COUNTDOWN AND LAUNCH

KEY ALWAYS OUT UNTIL FINAL COUNTDOWN!

1...

8" (20.3 cm)

MASKING TAPE

2...

3...

15 FT. (5 M)

4...

KEY

5...

4... 3... 2... 1...

INSERT KEY. PUSH DOWN **FIRMLY** AND **HOLD**.

WHILE HOLDING KEY DOWN, PRESS LAUNCH BUTTON UNTIL **LIFTOFF!**

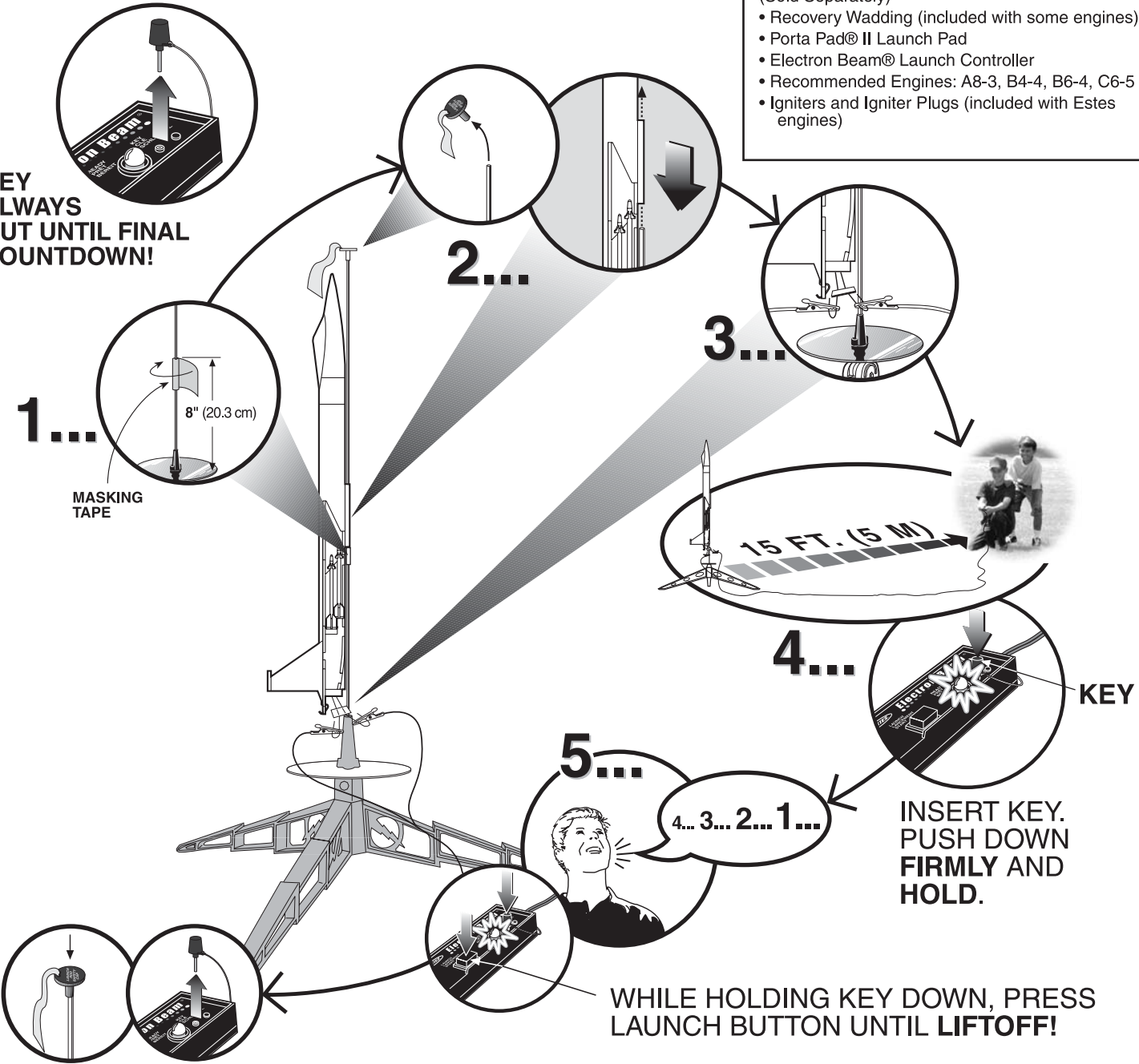### ESTES LAUNCH SUPPLIES

(Sold Separately)
• Recovery Wadding (included with some engines)
• Porta Pad® II Launch Pad
• Electron Beam® Launch Controller
• Recommended Engines: A8-3, B4-4, B6-4, C6-5
• Igniters and Igniter Plugs (included with Estes engines)

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 (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 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.

