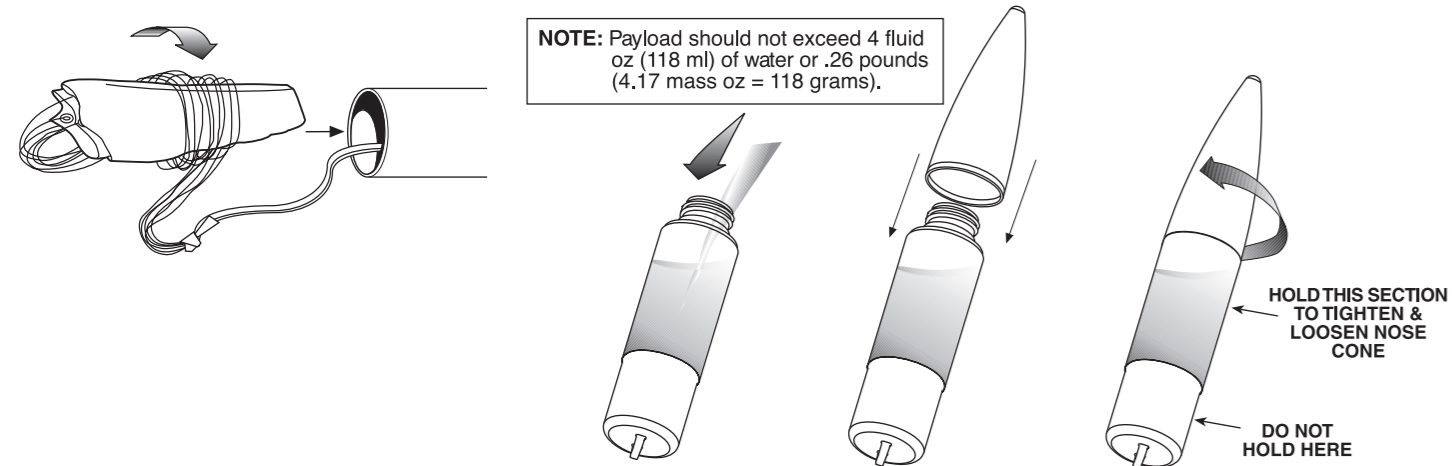


For Flights With Medium to Heavy Payloads

A. Wrap lines loosely around the 12" (30 cm) 'chute. Insert 'chute, shock cord and nose cone into body tube.

B. Insert payload and make sure nose cone is screwed on tight.

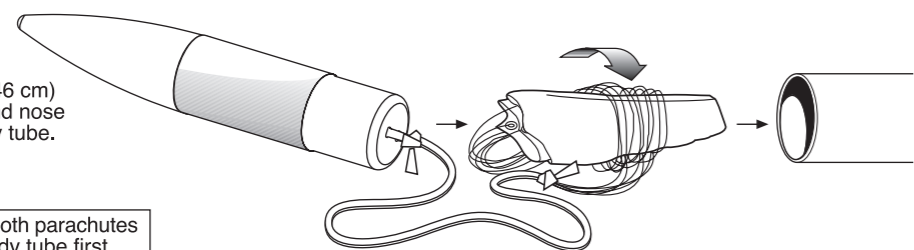
NOTE: Payload should not exceed 4 fluid oz (118 ml) of water or .26 pounds (4.17 mass oz = 118 grams).



HOLD THIS SECTION TO TIGHTEN & LOOSEN NOSE CONE

DO NOT HOLD HERE

C. Wrap lines loosely around the 18" (46 cm) 'chute. Insert 'chute, shock cord, and nose cone with payload section into body tube.

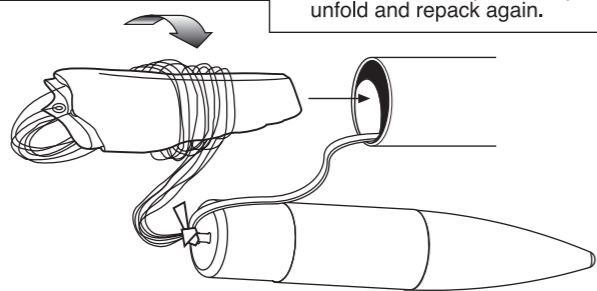


NOTE: If flying with medium to heavy payloads, use both parachutes and insert the parachute attached to the main body tube first, then the parachute attached to the nose cone.

For Flights With Very Light or No Payloads

IMPORTANT: Parachute(s) and payload section should slide easily into body. If fit is too tight, unfold and repack again.

