





#2024

ATA-31™

FLYING MODEL ROCKET

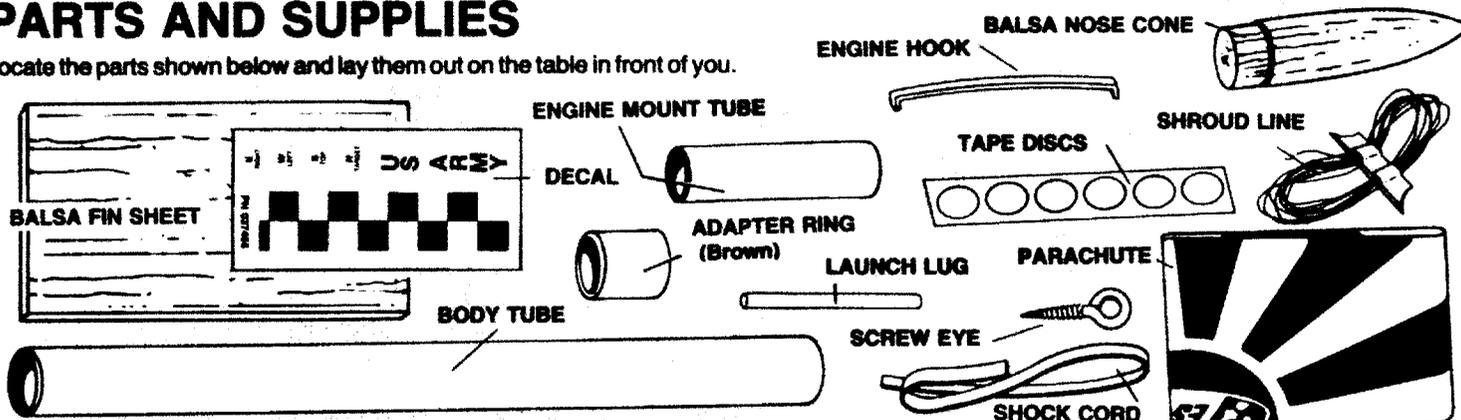
ESTES INDUSTRIES
1295 H STREET
Penrose, CO 81240

ASSEMBLY TIP

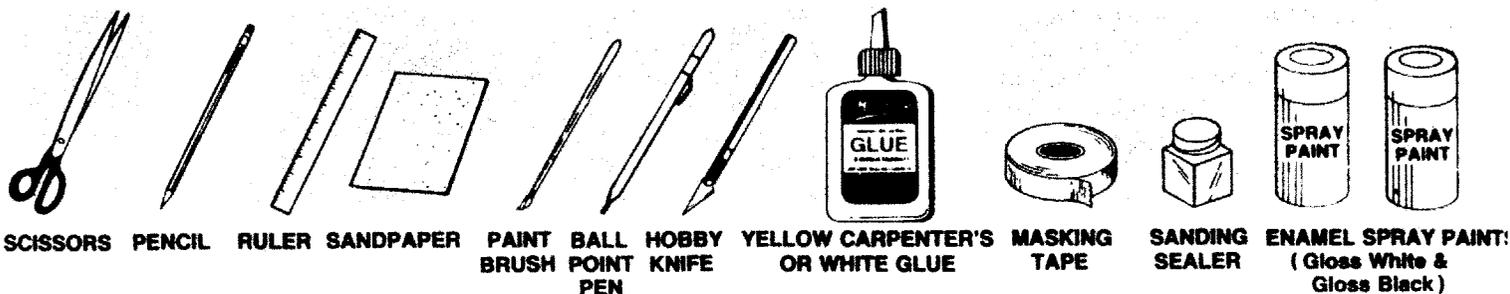
Read all instructions before beginning work on your model. Make sure you have all parts and supplies. Test-fit all parts together before applying any glue. If any parts don't fit properly, sand as required for precision assembly.

PARTS AND SUPPLIES

Locate the parts shown below and lay them out on the table in front of you.



