ESTES

EstesRockets.com

PRO SERIES II

SOYUZ

9732



AGES 18+

Skill Level

EXPERT

MODEL ROCKET INSTRUCTIONS

KEEP FOR FUTURE REFERENCE

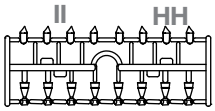
IMPORTANT: Please record date found on decal and keep for future reference. _____

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

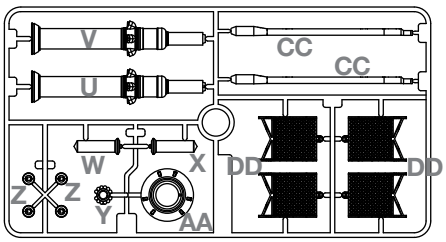
SUPPLIES



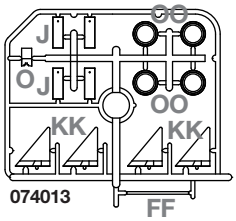
PENCIL | SCISSORS | HOBBY KNIFE | FINE SANDPAPER | SANDING BLOCK | RULER | SMALL DRILL or PIN VISE | MASKING TAPE | YELLOW GLUE | EPOXY | PLASTIC CEMENT | CA GLUE | WHITE PRIMER | PAINT (LISTED ON PG 14) | CLEAR COAT (OPTIONAL)



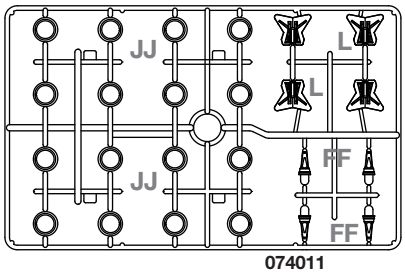
074012



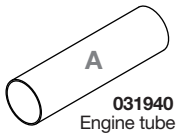
074002



074013



074011

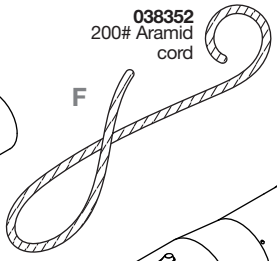


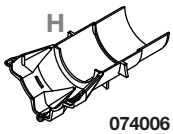
031940
Engine tube



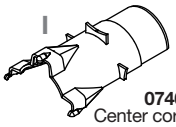
074004
Upper stage pin

038352
200# Aramid cord

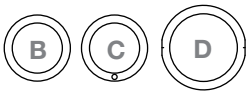




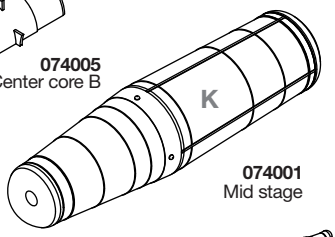
074006
Center core A



074005
Center core B



090050-9732
Laser cut plywood

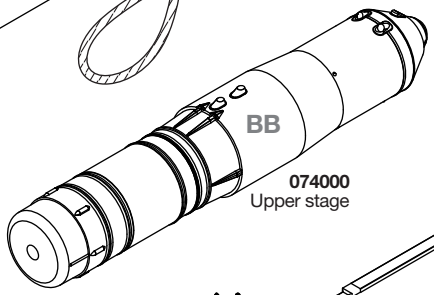


074001
Mid stage



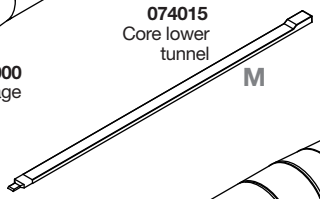
074009
Center core adapter

030396
Body tube

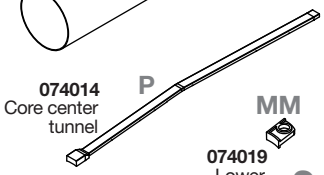


074000
Upper stage

074015
Core lower tunnel



074020 Booster **x4**



074014
Core center tunnel

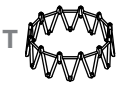
074003
Upper truss support

074019
Lower launch lug **x2**



x4

074008
Engine plate



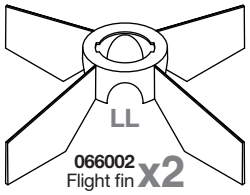
074021
Truss



074010
Display nozzle plate

074022
S 3mm bolt & nut

074007
Q

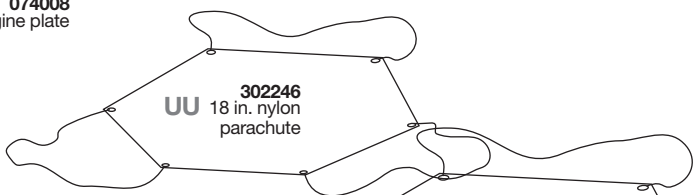


066002
Flight fin **x2**

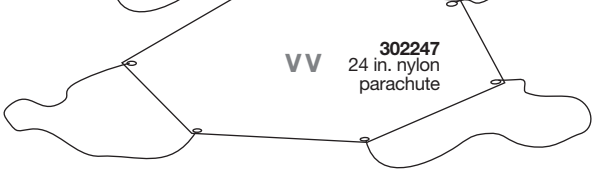


x2

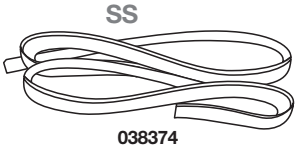
074016
Engine retainer



302246
18 in. nylon parachute



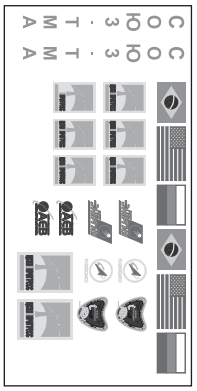
302247
24 in. nylon parachute



038374
Shock cord



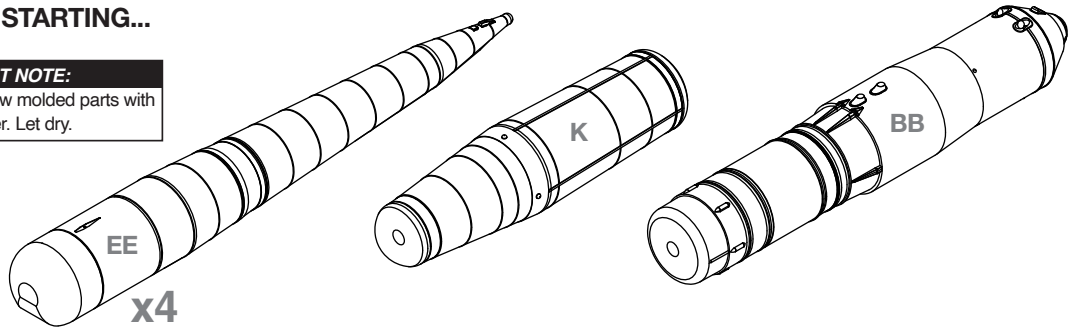
074018
Upper launch lug **x2**



090001-9732
Water slide decal

BEFORE STARTING...

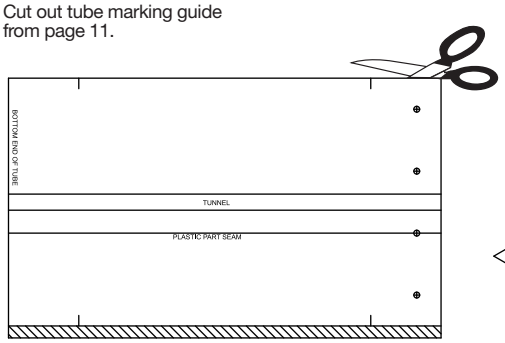
IMPORTANT NOTE:
Wash all blow molded parts with soap & water. Let dry.



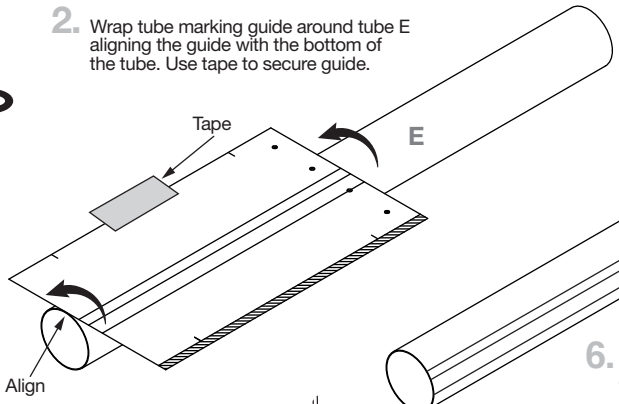
BUILDER TIP:
An alternative to using Testors tube plastic glue is to use a brush-on liquid glue. To use this type of glue, apply a small amount in the needed locations. Place the part(s) in place, then apply addition glue around connection areas. Use a small painters brush for this type of glue application.

PREPARE BODY TUBE

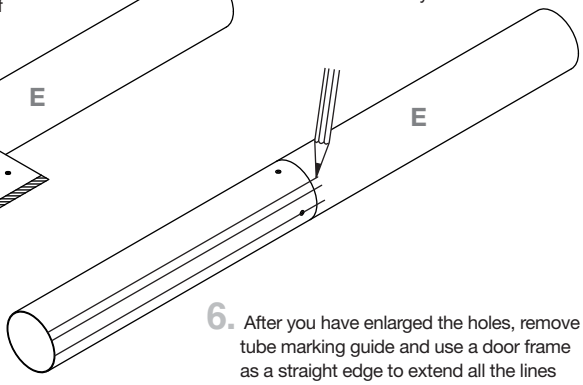
1. Cut out tube marking guide from page 11.



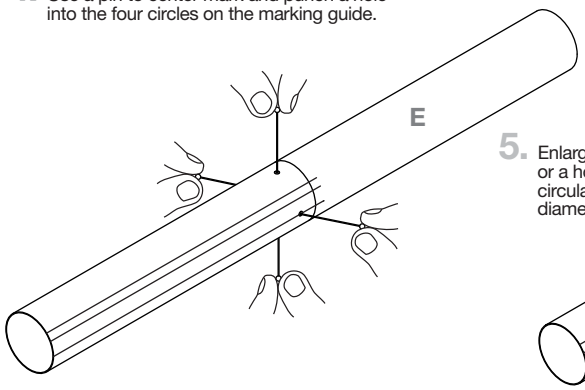
2. Wrap tube marking guide around tube E aligning the guide with the bottom of the tube. Use tape to secure guide.



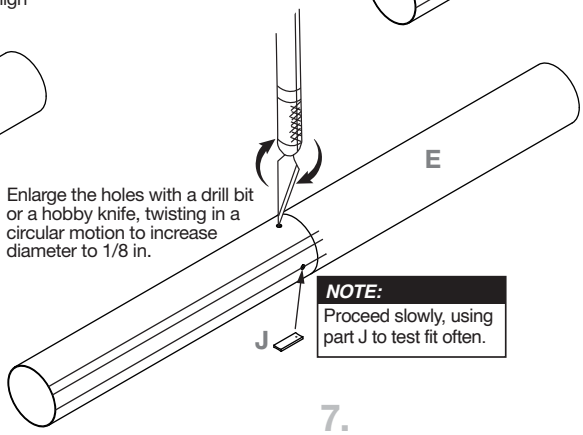
3. Mark the tunnel lines and plastic seam line onto the body tube.



4. Use a pin to center mark and punch a hole into the four circles on the marking guide.

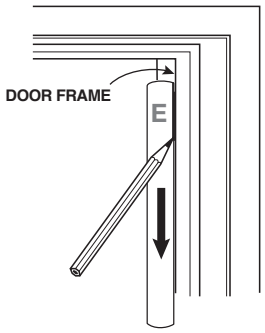


5. Enlarge the holes with a drill bit or a hobby knife, twisting in a circular motion to increase diameter to 1/8 in.



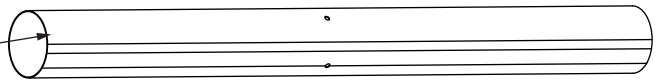
NOTE:
Proceed slowly, using part J to test fit often.

6. After you have enlarged the holes, remove tube marking guide and use a door frame as a straight edge to extend all the lines on body tube E.



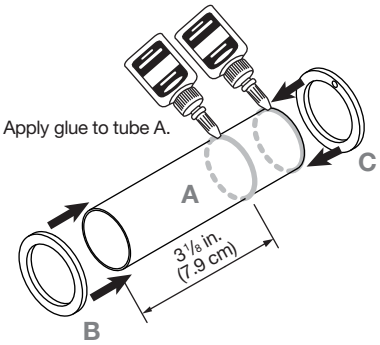
NOTE:
After removing marking guide, mark "Bottom End of Tube" on body tube.

7.

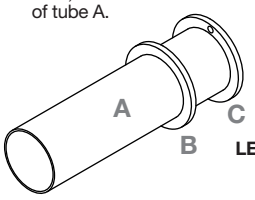


ASSEMBLE ENGINE MOUNT

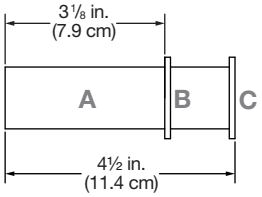
1. Apply glue to tube A.



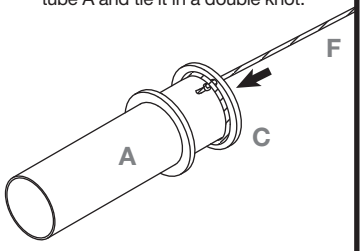
2. Slide ring B over tube A up to the first glue line. Slide ring C over the end of the tube, flush with the end of tube A.



LET DRY



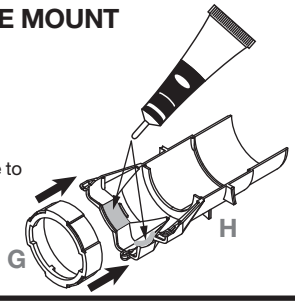
3. Thread Aramid cord F through hole in ring C. Wrap Aramid cord around tube A and tie it in a double knot.



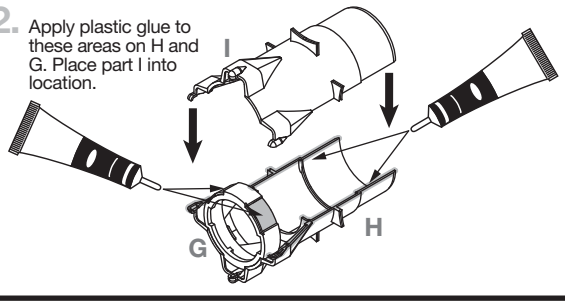
INSTALL ENGINE MOUNT

NOTE:
Test fit G, H, and I parts before gluing.

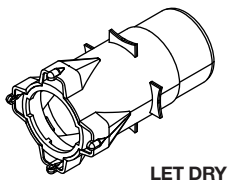
1. Apply plastic glue to these areas on H. Place part G into location.