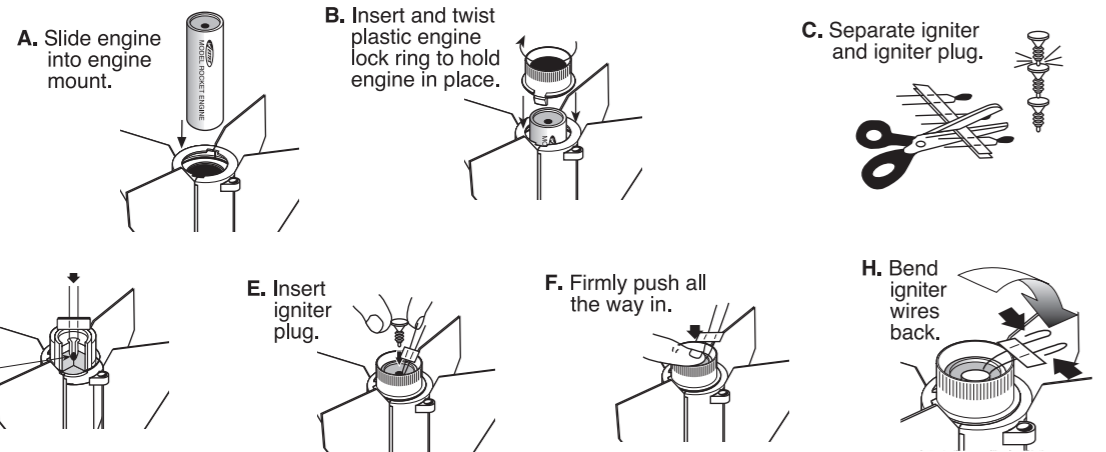
A. Wrap lines loosely around the 12" (30 cm) 'chute. Insert 'chute, shock cord, and nose cone with payload into body tube.