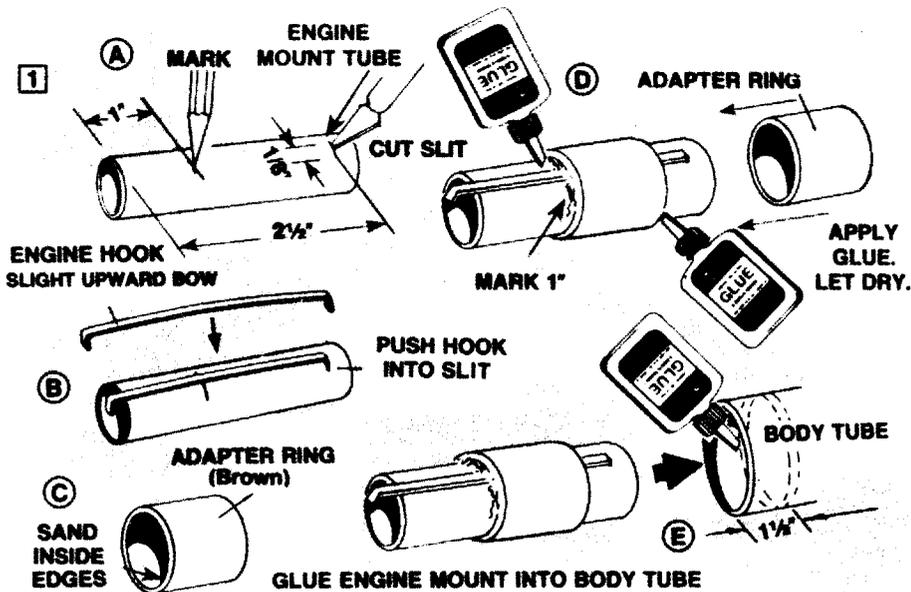
In addition to the parts included in the kit you will also need:



ROCKET ASSEMBLY

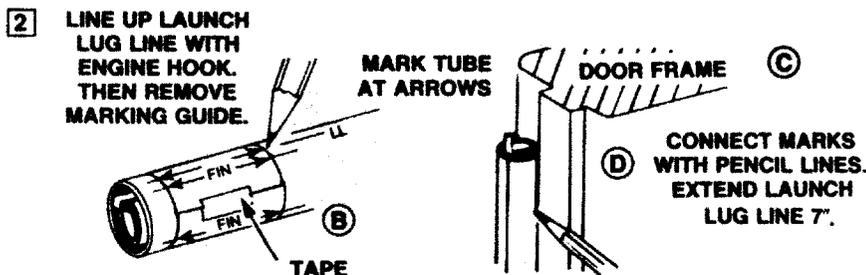
1.

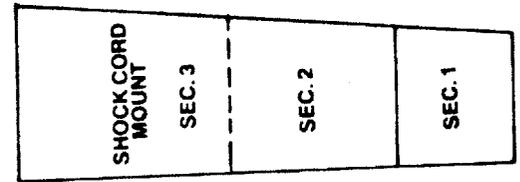
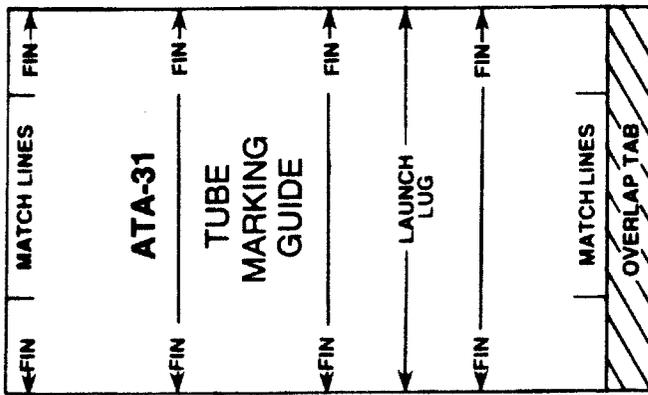
- Mark engine mount tube 1 inch and 2 1/2 inches from one end and then cut 1/8 inch long slit at 2 1/2 inch mark.
- Insert one end of engine hook into slit.
- Sand inside edges of adapter ring.
- Slide adapter ring onto tube as shown to the 1 inch mark and then glue both ends of ring to tube. Allow glue to dry.
- Apply a line of glue around inside of one end of body tube as shown. Push engine mount into tube until tube ends are even.