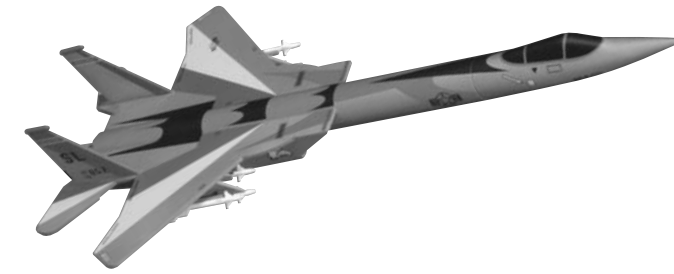**ESTES** www.estesrockets.com

SCREAMING EAGLE® #2117

FLYING MODEL ROCKET KIT INSTRUCTIONS
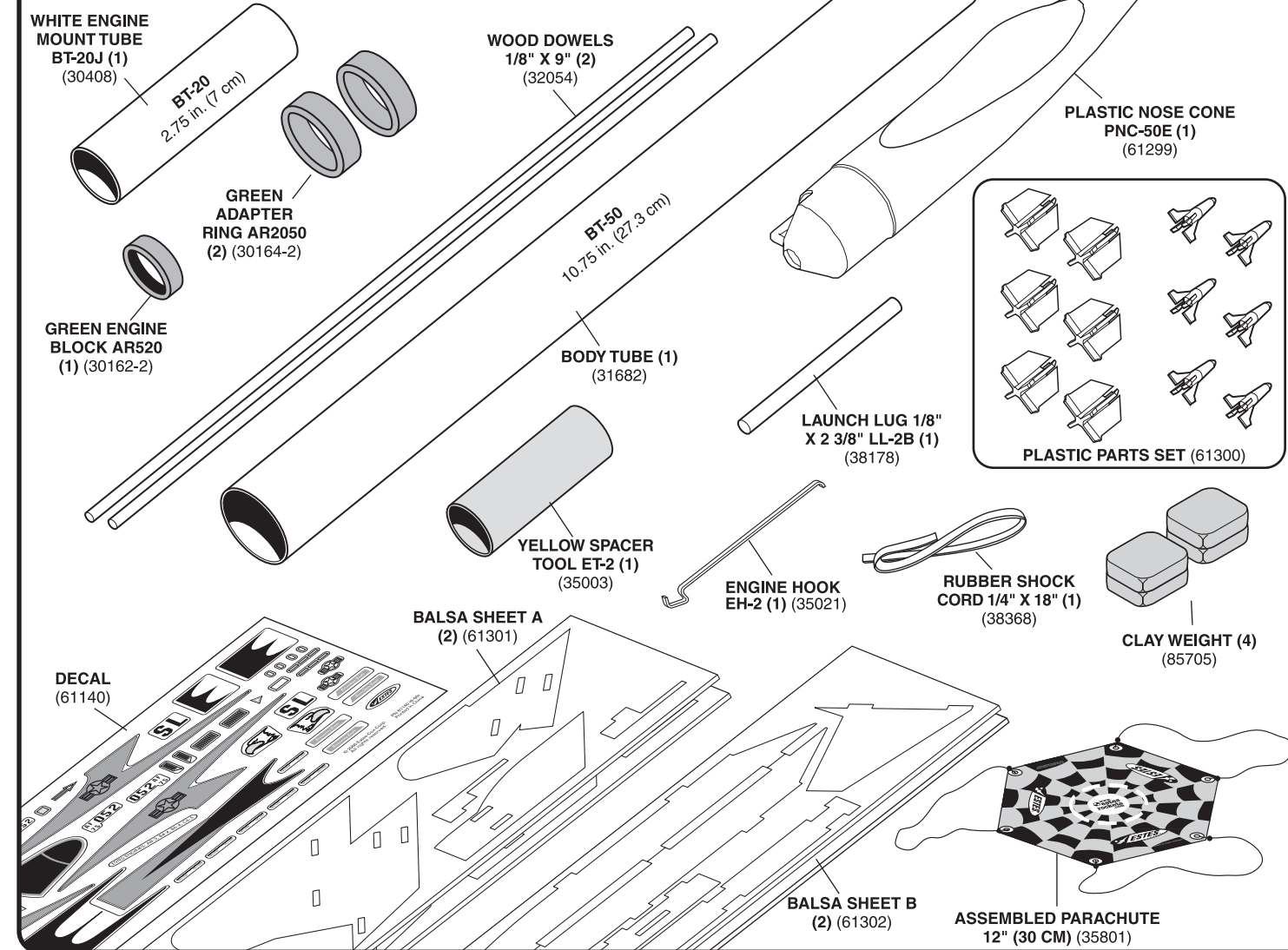