9. PREPARE ENGINE

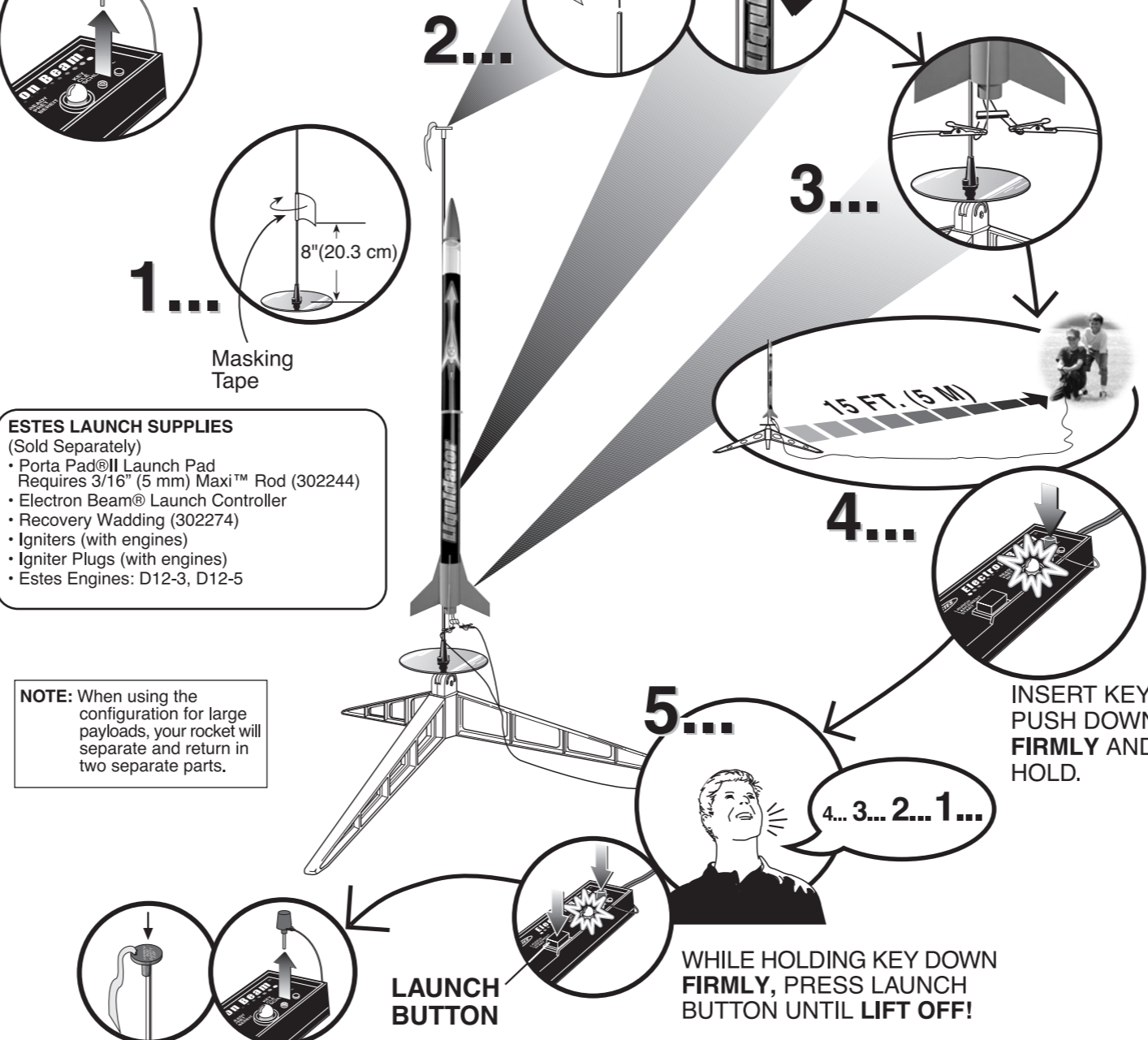
WARNING: FLAMMABLE

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



COUNTDOWN AND LAUNCH

KEY ALWAYS OUT UNTIL FINAL COUNTDOWN!



ESTES LAUNCH SUPPLIES (Sold Separately)

- Porta Pad® II Launch Pad Requires 3/16" (5 mm) Maxi™ Rod (302244)
- Electron Beam® Launch Controller
- Recovery Wadding (302274)
- Igniters (with engines)
- Igniter Plugs (with engines)
- Estes Engines: D12-3, D12-5

NOTE: When using the configuration for large payloads, your rocket will separate and return in two separate parts.

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 lugs (2). 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. Football fields and playgrounds are great. Launch only with little or no wind and good visibility.

Always follow the enclosed National Association of Rocketry (NAR) SAFETY CODE.

MISFIRES

TAKE THE KEY OUT OF THE CONTROLLER. WAIT ONE MINUTE BEFORE GOING NEAR THE ROCKET! Disconnect the igniter clips and remove the engine. Take the plug and igniter out of the engine. If the igniter has burned, it worked but did not ignite the engine because it was not touching the propellant inside the engine. Put a new igniter all the way inside the engine without bending it. Push the plug in place. Repeat the steps under Countdown and Launch.



www.estesrockets.com
Estes Industries
1295 H Street
Penrose, CO 81240
Printed in China