2. Apply plastic glue to these areas on H and G. Place part I into location.

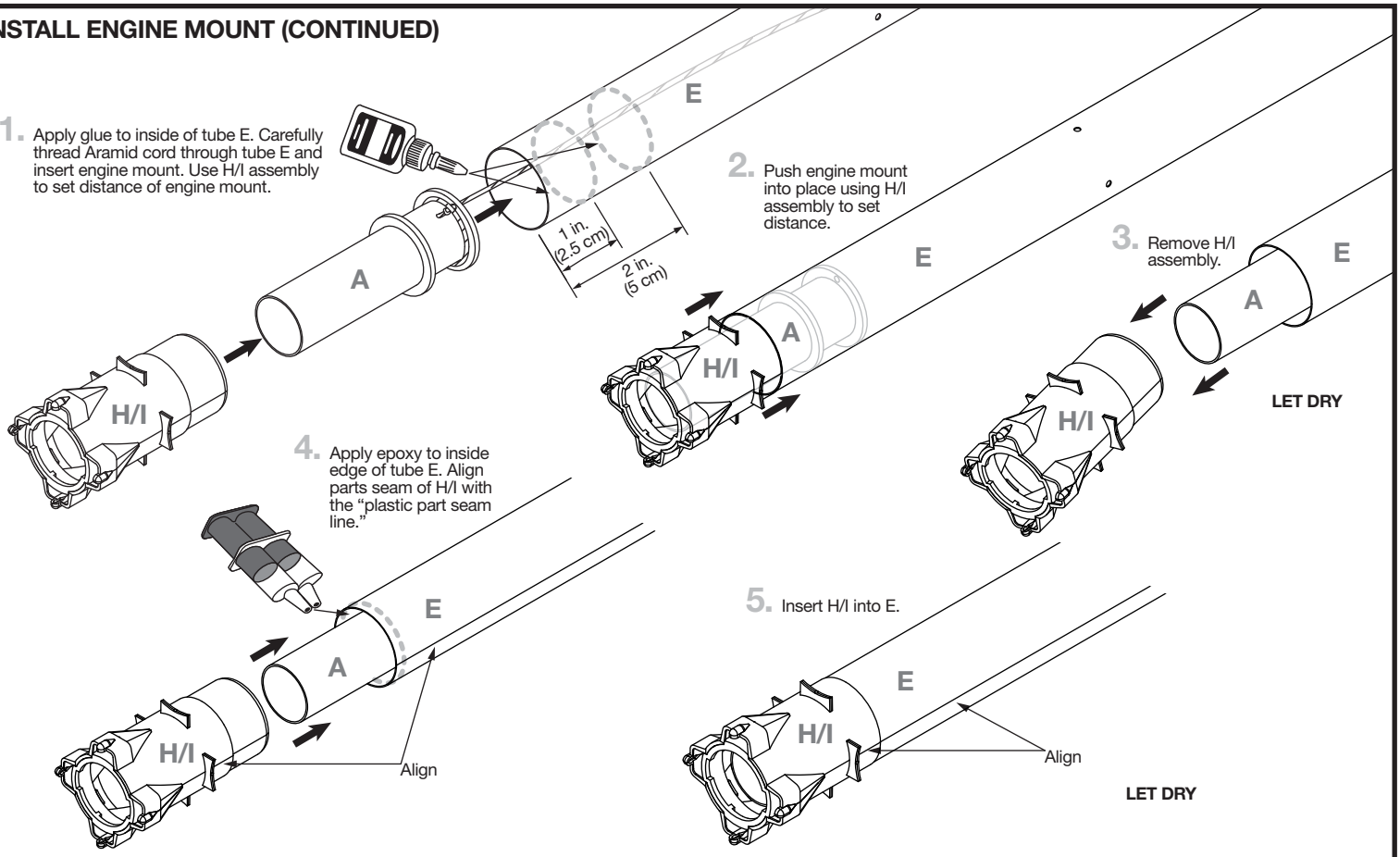


3. Press and hold for 30 seconds until glue sets.



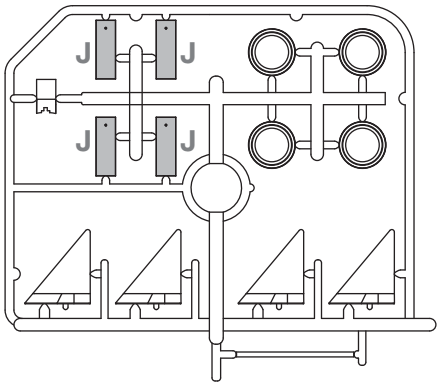
LET DRY

INSTALL ENGINE MOUNT (CONTINUED)

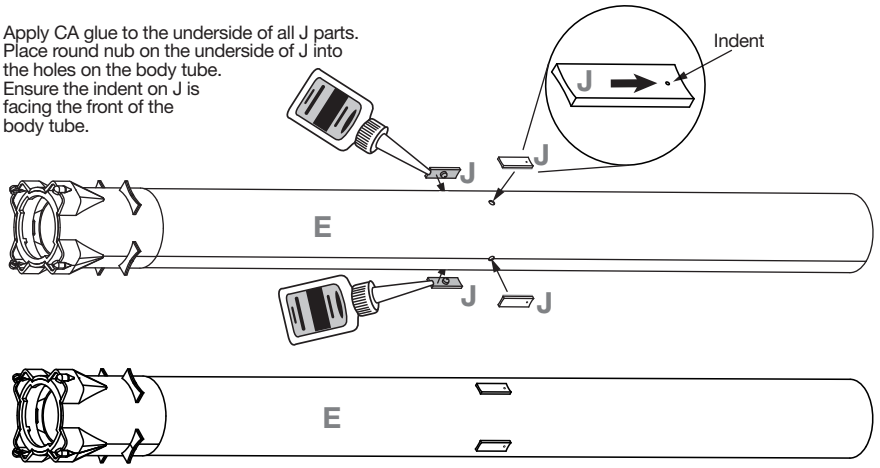


ATTACH BODY TUBE DETAILS

1. Carefully remove J parts.

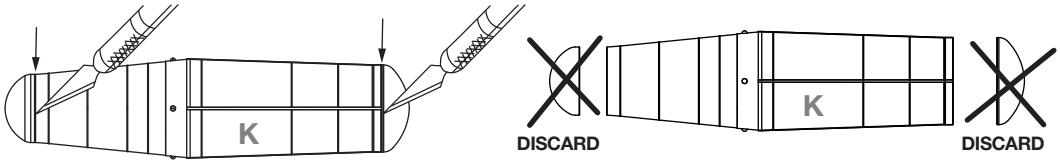


2. Apply CA glue to the underside of all J parts. Place round nub on the underside of J into the holes on the body tube. Ensure the indent on J is facing the front of the body tube.

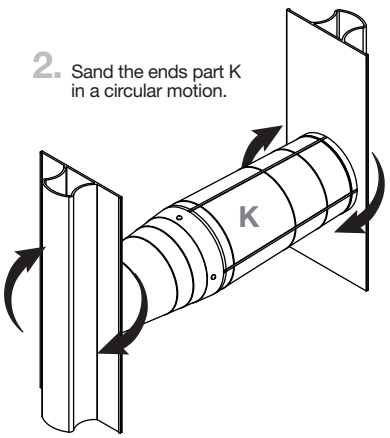


ASSEMBLE CENTER CORE

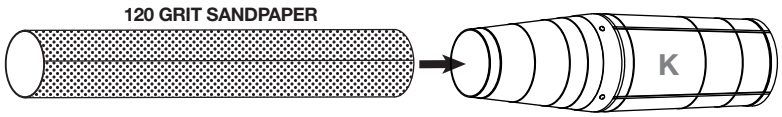
1. Using a sharp hobby knife, lightly score around the parts shown below. Take several light passes rather than trying to cut it at once.



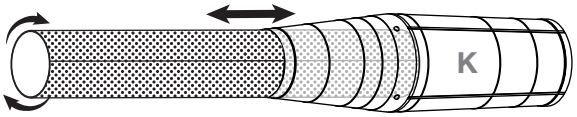
2. Sand the ends part K in a circular motion.



3. Roll 120 grit sandpaper and insert into narrow end of K.

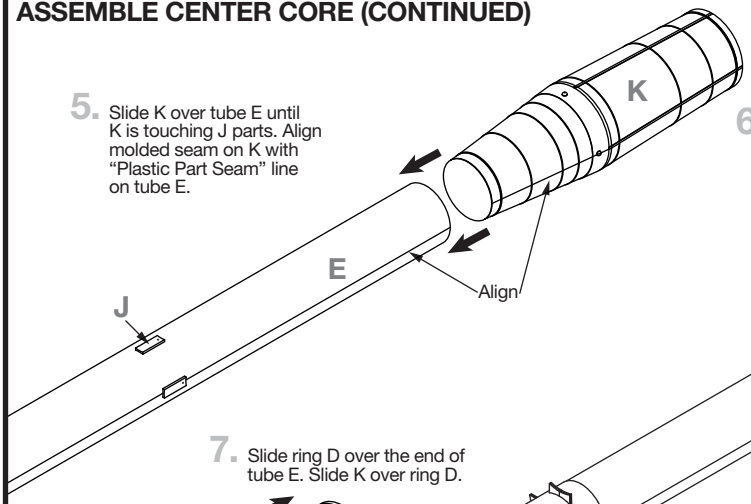


4. Rotate sandpaper left and right as well as pushing it in and out. Proceed slowly. Enlarge the hole just large enough to fit tube E.



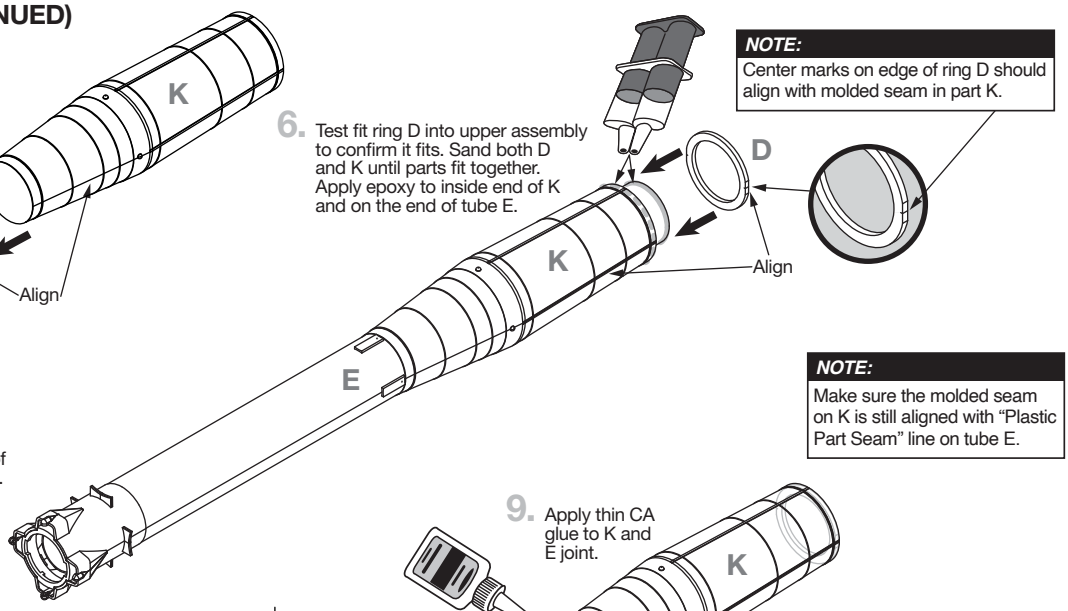
ASSEMBLE CENTER CORE (CONTINUED)

5. Slide K over tube E until K is touching J parts. Align molded seam on K with "Plastic Part Seam" line on tube E.



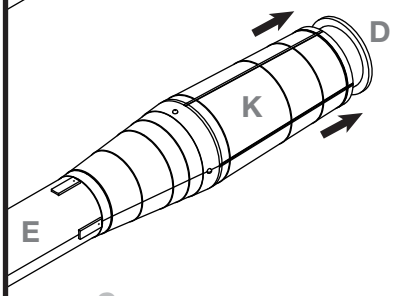
6. Test fit ring D into upper assembly to confirm it fits. Sand both D and K until parts fit together. Apply epoxy to inside end of K and on the end of tube E.

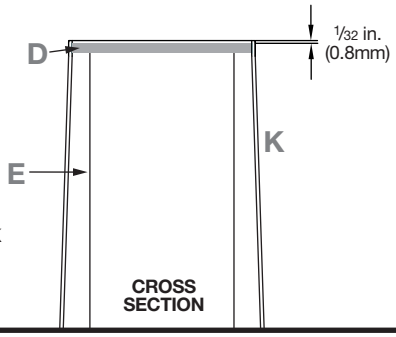
NOTE:
Center marks on edge of ring D should align with molded seam in part K.



NOTE:
Make sure the molded seam on K is still aligned with "Plastic Part Seam" line on tube E.

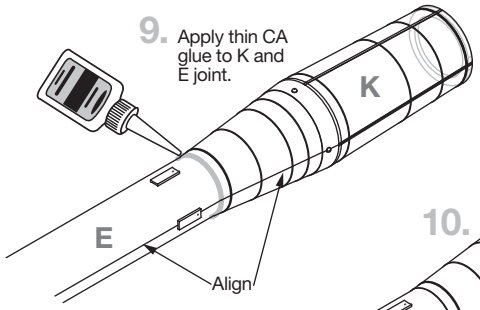
7. Slide ring D over the end of tube E. Slide K over ring D.



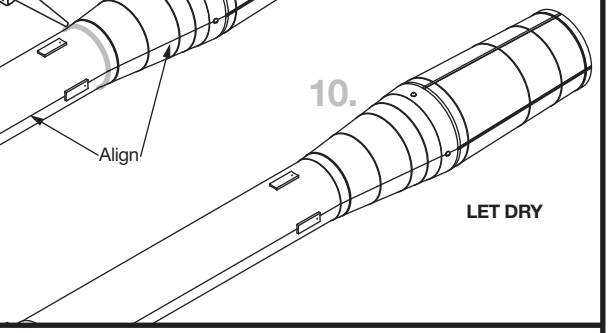


8. Glue top surface of laser cut ring D flush with end of body tube E. The top edge of blow molded part K needs to be 1/32 in. further forward than the end of body tube E and laser cut ring D.

9. Apply thin CA glue to K and E joint.

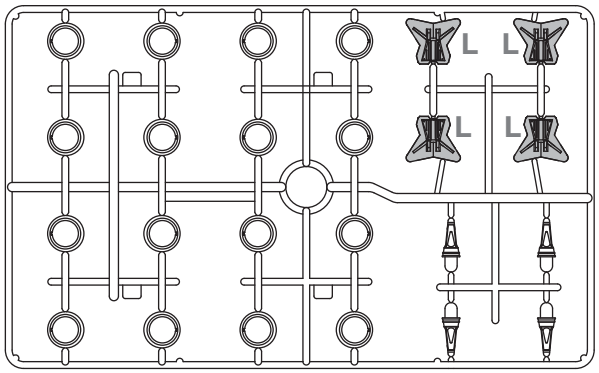


10.

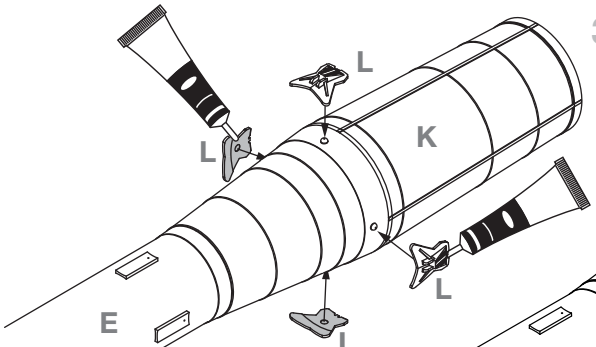


ATTACH CENTER CORE DETAILS

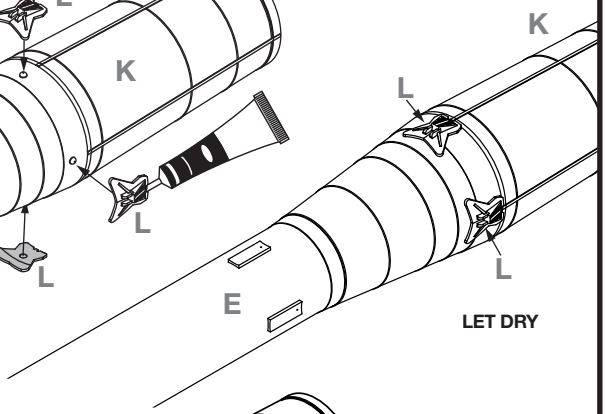
1. Carefully remove L parts.



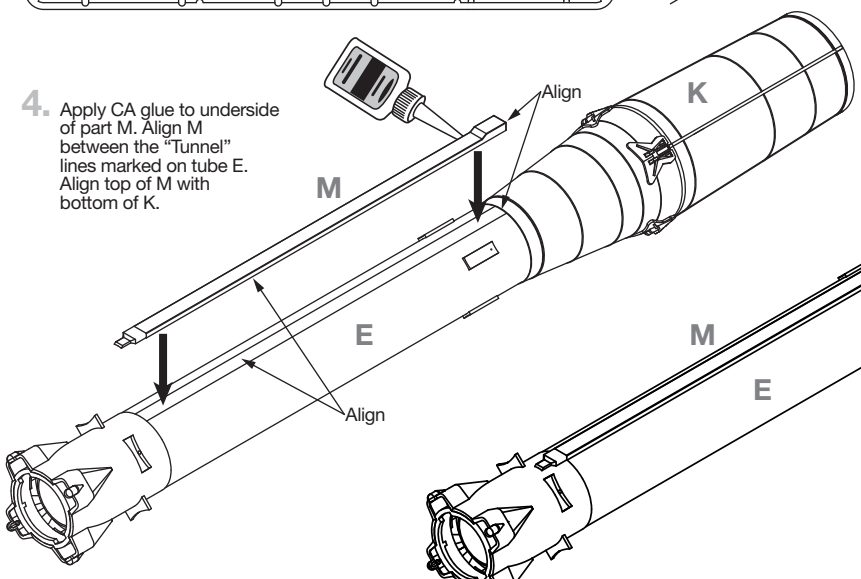
2. Apply plastic glue to undersides of L parts.