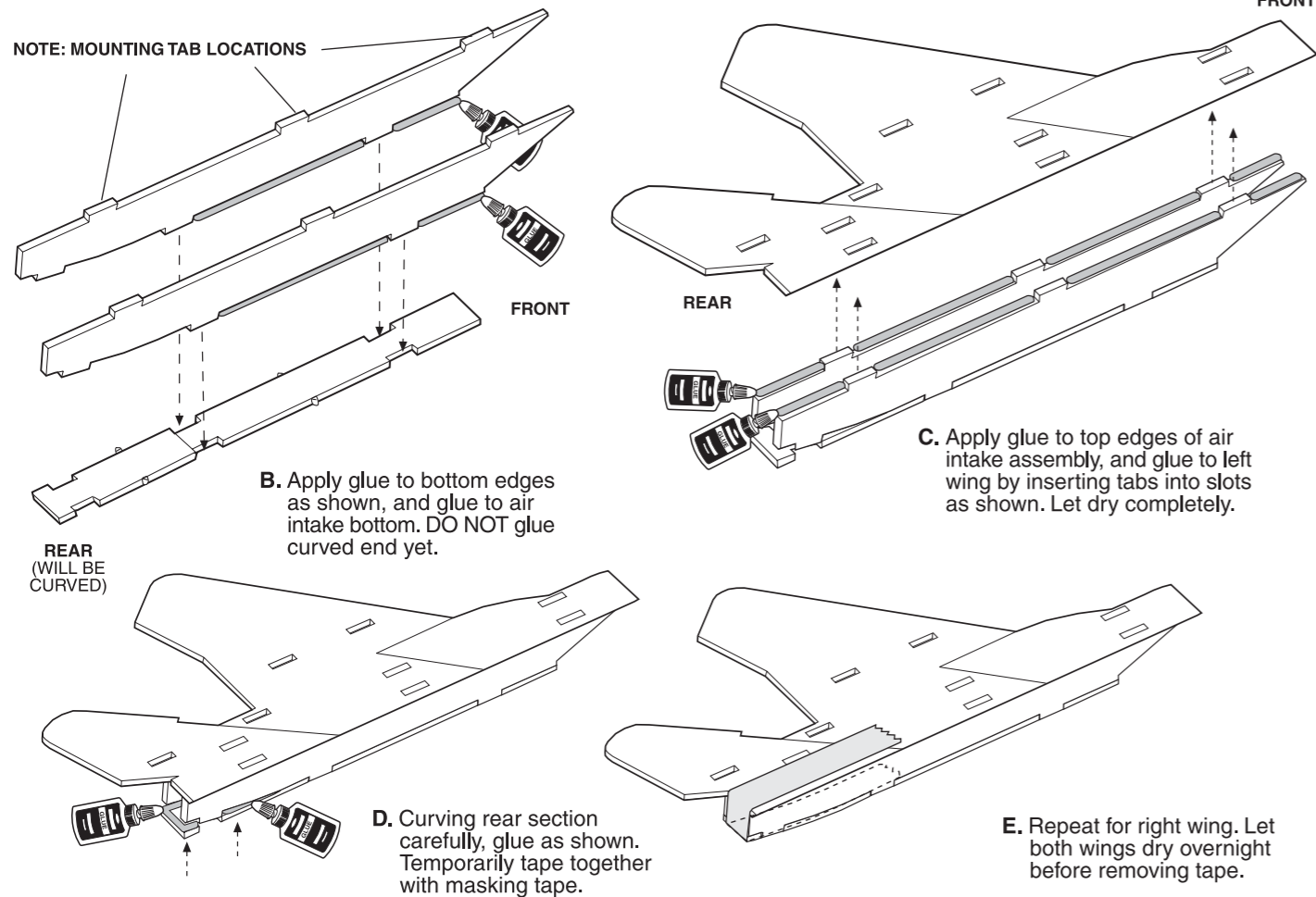*KEEP FOR FUTURE REFERENCE*

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.

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.

