



EstesRockets.com

PRO SERIES II

LIL' SPITE™

9737

AGES
18+



Skill Level

INTERMEDIATE

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



RULER



MASKING TAPE



SCISSORS



HOBBY KNIFE



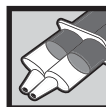
DRILL



FINE SANDPAPER



CARPENTER'S GLUE



EPOXY



CA GLUE



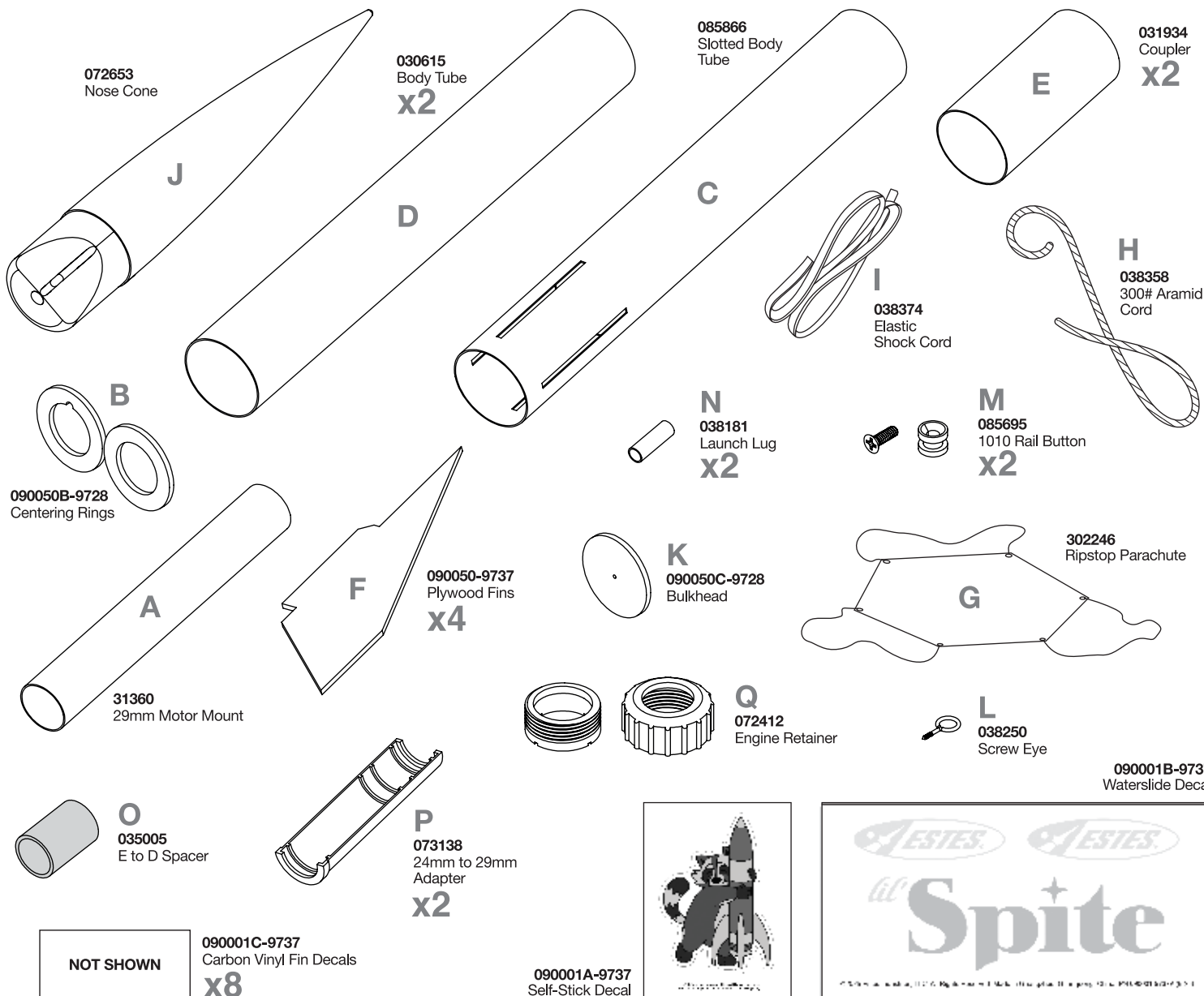
PRIMER (WHITE)



PAINT (BLACK)

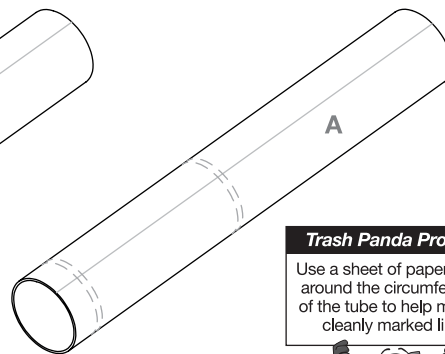
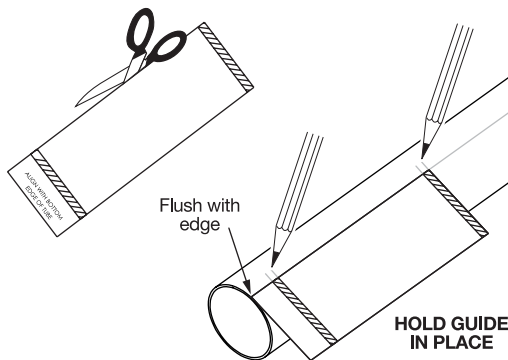
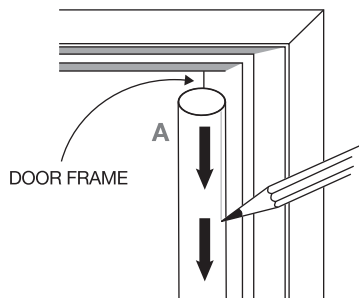


CLEAR COAT (OPTIONAL)



ENGINE MOUNT ASSEMBLY

1. Mark a line down the center of tube **A** using a doorframe or (2228) Ultimate Tube Marking Guide sold separately.
2. Cut out the centering ring marking guide from page 6. Use a pencil to mark the location of the centering rings.
3. Continue marking lines around the circumference to help align the centering rings. Remove guide.