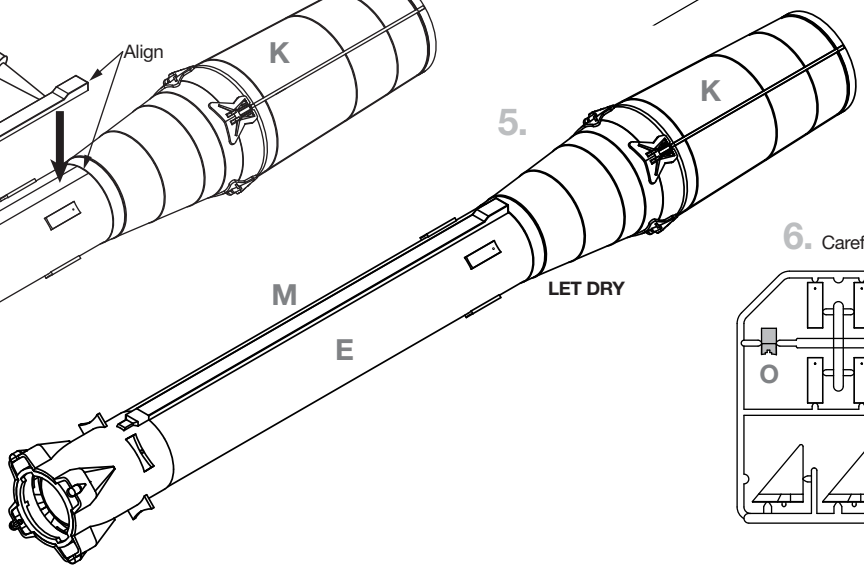
3. Place L parts onto K as shown.



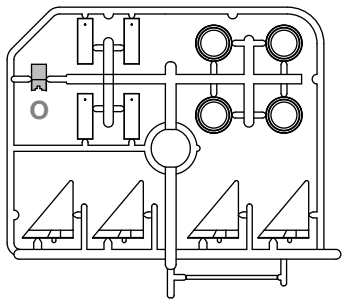
4. Apply CA glue to underside of part M. Align M between the "Tunnel" lines marked on tube E. Align top of M with bottom of K.



5.

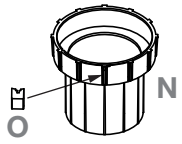


6. Carefully remove part O.

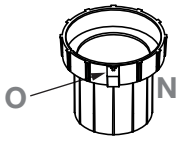


ATTACH CENTER CORE DETAILS (CONTINUED)

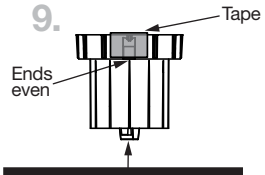
7. Place part O onto N.



8. Place tape over O to hold in place.

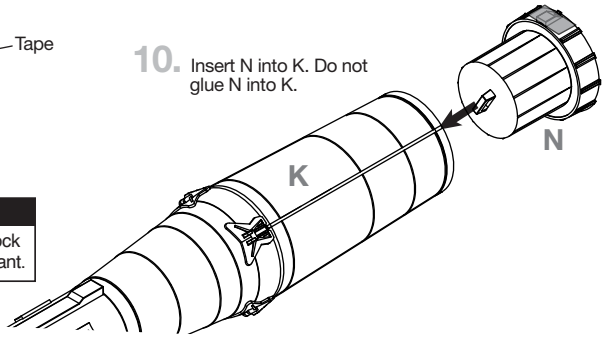


9.

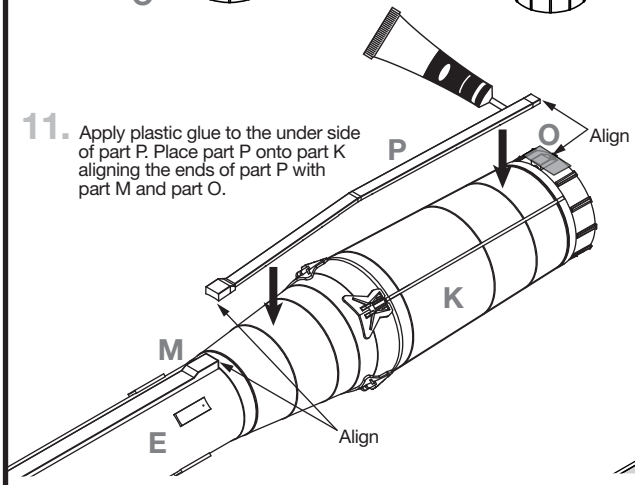


NOTE:
The orientation of the shock cord anchor is not important.

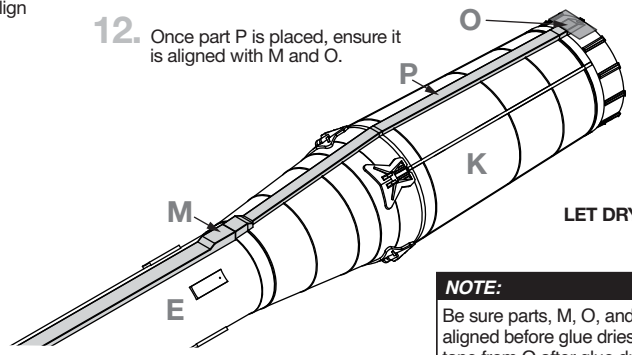
10. Insert N into K. Do not glue N into K.



11. Apply plastic glue to the under side of part P. Place part P onto part K aligning the ends of part P with part M and part O.



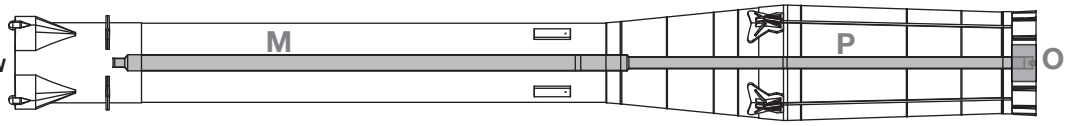
12. Once part P is placed, ensure it is aligned with M and O.



LET DRY

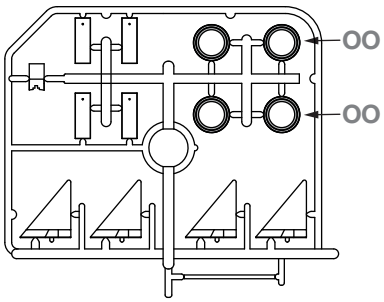
NOTE:
Be sure parts, M, O, and P are aligned before glue dries. Remove tape from O after glue dries.

SIDE VIEW

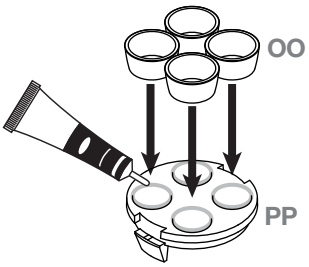


ASSEMBLE CENTER CORE DISPLAY NOZZLE

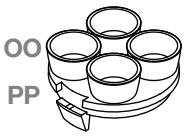
1. Carefully remove all OO parts.



2. Apply plastic glue to PP as shown below.



3. Place all OO parts as shown below.

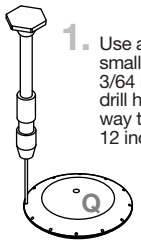


LET DRY

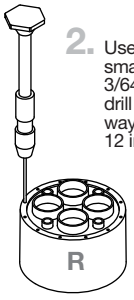
BUILDER'S TIP:
This would be a good place to use brush-on plastic glue.

ASSEMBLE INTERSTAGE

1. Use a pin vise or small drill with a 3/64 in. drill bit to drill holes all the way through the 12 indents on Q.



2. Use a pin vise or small drill with a 3/64 in. drill bit to drill holes all the way through the 12 indents on R.

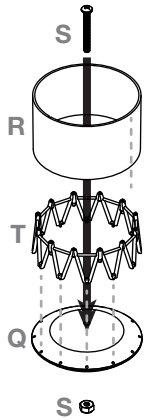


3. Use a #2 Phillips head screwdriver and needle nose pliers to pre-thread the bolt through the nut with nylon insert. Remove nut from bolt.

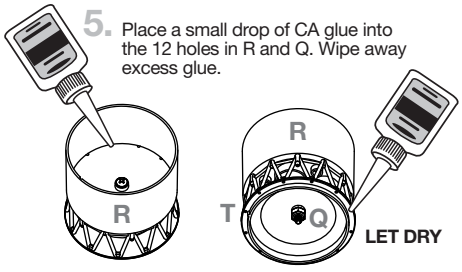


4. Assemble these parts as shown. Align the holes in R and Q with the top and bottom, respectively, of truss T. Tighten nut and bolt so they apply a slight pressure on the truss assembly.

NOTE:
It may be easier to paint these parts before their final assembly. Mask off areas where glue needs to be applied.

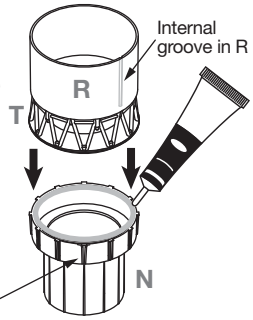


5. Place a small drop of CA glue into the 12 holes in R and Q. Wipe away excess glue.

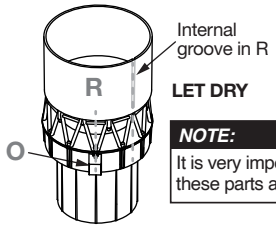


LET DRY

6. Glue O into place. Apply plastic glue to top and inside edge of N. Place truss assembly onto N, ensuring the truss aligns with O in relation to the internal groove in R.



7. Press together until glue sets.

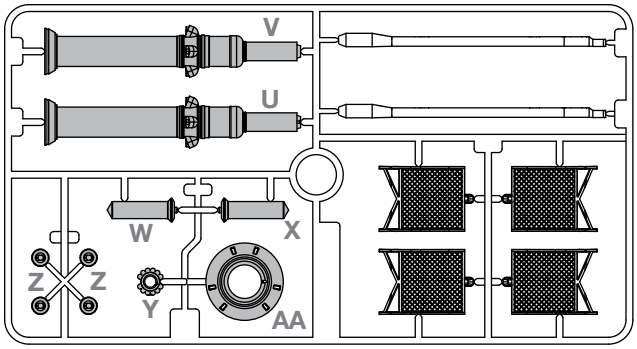


LET DRY

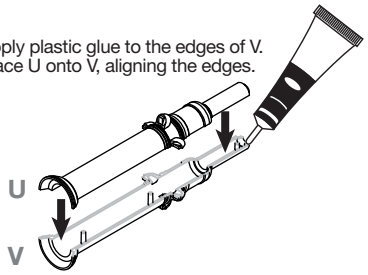
NOTE:
It is very important to align these parts as shown.

ASSEMBLE ESCAPE TOWER

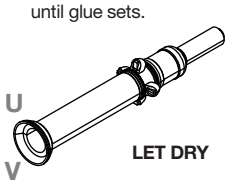
1. Carefully remove parts U, V, W, X, Y, Z, and AA.



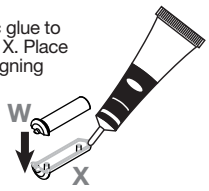
2. Apply plastic glue to the edges of V. Place U onto V, aligning the edges.



3. Press and hold for 30 seconds until glue sets.



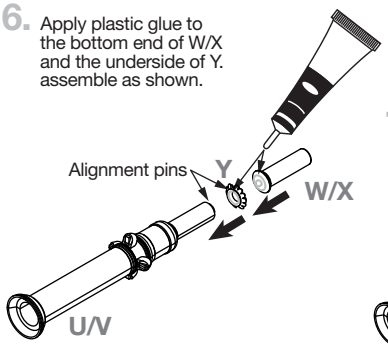
4. Apply plastic glue to the edges of X. Place W onto X, aligning the edges.



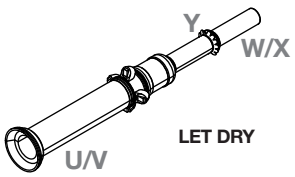
5. Press and hold for 30 seconds until glue sets.



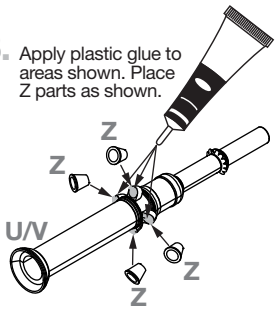
6. Apply plastic glue to the bottom end of W/X and the underside of Y. assemble as shown.



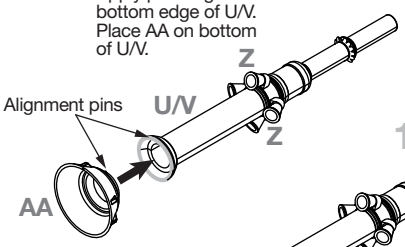
7. Press and hold for 30 seconds until glue sets.



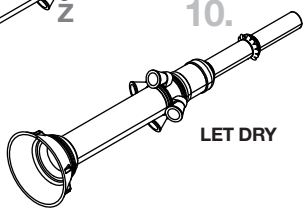
8. Apply plastic glue to areas shown. Place Z parts as shown.



9. Apply plastic glue to bottom edge of U/V. Place AA on bottom of U/V.

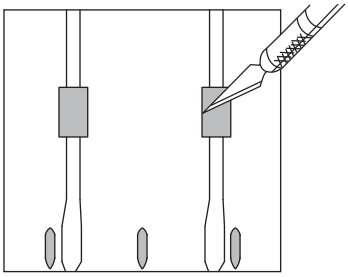


10.

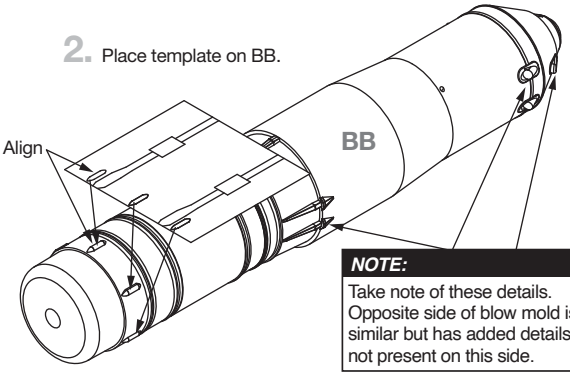


ASSEMBLE UPPER STAGE

1. Cut out full size template from page 10. Cut out all gray areas with a hobby knife.

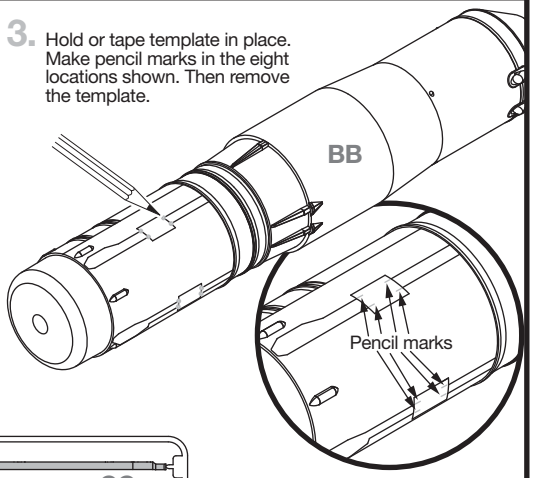


2. Place template on BB.

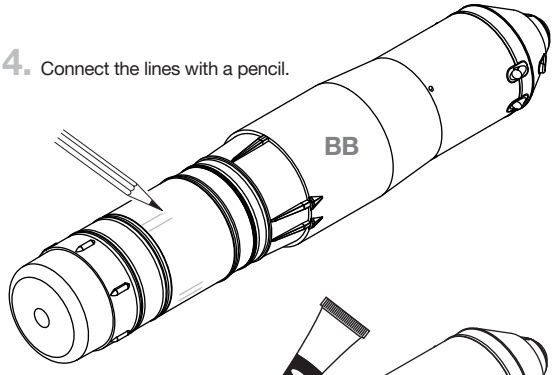


NOTE:
Take note of these details. Opposite side of blow mold is similar but has added details not present on this side.

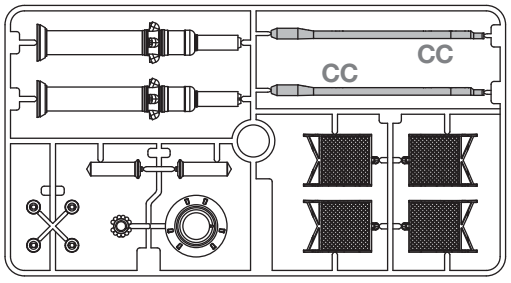
3. Hold or tape template in place. Make pencil marks in the eight locations shown. Then remove the template.



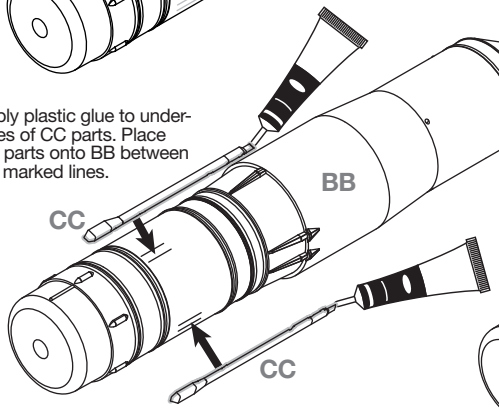
4. Connect the lines with a pencil.