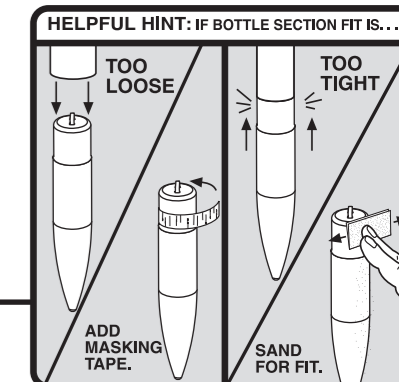
LIQUIDATOR™

FLYING MODEL ROCKET KIT INSTRUCTIONS
KEEP FOR FUTURE REFERENCE

#2121

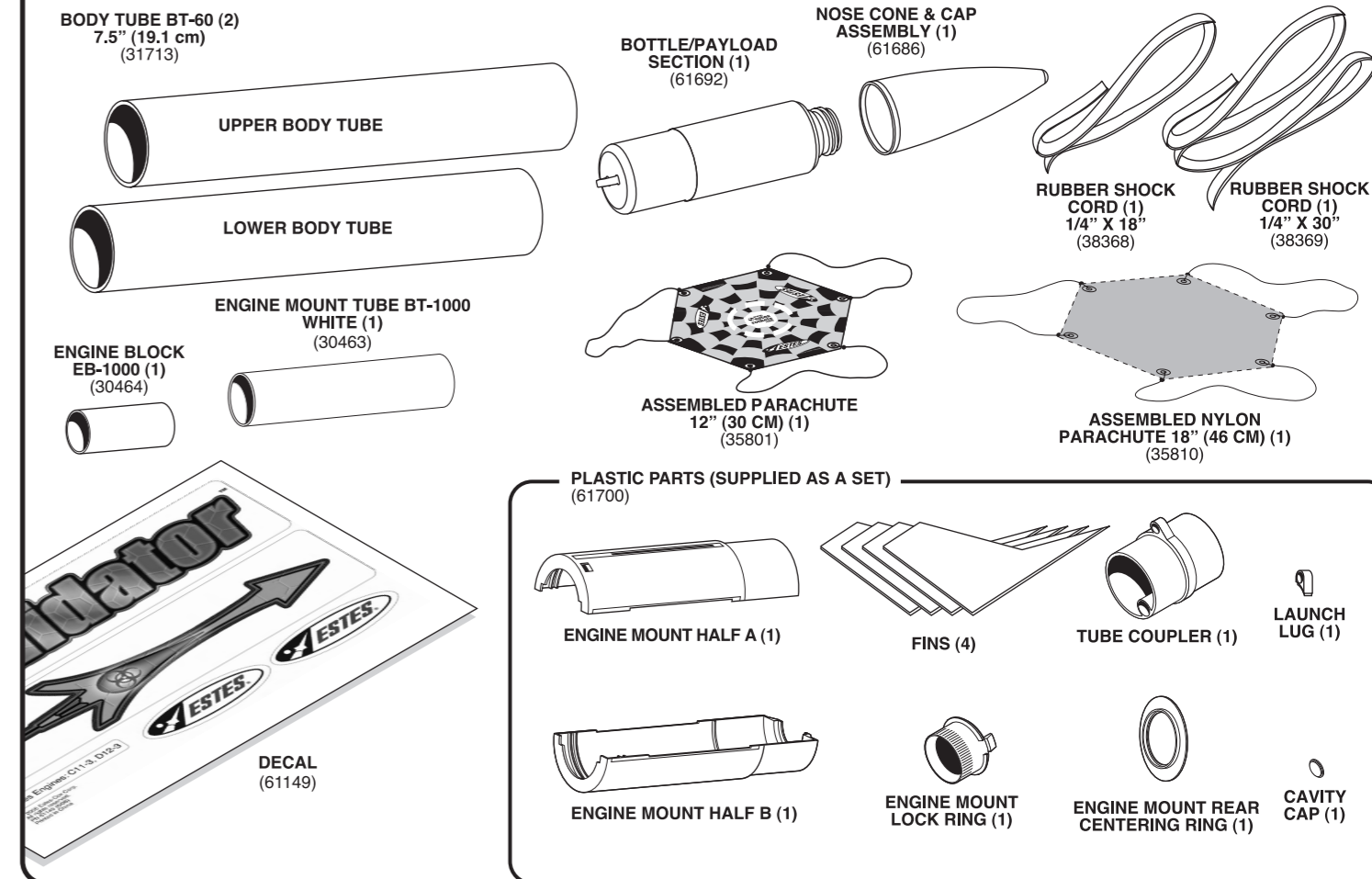
ASSEMBLY TIP

Read all instructions before beginning work on your model. Make sure you have all parts and supplies. **TEST-FIT ALL PARTS TOGETHER BEFORE APPLYING ANY GLUE.** If any parts don't fit properly, sand as required for precision assembly.



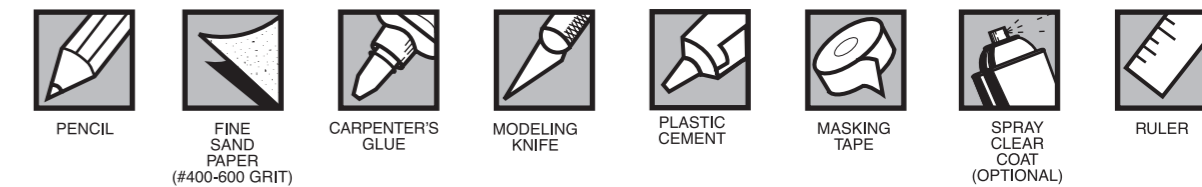
PARTS

Locate the parts shown below and lay them out on the table in front of you. **DO NOT USE THIS DRAWING TO ASSEMBLE YOUR ROCKET.**



SUPPLIES

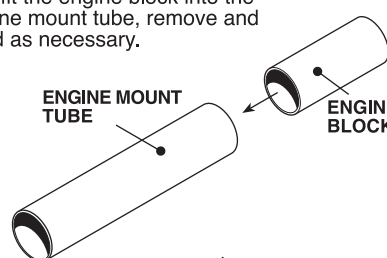
In addition to the parts included in the kit you will also need:



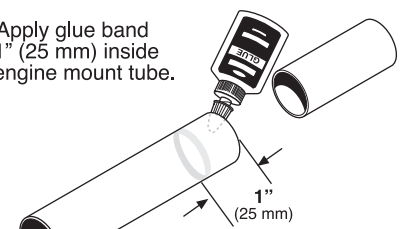
ALL GLUED AREAS ARE SHADED IN GRAY.