WHITE ENGINE MOUNT TUBE BT-20J (1) (30408)
BT-20 2.75 in. (7 cm)

WOOD DOWELS 1/8" X 9" (2) (32054)

PLASTIC NOSE CONE PNC-50E (1) (61299)

GREEN ADAPTER RING AR2050 (2) (30164-2)

GREEN ENGINE BLOCK AR520 (1) (30162-2)

BT-50 10.75 in. (27.3 cm)

BODY TUBE (1) (31682)

LAUNCH LUG 1/8" X 2 3/8" LL-2B (1) (38178)

PLASTIC PARTS SET (61300)

YELLOW SPACER TOOL ET-2 (1) (35003)

ENGINE HOOK EH-2 (1) (35021)

RUBBER SHOCK CORD 1/4" X 18" (1) (38368)

CLAY WEIGHT (4) (85705)

BALSA SHEET A (2) (61301)

DECAL (61140)

BALSA SHEET B (2) (61302)

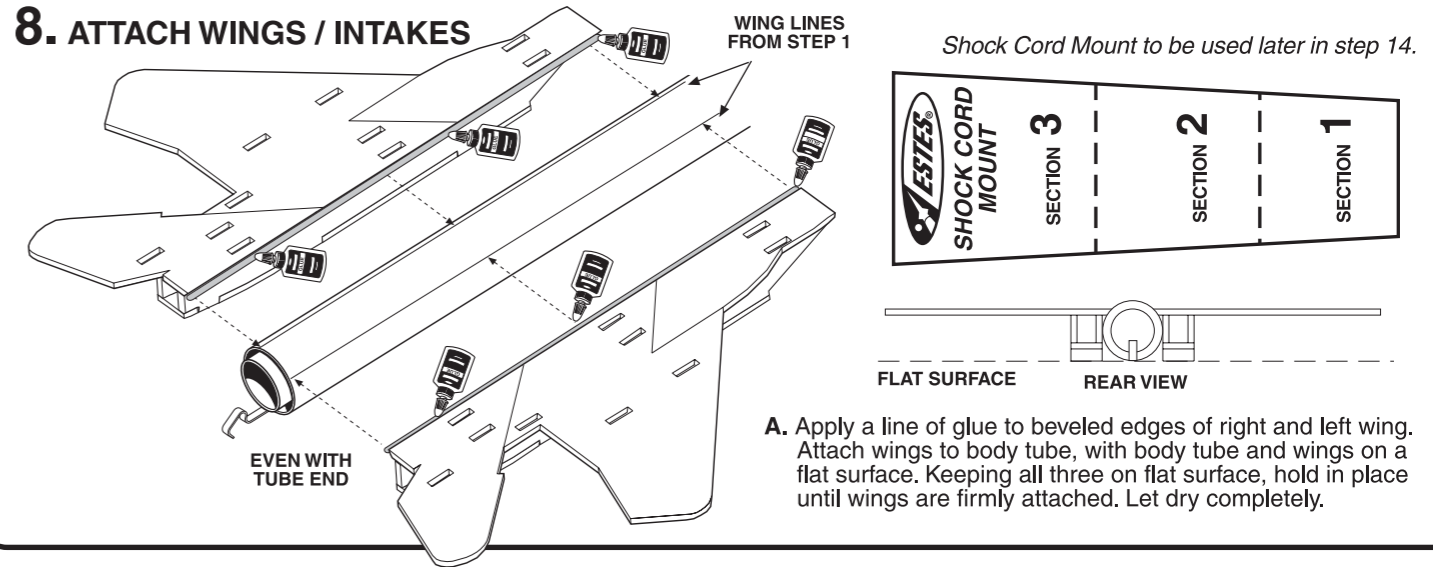ASSEMBLED PARACHUTE 12" (30 CM) (35801)

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

SCISSORS | PENCIL | RULER | FINE SANDPAPER | CARPENTER'S GLUE | MODELING KNIFE | MASKING TAPE | HOBBY SAW

PLASTIC CEMENT | SPRAY PRIMER (WHITE) | SPRAY PAINT (LIGHT GRAY, NEUTRAL GRAY, ORANGE, INTERMEDIATE BLUE) | CLEAR SPRAY PRIMER (OPTIONAL) | WAX PAPER | PAINT PEN | SANDING BLOCK