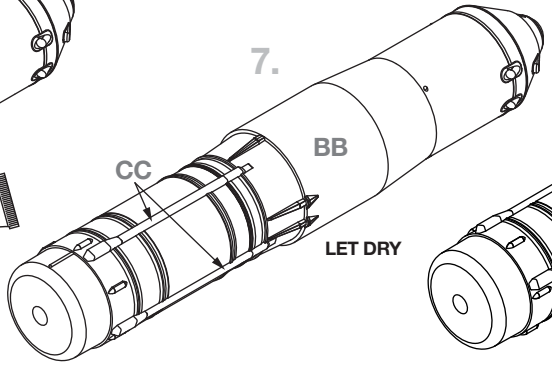
5. Carefully remove CC parts.



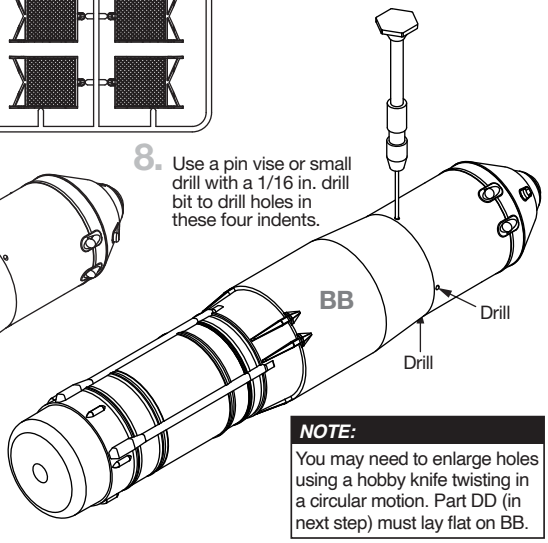
6. Apply plastic glue to undersides of CC parts. Place CC parts onto BB between the marked lines.



7.



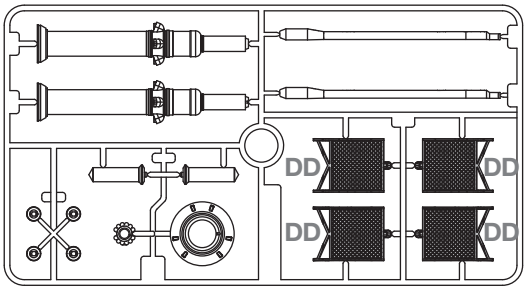
8. Use a pin vise or small drill with a 1/16 in. drill bit to drill holes in these four indents.



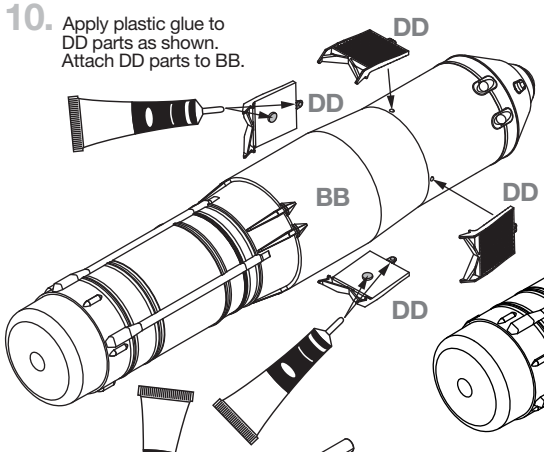
NOTE:
You may need to enlarge holes using a hobby knife twisting in a circular motion. Part DD (in next step) must lay flat on BB.

ASSEMBLE UPPER STAGE (CONTINUED)

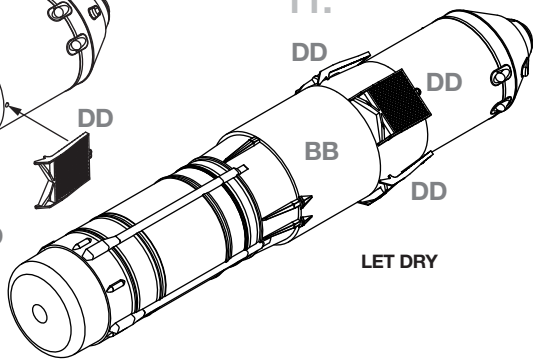
9. Carefully remove DD parts.



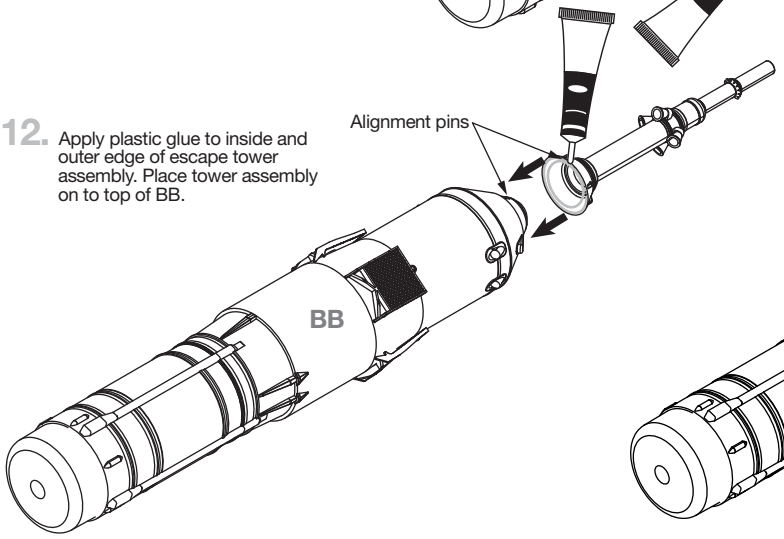
10. Apply plastic glue to DD parts as shown. Attach DD parts to BB.



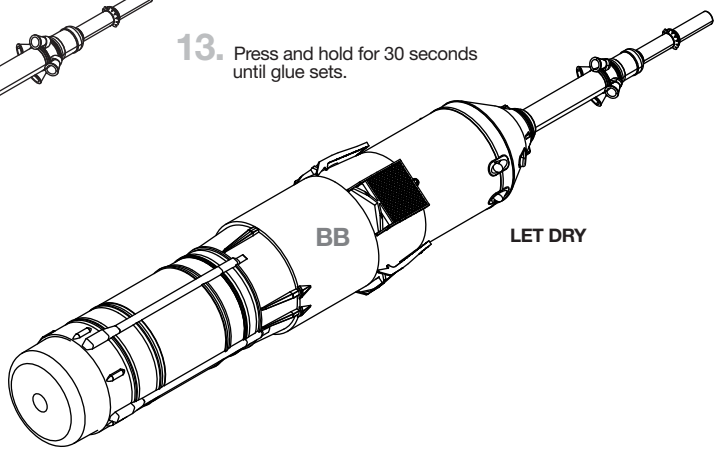
11.



12. Apply plastic glue to inside and outer edge of escape tower assembly. Place tower assembly on to top of BB.

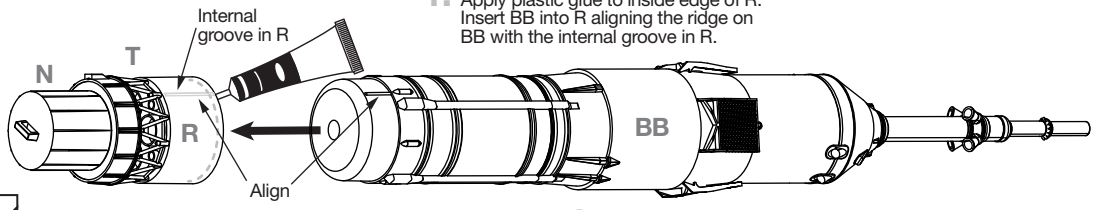


13. Press and hold for 30 seconds until glue sets.



ASSEMBLE UPPER STAGE AND INTERSTAGE

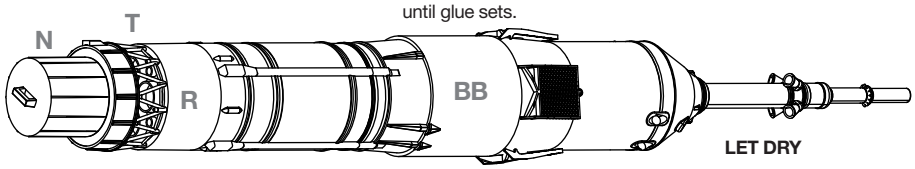
1. Apply plastic glue to inside edge of R. Insert BB into R aligning the ridge on BB with the internal groove in R.



IMPORTANT NOTE:

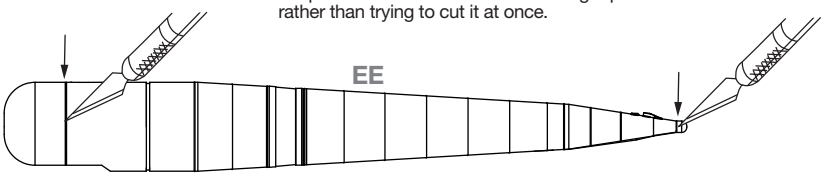
If building this model for flying, this gluing step should be done ***after*** center of gravity check (page 19) is complete.

2. Press and hold for 30 seconds until glue sets.

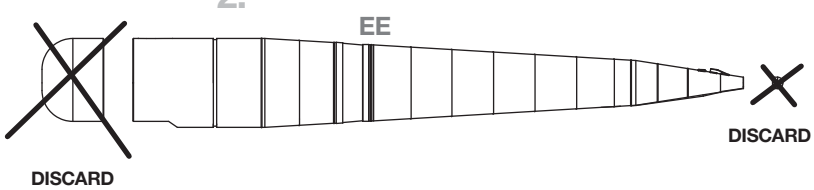


PREPARE BOOSTERS

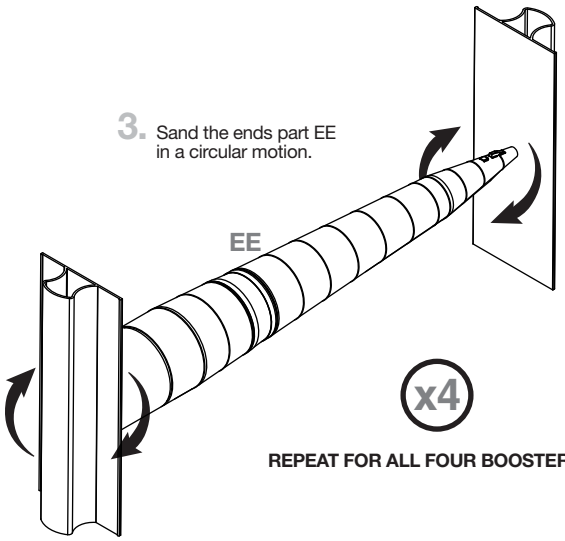
1. Using a sharp hobby knife, lightly score around the parts shown below. Take several light passes rather than trying to cut it at once.



2.



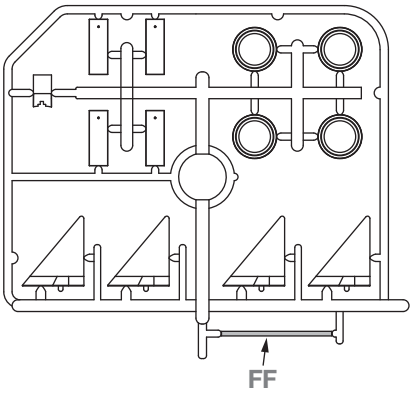
3. Sand the ends part EE in a circular motion.



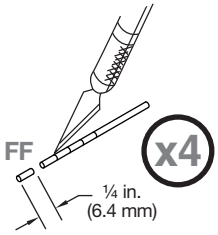
REPEAT FOR ALL FOUR BOOSTERS

ALIGN CENTER CORE AND BOOSTERS AND PREP FOR PAINTING

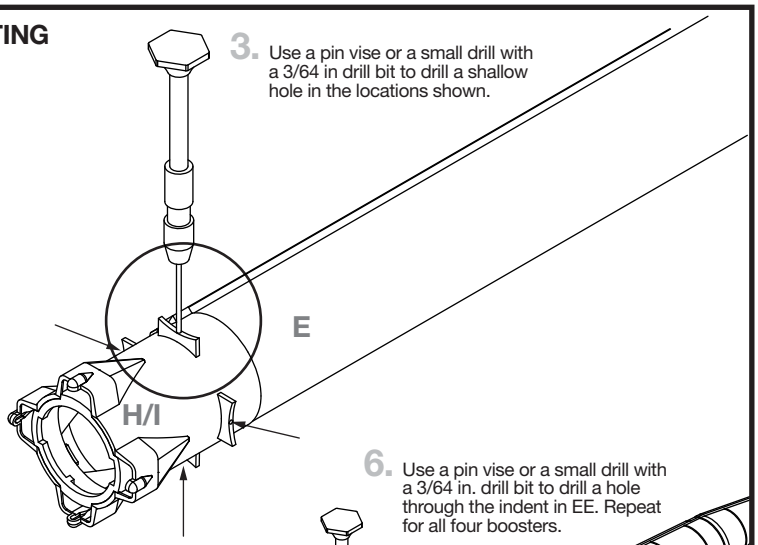
1. Carefully remove part FF.



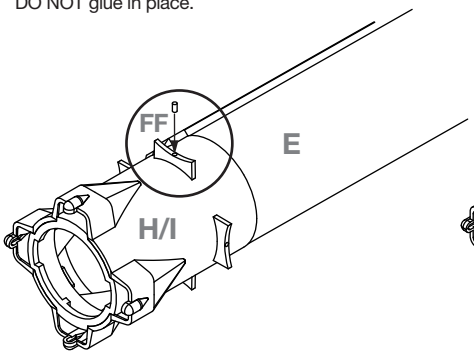
2. Cut four ¼ in. pieces from FF.



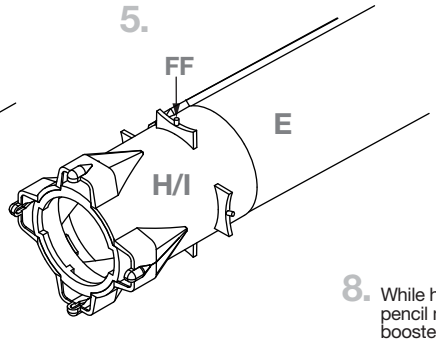
3. Use a pin vise or a small drill with a 3/64 in drill bit to drill a shallow hole in the locations shown.



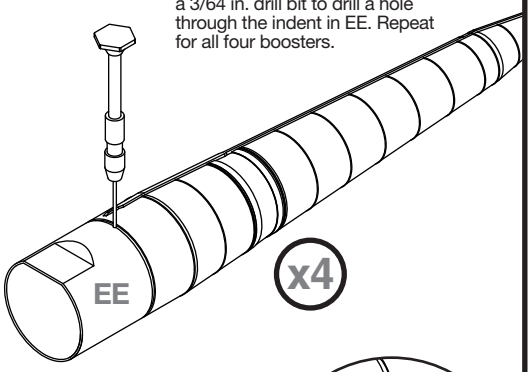
4. Insert one FF piece into hole in H/I. DO NOT glue in place.



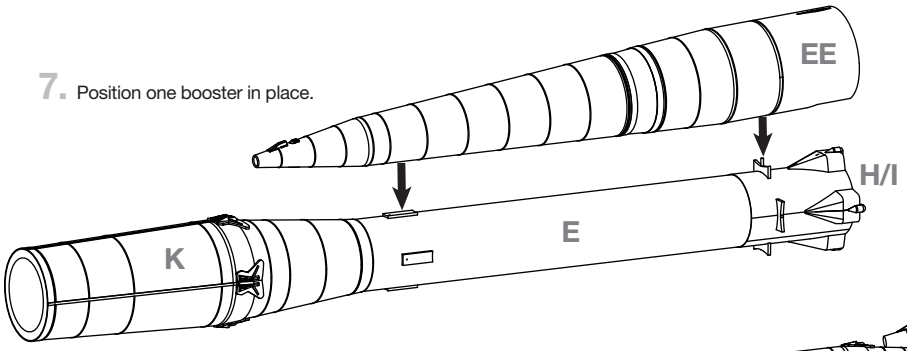
5.



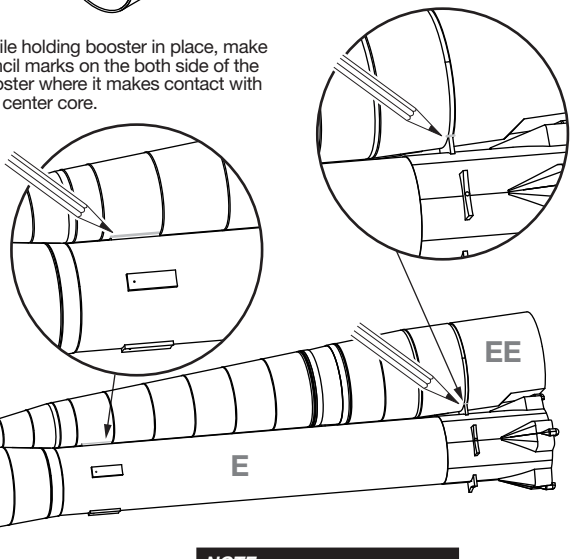
6. Use a pin vise or a small drill with a 3/64 in. drill bit to drill a hole through the indent in EE. Repeat for all four boosters.