Trash Panda Pro Tip:

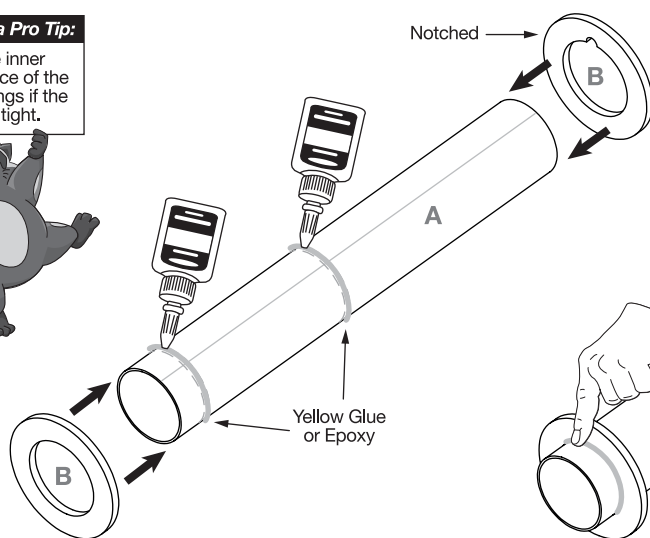
Use a sheet of paper rolled around the circumference of the tube to help align the centering rings. Remove guide.



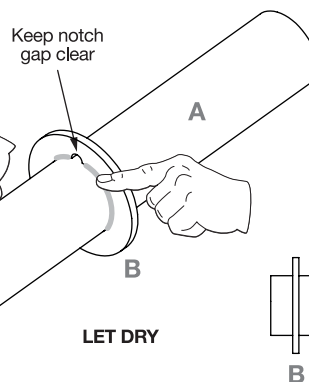
4. Apply yellow glue or epoxy around the circumference of tube **A** between the marked lines. Slide on **B** centering rings as shown until they sit between the marked lines. Let Dry.

Trash Panda Pro Tip:

Sand the inner circumference of the centering rings if the fit is too tight.

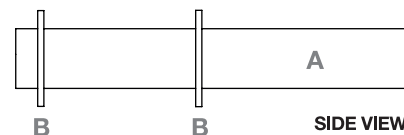


5. Apply glue fillets on both sides of both centering rings. Smooth with finger.



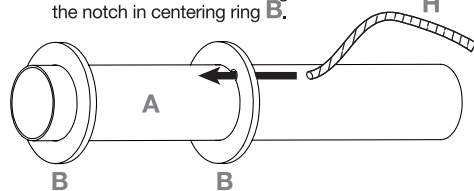
Trash Panda Pro Tip:

If using epoxy for fillets, proper ppe is required when spreading glue.



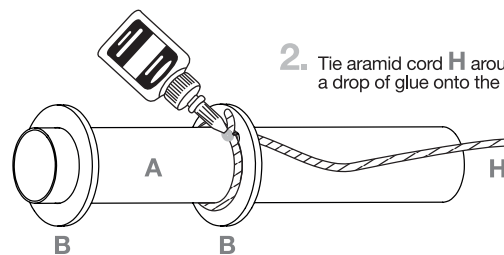
INSTALL ARAMID CORD & ENGINE MOUNT

1. Thread aramid cord **H** through the notch in centering ring **B**.



Trash Panda Pro Tip:

Trim the end of the aramid cord to make it fit more easily through the notch.

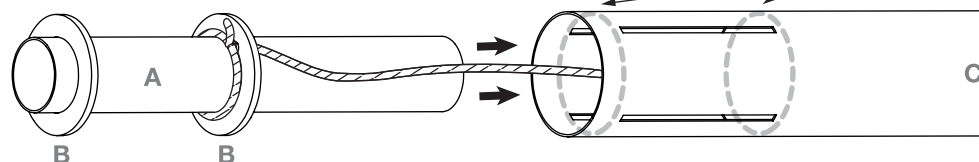


2. Tie aramid cord **H** around the tube and apply a drop of glue onto the knot. Let Dry.

3. Apply glue on the inside of tube **C** just above and just below the tube slots. Slide in the engine mount assembly until flush with tube end.

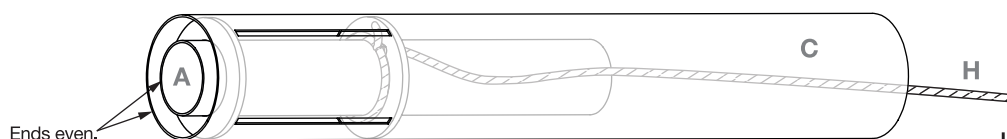
Trash Panda Pro Tip:

Test fit the assembly and sand the centering ring diameter if necessary.



Trash Panda Pro Tip:

Wait to apply the bead of glue closest to the tube end until you've slid the first centering ring past this point.



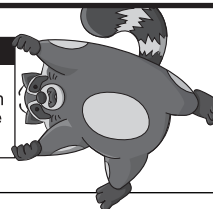
TUBE COUPLING

1. Draw a line 2 in. from the end of coupler **E**. Apply glue on the inside end of body tube **C** and body tube **D** as shown. Insert coupler **E** into one of the tubes up to the line. Slide on the other tube. Let dry.

