HOW TO USE THESE INSTRUCTIONS:
READ ALL INSTRUCTIONS BEFORE STARTING WORK ON THIS MODEL.

A. Read each step first and visualize the procedure thoroughly in your mind before starting construction.
B. Lay the parts out on the table in front of you. (Check inside tubes for any small parts.)
C. Use the parts layout to match all parts contained in kit.
D. Collect all construction supplies that are not included in this kit.
E. Sand parts as necessary for proper fit.
F. The construction supplies required for each step are listed at the beginning of each step.
G. Check off each step as you complete it.

PARTS LAYOUT

<table>
<thead>
<tr>
<th>1.25&quot;</th>
<th>BT-55 9&quot;</th>
<th>2.75&quot;</th>
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<tr>
<td>LAUNCH LUG (38178)</td>
<td>BODY TUBE (30364)</td>
<td>ENGINE SPACER TUBE (35003)</td>
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<tbody>
<tr>
<td>SHOCK CORD (38374)</td>
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EXEMPLARY IMPORTANT: THE PARTS LAYOUT IS FOR REFERENCE ONLY!
The parts layout is only intended to assist you in locating the parts included in this kit.

CONSTRUCTION SUPPLIES

In addition to the parts included in your kit, you will need these construction supplies. Each step shows which supplies will be required.
ROCKET ASSEMBLY

1.  Remove centering rings from die-cut sheet. Slide one centering ring onto engine mount tube 3 mm (1/8") from end of tube. Apply glue to both sides of ring/tube joint.

2.  OR

   A.  Locate the plastic tail cone.
   B.  Cut the excess plastic parts off as indicated in diagram and discard.
   C.  Sand front and rear of tail cone flat and remove any excess plastic with modeling knife.

3.  Fine sand balsa die-cut sheet. Carefully remove fins by freeing edges with sharp knife.

4.  Using a piece of scrap balsa, smear glue inside body tube 51 mm (2") from one end.

5.  Cut out tube marking guide from front of instructions.

   A.  Wrap guide around the tube and tape. Mark tube at arrows. Remove guide. Optional: You can also use the Rocket Builder's Marking Guide™ (EST 2227), using the BT-55 and four-fin guides.

6.  Compare fins to patterns to find front (leading) and gluing (root) edges.

   A.  Position and glue fins on alignment lines as shown, one at a time. Bottom fins should be positioned 18 mm (3/4") from end of body tube. Let each dry several minutes before applying the next one.

   B.  Adjust fins to project straight out from tube.

   D.  Do not set rocket on fins while glue is wet.

FINS MUST BE ATTACHED CORRECTLY FOR STABLE FLIGHT!
7. Glue launch lug straight on launch lug line with its rear edge 73 mm (2-7/8") from rear of tube.

8. 
A. □ Cut out shock chord mount located on page one of the instructions.
B. □ Crease on dotted lines by folding. Spread glue on section 2 and lay end of shock chord into glue. Fold over section 1 and apply glue to section 3. Fold forward again.
C. □ Clamp unit together with fingers until glue sets.

9. 
A. □ Apply glue to shock chord mount.
B. □ Press mount into body tube about 25 mm (1") in end of tube to allow for the nose cone.
C. □ Hold until glue sets.

10. 
A. □ Apply a glue reinforcement to each fin/body tube joint and each side of launch lug. Smooth with finger.
B. □ Support rocket as shown until glue dries.

11. 
A. □ Trim excess plastic from around sides of nose cone with sharp knife. Remove any excess plastic from inside molded eyelet. Enlarge hole in rear of nose cone.
B. □ Roll clay into a "snake" about 3 mm (1/8") diameter. Poke clay through the hole in nose cone. Use pencil or dowel to push clay into end of nose cone. Pack clay tightly. Use all of the clay.
C. □ Wipe nose cone with damp cloth to remove oil and dirt.

12. 
A. □ Cut out parachute on printed edge lines.
B. □ Remove tape from shroud lines, fold and cut into three equal lengths.
C. □ Attach tape rings to top of parachute at each corner and press firmly into place. Punch hole through the parachute material with the point of a sharp pencil (do not use a dull pencil or ballpoint pen).
D. □ Pass shroud line through hole in parachute and tape ring. Tie lines together with a double knot.
E. □ Attach remaining lines to other corners to complete parachute.
F. □ Pass shroud line loops through eyelet on nose cone. Pass nose cone through loop ends and pull lines against the nose cone.
G. □ Tie free end of shock cord to nose cone eyelet.

FINISHING YOUR ROCKET
Apply sanding sealer to fins. When sealer is dry, lightly sand parts. Repeat sanding and sealing until balsa grain lines are filled. Optional: Spray a light coat of automotive primer over entire rocket. Lightly sand (600 grit) when primer is dry. This allows the paint to adhere better and gives a smoother finish. Spray paint the entire rocket gloss white. Follow instructions on spray can for best results. Allow paint to dry overnight before applying decals. Refer to photo on front of instructions and photo on panel for decal placement. To apply decals, cut out each decal, dip in lukewarm water for 20 seconds, and hold until it uncurls. Slip decal off backing sheets and onto model. Blot away excess water. For a more realistic appearance and to protect decals, spray a flat clear coat on the rocket.
PREPARE ENGINE
NOTE: Igniter plugs come with rocket engines. If your engines did not come with plugs, follow the instructions that came with the engines.