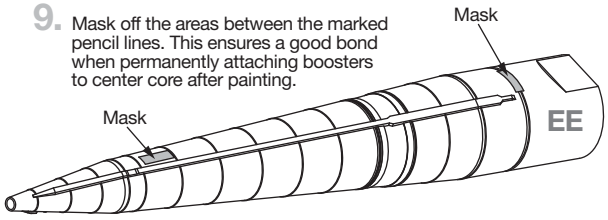
7. Position one booster in place.



8. While holding booster in place, make pencil marks on the both side of the booster where it makes contact with the center core.



9. Mask off the areas between the marked pencil lines. This ensures a good bond when permanently attaching boosters to center core after painting.



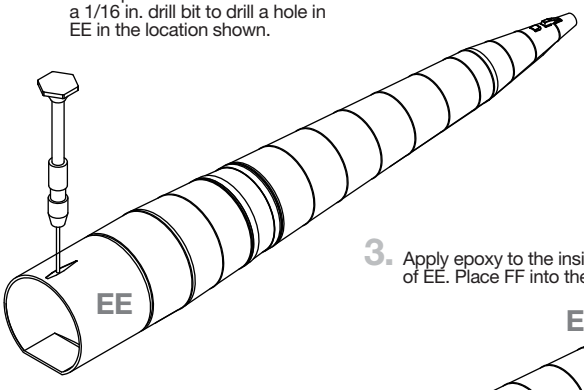
x4 **REPEAT FOR ALL FOUR BOOSTERS**

NOTE:

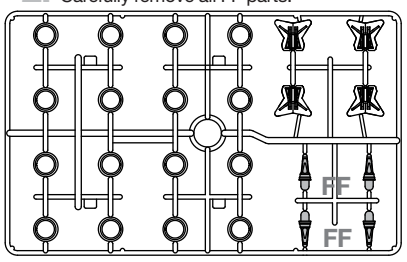
Once you've completed these steps, be sure to remove FF. You will need all ¼ in. FF pieces after painting. Do not lose them.

ASSEMBLE BOOSTERS

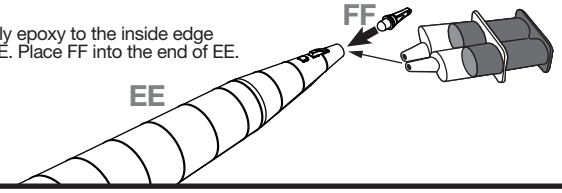
1. Use a pin vise or a small drill with a 1/16 in. drill bit to drill a hole in EE in the location shown.



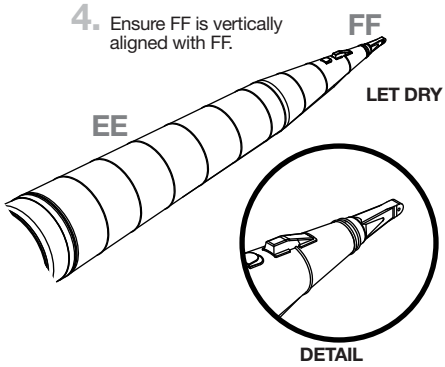
2. Carefully remove all FF parts.



3. Apply epoxy to the inside edge of EE. Place FF into the end of EE.

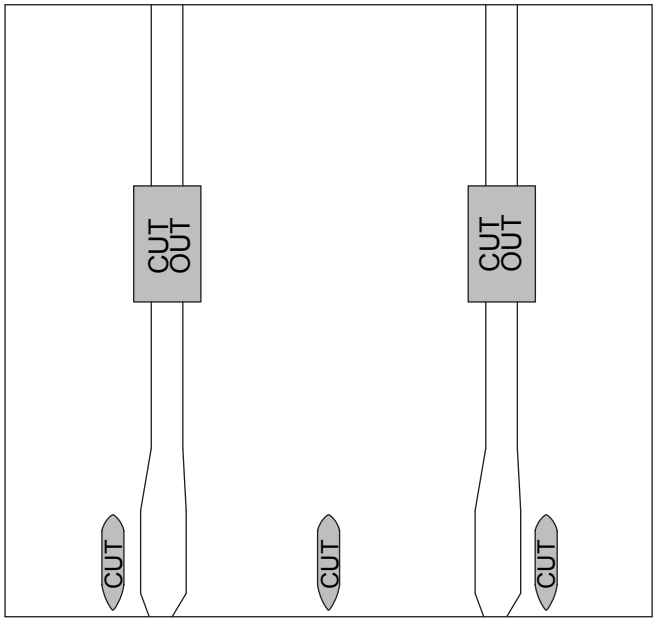


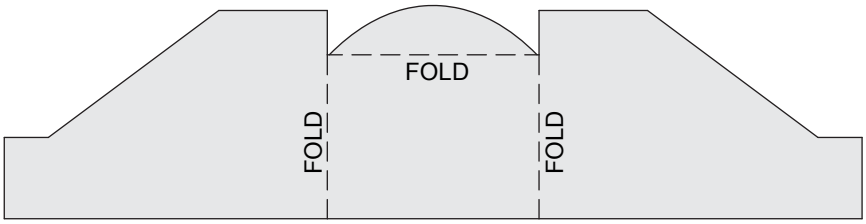
4. Ensure FF is vertically aligned with FF.

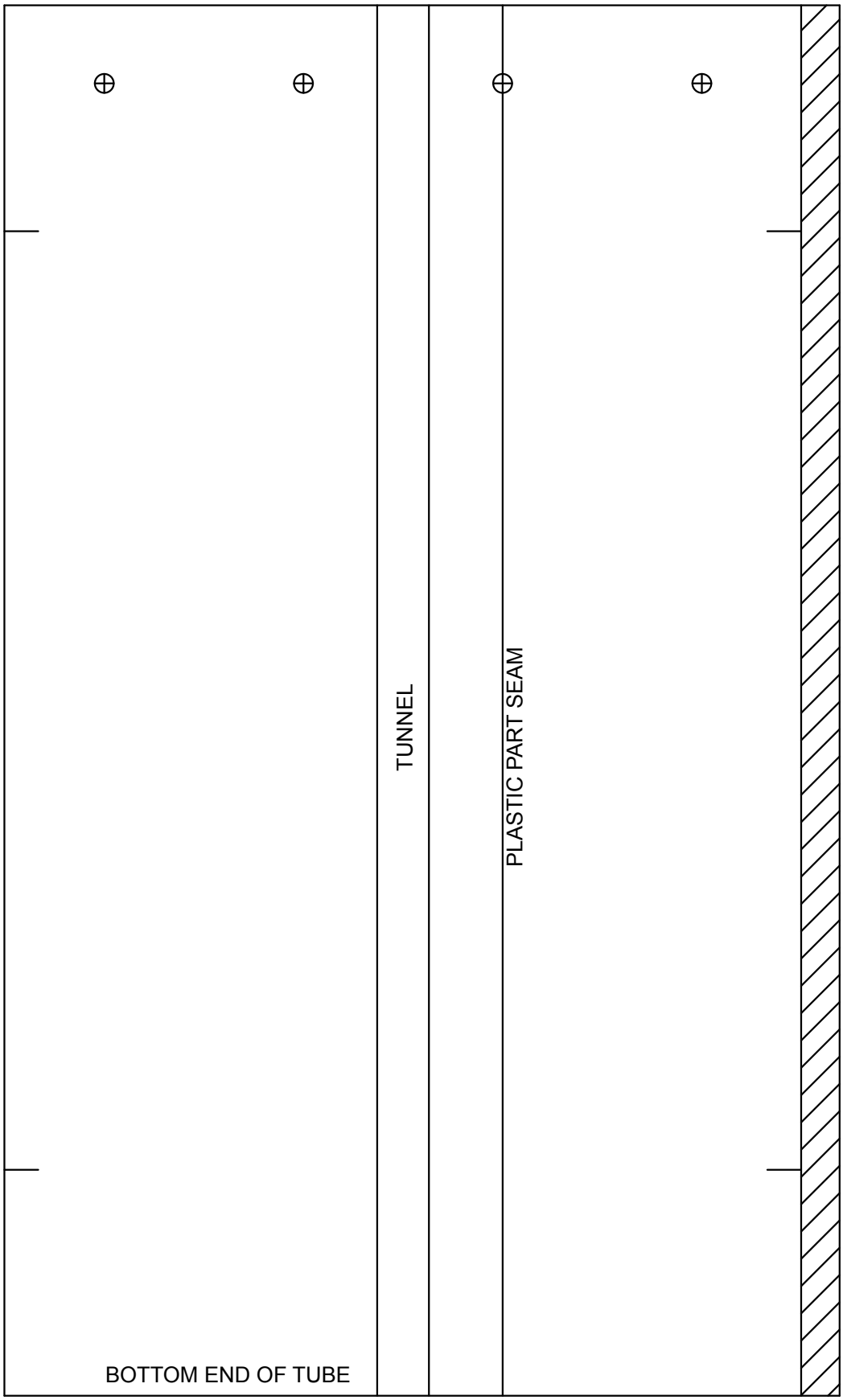


x4 **REPEAT FOR ALL FOUR BOOSTERS**

THIS PAGE
INTENTIONALLY
LEFT BLANK


CUT OUT
CUT OUT
CUT
CUT
CUT

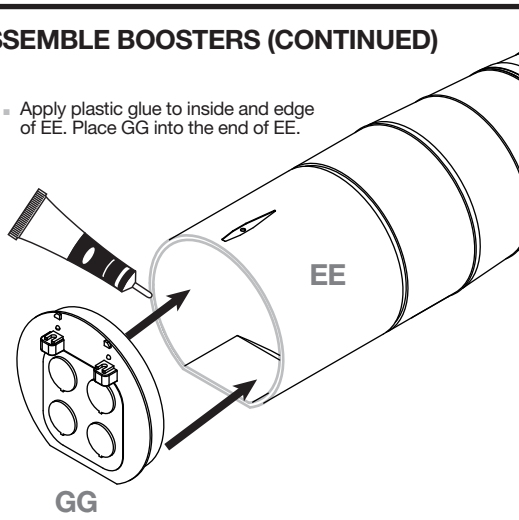

FOLD
FOLD
FOLD


TUNNEL
PLASTIC PART SEAM
BOTTOM END OF TUBE

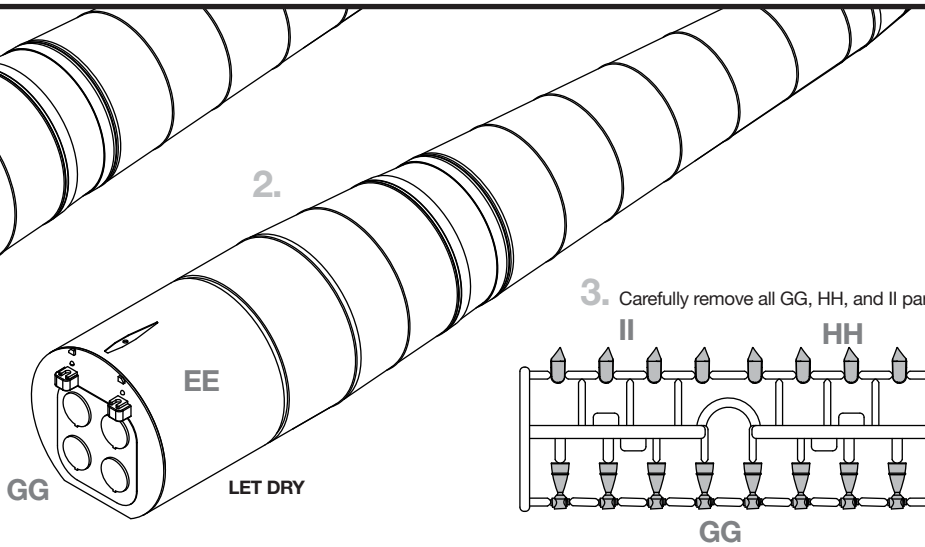
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INTENTIONALLY
LEFT BLANK

ASSEMBLE BOOSTERS (CONTINUED)

1. Apply plastic glue to inside and edge of EE. Place GG into the end of EE.



2.

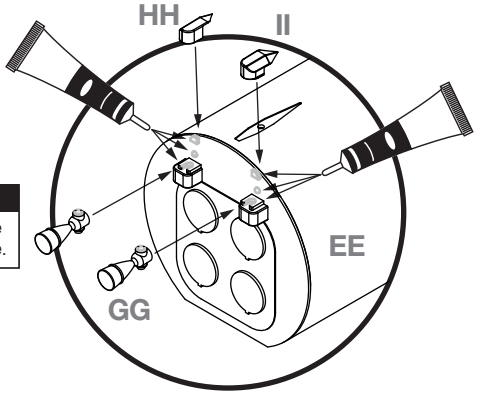


LET DRY

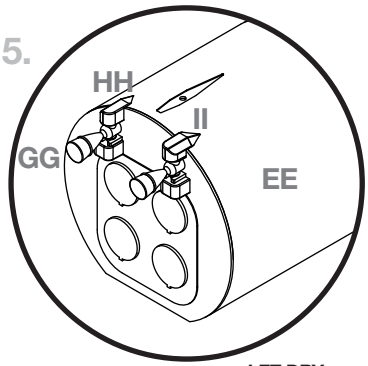
3. Carefully remove all GG, HH, and II parts.

BUILDER'S TIP:

This would be a good place to use brush-on plastic glue.

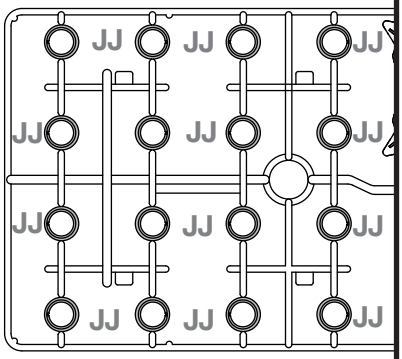


5.

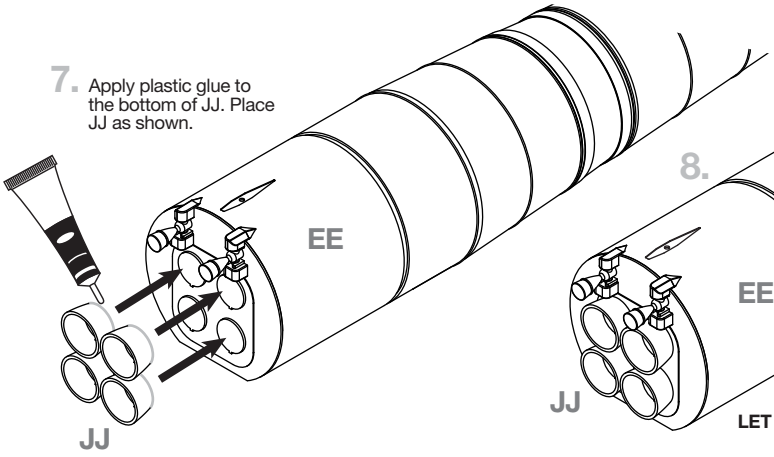


LET DRY

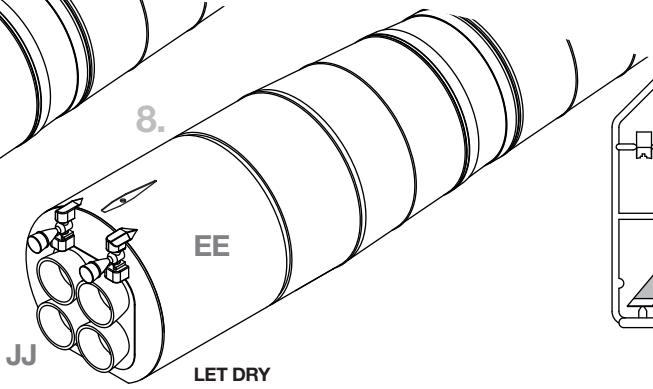
6. Carefully remove all JJ parts.



7. Apply plastic glue to the bottom of JJ. Place JJ as shown.

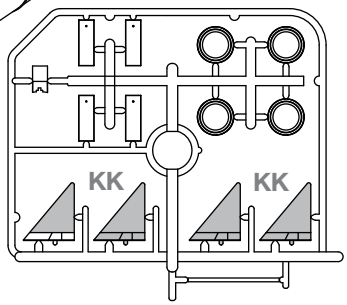


8.