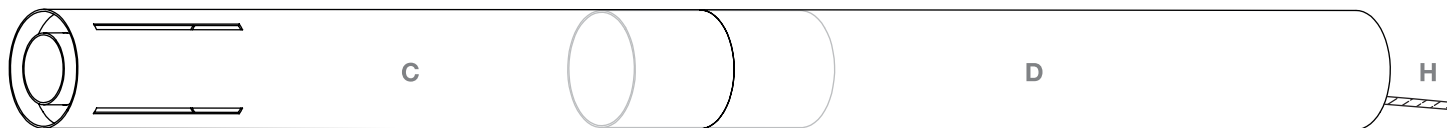
Yellow Glue or Epoxy

Trash Panda Pro Tip:

Spread the glue and give the pieces a twisting motion when assembling to ensure a good bond.



2.

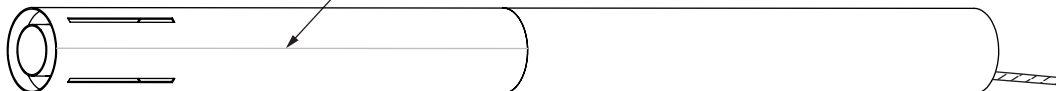
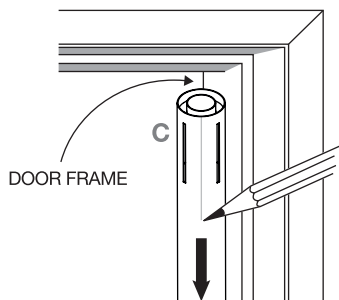


2 in. (5 cm)

LET DRY

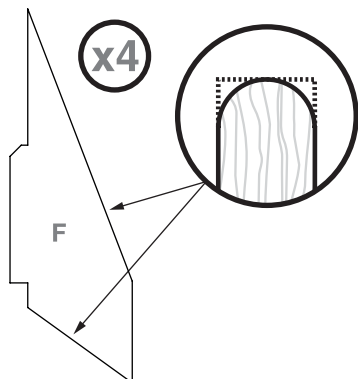
3. Make a mark halfway between the fin slots and extend the line down the length of body tube **C** for launch lugs/rail buttons.

Launch lug line

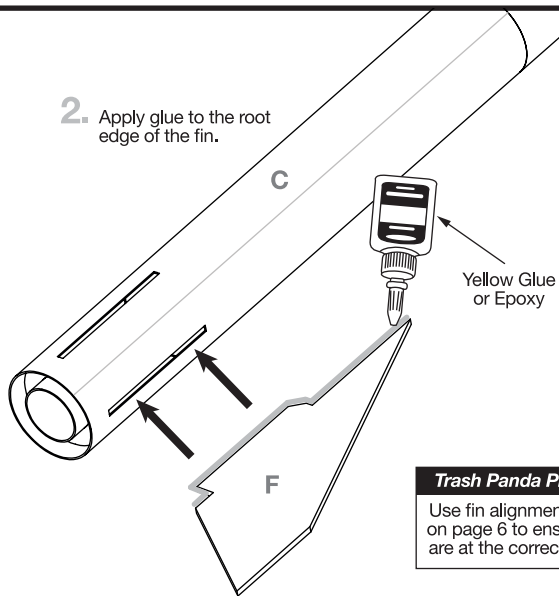


FIN PREPARATION & ASSEMBLY

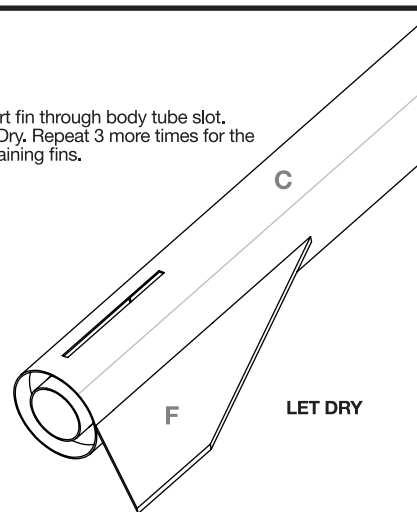
1. Using fine sand paper, round the leading and trailing edges of all **F** fins.



2. Apply glue to the root edge of the fin.



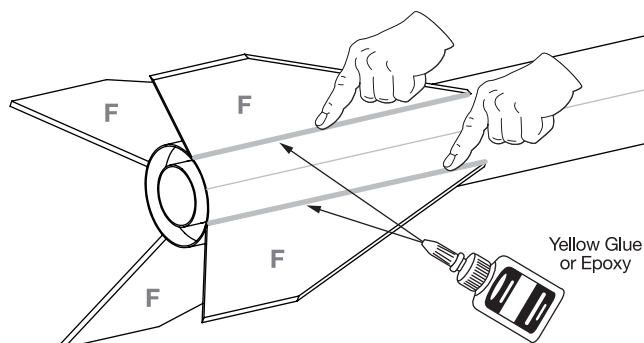
3. Insert fin through body tube slot. Let Dry. Repeat 3 more times for the remaining fins.



Trash Panda Pro Tip:

Use fin alignment guide on page 6 to ensure fins are at the correct angle.

