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.

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.

PRECAUTIONS
NAR Safety Code

NO DRY GRASS OR WEEDS

FLYING YOUR ROCKET
Choose a large field (300 ft. [90 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.

SCISSOR WING TRANSPORT
FLYING MODEL ROCKET KIT INSTRUCTIONS
KEEP FOR FUTURE REFERENCE

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:

SCISSORS  PENCIL  RULER  FINE SAND PAPER  CARPENTER’S GLUE  HOBBY KNIFE  PLASTIC MODELING CEMENT  MASKING TAPE  RAZOR SAW  TWEEZERS  SPRAY PRIMER WHITE  SPRAY PAINT: BLACK WHITE

FLYING YOUR ROCKET
To launch your rocket, you will need the following:
- Porta-Pad® II Launch Pad
- Electron Beam® Launch Controller
- Recommended Engines: B4-2, B6-2, C6-3
- Igniters and Igniter Plugs (included with Estes engines)

KEEPS FOR FUTURE REFERENCE
Assembled 12” (30 cm) PARACHUTE (1) (35801)
**GLIDE TEST**

NOTE: Test the Glider only on soft, grassy surfaces like a sports field or lawn so that you don't damage your model.

A. With Power Pod removed from Glider, aim at a spot about 50 feet away and toss Glider straight out at eye level.

B. Observe glide carefully. Make adjustments a little at a time until you are satisfied with the glide.

**GLIDER ADJUSTMENTS:**

If Glider dives:
1. Remove weight from nose cone, or
2. Add weight inside of rudder tube, or
3. Lightly sand angled part of Tube Mount to increase elevator movement

If Glider stalls:
1. Add weight to nose cone, or
2. Remove weight from rudder tube, or
3. Add shims to angled part of Tube Mount to decrease elevator movement

If Glider turns too sharply:
1. Be sure that wing is at right angles to body tube in glide position.
2. Make sure that wing snaps firmly into glide position when released.
3. Make sure model balances span wise (from side to side). If not, add weight, in small amounts, to the light wing tip until nearly balanced.

The Glider should perform a large, gliding circle during descent.

**ROCKET PREFLIGHT**

Wrap parachute around Power Pod as shown and slide into Main Body Tube using a twisting motion. Turn wing to 'booster' position. Make sure dowel on Power Pod goes through the Launch Lugs on the Tube Mount and wing tip. Also make sure that the Dowel Mount is over the elevator, holding it in the horizontal position. For your first flight, use a B6-2 engine. Tape Nose Cone securely as shown for your first flight.

**PREPARE ENGINE**

A. Center MUST TOUCH PROPELLANT!
B. IGNITER MUST TOUCH PROPELLANT!
C. WRAP PARACHUTE AROUND POWER POD AS SHOWN
D. SLIDE PARACHUTE INTO MAIN BODY TUBE
E. INSERT ENGINE INTO ROCKET.

**WARNING: FLAMMABLE**

To avoid serious injury, read instructions & NAR Safety Code included with your engine.

**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.

**NOTE:** After you have flown and are sure your glider is balanced correctly, you can glue the nose cone on permanently using plastic cement.
INSTALL RUBBER BAND & ELASTIC THREAD

A. Hook one end of Rubber Band over Pivot Base Pin. Move wing to about 45°, turn rocket over, and hook the other end over pin on wing pivot.

B. Remove any twists from rubber band. Check to make sure wing pivots into "glide" position when released. If wing binds, try a little silicon spray lubricant on plastic pivot parts.

C. Tie two knots in elastic thread 3-1/2" (8.9 cm) apart. Stretch thread through notches in elevator and rudder as shown. Be sure elevator moves up against tube mount sides and that rear of elevator is at least 1/8" (3 mm) above horizontal when raised. If necessary, sand lower portion of tube mount sides to allow more elevator movement.

BALANCE GLIDER

A. With wing in glide position (at right angles to body tube), check the center of gravity location. It should be between 8-3/4" (22.2 cm) and 9" (22.9 cm) from the rear of the body tube.

B. If the glider does not balance between these two points, add clay weight, in small amounts, to the nose cone or rear rudder tube. Make adjustments a little at a time until you are satisfied that the glider is balanced.