2.

- Cut out tube marking guide from top of page 2.
- Wrap guide around the tube with overlap tab underneath and mark tube at arrows. Remove guide.
- Draw straight lines connecting each pair of marks.
- Extend launch lug line 7" from rear of tube.





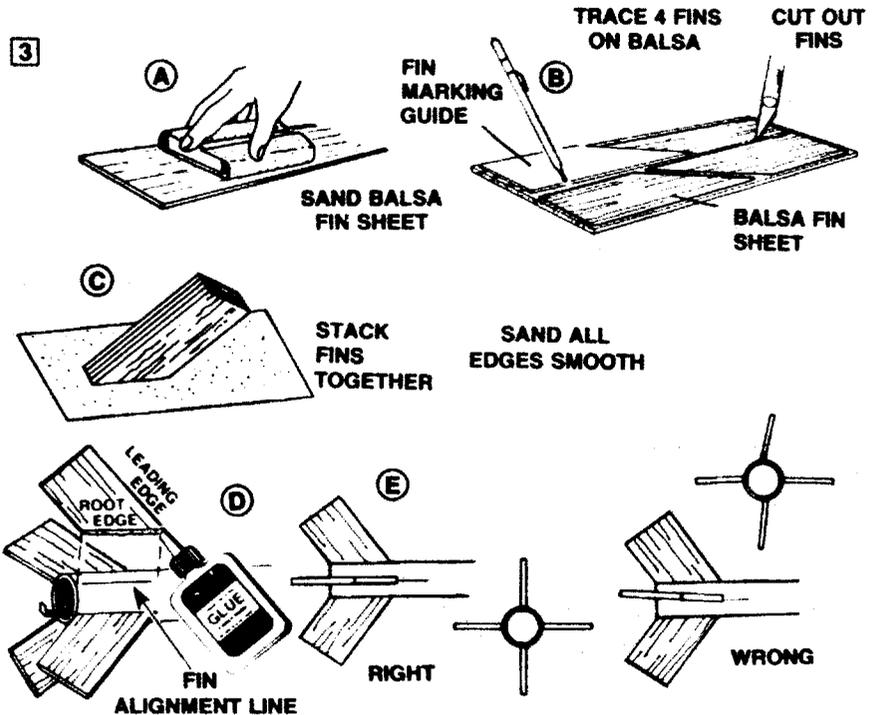
CUT OUT FOR STEP #6

CUT OUT FOR STEP #2

3.

- Fine sand both sides of balsa fin sheet.
- Cut out the fin marking guide from the back of the panel. Use a ball point pen to trace four fins on balsa sheet as shown. Cut each fin out with hobby knife.
- Stack fins together. Sand all edges smooth.
- Apply a small amount of glue to root edge of a fin. Glue fin on alignment line. Repeat for other fins. Let each fin dry several minutes before applying the next fin.
- Looking at the rocket from the rear, the fins should be in the positions shown with the trailing edge of each fin even with the end of the tube.

FINS MUST BE ATTACHED CORRECTLY FOR STABLE FLIGHT!



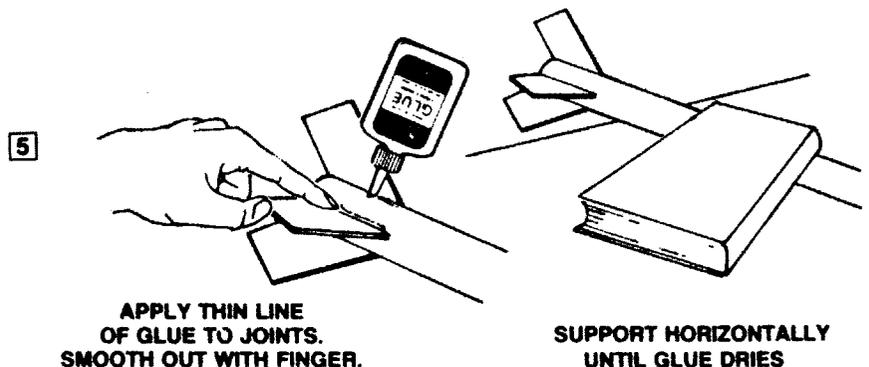
4.

