COUNTDOWN AND LAUNCH

KEY ALWAYS OUT UNTIL FINAL COUNTDOWN!

1...

Insert key, push down and hold.

4...

HOLD KEY DOWN AND PRESS BUTTON UNTIL LIFT-OFF!

2...

Use 3/16" (5 mm) Maxi™ Rod

3...

Use 3/16" (5 mm) Maxi™ Rod

ESTES LAUNCH SUPPLIES

(Sold Separately)

- Porta Pad II Launch Pad (Requires 3/16" [5 mm] Maxi™ Rod - sold separately).
- Electron Beam Launch Controller
- Recovery Wadding
- Igniters (with engines)
- Igniter Plugs (with engines)
- Recommended Engines: D12-3, D12-5

READY TO FLY ROCKET KIT INSTRUCTIONS

#2188

Canadian Arrow

Canadian Arrow

Countdown and Launch

Choose a large field (500 ft. [152 m] square) free of dry weeds and brown grass. The larger the launch area, the better the 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 APPLYING ANY GLUE!

If any parts don’t fit properly, sand as required for precision assembly.

TEST FIT ALL PARTS TOGETHER BEFORE APPLYING ANY GLUE!

If any parts don’t fit properly, sand as required for precision assembly.

SUPPLIES

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

- Yellow Spacer Tool (1) (35004)
- Decal Sheet (1) (60837)
- Engine Hook EH-2 (1) (35021)
- Black Engine Hook Retainer Ring (1) (30480)
- Rubber Shock Cord 1/4" x 30" (1) (38369)
- Laser Cut Balsa Fins (2) (32626)
- Nose Cone PNC-80K (1) (71035)
- Tail Cone PTC-80 (1) (71033)
- Body Tube BT-60C (1) (30458)
- Die Cut Centering Rings (1) (32434)
- Clay Weight (2) (85705)

PRECAUTIONS

NAR Safety Code

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 the 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.

The Canadian Arrow team is highly motivated to fulfill the dream of popular space travel using the “don’t reinvent the wheel” approach. By making use of the research performed over 60 years ago, this Canadian team plans to bring the V2 rocket back to life, but this time for the benefit of the space tourism industry.

TEAM OVERVIEW

Canadian Arrow

The Canadian Arrow team is highly motivated to fulfill the dream of popular space travel using the “don’t reinvent the wheel” approach. By making use of the research performed over 60 years ago, this Canadian team plans to bring the V2 rocket back to life, but this time for the benefit of the space tourism industry.

TEAM SPECIFICATIONS:

Name: Canadian Arrow
Website: www.canadianarrow.com
Country of Origin: London, Ontario, Canada

Vehicle Specifications:

Name: Canadian Arrow

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.

- Nose Cone PNC-80K (1) (71035)
- Tail Cone PTC-80 (1) (71033)
- Body Tube BT-60C (1) (30458)
- Engine Mount Tube BT-50H (1) (30360)
- Black Engine Hook Retainer Ring (1) (30480)
- Yellow Spacer Tool (1) (55024)
- Green Engine Block AR290 (1) (30164-2)
- Rubber Shock Cord 1/4" x 30" (1) (38369)
- Laser Cut Balsa Fins (2) (32626)
- Die Cut Centering Rings (1) (32434)
- Clay Weight (2) (85705)
- Engine Hook EH-2 (1) (35021)
- Assembled Parachute 18" (46 cm) (1) (35802)
- Decal Sheet (1) (60837)

SUPPLIES

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

- Pencil
- Ruler
- Fine lines Enamel (30165-40)
- Carpenter’s modeling glue
- Sanding block
- Razor saw
- Tube-type Plastic cement
- Masking tape
- Plastic modeling putty
- Spray primer (white)
- Spray gloss (30433-90)
1. ASSEMBLE ENGINE MOUNT

A. Measure and mark Engine Mount Tube.
B. Cut 1/8" (3 mm) slit at 2 3/8" (6 cm) mark.
C. Mark Yellow Spacer Tool 3/8" (9.5 mm) from end.
D. Use scrap balsa to smear glue 2 3/8" (6 cm) inside Engine Mount Tube.
E. Use Engine Spacer Tool to push Engine Block into Engine Mount Tube up to mark.
F. Remove Spacer Tool immediately.
G. Apply glue around tube just ahead of the 1" (25 mm) mark. Insert Engine Hook into slit, as shown.
H. Slide Engine Hook Retainer Ring onto Engine Mount Tube up to 1" (25 mm) mark. Let dry.