1. PREPARE ENGINE MOUNT TUBE

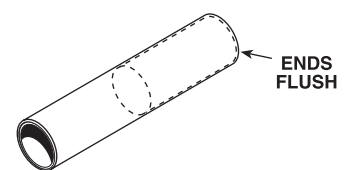
A. Test fit the engine block into the engine mount tube, remove and sand as necessary.



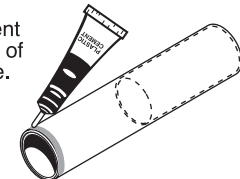
B. Apply glue band 1" (25 mm) inside engine mount tube.



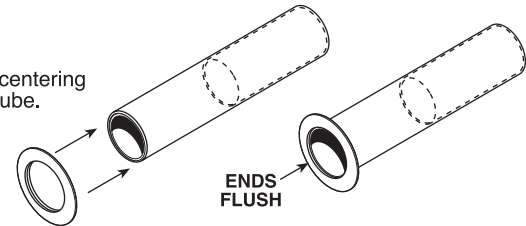
C. Insert engine block.



D. Apply plastic cement around the outside of engine mount tube.

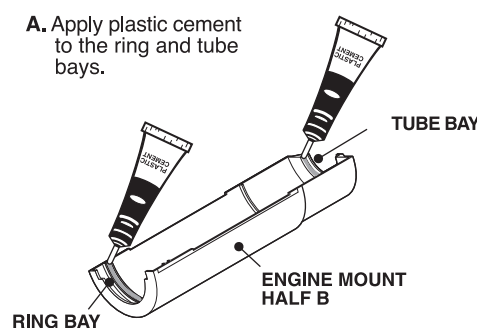


E. Slide engine mount rear centering ring onto engine mount tube. Let dry.

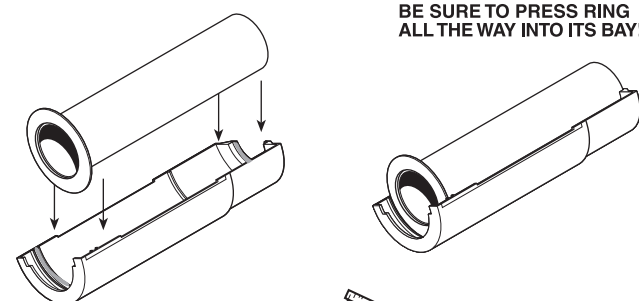


2. ASSEMBLE ENGINE MOUNT

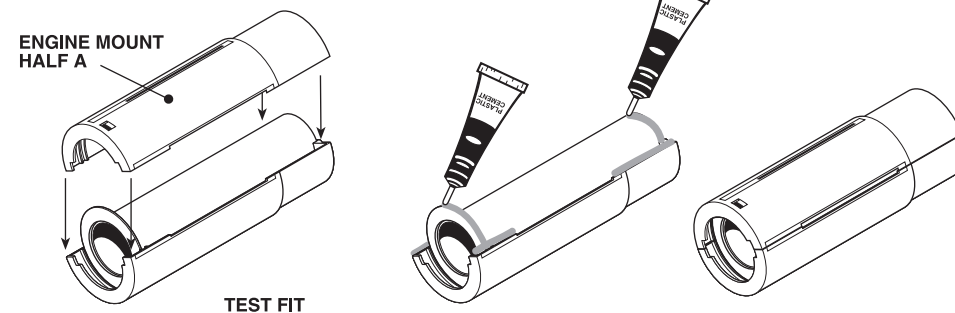
A. Apply plastic cement to the ring and tube bays.



B. Insert engine mount tube.

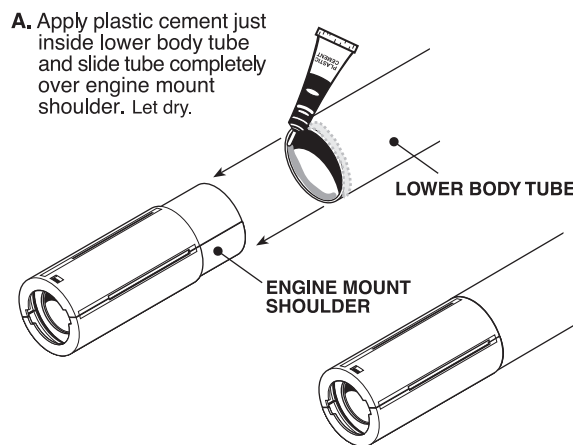


C. Test fit the other engine mount half to assembly. Sand until halves fit together perfectly, then apply plastic cement to areas shown and press halves together until cement sets.