Glue launch lug on launch lug line $2\frac{3}{4}$ inches from end of body tube as shown. Launch lug must be straight on body tube.



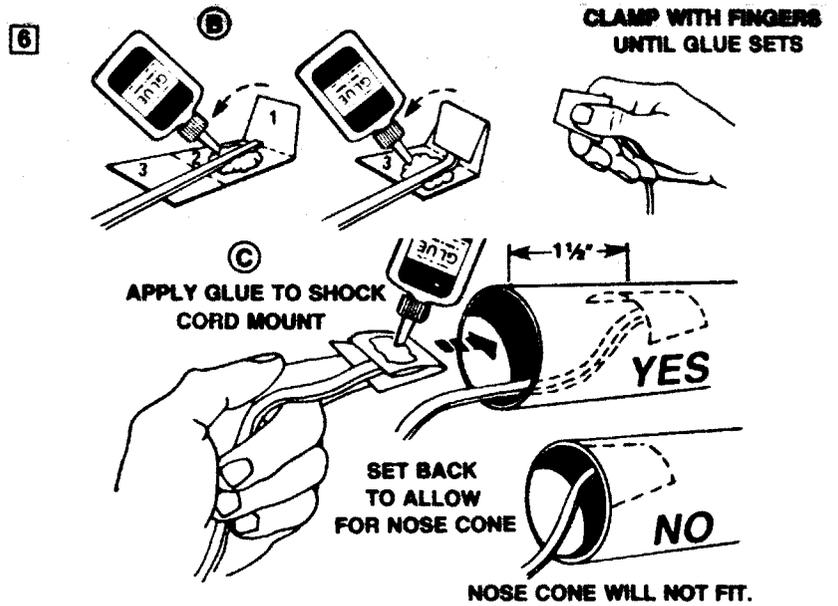
5.

- Apply a bead of glue as reinforcement to each side of each fin/body tube joint and to each side of the launch lug. Smooth them out with your finger. Support the rocket horizontally until glue dries.



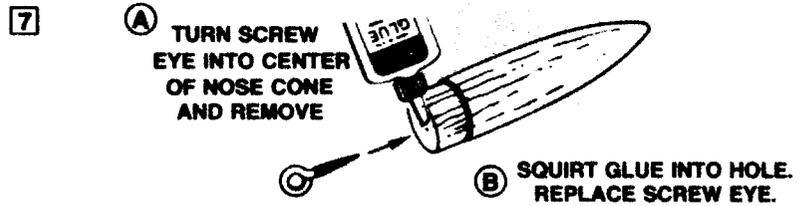
6.

- Cut shock cord mount from top of page 2.
- Crease on dotted lines by folding. Spread glue on section 2 and lay end of shock cord into glue at a slight diagonal as shown. Fold section 1 forward. Apply glue to section 3. Fold forward again. Clamp firmly with your fingers until glue sets.
- Apply glue to the shock cord mount. With the shock cord mount positioned on the end of your finger or a pencil, gently position the mount into the front of body tube far enough from the front edge of the tube to allow the nose cone to fit into place (1½ inch). Press shock cord mount into position. Smear a film of glue over the mount and surrounding area in the body tube to insure a good bond and a smooth surface.