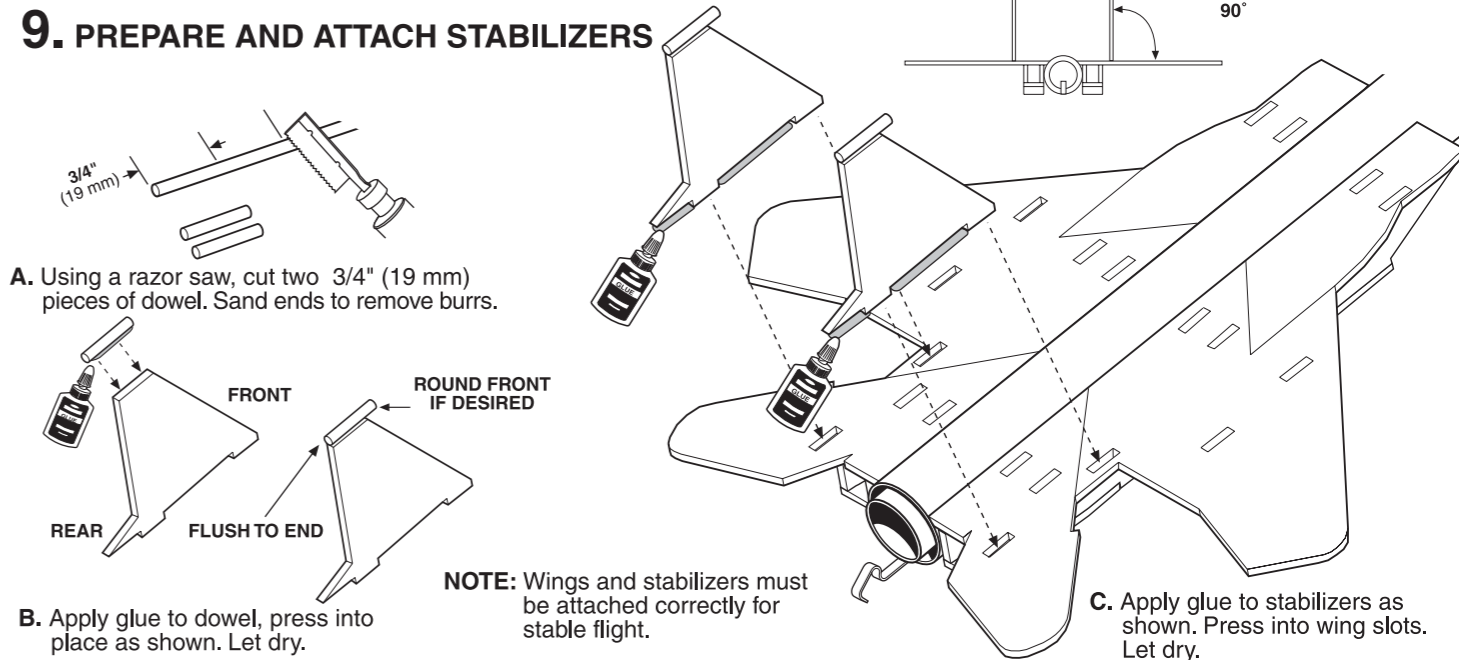## 5. ASSEMBLE AND ATTACH AIR INTAKES …Continued from page 3
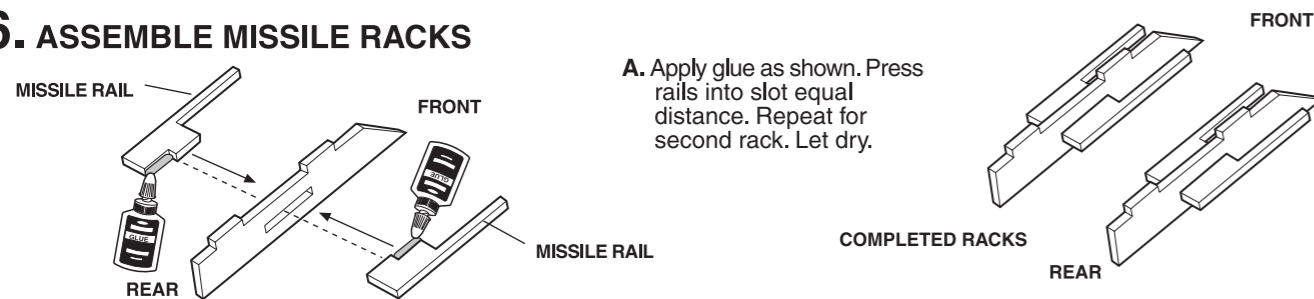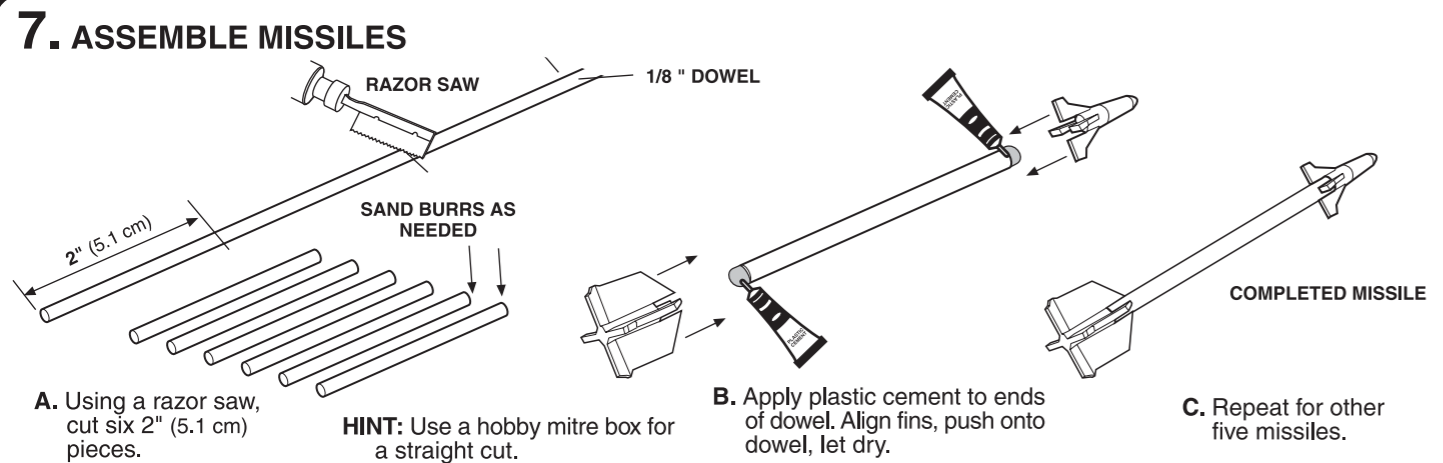
FRONT

