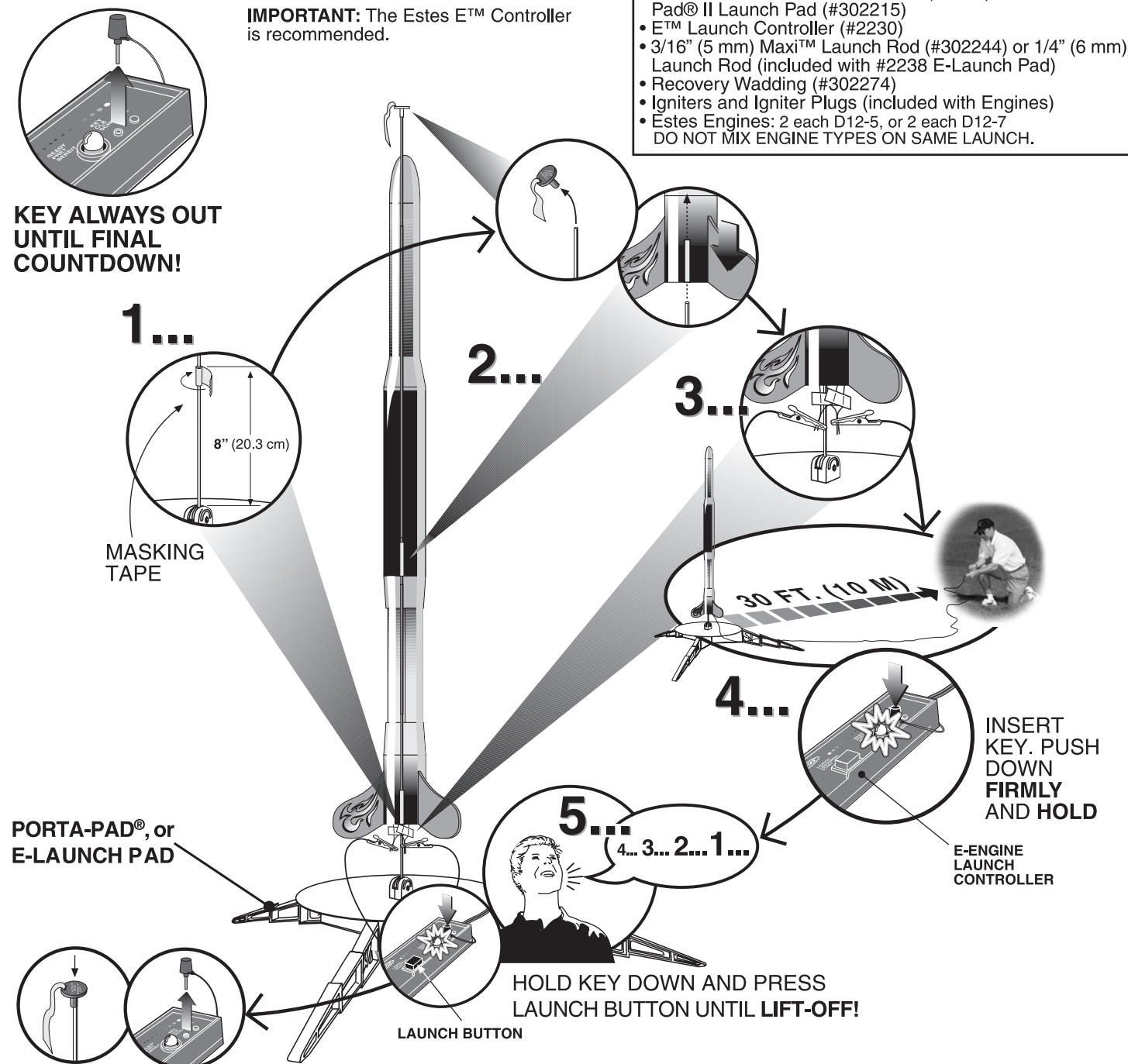


COUNTDOWN AND LAUNCH

IMPORTANT: The Estes E™ Controller is recommended.