4. Apply glue fillets on both sides of all fins. Smooth with finger. Use yellow glue or epoxy.



LET DRY

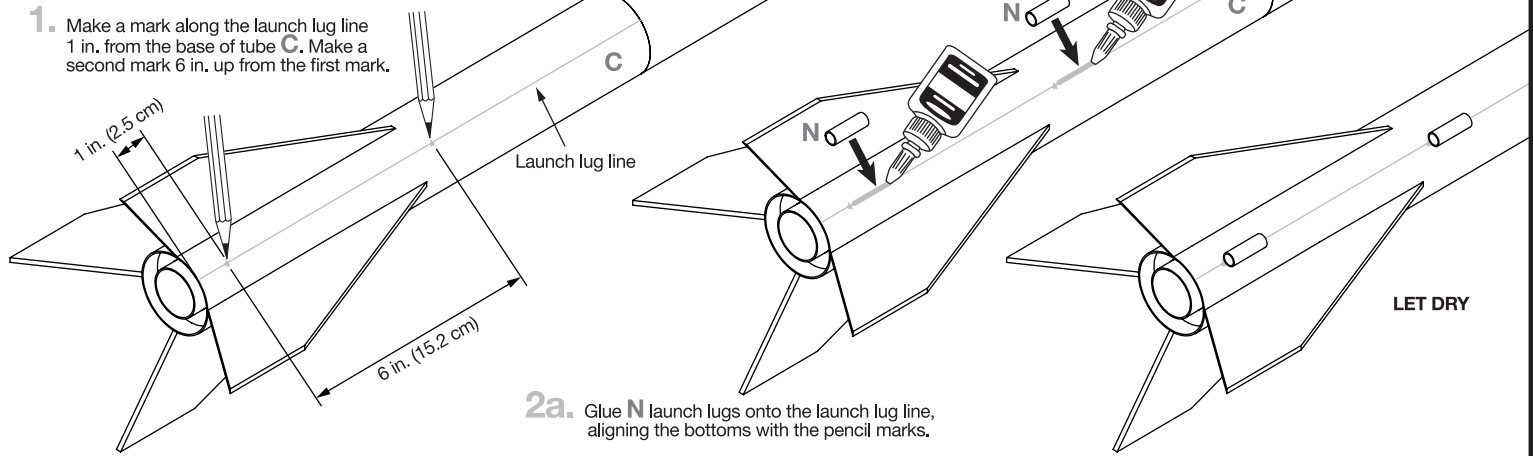
Trash Panda Pro Tip:

If using epoxy for fillets, proper ppe is required when spreading glue.



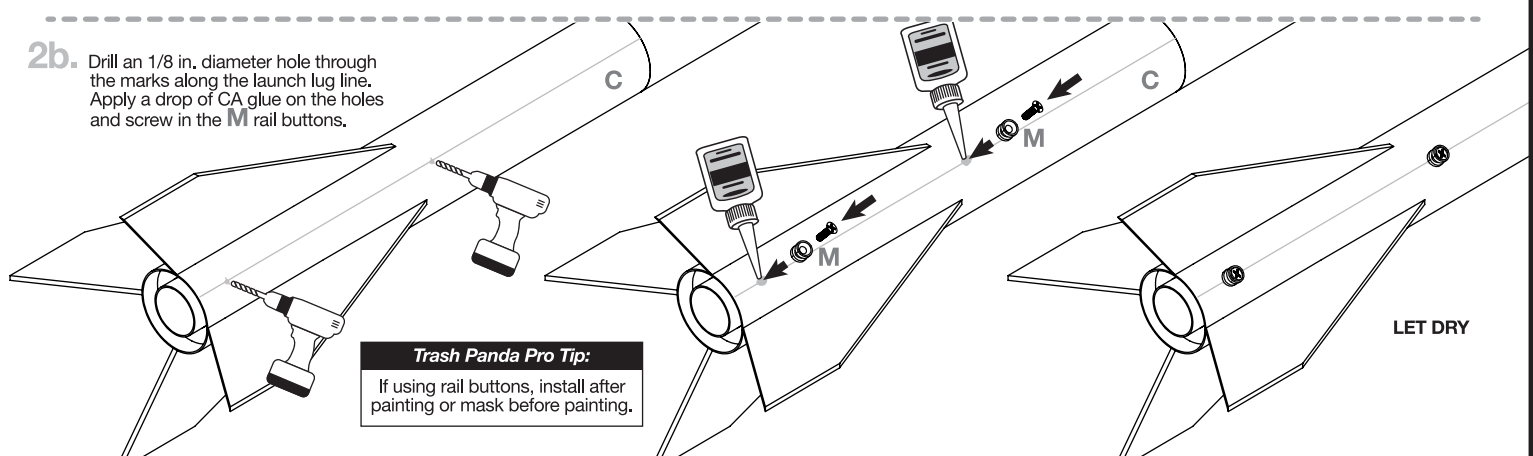
LAUNCH LUG OR RAIL BUTTON ATTACHMENT

1. Make a mark along the launch lug line 1 in. from the base of tube **C**. Make a second mark 6 in. up from the first mark.