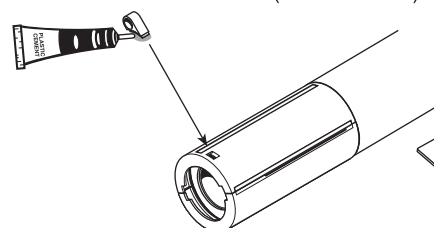


3. ATTACH ENGINE MOUNT & FINS

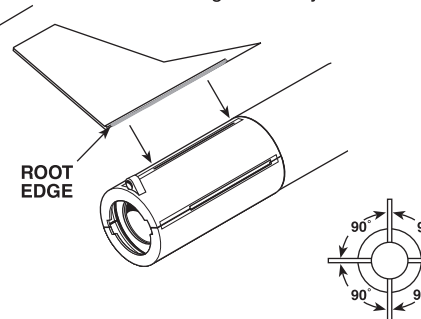
A. Apply plastic cement just inside lower body tube and slide tube completely over engine mount shoulder. Let dry.



B. Apply plastic cement to the base of the launch lug and insert as shown. Be sure launch lug slants toward fin slot! (See end view.)



C. Test fit each fin into the fin slots on the engine mount tube. When satisfied with fit apply plastic cement along the root edge of each fin and insert. Make sure fins are straight. Let dry.

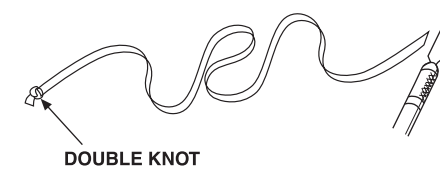


NOTE: FINS MUST BE ATTACHED CORRECTLY FOR A STABLE FLIGHT.

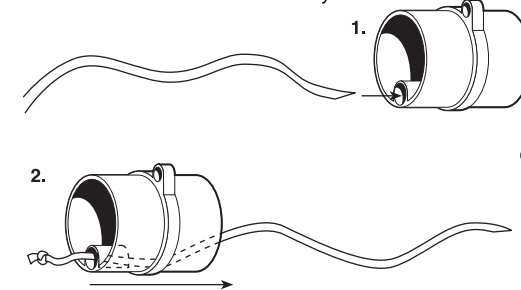
4. ATTACH SHOCK CORD

NOTE: THE 30" (76.2 cm) SHOCK CORD IS USED IN THIS STEP.

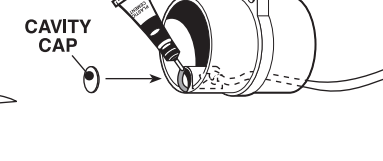
A. Tie a double knot in one end of the 30" (76.2 cm) shock cord and trim the free end to a point as shown.



B. Feed the free end of the shock cord through the rear of the tube coupler ring until the knot sits inside the shock cord cavity.

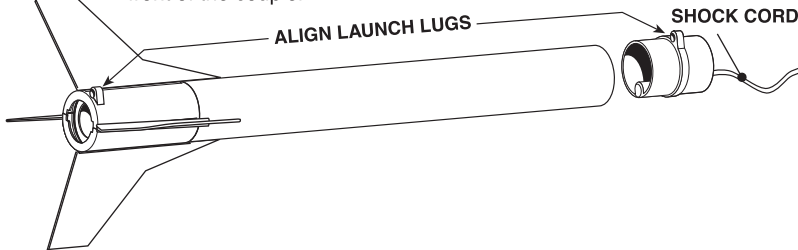


C. Carefully apply a small amount of plastic cement around the rear outside edge of the cavity and fit the cavity cap into place. Do not get plastic cement on the shock cord! Let dry.

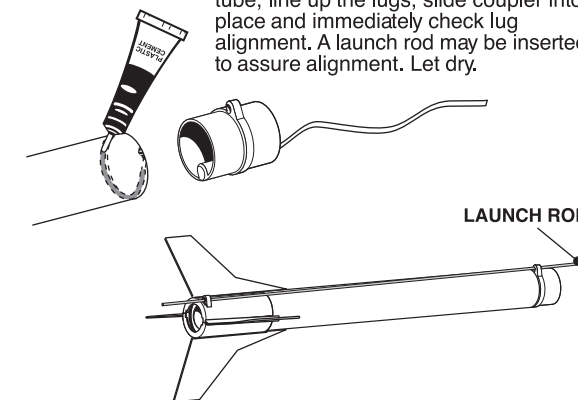


5. ATTACH COUPLER

A. Test fit tube coupler into the front end of the tube/engine mount assembly. Note that the shock cord exits the front of the coupler.