ESTES LAUNCH SUPPLIES (Sold Separately)

- Estes Porta-Pad® E-Launch Pad (#2238) or Estes Porta-Pad® II Launch Pad (#302215)
 - E™ Launch Controller (#2230)
 - 3/16" (5 mm) Maxi™ Launch Rod (#302244) or 1/4" (6 mm) Launch Rod (included with #2238 E-Launch Pad)
 - Recovery Wadding (#302274)
 - Igniters and Igniter Plugs (included with Engines)
 - Estes Engines: 2 each D12-5, or 2 each D12-7
- DO NOT MIX ENGINE TYPES ON SAME LAUNCH.**



KEY ALWAYS OUT UNTIL FINAL COUNTDOWN!

1...

2...

3...

4...

5...

PORTA-PAD®, or E-LAUNCH PAD

INSERT KEY. PUSH DOWN FIRMLY AND HOLD

HOLD KEY DOWN AND PRESS LAUNCH BUTTON UNTIL LIFT-OFF!

PRECAUTIONS



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 (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 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 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-COX CORP.
 1295 H Street
 Penrose, CO 81240
 PRINTED IN CHINA

36 D SQUARED™ #2119

FLYING MODEL ROCKET KIT INSTRUCTIONS
 KEEP FOR FUTURE REFERENCE



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.

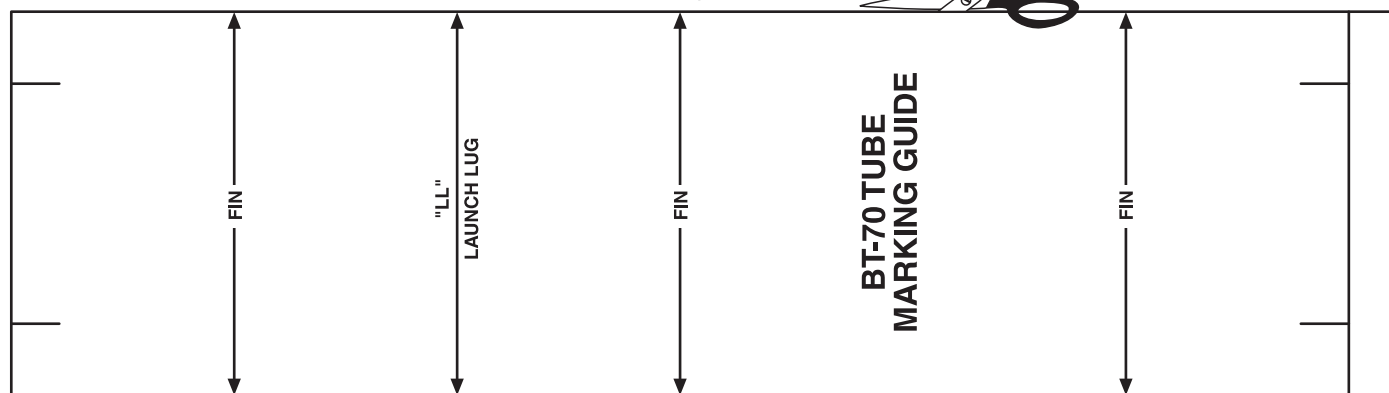
IMPORTANT- The Estes E™ Controller is recommended in order to ignite two engines at once.

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.**

- YELLOW SPACER TUBE (35004)
- PAYLOAD BODY TUBE (1) (31681)
- BT-60 8" (20.3 cm)
- UPPER BODY TUBE (1) (30413)
- PLASTIC NOSE CONE PNC-60 (1) (71020)
- PLASTIC ADAPTER 6070 (1) (61291)
- BT-70 4-1/2" (11.4 cm)
- LOWER BODY TUBE (1) (31680)
- BT-70 10" (25.4 cm)
- BT-50 15" (38.1 cm)
- BT-50 15" (38.1 cm)
- PLASTIC TUBE SKIRTS (1) (61292)
- LAUNCH LUG 1/4" x 1" HLL2754 (2) (38181)
- GREEN ENGINE BLOCK AR2050 (2) (30164-2)
- 1/4" x 36" RUBBER SHOCK CORD (38370)
- ENGINE HOOK EH-2A (2) (35021)
- BLACK ENGINE HOOK RETAINER RING (2) (30480)
- LAUNCH LUG 3/16" x 2" LL-12CF (2) (38166)
- DECAL (1) (61146)
- DIE CUT CENTERING RINGS (2) (61293)
- LASER-CUT BALSASHEET (61295)
- ASSEMBLED PARACHUTE 24" (61 CM) (35803)

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

TUBE MARKING GUIDE NOTE: Cut this out when you get to step 6.