1. ASSEMBLE POWER POD

A. Cut out power pod marking guide from page 2.

B. Wrap power pod marking guide around BT-20 Power Pod Tube, secure with tape. Mark at each arrow point and identify.

C. Remove marking guide. Using door frame, extend all lines entire length of tube.

D. Mark tube on the "EH" line at 1-7/16" (5.1 cm) and 2-1/2" (6.4 cm). Mark tube 1/2" (13 mm) from front end.

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

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

G. Use scrap balsa to smear glue 2-1/4" (5.7 cm) inside end of power pod tube.

H. Push engine block into power pod tube with spacer tool up to mark. Remove spacer tube immediately. Let dry.

I. Position engine hook. Temporarily tape into place.

J. Apply a line of glue around tube just in front of 2" (5.1 cm).

K. Slide mylar retainer ring over front of tube, push up to the 2" (5.1 cm) mark. Carefully remove tape. Let dry.

L. Locate the two green centering rings. Notch one of the rings 1/32" (1 mm) deep and 1/8" (3 mm) wide with a hobby knife.

M. Apply glue band just behind 1-7/16" (3.7 cm) mark and slide notched ring up to mark. Repeat for other end-slip ring to 1/2" (13 mm) mark.

A. Hook one end of Rubber Band over Pivot Base Pin. Move wing to about 45°, turn rocket over, and hook the other end over pin on wing pivot.

B. Remove any twists from rubber band. Check to make sure wing pivots into "glide" position when released. If wing binds, try a little silicon spray lubricant on plastic pivot parts.

C. Tie two knots in elastic thread 3-1/2" (8.9 cm) apart. Stretch thread through notches in elevator and rudder as shown. Be sure elevator moves up against tube mount sides and that rear of elevator is at least 1/8" (3 mm) above horizontal when raised. If necessary, sand lower portion of tube mount sides to allow more elevator movement.

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I. Position engine hook. Temporarily tape into place.

J. Apply a line of glue around tube just in front of 2" (5.1 cm).

K. Slide mylar retainer ring over front of tube, push up to the 2" (5.1 cm) mark. Carefully remove tape. Let dry.

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M. Apply glue band just behind 1-7/16" (3.7 cm) mark and slide notched ring up to mark. Repeat for other end-slip ring to 1/2" (13 mm) mark.
2. PREPARE BALSA PARTS

A. Sand both sides of each balsa sheet with fine sand paper. Carefully remove pieces. Lightly sand edges smooth, but do not round edges.

3. ATTACH FINS

A. Lay out the two Pod Fins with fin tabs facing away from each other.

B. Glue Pod Fin Braces onto Pod Fins at 90º angle as shown.

C. With Fin Braces to the outside and fin tabs to the rear, glue Pod Fins to Power Pod Assembly as shown. Let dry completely.

D. Glue Dowel Mount Braces to Dowel Mount Sides. Do not glue Dowel Mount to Power Pod yet. This will be done later to assure proper alignment.

4. ASSEMBLE DOWEL MOUNT

A. Cut a 3-1/2" (8.9 cm) long piece from the 1/8" (3 mm) wood dowel. Glue it to the Dowel Mount Center piece (from the 1/8" (3 mm) sheet). Let dry.

B. Glue Dowel Mount Side pieces to assembly as shown. Let dry.

C. Sand to cross section as shown.

A. Sand edges of Power Pod fins to a rounded shape. Do not round portion of fins between fin braces and Power Pod Tube.

B. Check model and do your final sanding and reinforcing of glue joints in preparation for finishing.

C. Attach parachute to Power Pod. Loop shroud lines around center of Power Pod, pull tightly. Wrap a band of masking tape to secure to tube.

4. ASSEMBLE DOWEL MOUNT

A. Lay out the two Pod Fins with fin tabs facing away from each other.

B. Glue Pod Fin Braces onto Pod Fins at 90º angle as shown.

C. With Fin Braces to the outside and fin tabs to the rear, glue Pod Fins to Power Pod Assembly as shown. Let dry completely.

D. Glue Dowel Mount Braces to Dowel Mount Sides. Do not glue Dowel Mount to Power Pod yet. This will be done later to assure proper alignment.

A. Paint entire rocket gloss white. Paint the primed area of Power Pod gloss black. Let dry.

NOTE: Be careful when painting to avoid "FREEZING" the wing pivot. Wing must pivot FREELY for proper operation.

B. Paint scheme

For optimum performance, keep weight to a minimum. We recommend light coats of primer and paint.

A. Remove Power Pod and spray rocket with white primer. Mask Power Pod as shown and do the same. Let dry and sand. Repeat until smooth.

NOTE: Fins must be attached correctly for stable flight.

C. When paint is dry, peel decals one at a time from decal sheet and apply where shown. Rub down to remove bubbles.
9. ASSEMBLE NOSE CONE

A. Apply plastic cement to one half of Wing Holder, press both halves together. Mark at 1/8" (3 mm) as shown. Let dry.

B. Slide Nose Cone onto Nose Cone Insert. Apply plastic cement to base of Wing Holder up to mark as shown. Glue Wing Holder to Nose Cone, center on body tube reference line. Make sure that wing tip will swing freely between posts on Wing Holder. Let dry.