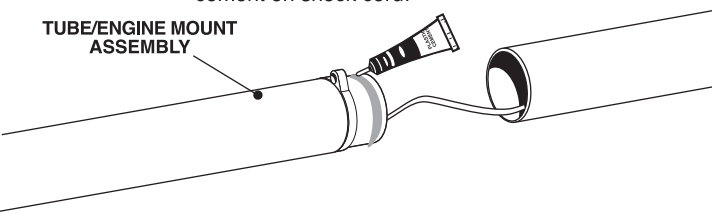


B. Apply a small amount of plastic cement just inside the front of the lower body tube, line up the lugs, slide coupler into place and immediately check lug alignment. A launch rod may be inserted to assure alignment. Let dry.

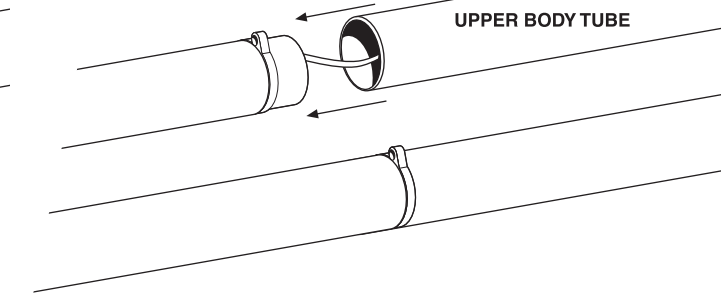


6. ATTACH UPPER BODY TUBE

A. Feed shock cord through upper body tube and apply plastic cement around tube coupler as shown. Do not get plastic cement on shock cord!



B. Slide upper body tube completely onto tube coupler. Check tube alignment. Let dry.



7. APPLY DECALS

A. Carefully remove one decal at a time and apply where shown. Rub down to remove bubbles.



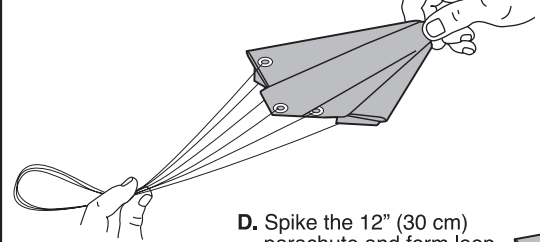
B. OPTIONAL: Clear coat entire rocket after applying decals.

8. PREPARE ROCKET FOR FLIGHT

For Flights With Medium to Heavy Payloads

NOTE: Payload should not exceed 4 fluid oz (118 ml) of water or .26 pounds (4.17 mass oz = 118 grams).

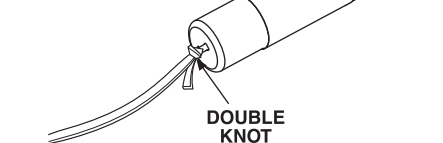
A. Spike the 18" (46 cm) red nylon parachute and form loop with shroud lines.



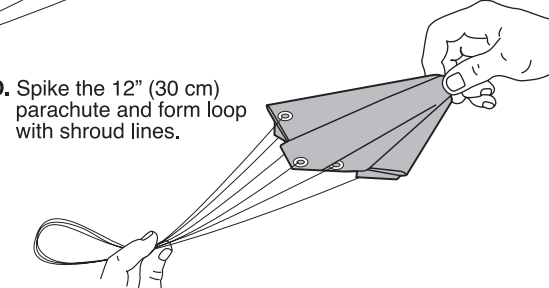
B. Tie one end of the 18" (46 cm) shock cord to the loop in the 18" (46 cm) parachute using a double knot.



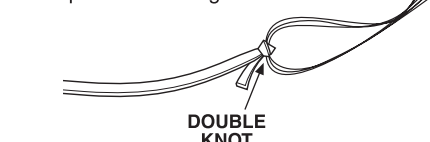
C. Tie the other end of the 18" (46 cm) shock cord to the eyelet on bottom of nose cone using a double knot.