1. ASSEMBLE ENGINE MOUNT (2 ENGINE CLUSTER)

NOTE: Steps A through G must be done for BOTH engine tubes.

A. Measure and mark both engine tubes as shown.

B. Cut 1/8" (3 mm) slits at the 2-1/2" (6.4 cm) marks.

C. Mark yellow spacer tool at 1/4" (6 mm).

D. Using scrap balsa from edge of balsa sheet, smear glue 2-1/2" (6.4 cm) inside engine mount tubes.

E. Push engine block into engine mount tubes with spacer tool to 1/4" (6 mm) mark. **Remove spacer tool IMMEDIATELY.**

F. Apply glue around tubes just in front of the 1" (25 mm) marks. Insert engine hooks into slits as shown.

G. Slide black retainer rings onto engine mount tubes up to the 1" (25 mm) marks. Let dry.

H. Carefully remove centering rings from both cards with modeling knife. Sand edges smooth.

I. Hold the tubes as shown. Apply glue around the tubes at the 1/4" (6 mm) mark and slide rear centering ring (NOTCHED) up to the mark. Apply glue around the tubes at the 3-3/4" (9.5 cm) mark. Slide front centering ring (NOT NOTCHED) down to the mark. Let dry.

J. Apply glue fillets to both sides of centering rings. Let dry.

PREPARE PARACHUTE FOR FLIGHT

A. Insert 6-8 squares of loosely crumpled recovery wadding into rocket.

B. Spike parachute.

C. Fold.

D. Roll.

E. Wrap lines loosely. Insert 'chute, shock cord and nose cone into body tube.

IMPORTANT: Wadding must be in place and slide freely for rocket to work properly.

IMPORTANT: Parachute should slide easily into body. If fit is too tight, unfold and repack again.

NOTE: Only Estes Wadding (302274) Recommended.

PREPARE ENGINES

WARNING: FLAMMABLE

To avoid serious injury, read instructions & NAR Safety Code included with your engines. **PREPARE YOUR ENGINE ONLY WHEN YOU ARE OUTSIDE AT THE LAUNCH SITE PREPARING TO LAUNCH!**

If you do not use your prepared engines, remove the igniters before storing your engines.

A. Separate igniter plugs and igniters.

B. Hold engines upright, drop in igniter. **IGNITER MUST TOUCH PROPELLANT.**

C. Insert igniter plugs.

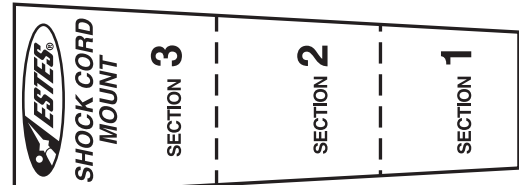
D. Firmly push all the way in.

E. Insert engines in rocket and rotate so igniter leads are positioned as shown. **END VIEW**

F. Twist the ends of the igniter leads together as shown. Be sure they make good contact with each other, but do not twist so much that the igniters are pulled loose.

GOOD! **BAD!**

NOTE: Before installing the engines in your cluster rocket, pack the front of the engine above the ejection end cap with 1/4 to 1/2 sheet of wadding. This lessens the possibility of one engine's ejection charge igniting the ejection charge of another engine. This may prevent damage to your rocket if one engine fails to ignite at lift-off.