NOTE: MOUNTING TAB LOCATIONS

FRONT

REAR

B. Apply glue to bottom edges as shown, and glue to air intake bottom. DO NOT glue curved end yet.

REAR (WILL BE CURVED)

C. Apply glue to top edges of air intake assembly, and glue to left wing by inserting tabs into slots as shown. Let dry completely.

D. Curving rear section carefully, glue as shown. Temporarily tape together with masking tape.

E. Repeat for right wing. Let both wings dry overnight before removing tape.

6. ASSEMBLE MISSILE RACKS

MISSILE RAIL

FRONT

A. Apply glue as shown. Press rails into slot equal distance. Repeat for second rack. Let dry.

FRONT

REAR

MISSILE RAIL

COMPLETED RACKS

REAR

7. ASSEMBLE MISSILES

RAZOR SAW

1/8 " DOWEL

2" (5.1 cm)

SAND BURRS AS NEEDED

COMPLETED MISSILE

A. Using a razor saw, cut six 2" (5.1 cm) pieces.

HINT: Use a hobby mitre box for a straight cut.

B. Apply plastic cement to ends of dowel. Align fins, push onto dowel, let dry.

C. Repeat for other five missiles.

8. ATTACH WINGS / INTAKES

WING LINES FROM STEP 1

Shock Cord Mount to be used later in step 14.

ESTES SHOCK CORD MOUNT SECTION **3** SECTION **2** SECTION **1**

FLAT SURFACE   REAR VIEW

EVEN WITH TUBE END

A. Apply a line of glue to beveled edges of right and left wing. Attach wings to body tube, with body tube and wings on a flat surface. Keeping all three on flat surface, hold in place until wings are firmly attached. Let dry completely.

9. PREPARE AND ATTACH STABILIZERS

90°

3/4" (19 mm)

A. Using a razor saw, cut two 3/4" (19 mm) pieces of dowel. Sand ends to remove burrs.

FRONT

ROUND FRONT IF DESIRED

REAR   FLUSH TO END

B. Apply glue to dowel, press into place as shown. Let dry.

NOTE: Wings and stabilizers must be attached correctly for stable flight.

C. Apply glue to stabilizers as shown. Press into wing slots. Let dry.

10. ATTACH MISSILE RACKS AND LAUNCH LUG

5-1/2" (14 cm)

(LL)