PREPARE ENGINE

A. Separate Igniter and Plug.
B. Tip must touch propellant.
C. D. E. F. Insert Engine

2. ATTACH CENTERING RINGS

A. Using a modeling knife, carefully remove rings from Centering Ring card.
B. Mark Engine Mount Tube at 1/8" (3 mm) and 5 7/8" (14.9 cm) from rear.
8. PREPARE NOSE CONE AND INSTALL NOSE WEIGHT

A. Using a modeling knife, remove excess flash from Nose Cone and eyelet.

B. Cut clay in half and roll into two “snakes”.

C. Insert clay “snakes” into Nose Cone, one at a time.

D. Pack clay “snakes” tightly into tip of Nose Cone using a scrap piece of balsa or a pencil. Use ALL of the clay.

E. Glue mount 1.5” (3.8 cm) inside upper Body Tube. Hold until glue sets. Let dry.

F. Apply glue fillet to both sides of each ring. Let dry completely.

G. Trim out notch of small Ring and discard.

9. INSTALL SHOCK CORD MOUNT

A. Cut out Shock Cord Mount.

B. Apply glue. Fold forward.

C. Apply glue. Fold forward.

D. Squeeze tightly and hold for one minute.

E. Glue mount 1.5” (3.8 cm) inside upper Body Tube. Hold until glue sets. Let dry.

10. ATTACH PARACHUTE AND SHOCK CORD

A. Pass shroud lines through eyelet.

B. Pass Parachute through loop.

C. Tie Shock Cord to Nose Cone using a double knot.

11. INSTALL SHOCK CORD MOUNT

A. Pass shroud lines through eyelet.

B. Pass Parachute through loop.

C. Tie Shock Cord to Nose Cone using a double knot.

12. ATTACH CENTERING RINGS (CONT.)

C. Slide one large Ring onto Tube, down to 5 7/8” (14.9 cm) mark. Slide other large Ring onto end of tube.

D. Apply glue fillets to both sides of each ring. Let dry completely.

E. Trim out notch of small Ring and discard.

F. Slide notched Ring over Engine Hook 1/8” (3 mm) from end of Engine Tube.

G. Apply glue fillet to both sides of ring. Let dry completely.

3. PREPARE TAIL CONE

A. Using a razor saw, carefully remove the nibs that cover the slots for the Fins.

B. Sand away excess plastic lip flush with surface.

C. Insert clay “snakes” into Nose Cone, one at a time.

D. Pack clay “snakes” tightly into tip of Nose Cone using a scrap piece of balsa or a pencil. Use ALL of the clay.

E. Glue mount 1.5” (3.8 cm) inside upper Body Tube. Hold until glue sets. Let dry.

F. Apply glue fillet to both sides of each ring. Let dry completely.

G. Trim out notch of small Ring and discard.

H. Slide notched Ring over Engine Hook 1/8” (3 mm) from end of Engine Tube.

I. Apply glue fillet to both sides of ring. Let dry completely.
4. INSTALL ENGINE MOUNT AND TAIL CONE

A. Apply glue inside Body Tube at 1 1/2" (3.8 cm).
B. Use the Tail Cone to insert and position the Engine Mount assembly to correct position. Remove Tail Cone immediately. Let dry.
C. After Engine Mount assembly has dried, apply a glue fillet around Ring and Body Tube joint. Let dry.
D. Apply tube type plastic cement to the inside edge of Body Tube and around Centering Ring edge. Slide Tail Cone into Body Tube. Turn Tail Cone to position Engine Hook between Fin Slots.
E. Using a scrap piece of balsa, apply a fillet of tube type plastic cement to the inside Ring/Tail Cone joint. Let dry completely.

5. ATTACH LAUNCH LUG

A. Place a pencil mark on the body tube in line with the Engine Hook.
B. Using a door jamb, extend the mark the entire length of Body Tube.
C. Cut Launch Lug into two equal parts.
D. Apply glue to Launch Lug, attach on "LL" line as shown. Be sure to center Launch Lugs on "LL" line so that they are in alignment with each other. Let dry completely.
E. Apply tube type plastic cement fillets to each side of Launch Lug, smooth out with finger. Let dry completely.

6. PREPARE FINS

A. Using fine sandpaper, sand both sides of laser cut Fin Sheet.
B. Using a modeling knife, carefully remove Fins.
C. Stack Fins and sand edges square.
D. Sand leading edge of Fins to a slightly round shape. Keep other edges square.

7. INSTALL FINS

A. Test fit Fins in Slots.
B. Sand Fins as needed for a good fit. Do not sand too much off. Test fit again. Repeat as needed.
C. Apply glue to Fin tabs and push into slots until Fin is seated flush to Tail Cone. Repeat for remaining Fins. Let dry.
D. Stand rocket upright as shown, until glue dries completely.
E. Apply tube type plastic cement fillets to Fin/Tail Cone joints. Smooth out with finger. Continue until all four Fins are complete. Let dry completely.

NOTE: FINS MUST BE ATTACHED TO TAIL CONE FOR STABLE FLIGHT.