10. INSTALL SHOCK CORD MOUNT

A. Cut out shock cord mount from above.

B. Fold

C. Apply glue. Fold forward.

D. Apply glue. Fold forward.

E. Squeeze tightly and hold for one minute.

F. Glue mount 1" (25 mm) inside upper body tube (not payload section). Hold until glue sets. Let dry.

YES

NO

11. ATTACH PARACHUTE AND SHOCK CORD

A. Spike parachute and form loop.

B. Pass loop through eyelet.

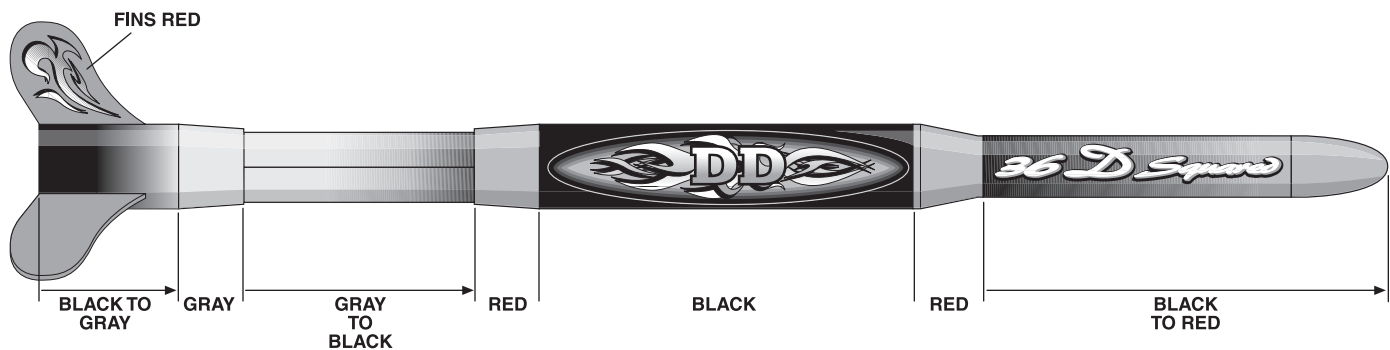
C. Pass parachute through loop.

D. Tie shock cord to nose cone using double knot.

PULL TIGHT

12. FINISHING YOUR ROCKET

- A.** First spray entire rocket including fins with white primer. Do not get primer or paint inside engine mount. Let dry and sand. Repeat until fins and rocket are smooth.
- B.** For color, follow the paint scheme on the package using red, black, and gray spray paint. The diagram below shows the color breakdown.
- C.** When paint is dry, decals should be applied to the model where shown below.



TO APPLY WATERSLIDE DECALS:

- A.** Cut out an individual section of the decal and dip in lukewarm water for about 10 seconds (one section at a time).
- B.** When the decal slides freely away from the backing paper, slip it onto the model and position in place.
- C.** Use a napkin or tissue to blot away any excess water and allow the decal to dry completely.
- D.** Repeat the process for remaining decals.
- OPTIONAL:** Clear coat entire rocket when complete.