A. Apply glue to rack. Push tabs into wing slots. Let dry.

BOTTOM VIEW

B. Measure 5-1/2" (14.0 cm) from end of body tube on launch lug (LL) line.

C. Apply glue to edge of launch lug. Attach at 5-1/2" (14.0 cm) mark. Let dry.
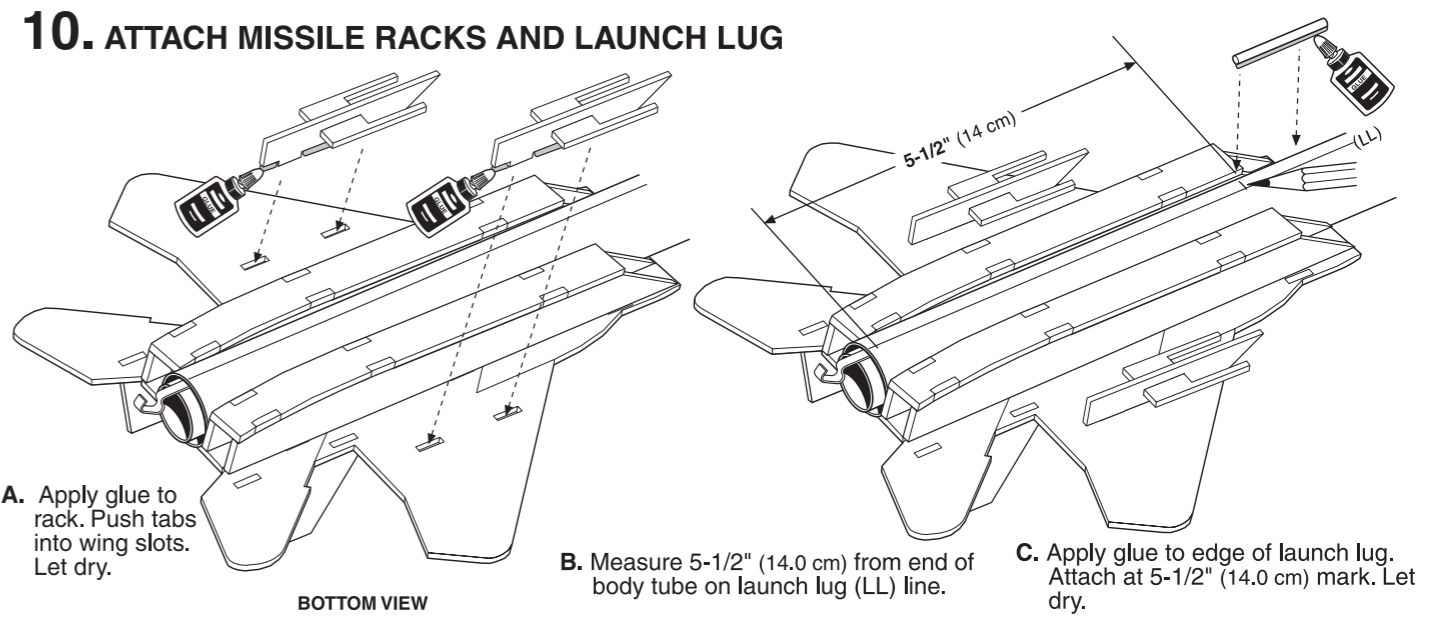
11. INSTALL NOSE WEIGHT

A. Form the clay weights into thin "snakes".

B. If necessary, enlarge hole in rear of nose cone with modeling knife to allow easier insertion of clay snakes.

C. Insert clay snakes into nose cone.

D. Pack clay snakes tightly into tip of nose cone using the end of a pencil. Use ALL the clay.

E. Using a modeling knife, remove excess flash and clean eyelet of the nose cone. **Caution:** Do not cut off eyelet.

12. FINISHING YOUR ROCKET

PAINT TIP GOLD

Hint: Use a paint pen to paint the tips.

WHITE

A. Lightly sand all assembly joints (notch and slots).

B. Apply glue fillets to all joints, smooth with finger. Let dry.

C. First spray rocket with white primer. Let dry and sand. Repeat until rocket is smooth, Follow the paint scheme on the package, including the missiles as shown above.

D. When paint is completely dry, continue with steps below for applying water transfer decals.

E. Use the kit panel photo and above and below photos as a guide to apply decals.

F. To apply water transfer decal, cut out an individual section of the decal and dip in lukewarm water for about 10 seconds (one at a time).

G. When decal slides freely away from backing paper, slip it onto the model and position it in place.

H. Use a napkin or tissue to blot away any excess water. And allow the decal to dry completely.

SL
AF 71 052

J. OPTIONAL: Clear coat entire rocket after paint dries and after decal placement.

I. Apply glue, and attach missiles as shown. (Follow views in step13 below.)

13. ATTACH MISSILES

BOTTOM VIEW

END VIEW

A. Apply glue along rail as shown. Place missile on edge of rail with fins oriented as shown in end view. Let dry completely before proceeding with remaining missiles.

B. Repeat for other side. Let dry.

MISSILE RAILS

4. ASSEMBLE WINGS

A. Fine sand all 4 balsa sheets, both sides.

NOTE: Place a piece of wax paper on a flat surface prior to assembling balsa wing parts.

