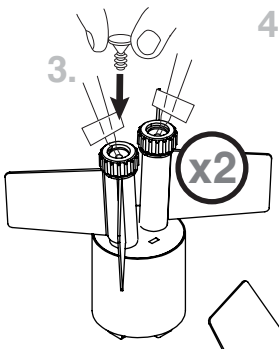
PREPARE ENGINES

USE 2 EACH

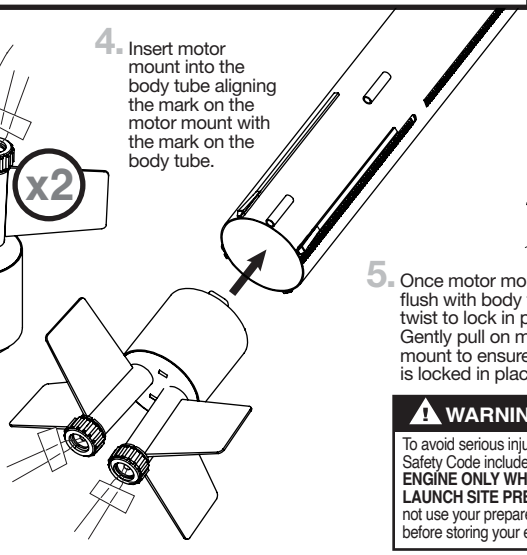


1. 

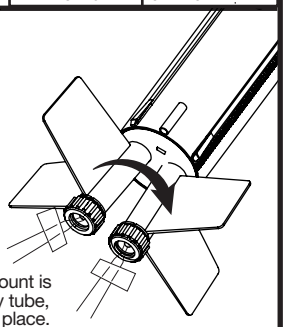
2. 

3. 

4. Insert motor mount into the body tube aligning the mark on the motor mount with the mark on the body tube.



5. Once motor mount is flush with body tube, twist to lock in place. Gently pull on motor mount to ensure it is locked in place.



⚠ 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.

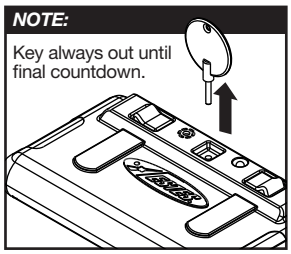
CHECK CENTER OF GRAVITY

NOTE:
Center of gravity should be checked before flight with recovery system packed and two C5-3 engines installed.



CENTER OF PRESSURE LOCATION: 20.375 IN. (51.75 CM) FROM NOSE

COUNTDOWN AND LAUNCH



NOTE:
Estimated weight: 7 oz. (198.4 g)

ESTES® LAUNCH SUPPLIES NEEDED (Sold Separately)

- Porta-Pad® II Launch Pad
- 3/16 in. (5 mm) MAXI™ Launch Rod
- Pro Series II™ Launch Controller
- Recovery Wadding
- Starters (with engines)
- Plugs (with engines)
- Estes® Engines: Two C5-3

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.

© 2026 Estes Industries, LLC • All Rights Reserved
Estes Industries, LLC • 1295 H Street, Penrose, CO 81240-9698 • Made in Guangzhou, Guangdong, China
22 PAP
PN 090004-2210 (3-26)