2. PREPARE FINNS

A. Sand both sides of laser cut balsa sheet with fine sandpaper.

B. Carefully remove fins with modeling knife.

C. Stack fins and sand root edge as shown. Sand contour of fins as shown.

ROOT EDGE

3. ASSEMBLE FORWARD CENTERING RINGS AND TUBE SKIRTS

A. Carefully cut the molded tube skirt assembly in 4 places where shown using a hobby saw.

B. Mark the tubes 1/8" (3 mm) and 1-1/2" (3.8 cm) from front end.

C. Slide tube skirts over tubes as shown. Note position of skirts.

D. Apply glue just above the 1-1/2" (3.8 cm) mark. Slide rear centering ring (notched) up to the mark. Let dry.

E. Apply glue just above the 1/8" (3 mm) mark. Slide front centering ring (not notched) up to the mark. Let dry.

F. Apply glue fillets to both sides of centering rings. Let dry completely.

4. ASSEMBLE BODY TUBES

A. Mark inside of upper body tube 9/16" (14 mm) from end.

B. Slide lower body tube over assembly until end is flush with engine tubes.

C. Slide upper body tube over assembly until 9/16" (14 mm) mark is even with bottom centering ring.

REAR

FRONT

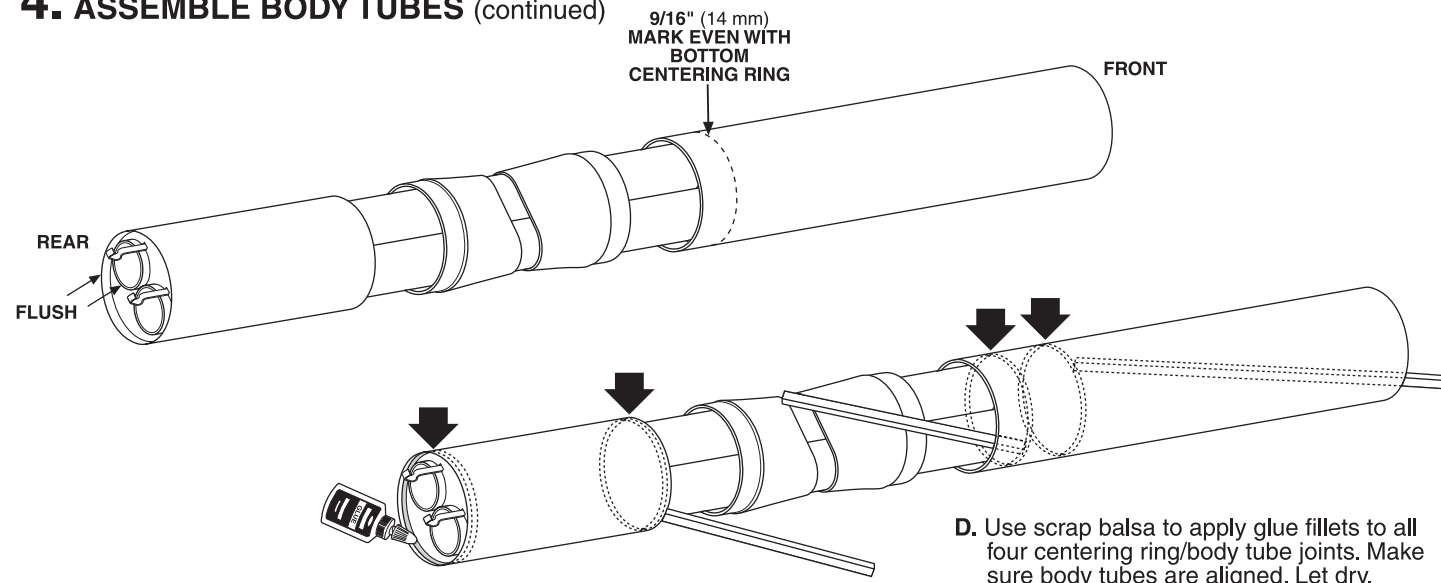
BT-70 4-1/2" (11.4 cm)

BT-70 10" (25.4 cm)

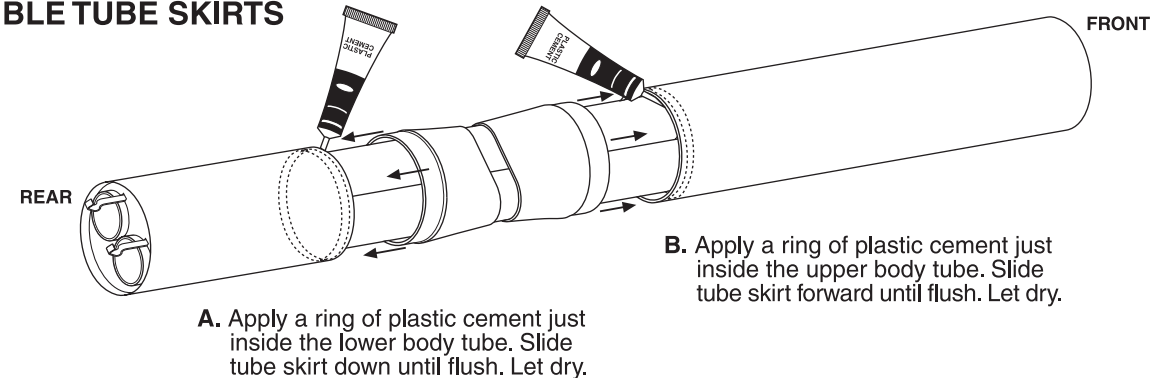
BOTTOM CENTERING RING

Continued...