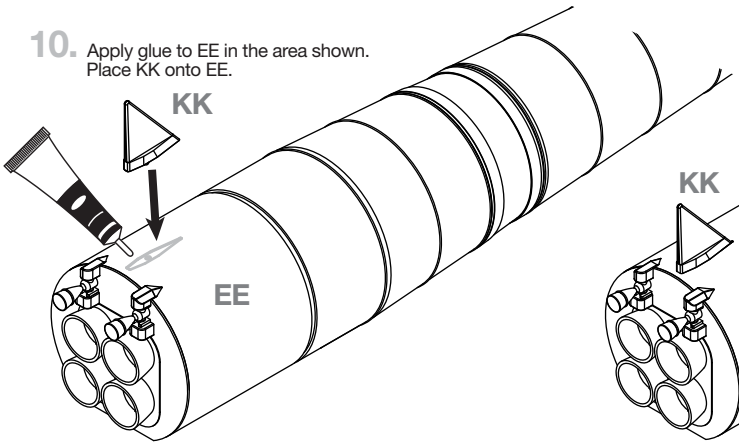


LET DRY

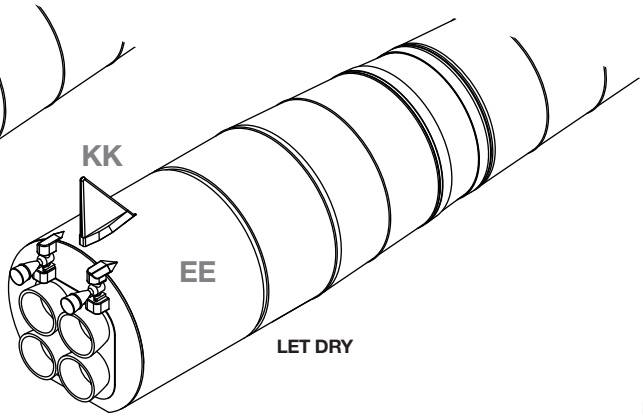
9. Carefully remove all KK parts.



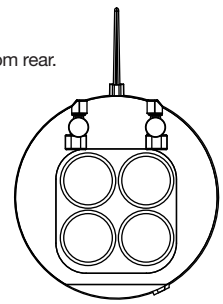
10. Apply glue to EE in the area shown. Place KK onto EE.



11. Make sure the fin is vertical when viewed from rear.



LET DRY



REAR VIEW

x4

REPEAT FOR ALL FOUR BOOSTERS

MASK, PAINT, AND APPLY DECALS

PAINT COLORS

- White
- Red
- Gray-Green
- Orange
- Silver
- Chrome

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 red, gray-green, orange, silver, and chrome paint application.
4. Apply decals only after paint is dry.
5. Cut decals from sheet, trimming close to edge.
6. One at a time, place in warm water until decal curls and begins to relax.
7. Remove and position on rocket, sliding decal away from backing material.
8. Blot with clean paper towel. Let set overnight.
9. OPTIONAL: Apply protective clear coat.

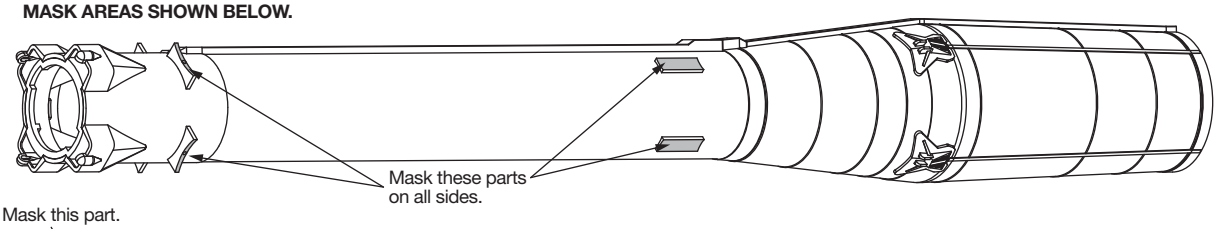
⚠ CAUTION:

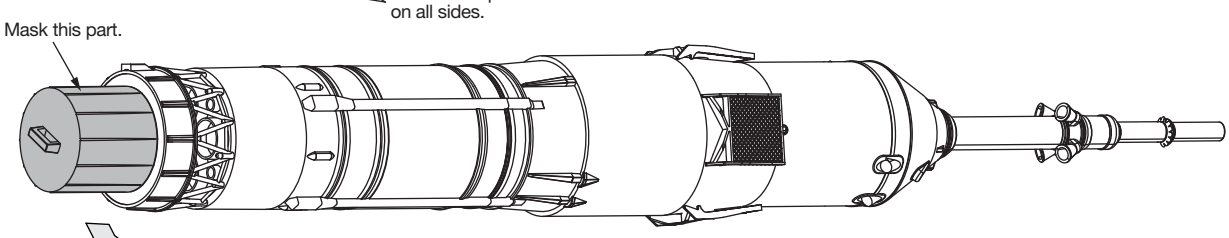
For safe handling of spray paints, see manufacturer's warnings and follow instructions for use.

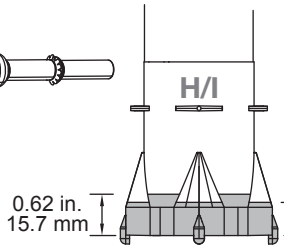
NOTE:

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

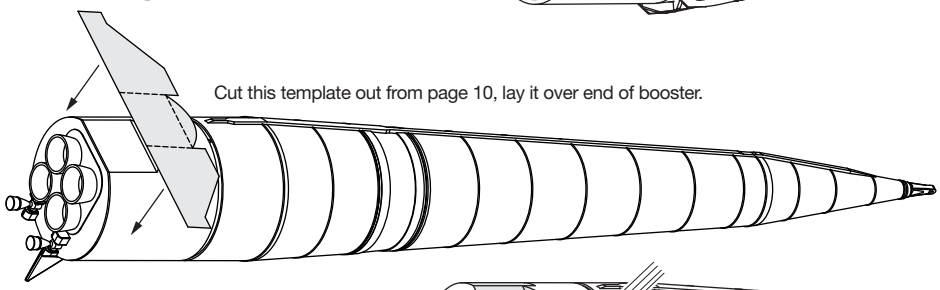
MASK AREAS SHOWN BELOW.





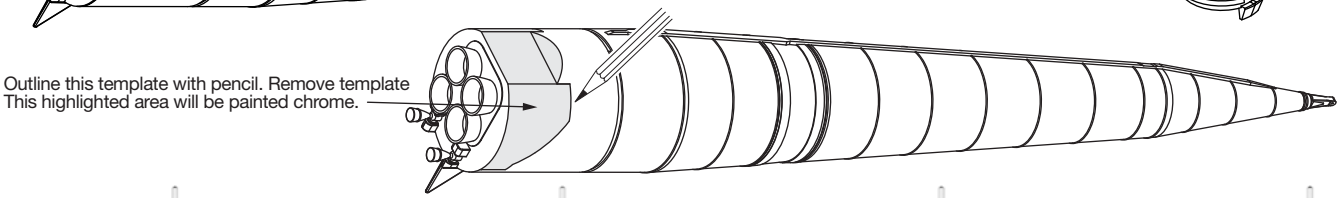


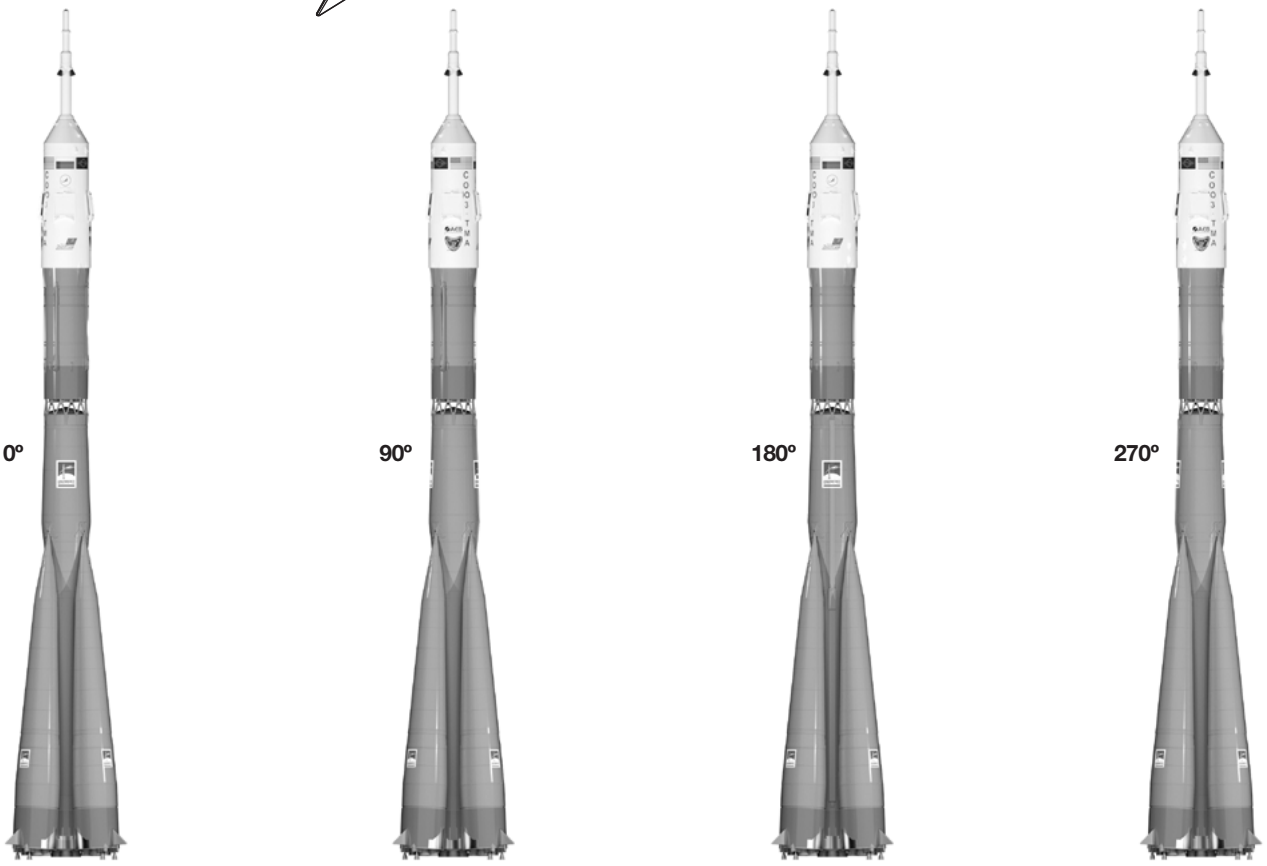
This highlighted area is painted chrome.





Paint center core display nozzle silver.

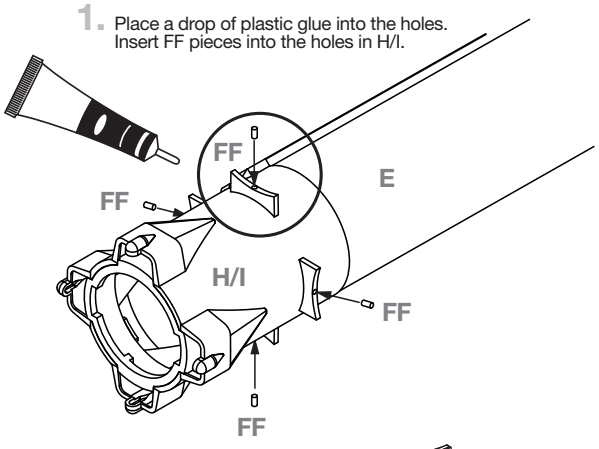




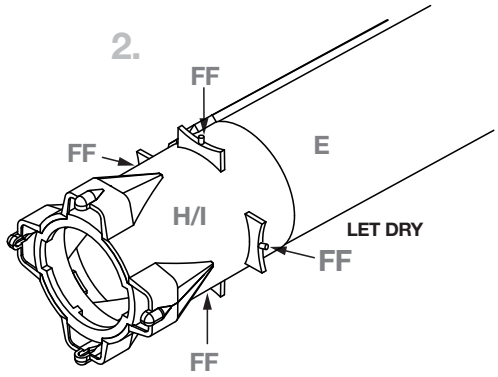
FINAL ASSEMBLY

NOTE:
Remove all masking after painting is complete.

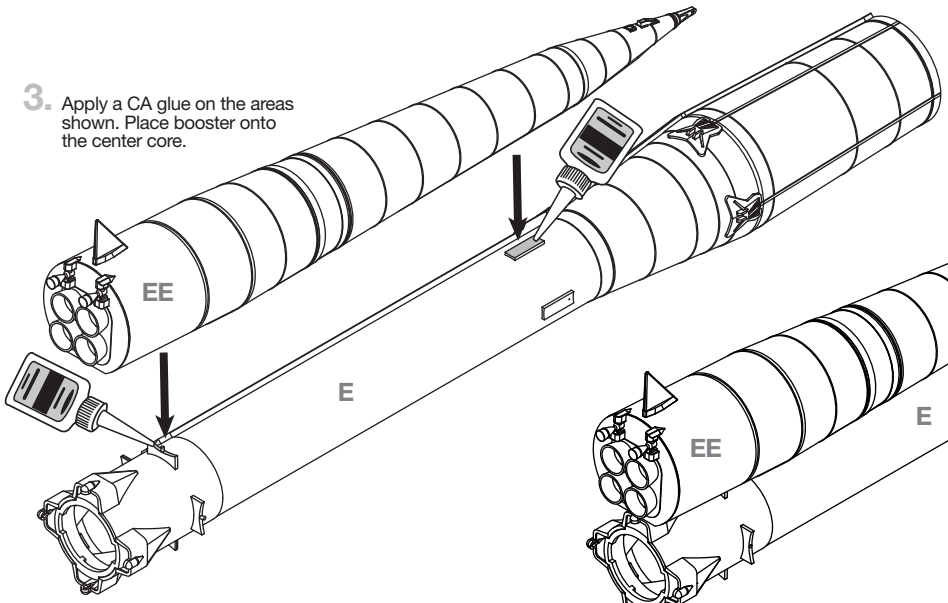
1. Place a drop of plastic glue into the holes. Insert FF pieces into the holes in H/I.



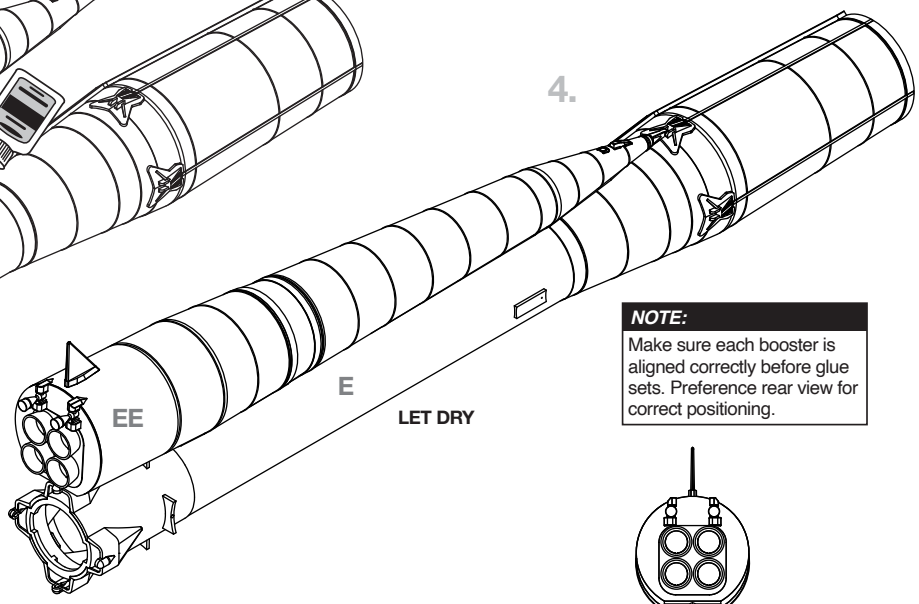
2.



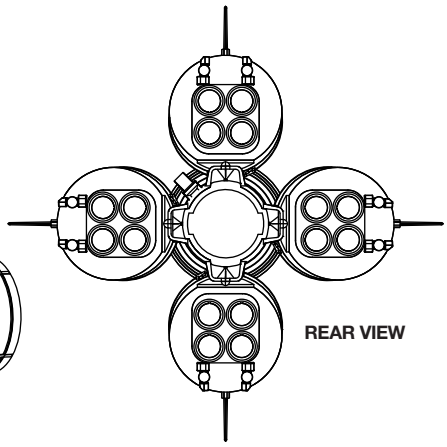
3. Apply a CA glue on the areas shown. Place booster onto the center core.