B. Using a modeling knife, carefully remove wings. Do not cut off mounting tabs.

STRAIGHT EDGE

D. Repeat for other wing. Let both wings dry completely.

C. Line up balsa wing pieces as shown and glue left and right wing halves together as shown. Make sure all edges are aligned and straight. Check with straight edge. Place a sheet of wax paper on top of completed wing halves. Place a book on top and let dry completely.

E. Sand both wings smooth on both sides.

LEFT WING

RIGHT WING

45°

45°

45°

45°

LEFT WING

RIGHT WING

BEVELED EDGE GUIDE

NOTE: Wings will mount above center of body tube.

LEFT WING

RIGHT WING

BODY TUBE

F. Position wings as shown. Carefully sand a 45° angle along the entire length of each wing. Check angles using the Beveled Edge Guide at right. Do not sand TOO MUCH material away.

5. ASSEMBLE AND ATTACH AIR INTAKES

NIBS

A. Remove air intake parts from balsa sheet B and gently sand "nibs" flush. DO NOT cut or sand off mounting tabs.

DO NOT CUT OR SAND MOUNTING TABS.

1. MARKING BODY TUBE LINES

A. Cut out tube marking guide.

TOP EDGE | WING | TOP EDGE | WING | BODY TUBE MARKING GUIDE | LAUNCH LUG

LAUNCH LUG
LL
TAPE

DOOR FRAME

B. Wrap marking guide around BT-50 body tube and secure with tape. Mark at arrows for wings and launch lug (LL), then remove guide.

C. Using a door frame, extend all marks the entire length of body tube.

2. ASSEMBLE ENGINE MOUNT

2-1/2" (6.4 cm)
1" (25 mm)
1/4" (6 mm)

A. Mark white engine mount tube at 1/4" (6 mm), 1" (25 mm), and 2-1/2" (6.4 cm) from one end.

1/8" (3 mm)

B. Cut 1/8" (3 mm) slit at 2-1/2"(6.4 cm) mark.

GLUE INSIDE
1/4" (6 mm)

C. Use scrap balsa to smear glue just short of the 2-1/2" mark (6.4 cm) inside engine mount tube.

1/4" (6 mm)

D . Mark yellow spacer tool 1/4" (6 mm) from end.

YELLOW SPACER TOOL
GREEN ENGINE BLOCK
ENGINE MOUNT TUBE
1/4" (6 mm)

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

F. Insert engine hook.

G. Sand inside edges of both green adapter rings as needed.

FRONT
PENCIL MARK 1" (25 mm)

FRONT
PENCIL MARK 2-1/2" (6.4 cm)

H. Apply a ring of glue just past the 1" (25 mm) mark. Slide ring onto tube down to the 1" (25 mm) mark. Apply a ring of glue just past the 2-1/2" (6.4 cm) mark. Slide the other green adapter ring onto tube down to the 2-1/2" (6.4 cm) mark. Apply glue fillets to both sides of rings. Let dry completely.

3. INSERT ENGINE MOUNT

2-1/4" (5.7 cm)

LAUNCH LUG LINE (LL)

1/4" MARK (6 mm)

(LL)

A. Using a piece of scrap balsa smear glue inside BT-50 body tube 2-1/4" (5.7 cm) from end.

B. Align engine hook with launch lug line (LL). Push engine mount into body tube to the 1/4" (6 mm) mark. Let dry.

14. INSTALL SHOCK CORD MOUNT

1" (25 mm)

A. Cut out shock cord mount from Page 5.

B. Fold.

shock cord

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 front of body tube. Hold until glue sets. Let dry.

YES
NO

15. ATTACH PARACHUTE AND SHOCK CORD

A. Pass shroud lines through eyelet.

B. Form a loop with shroud lines.

C. Pass parachute through loop.

PULL TIGHT

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

DOUBLE KNOT

HELPFUL HINT: IF NOSE CONE FIT IS. . .

TOO LOOSE
TOO TIGHT

ADD MASKING TAPE.
SAND FOR FIT.

16. PREPARE PARACHUTE FOR FLIGHT

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

A. Insert 3-4 squares of loosely crumpled recovery wadding into rocket.

B. Spike parachute.

C. Fold.

D. Roll.

E. Wrap shroud 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.

NOTE: Only Estes wadding (302274) recommended.

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.

A. Separate igniter and plug.

B. Insert igniter.

IGNITER MUST TOUCH PROPELLANT!

C. Insert plug.

D. Push down.

E. Gently bend igniters to form leads as shown.

E. Insert engine into rocket.