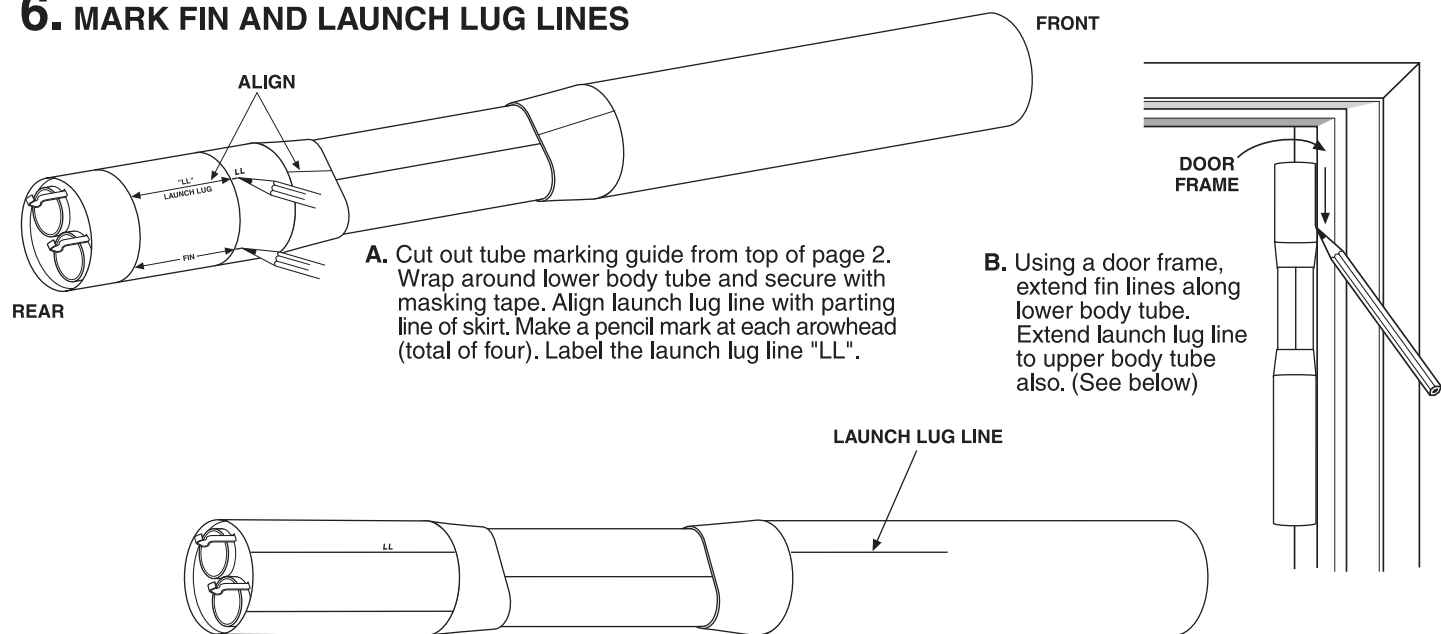
4. ASSEMBLE BODY TUBES (continued)