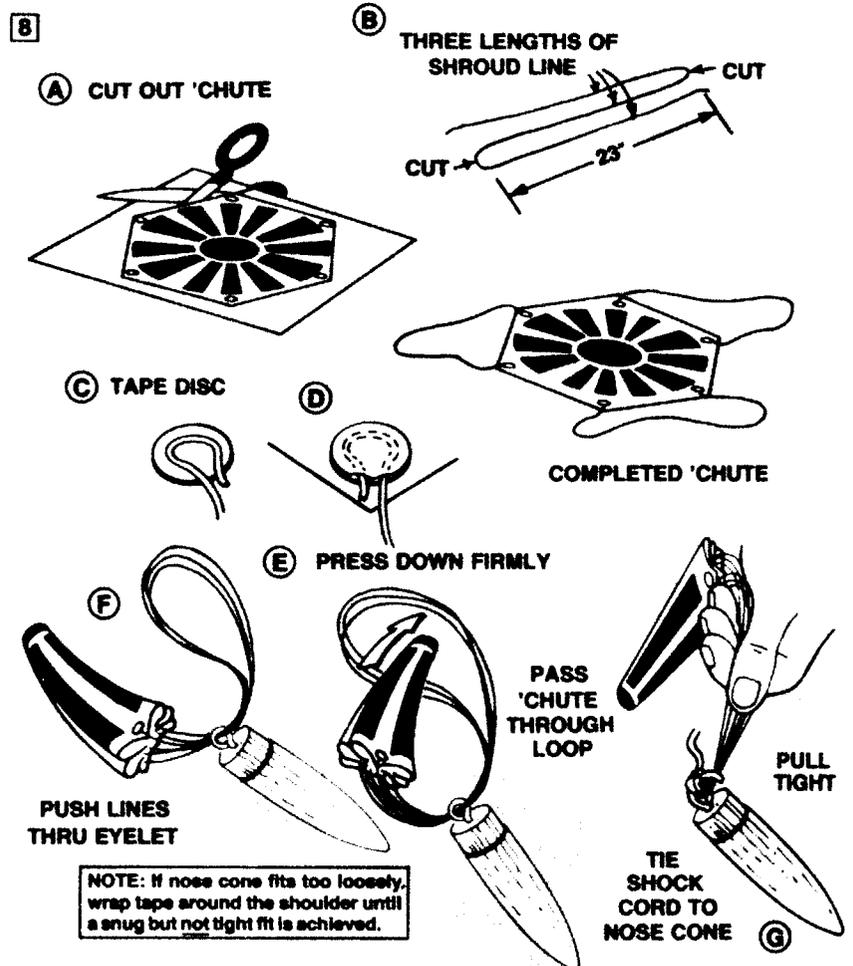
7.

- Turn screw eye into center of nose cone shoulder and remove.
- Squirt glue into hole and replace screw eye.



8.

- Cut out parachute on edge lines.
- Cut three 23 inch lengths of shroud line.
- Form small loops with shroud line ends and press onto sticky side of tape discs.
- Attach tape discs with line ends to top of parachute as shown.
- Firmly press tape discs into place until both tape discs and parachute material are molded around shroud line loops.
- Pass shroud line loops through screw eye on nose cone. Pass parachute through loop ends and pull lines against the nose cone.
- Tie free end of shock cord to screw eye with double knot. Pack 'chute and shock cord into rocket body. Slide nose cone into place.



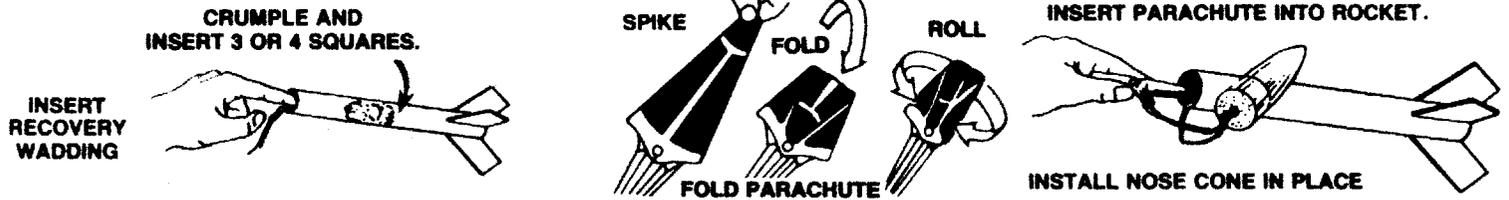
FINISHING YOUR ROCKET

Allow all glue to dry completely. Apply sanding sealer to wood parts with a small brush. Let dry. Lightly sand all sealed surfaces. Repeat sealing and sanding until balsa grain is filled and smooth. Allow sanding sealer to completely dry. Paint entire rocket white first. Follow directions on spray cans for best results. Let white paint dry completely. Refer to front and back of panel for painting scheme. Use masking tape and sheet plastic to mask rocket for areas to be painted