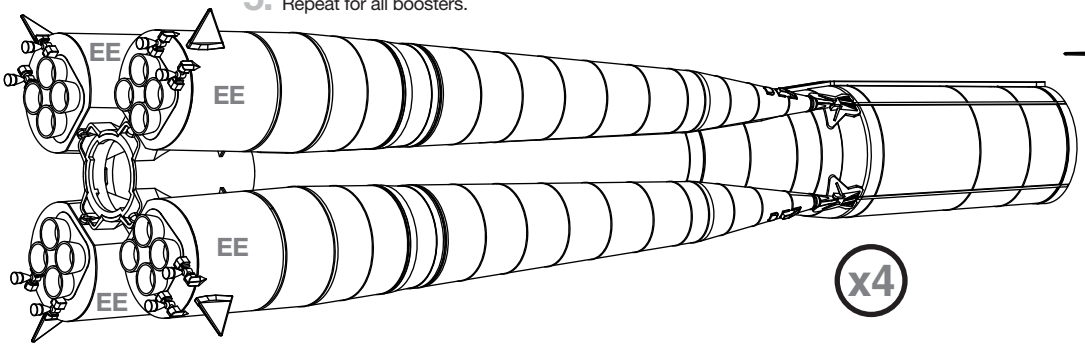
4.



NOTE:
Make sure each booster is aligned correctly before glue sets. Preference rear view for correct positioning.

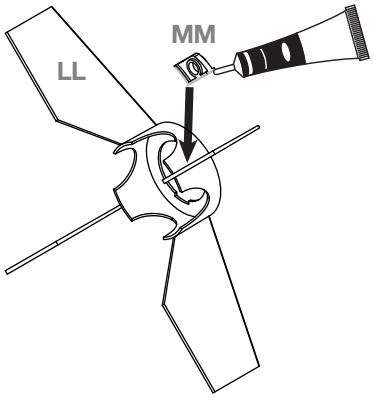


5. Repeat for all boosters.

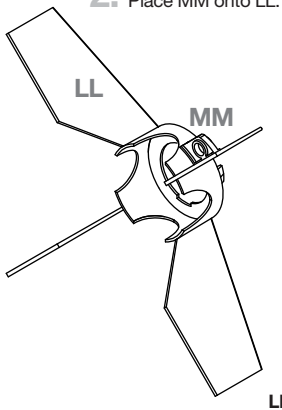


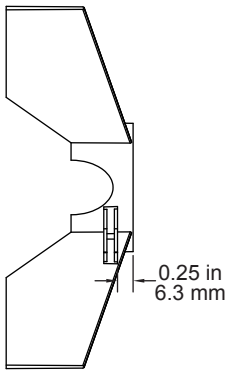
ASSEMBLE FLIGHT FINS

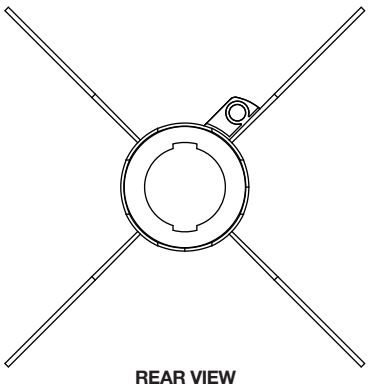
1. Apply plastic glue to the mounting surfaces of MM.



2. Place MM onto LL.

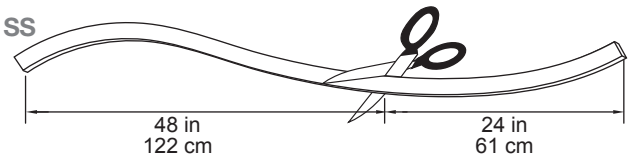




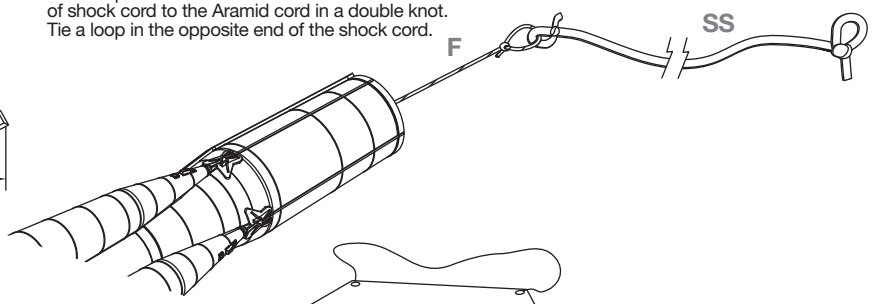


ASSEMBLE RECOVERY SYSTEM

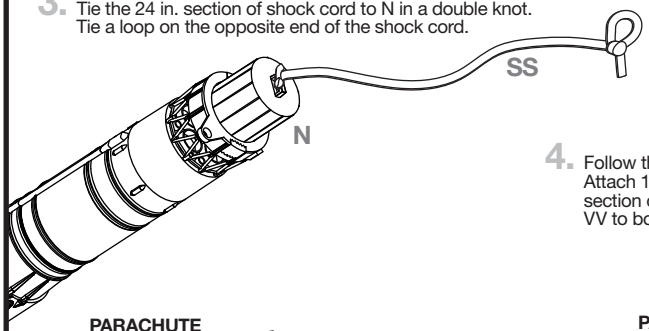
1. Cut shock cord SS into two pieces. A 48 in. piece and a 24 in. piece.

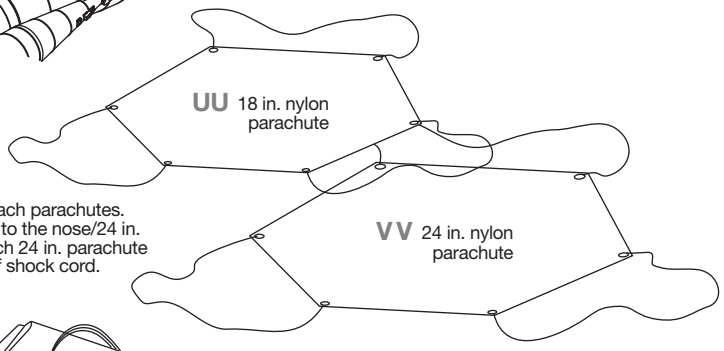


2. Tie a loop into Aramid cord F. Tie the 48 in. section of shock cord to the Aramid cord in a double knot. Tie a loop in the opposite end of the shock cord.

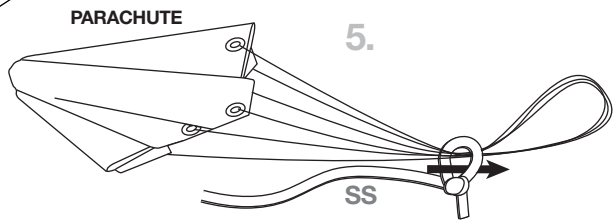


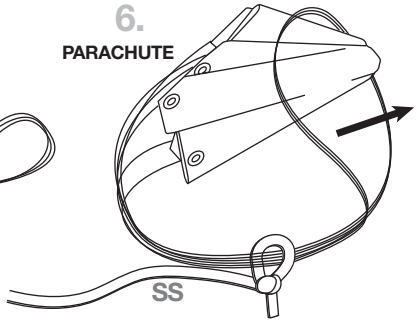
3. Tie the 24 in. section of shock cord to N in a double knot. Tie a loop on the opposite end of the shock cord.

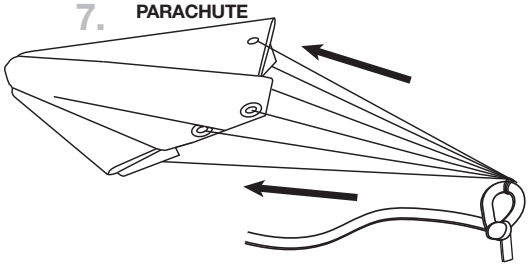




4. Follow the next steps to attach parachutes. Attach 18 in. parachute UU to the nose/24 in. section of shock cord. Attach 24 in. parachute VV to body/48 in. section of shock cord.

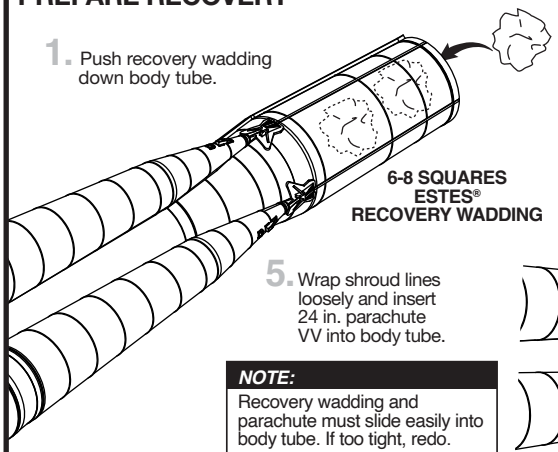


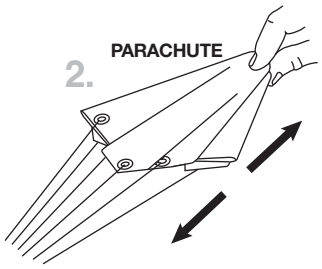


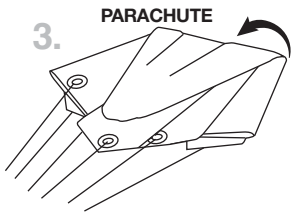


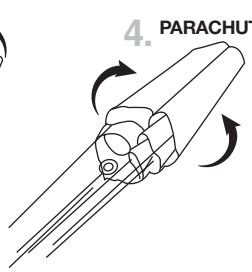
PREPARE RECOVERY

1. Push recovery wadding down body tube.

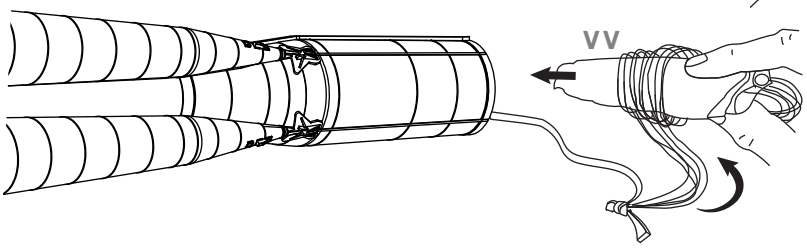








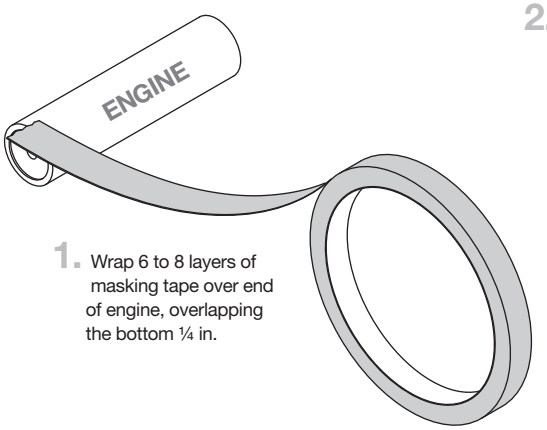
5. Wrap shroud lines loosely and insert 24 in. parachute VV into body tube.



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

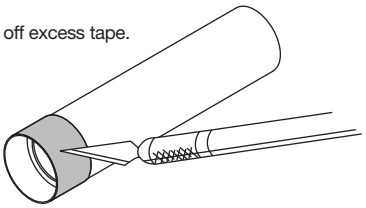
NOTE:
18 in. parachute UU will be inserted into body tube later.

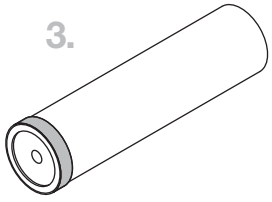
PREPARE ENGINE

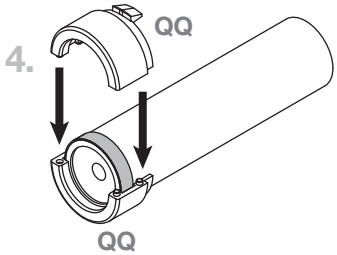


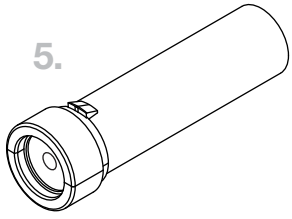
1. Wrap 6 to 8 layers of masking tape over end of engine, overlapping the bottom ¼ in.

2. Trim off excess tape.



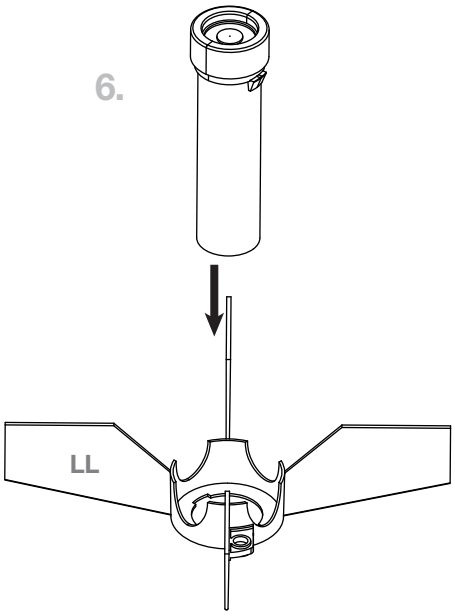




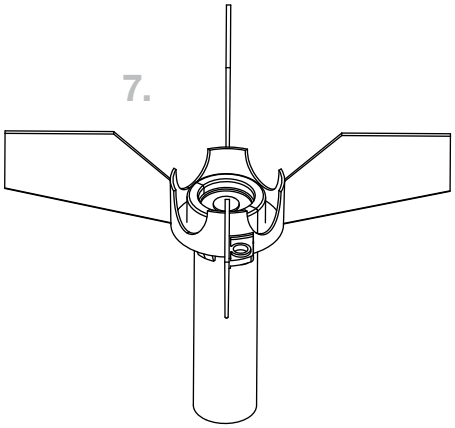


PREPARE ENGINE (CONTINUED)

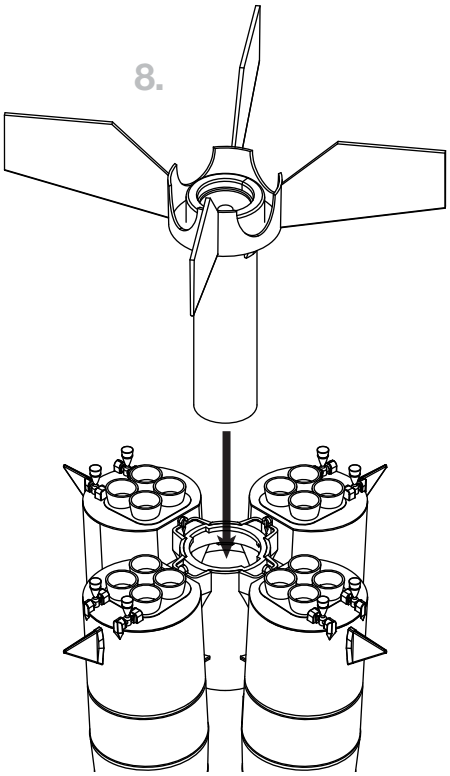
6.



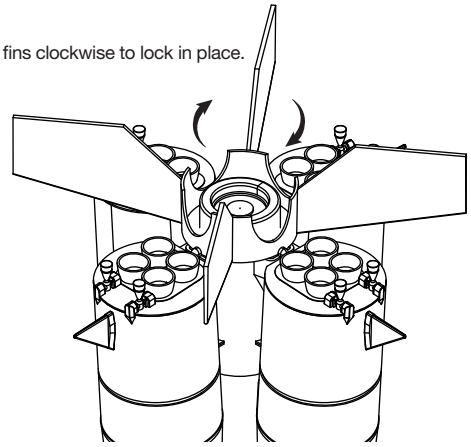
7.

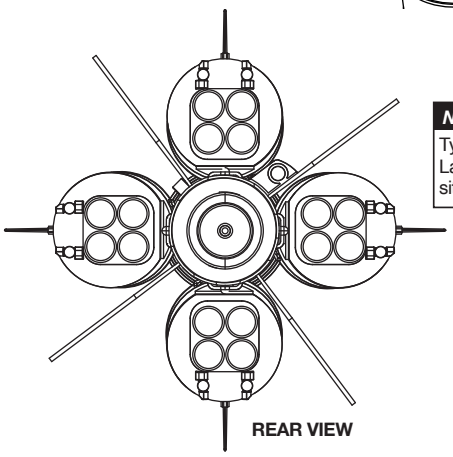


8.



9. Rotate fins clockwise to lock in place.



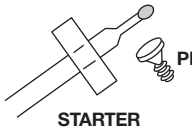


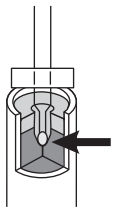
REAR VIEW

NOTE:

Typical fin alignment. Launch lug MM should sit between boosters.

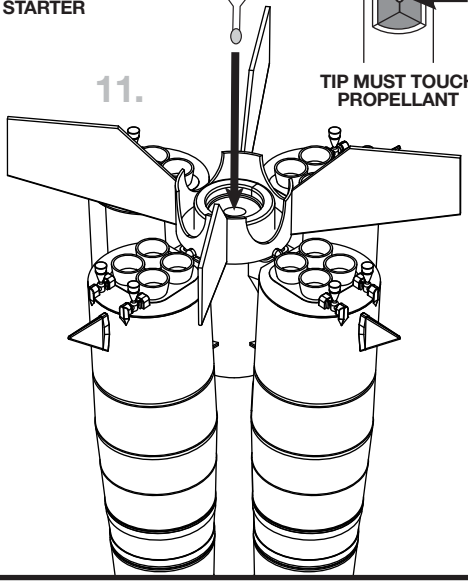
10. Use one each.