D. Spike the 12" (30 cm) parachute and form loop with shroud lines.

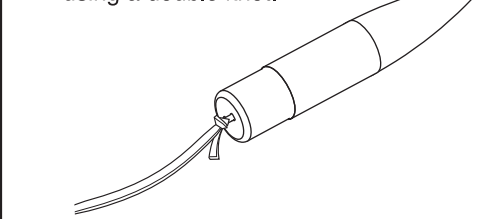


E. Tie shock cord from main body tube to the loop in the 12" (30 cm) parachute using a double knot.

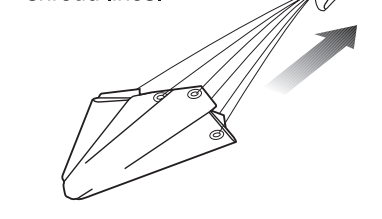


Or, For Flights With Very Light or No Payloads

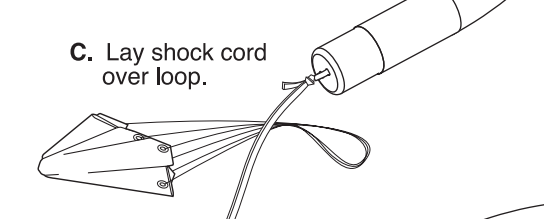
A. Tie shock cord from main body tube to eyelet on bottom of nose cone using a double knot.



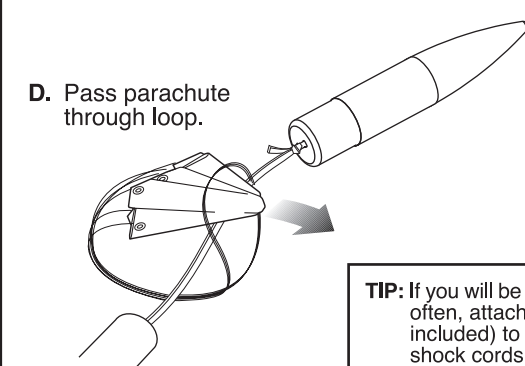
B. Form a loop with the 12" (30 cm) parachute shroud lines.



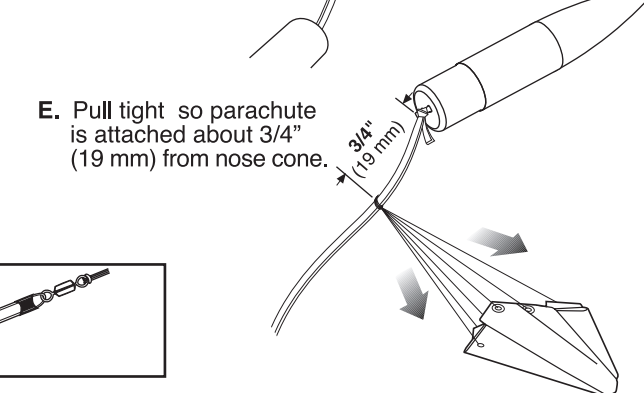
C. Lay shock cord over loop.



D. Pass parachute through loop.



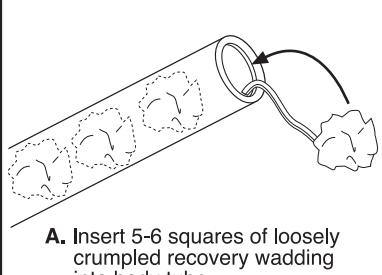
E. Pull tight so parachute is attached about 3/4" (19 mm) from nose cone.



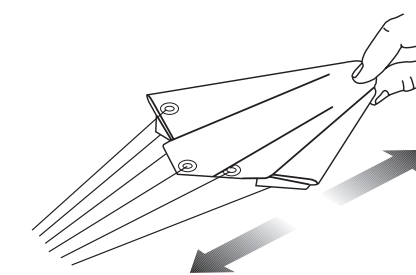
TIP: If you will be switching 'chutes fairly often, attach snap swivels (not included) to parachute loops and shock cords to make this easier.

For All Flights (With or Without a Payload)

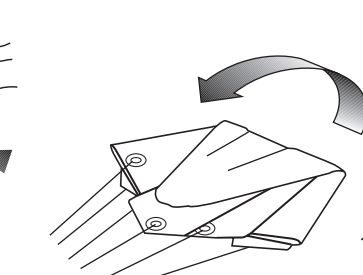
A. Insert 5-6 squares of loosely crumpled recovery wadding into body tube.



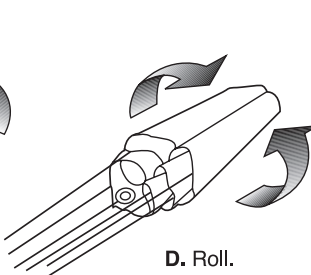
B. Spike parachute(s).



C. Fold.



D. Roll.



NOTE: Only Estes Wadding (302274) recommended.