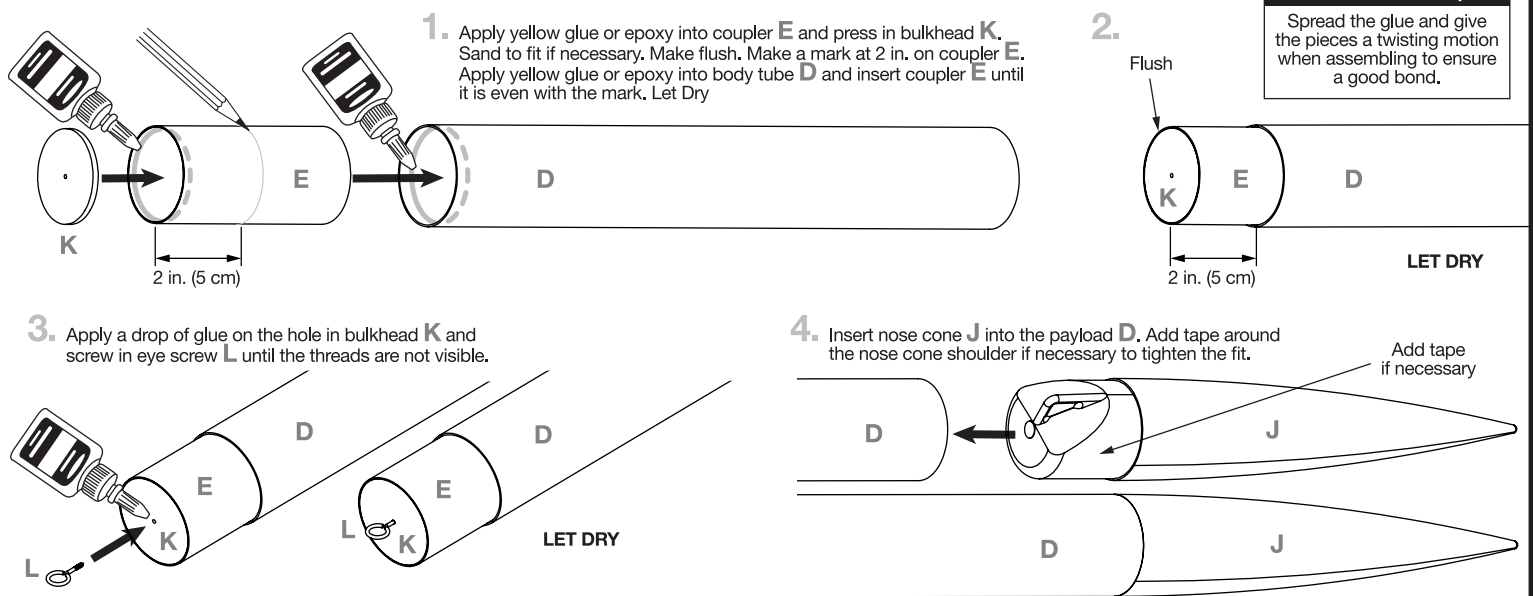
- 2a. Glue **N** launch lugs onto the launch lug line, aligning the bottoms with the pencil marks.

- 2b. Drill an 1/8 in. diameter hole through the marks along the launch lug line. Apply a drop of CA glue on the holes and screw in the **M** rail buttons.



Trash Panda Pro Tip:
If using rail buttons, install after painting or mask before painting.

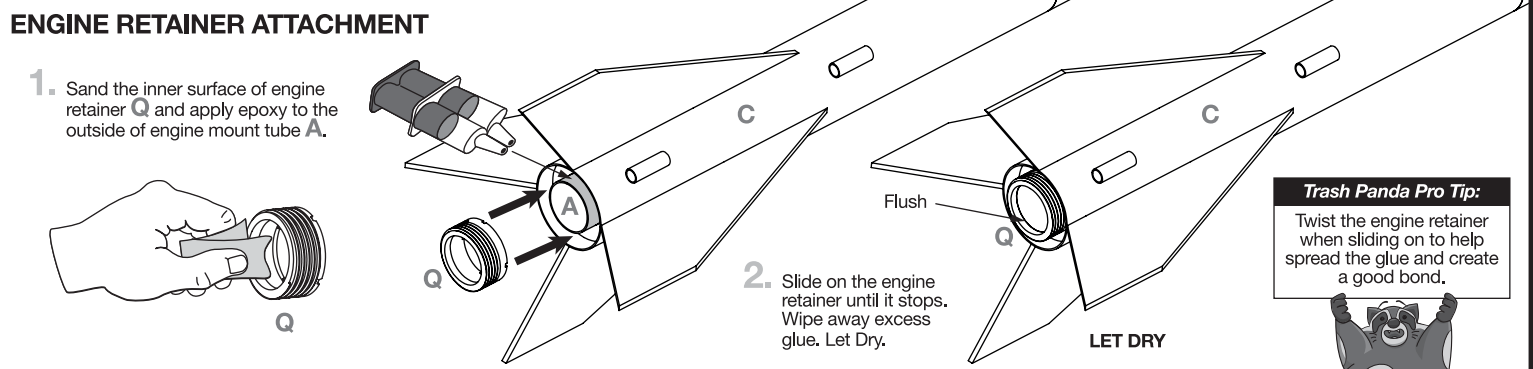
ASSEMBLE PAYLOAD SECTION



Trash Panda Pro Tip:
Spread the glue and give the pieces a twisting motion when assembling to ensure a good bond.

ENGINE RETAINER ATTACHMENT

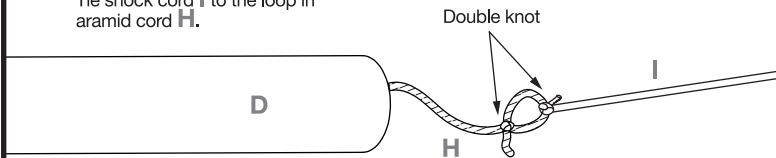
1. Sand the inner surface of engine retainer **Q** and apply epoxy to the outside of engine mount tube **A**.



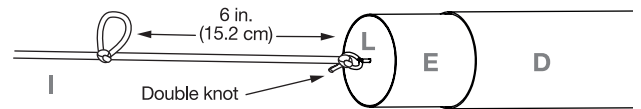
Trash Panda Pro Tip:
Twist the engine retainer when sliding on to help spread the glue and create a good bond.

