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:
1. ASSEMBLE ENGINE MOUNT
A. MARK BLUE ENGINE MOUNT TUBE.
B. CUT 1/8" (3 mm) SLIT.
C. APPLY GLUE BAND AROUND 1 1/2" (38 mm) MARK.
D. GLUE INSIDE TUBE.
E. ALIGN NOTCH OVER ENGINE HOOK.
F. GLUE BOTH SIDES OF EACH RING.

2. MARK FIN AND LAUNCH LUG LINES
A. CUT OUT LOWER TUBE MARKING GUIDE FROM FRONT PAGE. TAPE GUIDE AROUND END OF LOWER BODY TUBE.
B. CUT OUT UPPER TUBE MARKING GUIDE FROM FRONT PAGE. TAPE GUIDE AROUND UPPER BODY TUBE.
C. MARK AT ARROWS. MARK LAUNCH LUG LINE "LL", REMOVE GUIDE, AND SAVE FOR STEP 7.

3. ASSEMBLE NOSE CONE SECTION
A. USE PLASTIC CEMENT FOR THIS STEP. GLUE BASE INTO NOSE CONE.
B. REMOVE EXCESS FLASH FROM PLASTIC TUBE ADAPTER.
C. GLUE SMALL END OF PLASTIC TUBE ADAPTER INTO UPPER BODY TUBE.
D. GLUE NOSE CONE INTO UPPER BODY TUBE.

4. INSERT ENGINE MOUNT
A. USE FINGER TO SMEAR GLUE 2" (51 mm) INSIDE END OF LOWER BODY TUBE.
B. ALIGN ENGINE HOOK WITH LAUNCH LUG LINE.
C. INSERT ENGINE MOUNT UNTIL REAR ADAPTER RING IS 3/4" (19 mm) FROM END OF BODY TUBE.

5. PREPARE FINS
A. FINE SAND BALSA SHEET.
B. CAREFULLY REMOVE FINS WITH KNIFE.
C. STACK LIKE FINS TOGETHER & SAND EDGES SMOOTH.
D. ROUND LEADING EDGES.
6. ATTACH FINS
A. APPLY THIN LAYER OF GLUE. WAIT 1 MINUTE. APPLY 2ND THIN LAYER AND ATTACH FIN CENTERED ON FIN LINE. REPEAT FOR OTHER FINS.

B. REPEAT STEP A FOR BIG LOWER FINS.

C. REPEAT STEP A FOR UPPER FINS.

D. SUPPORT ROCKET UNTIL GLUE DRIES.

NOTE: FINS MUST BE ATTACHED CORRECTLY FOR STABLE FLIGHT.

7. ATTACH SHOCK CORD MOUNT
A. CUT OUT SHOCK CORD MOUNT FROM LOWER TUBE MARKING GUIDE.

B. FOLD FORWARD.

C. SMEAR GLUE.

D. SQUEEZE TIGHTLY.

E. GLUE MOUNT INSIDE FRONT OF LOWER BODY TUBE.

8. ATTACH LAUNCH LUG AND APPLY FILLETS
A. GLUE LAUNCH LUG TO LOWER BODY TUBE AS SHOWN.

B. APPLY GLUE FILLETS TO ALL FIN AND LAUNCH LUG/BODY TUBE JOINTS.

C. SMOOTH WITH FINGERTIP.

D. ALLOW GLUE TO DRY.

NOTE: PROCEED WITH THE NEXT STEP ONLY AFTER THE GLUE ON FINS AND LAUNCH LUG IS THOROUGHLY DRY.

9. ATTACH PARACHUTE
A. DOUBLE KNOT.

B. SHOCK CORD

PAINT SCHEME
FIRST SPRAY ROCKET WITH WHITE PRIMER, LET DRY AND SAND. REPEAT UNTIL ROCKET IS SMOOTH.

DECAL

* CLEAR COAT ENTIRE ROCKET WHEN PAINT DRIES.

page 3
**ROCKET PREFLIGHT**

A. Insert 3 or 4 loosely crumpled squares of recovery wadding.

B. Spike.

C. Fold.

D. Roll.

E. Wrap lines loosely, insert chute, shock cord and nose cone section.

F. Insert engine.

**ENGINE PREP**

**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 igniter before storing your engine.

A. TIP MUST TOUCH PROPELLANT.

B. 8-in (20.3 cm) MASKING TAPE

C. LAUNCH SUPPLIES

(Sold Separately)

- Estes® Porta Pad® II and Electron Beam® Controller
- Recovery Wadding
- Igniters (with Engines)
- Igniter Plugs (with Engines)
- Estes® Engines:
  - A8-3, B4-4, B6-4, B6-6, C6-5

**COUNTDOWN AND LAUNCH**

KEY ALWAYS OUT UNTIL FINAL COUNTDOWN!

1... Masking Tape

2... 8-in (20.3 cm)

3... Insert key, push down and hold.

4... Hold key down and press button until lift-off!

**PRECAUTIONS**

NAR Safety Code  

- NO DRY GRASS OR WEEDS

**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.
Dear Estes Customer,
Due to new restrictions regarding the printing of plastic materials, we have had to suspend printing our colorful parachutes. This parachute material conforms to all current government requirements and can be decorated with a design of your choice using colored markers.

© 2009 Estes-Cox Corp. All rights reserved. PN66201 (3-09) Printed in China.
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<th>Description</th>
<th>Type</th>
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<th>Details2</th>
<th>Details3</th>
<th>Details4</th>
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**PARTS LIST KIT NO. 2179 - Guardian**
Estes Flying Model Rocket

Guardian

Multi-Fin Missile
Flies to 700 ft
Parachute Recovery

Guardian of the Sky!

Skill Level: 2

Made in China

Estes 2179
GUARDIAN™

MULTI-FIN MISSILE!
FLIES TO 700 FT. (213 M!)
PARACHUTE RECOVERY!

GUARDIAN OF THE SKY!

Length: 18.13 in. (46.0 cm)
Diameter: 1.38 in. (35.0 mm)
Weight: 8.0 oz. (229.0 g)
Recovery: 12 in. (30 cm)

Recommended Engines:
A4-3, B4-4, B6-4, C3-6
Assembly required:
Paint, launch pad, recovery harnesses not included.