C. Position Plastic Pivot Base as shown. Line up tab on base with mounting hole on wing pivot. Press together, check movement, must be free. Apply a drop of plastic cement into center of mounting hole in tab, insert wing pivot cap. Must be flush. Let dry completely.

NOTE: DO NOT ROUND EDGES OF CENTER HOLE OR SLOT.

10. ATTACH DOWEL MOUNT

A. Place remaining piece of Launch Lug into slot at end of wing. Trim to fit. Glue in place and let dry.

B. Position Wing in "boost" position (with its wing parallel to Body Tube) and insert Dowel Mount (from step 4) through Launch Lug in Rudder Tube Mount into Launch Lug in wing slot. The Dowel Mount Braces should hold the elevator in a nearly horizontal position. Then remove it.

C. Slip Power Pod all the way into rear of main Body Tube until the Rear Centering Ring is flush with the end of the Body Tube. If necessary, sand centering rings for a loose sliding fit in Body Tube. There should be no binding. The Engine Hook should be centered on the bottom of the Body Tube.

D. Test fit Dowel Mount to Power Pod. Dowel should extend through Launch Lug in Rudder Tube Mount. The rear of the Dowel Mount should be flush with rear of Power Pod Tube.

E. It will be necessary to sand forward portion of Dowel Mount Braces in order to clear Tube Mount sides properly. Round bottom surface of Dowel Mount Assembly to fit tube. When you are sure that you have all parts fitted properly, mark location of Dowel Mount on Power Pod Tube.

F. Remove Power Pod and glue dowel mount into position flush with end of tube. Let dry.

6. ASSEMBLE STABILIZER AND ATTACH WING TO BODY TUBE

A. Using a door frame as a guide, draw a line full length of the body tube.

B. Mark body tube 11/2" (3.8 cm) and 9° (22.9 cm) from end. Mark tube 1/8" (3 mm) from front.

5. ASSEMBLE WING

A. Lightly sand outside edges of wing and round slightly.

B. Position wing as shown. Apply plastic cement to underside of flange on Plastic Wing Pivot. Wing locating tab must be lined up with notch in wing, insert Wing Pivot. Pivot must be flush to top of wing. Let plastic cement dry completely.

C. Position Plastic Pivot Base as shown. Line up tab on base with mounting hole on wing pivot. Press together, check movement, must be free. Apply a drop of plastic cement into center of mounting hole in tab, insert wing pivot cap. Must be flush. Let dry completely.

NOTE: WING MUST BE POSITIONED EXACTLY AS SHOWN FOR PROPER INSTALLATION OF PLASTIC PIVOT PARTS!
6. ASSEMBLE STABILIZER (Continued.)

C. Apply a line of glue onto the alignment line up to the 1-1/2" (3.8 cm) mark. Align marks on Stabilizer with line on Body Tube and position Stabilizer even with end of body tube. Let dry.

D. Apply band of cement to under side of Plastic Pivot Base as shown. Glue Wing Assembly to body tube centered on reference line with rear of Pivot Base at the 9" (22.9 cm) mark.

E. Attach Elevator to Stabilizer using self-adhesive Tape Hinges from decal sheet. Fold Elevator up and back several times to crease hinges and to insure proper operation.

F. Cut a piece of the Launch Lug to 1-3/8" (3.5 cm) long. Glue launch lug to wide side of Tube Mount Spacer. Let dry.

G. Glue tube mount spacer to main portion of stabilizer. Center on alignment marks as shown.

H. Glue a Tube Mount to each side of Tube Mount Spacer. Position as shown. Elevator must be free to raise slightly. Let dry.

7. ATTACH RUDDER

A. Cut out Rudder Mount Tube Marking Guide from page 2.

B. Wrap guide around Rudder Tube, secure with tape. Mark tube at arrow points put an “R” at rudder line and “TM” at tube mount line.

C. Remove marking guide. Extend all lines entire length of tube.

D. Apply glue to Rudder and attach to Rudder tube. Center on rudder line flush with rear of tube. Let dry.

E. Glue Rudder Assembly to Tube Mount. Front of tube should be 5/16" (8 mm) forward of front of Tube Mount. Center at 90° angle to Stabilizer.

7. ATTACH RUDDER

8. INSTALL NOSE CONE INSERT

A. Using a razor saw, carefully cut off eyelet flush with end. Sand as required for a flat surface area.

B. Locate and remove red Engine Debris Block from decal sheet. Center over end of insert and press into place.

C. Apply plastic cement inside front of Body Tube. Push insert in until shoulder is flush with tube end. Let dry.