RECOVERY SYSTEM ATTACHMENT

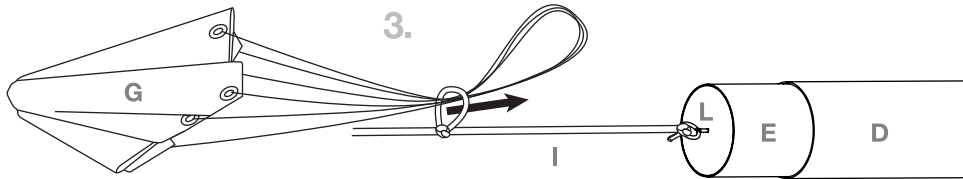
1. Tie a loop in the end of aramid cord **H**.
Tie shock cord **I** to the loop in aramid cord **H**.



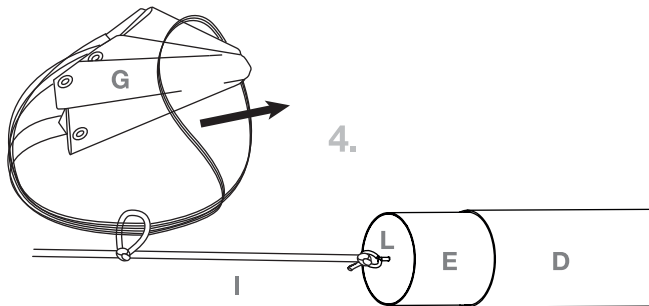
2. Tie a loop 6 in. from the free end of shock cord **I**.
Tie the free end of shock cord **I** to eye screw **L**.



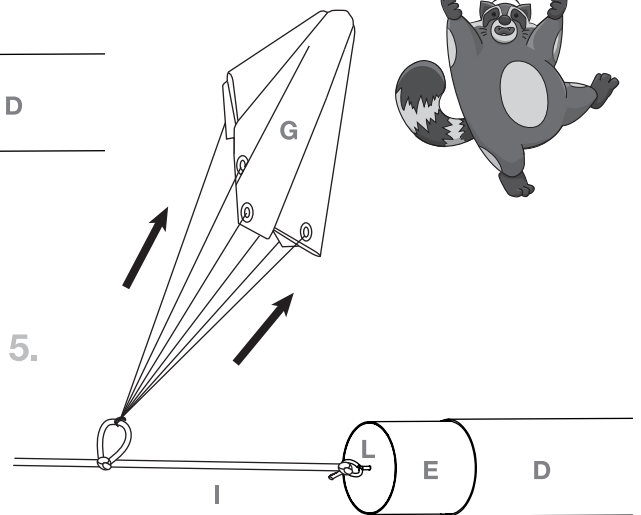
3.



4.



5.



Trash Panda Pro Tip:

Apply a drop of glue to all knots.



PAINT AND APPLY DECALS

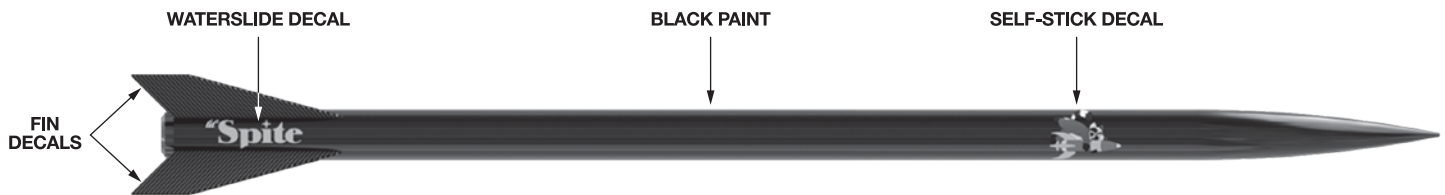
PAINT COLORS

Black Paint

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

NOTE:

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



THIS SECTION
INTENTIONALLY
LEFT BLANK

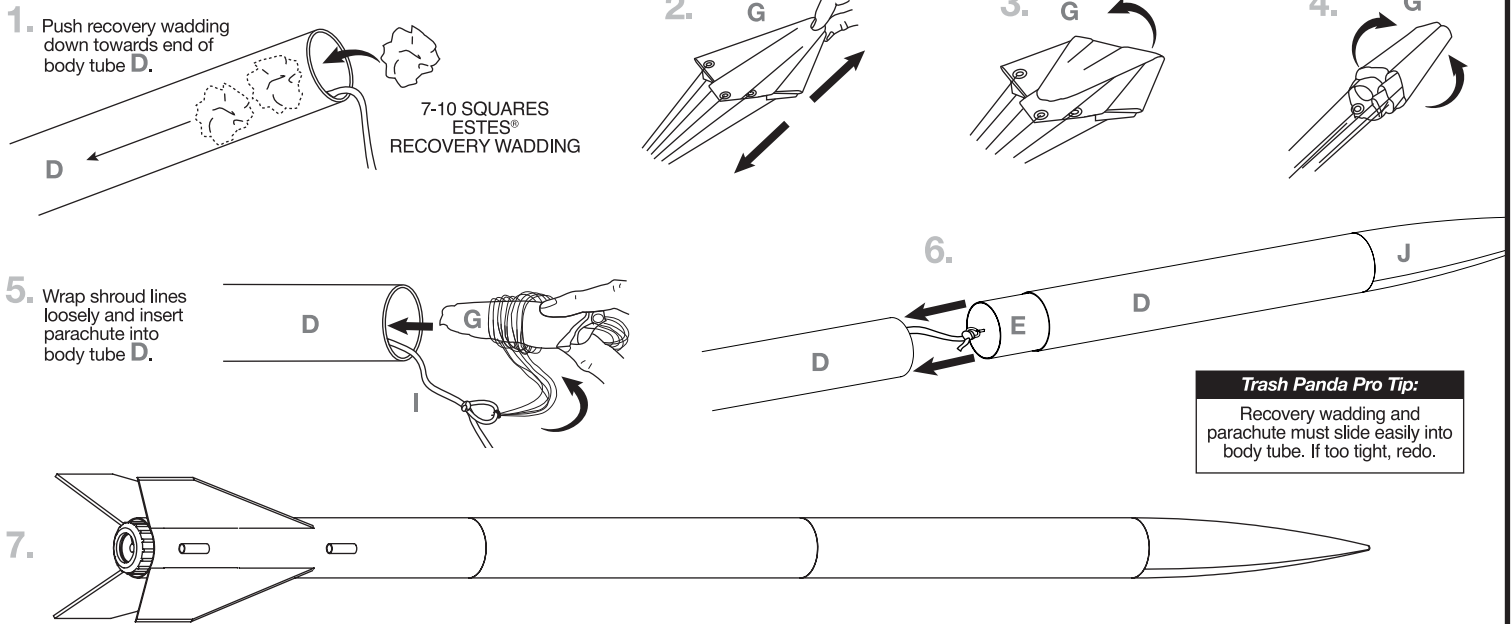
FIN ALIGNMENT GUIDE



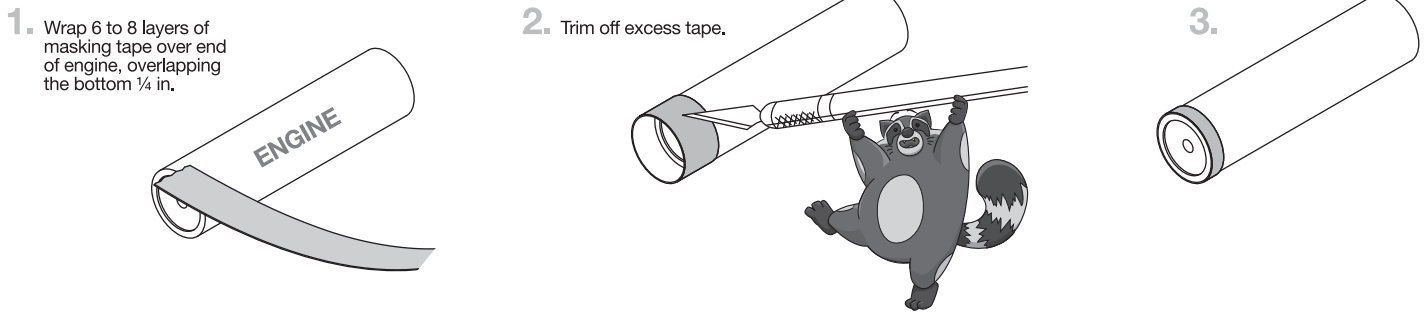
CENTERING RING PLACEMENT GUIDE



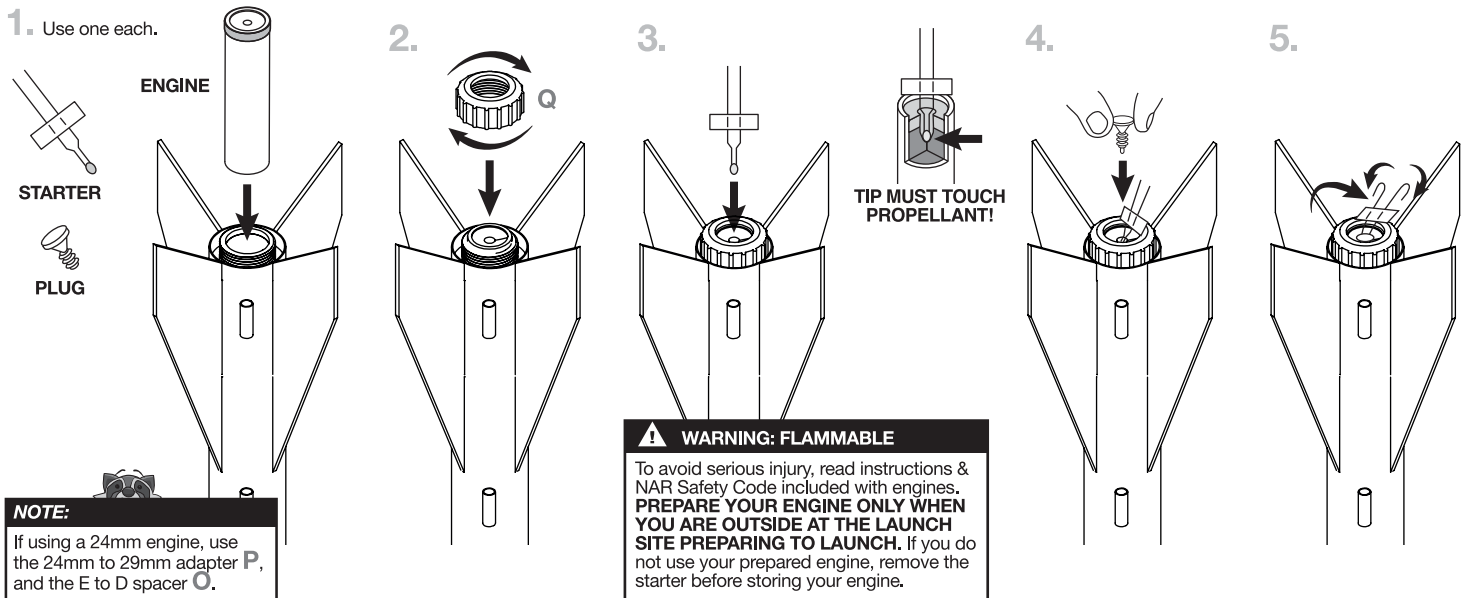
FLIGHT PREPARATION



PREPARE ENGINE RETENTION



ENGINE PREPARATION



**LEVEL 1
HIGH POWER
CAPABLE**

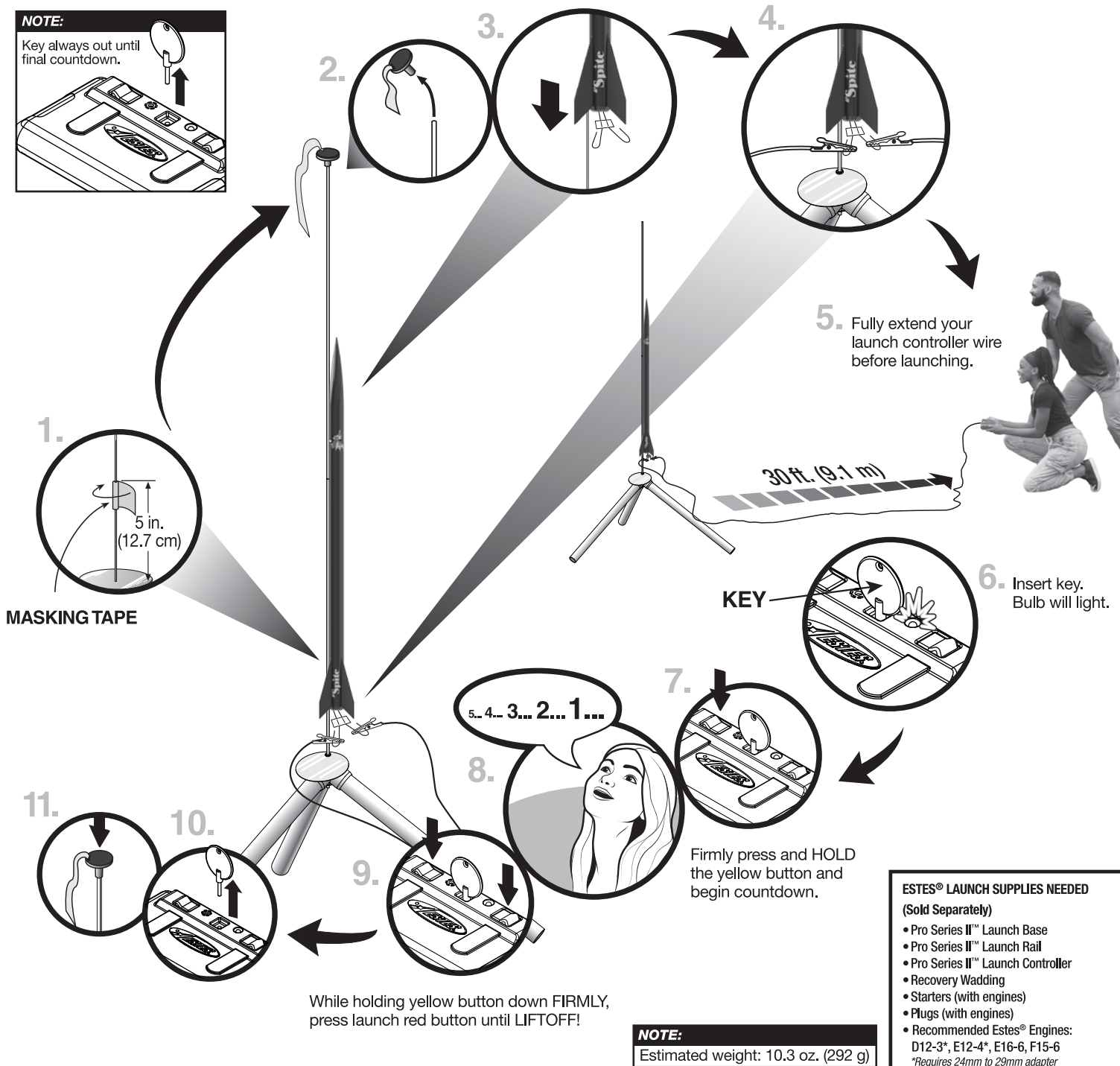
For rocketeers looking to take their flying to the next level, the Lil' Spite can achieve level 1 high power certification. With a level 1 high power motor the Lil' Spite can soar to altitudes upwards of 3000 ft. For guidance how to get your level 1 certification through either the National Association of Rocketry "NAR" or the Tripoli Rocketry Association "TRA" please refer to NAR.org or Tripoli.org.

Consumer Notice: The consumer assumes responsibility for creating a simulation file, utilizing a commercially available rocket simulation program, to verify rocket stability and safety as defined in the Tripoli Unified Safety Code and the NAR High Power Rocket Safety Code when using a high-power rocket motor.

COUNTDOWN AND LAUNCH

NOTE:

Key always out until final countdown.



ESTES® LAUNCH SUPPLIES NEEDED (Sold Separately)

- Pro Series II™ Launch Base
- Pro Series II™ Launch Rail
- Pro Series II™ Launch Controller
- Recovery Wadding
- Starters (with engines)
- Plugs (with engines)
- Recommended Estes® Engines:
D12-3*, E12-4*, E16-6, F15-6
*Requires 24mm to 29mm adapter

PRECAUTIONS



NAR SAFETY CODE



NO DRY GRASS OR WEEDS

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

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

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