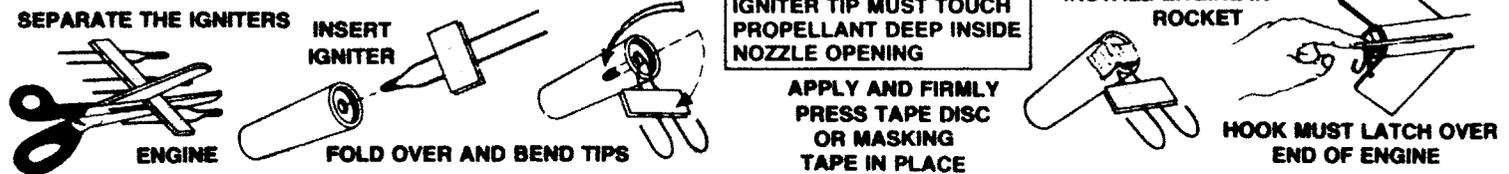
black. Paint the black areas. Let paint dry completely. Remove masking materials.

To apply decals, cut each out, dip in lukewarm water for 20 seconds, and hold until it uncurls. Refer to front and back of panel for decal placement. Slip decal off backing sheet and onto model. Blot away excess water. For best results, let decals dry overnight and apply a coat of clear spray paint to protect decals.

ROCKET PREFLIGHT



PREPARE ENGINE



LAUNCH SUPPLIES

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

FOR YOUR SAFETY AND ENJOYMENT

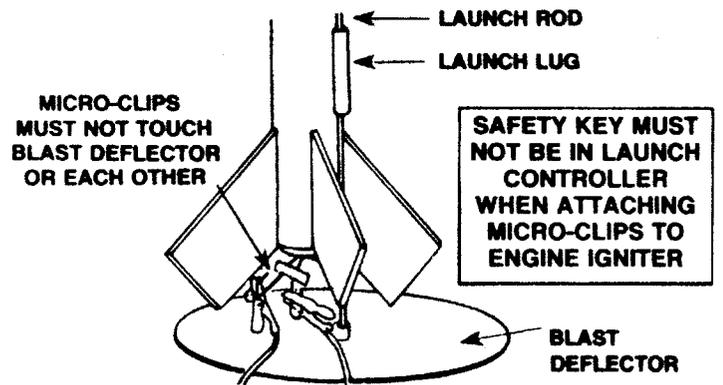
Always follow the NAR-HIA* MODEL ROCKETRY SAFETY CODE while participating in any model rocketry activities.
 *National Association of Rocketry-The Hobby Industry of America

FLYING YOUR ROCKET

Choose a large field away from power lines, tall trees, and low flying aircraft. Try to find a field at least 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 (4° Celsius)].
 Parachute may be dusted with talcum powder to avoid sticking.