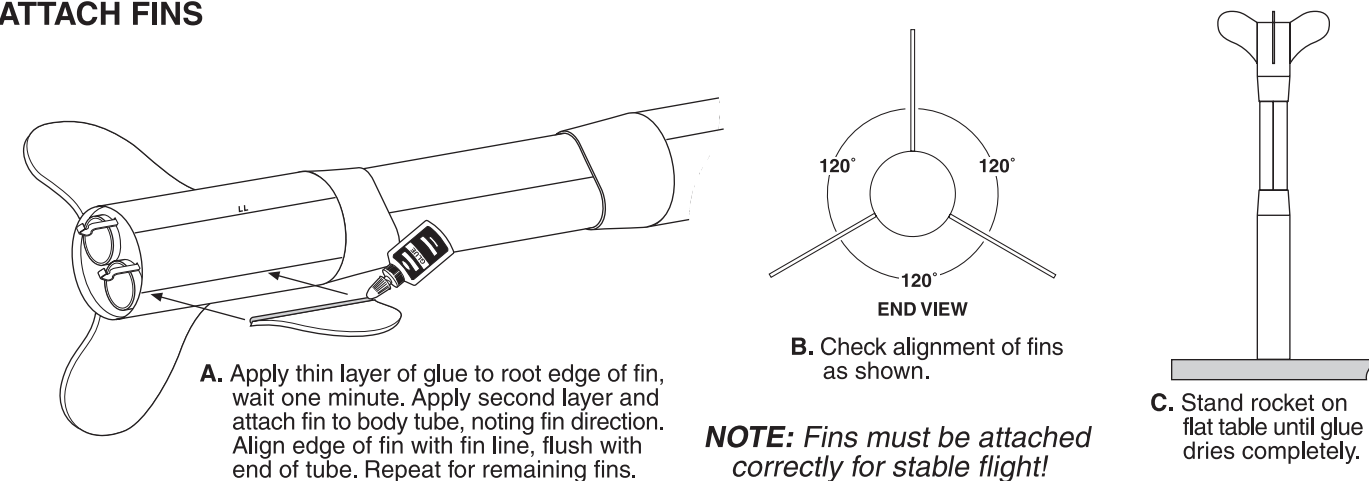
5. ASSEMBLE TUBE SKIRTS



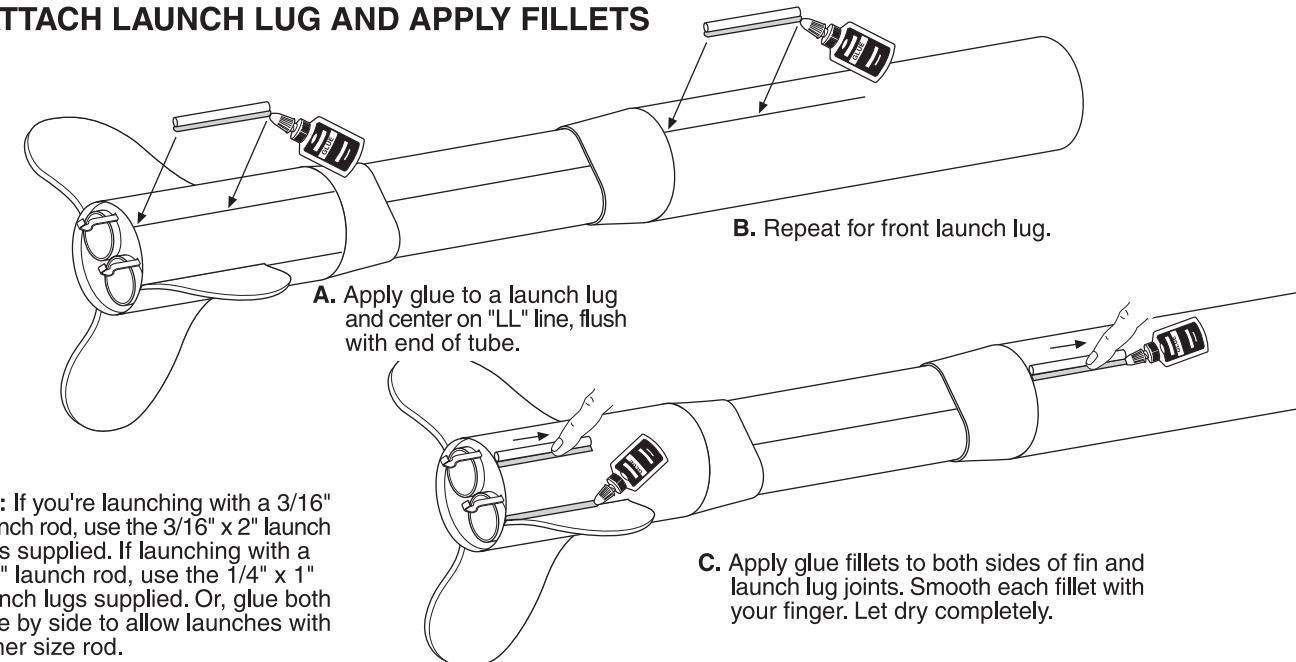
6. MARK FIN AND LAUNCH LUG LINES



7. ATTACH FINS



8. ATTACH LAUNCH LUG AND APPLY FILLETS



9. ASSEMBLE PAYLOAD SECTION