SEPARATE IGNITER AND IGNITER PLUG

HOLD ENGINE UPRIGHT, DROP IN IGNITER
IGNITER MUST TOUCH PROPELLANT
INSERT IGNITER PLUG
BEND IGNITER WIRES BACK
MUST FIT SNUGLY OR ENGINE MAY EJECT AND FAIL TO ACTIVATE RECOVERY DEVICE

WRAP LINES LOOSELY AROUND 'CHUTE.

NOTE: Parachute may be dusted with talcum powder to avoid sticking.

WRAP WITH ONE OR TWO WRAPS OF MASKING TAPE

INSERT SHOCK CORD AND NOSE CONE IN ROCKET

LAUNCH SUPPLIES
To launch your rocket, you will need the following items:
--Estes Electrical Launch Controller and Launch Pad
--Estes Recovery Wadding No. 2274
--Recommended Estes Engines: A8-3 (First Flight), B4-4, B6-4, B8-5, C6-5
To become familiar with your rocket’s flight pattern, use an A8-3 engine for your first flight.
Use only Estes products to launch this rocket.

FLYING YOUR ROCKET
Choose a large field away from power lines, tall trees, and low flying aircraft. Try to find a field at least 76 meters (250 feet) square. The larger the launch area, the better your chance of recovering your rocket. Football fields and playgrounds are great.
Launch area must be free of dry weeds and brown grass.
Launch only during calm weather with little or no wind and good visibility.
Don’t leave parachute packed more than a minute or so before launch during cold weather (colder than 40° Fahrenheit).
Parachute may be dusted with talcum powder to avoid sticking.

If you use the E2™ or Command Control™ Launch Controllers to fly your models, use the following launch steps:
A. After attaching micro-clips, etc., insert safety key into the controller receptacle. If the igniter clips have been attached properly to the igniter, the red L.E.D. will now begin to flash on and off and the audio continuity indicator will beep on and off.
B. Hold the yellow (left) arm button down. The L.E.D. will stop flashing and the audio indicator will produce a steady tone.
C. Verbally count down from five to zero loud enough for the bystanders to hear. Still holding the yellow arm button down, push and hold the orange (right) button down until the rocket ignites and lifts off.

FOR YOUR SAFETY AND ENJOYMENT
Always follow the NAR* MODEL ROCKETRY SAFETY CODE while participating in any model rocketry activities.

SAFETY KEY MUST NOT BE IN LAUNCH CONTROLLER WHEN ATTACHING MICRO-CLIPS TO ENGINE IGNITERS

COUNTDOWN AND LAUNCH
10. BE CERTAIN SAFETY KEY IS NOT IN LAUNCH CONTROLLER.
9. Remove safety cap and slide launch lug over launch rod to place rocket on launch pad. Make sure the rocket slides freely on the launch rod. Make sure micro-clips are clean for a good electrical contact.
8. Attach micro-clips to the igniter wires. Arrange the clips so they do not touch each other or the metal blast deflector. Attach clips as close to protective tape on igniter as possible.
7. Move back from your rocket as far as launch wire will permit (at least five meters - 15 feet).
6. INSERT SAFETY KEY to arm the launch controller.
Give the audible countdown 5...4...3...2...1
LAUNCH!!
PUSH AND HOLD LAUNCH BUTTON UNTIL ENGINE IGNITES
REMOVE SAFETY KEY FROM LAUNCH CONTROLLER. KEEP SAFETY KEY WITH YOU OR REPLACE SAFETY KEY AND SAFETY CAP ON LAUNCH ROD.
MISFires
If the igniter functions properly but the propellant does not ignite, keep in mind the following: An Estes igniter will function properly even if the coated tip is chipped. However, if the coated tip is not in direct contact with the engine propellant, it will only heat and not ignite the engine.
When an ignition failure occurs, remove the safety key from the launch control system and wait one minute before approaching the rocket. Remove the expended igniter from the engine and install a new one. Be certain the coated tip is in direct contact with the engine propellant, then reinstall the igniter plug as illustrated above. Repeat the countdown and launch procedure.
EXPLORER
SERIES

BULL PUP 12D™
FLYING MODEL ROCKET
SKILL LEVEL 2

SPORT SCALE OF THE USAF AGM-12D BULL PUP AIR-TO-GROUND MISSILE

AUTHENTIC 3 COLOR SCALE DECALS

PRECISION PARTS - PLASTIC NOSE CONE AND TAIL CONE, DIE-CUT BALSA FINS

CAPABLE OF OVER 245 METERS (800 FEET) ALTITUDE

Recommended for ages 10 and up with adult supervision for those under 12.

EST 7000

ESTES®