COUNTDOWN AND LAUNCH

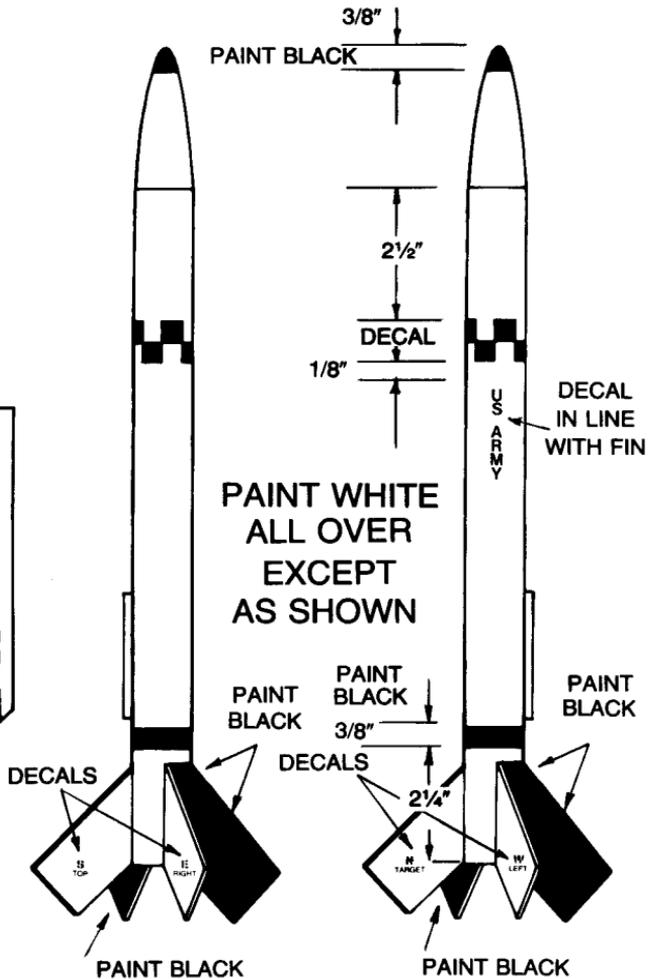
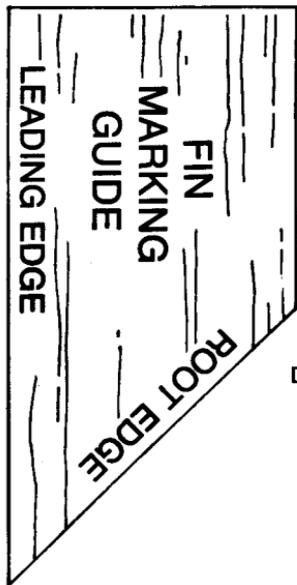


MISFIRES

Failure of the model rocket engine to ignite is nearly always caused by incorrect igniter installation. 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 tape the igniter leads firmly to base of engine as illustrated above. Repeat the countdown and launch procedure.

- 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.
- 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 15 feet).
- ⑥ INSERT SAFETY KEY to arm the launch controller. Give audible countdown 5...4...3...2...1 **LAUNCH!!!**
 PUSH AND HOLD LAUNCH BUTTON UNTIL ENGINE IGNITES.
 REMOVE SAFETY KEY FROM LAUNCH CONTROLLER.
 REPLACE SAFETY KEY AND SAFETY CAP ON LAUNCH ROD.



084212

PAINT & DECAL PLACEMENT

PN 037455



E
RIGHT

W
LEFT

S
TOP

N
TARGET

**U
S
A
R
M
Y**

ATA-31 Estes #2024

Parts Measurements List:

Quantity	Part Description	Length
1	Main Body Tube	12 3/4"
1	Engine Mount tube	2 3/4"
1	Engine Adaptor Ring	1 1/8"
1	1/16" Eye Screw	3/4"
1	Rubber Shock Cord	17 3/8"
1	1/8" Launch Lug	2 3/8"
1	3/32" Balsa Fin Stock	3" x 4 1/2"

*Note: Balsa Sheet Thickness is 3/32"

ATA-31™

FLYING MODEL ROCKET

SKILL LEVEL 3

■ SCALE-LIKE AIR-TO-AIR MISSILE

- Balsa Nose Cone
- 12 Inch Diameter Parachute
- Balsa Fins
- Quick-Release Engine Mount

Length: 16.75 in. (42.5 cm)

Dia: 2.975 in. (74.9 mm)

Weight: .99 oz. (28 g)

Recommended Engines:

A8-2, B8-4 (First Flight),

B6-4, B9-5, or C6-2

This is a model kit requiring assembly. Glue and finishing supplies, launch system and engine not included.

**FLIGHTS
TO
1200
FEET**



ESTES INDUSTRIES
HAWAII, HI 96746



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