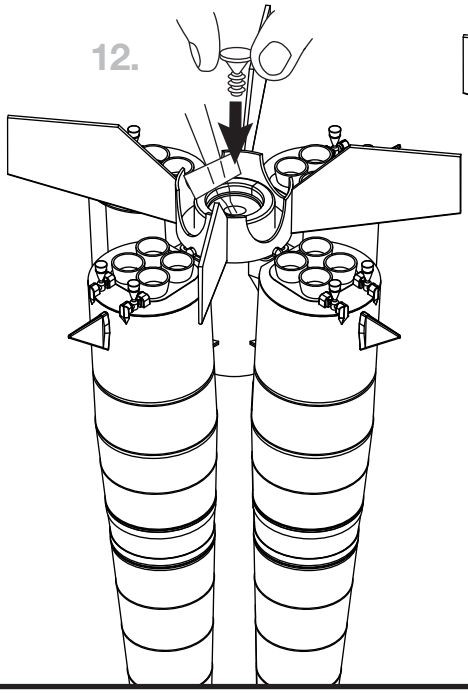


TIP MUST TOUCH PROPELLANT

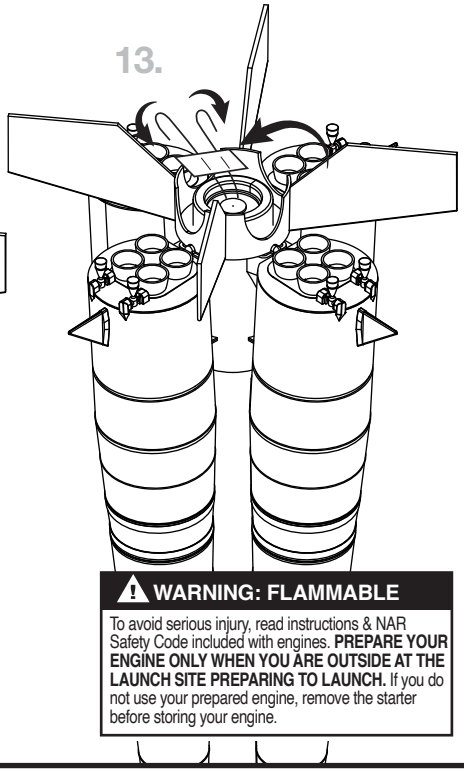
11.



12.



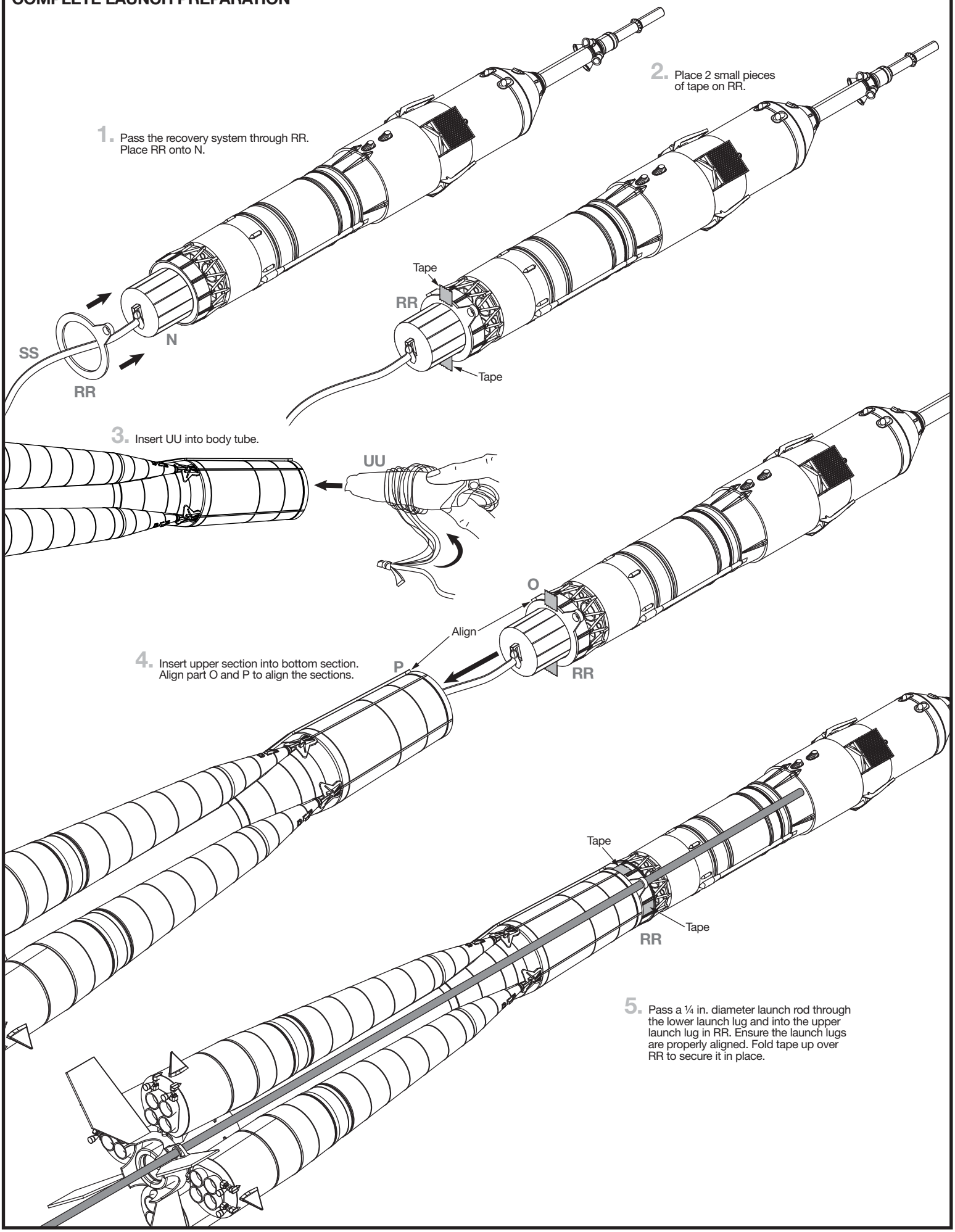
13.



⚠ WARNING: FLAMMABLE

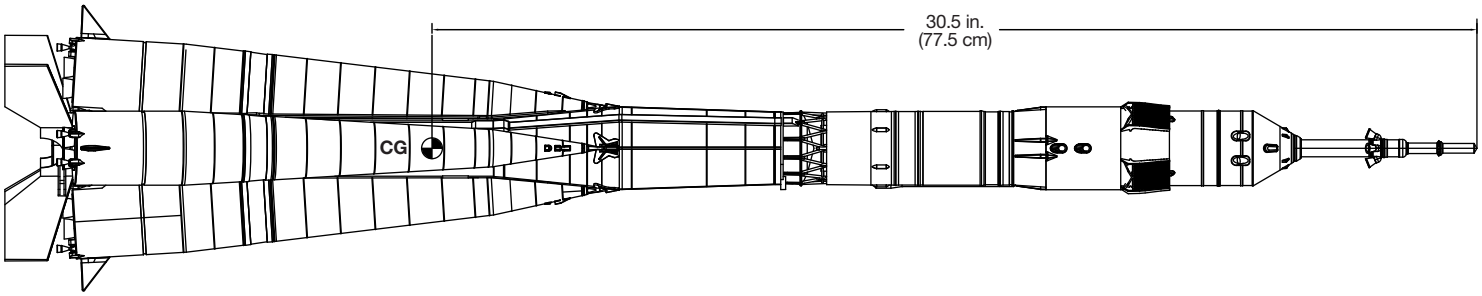
To avoid serious injury, read instructions & NAR Safety Code included with engines. **PREPARE YOUR ENGINE ONLY WHEN YOU ARE OUTSIDE AT THE LAUNCH SITE PREPARING TO LAUNCH.** If you do not use your prepared engine, remove the starter before storing your engine.

COMPLETE LAUNCH PREPARATION



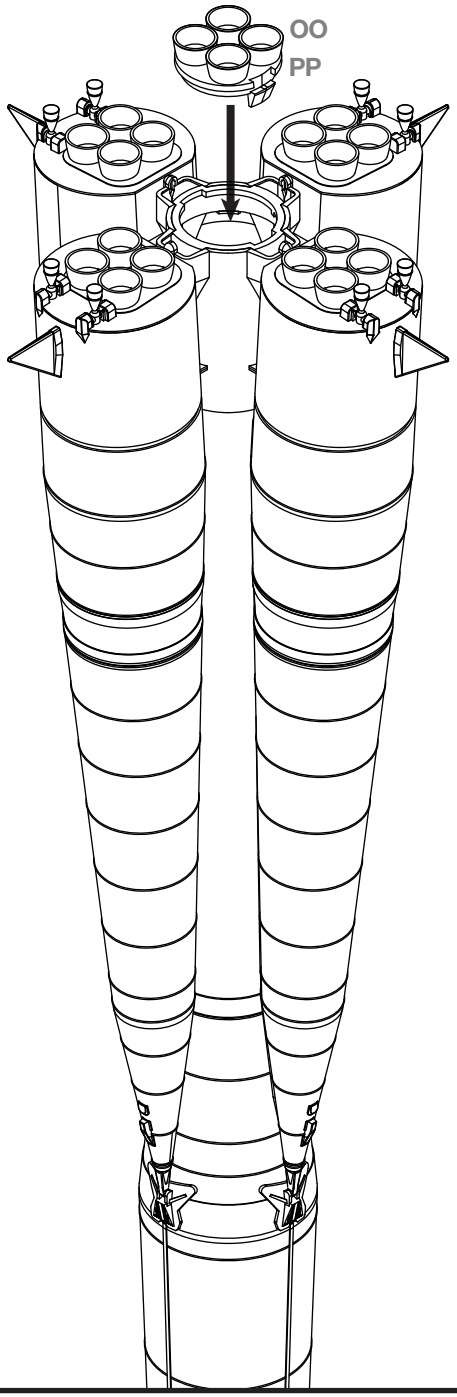
CHECK CENTER OF GRAVITY

After the engine is installed, ensure that the center of gravity is 30.5 in. (77.5 cm) from the front of the rocket. The center of gravity can be further forward of this point, but cannot be further back from this point. If the center of gravity is further back than 30.5 in., add weight to the nose cone to bring the center of gravity forward.

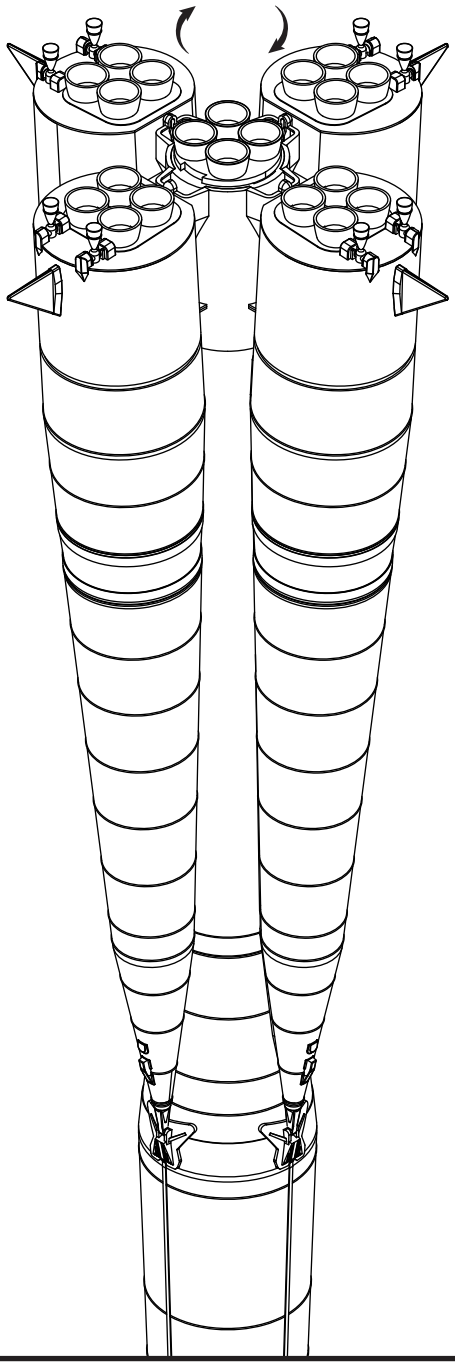


DISPLAY NOZZLE INSTALLATION

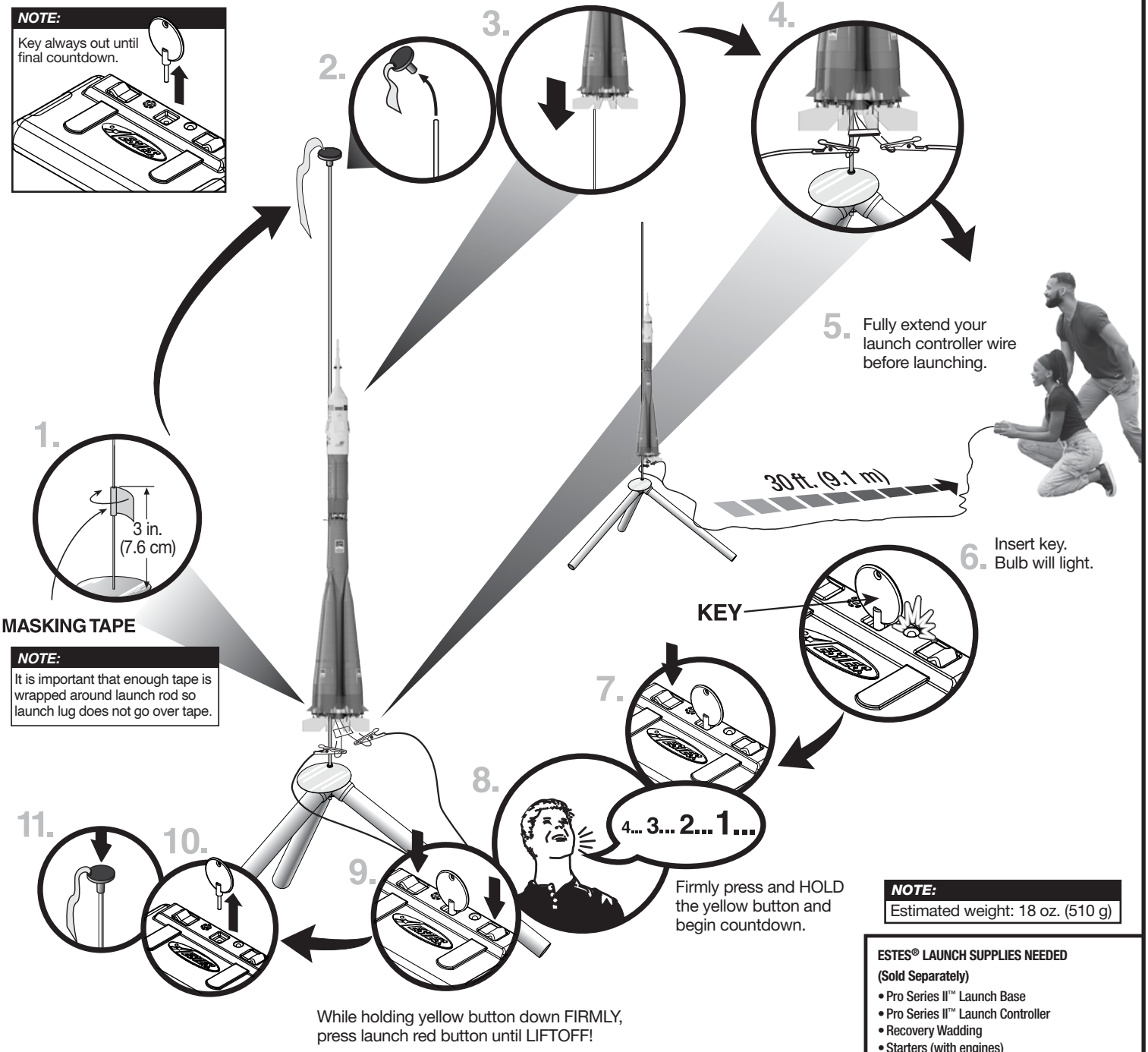
1. For display, remove clear fin unit LL and remove launch lug RR.



2. Rotate nozzle clockwise to lock in place.



COUNTDOWN AND LAUNCH



NOTE:
Estimated weight: 18 oz. (510 g)

ESTES® LAUNCH SUPPLIES NEEDED
(Sold Separately)

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

PRECAUTIONS



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

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

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

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