

Throughout the past years, over 25 million model rocket launchings have been made — most of them by young men 10 to 25 years of age . . . and establishing one of the best safety records of any youth activity. They look upon this hobby as being exciting and educational. They don't think of rockets as toys. Hundreds of thousands of rocketeers have promoted the safety of the hobby by following the Safety Code printed here.

The ENERJET series of engines are powerful, sophisticated products that generally appeal to the older rocketeers. A mature common-sense attitude makes for safe, rewarding projects.

This rocket is designed to be launched only from standard remote-controlled electrical launch systems. Always use the recommended engines and recovery wadding. Comply with all Federal, State and local laws.

ENERJET
A SUBSIDIARY OF CENTURI ENGINEERING CO.

AERO-DART

Catalog No. KE-2

MODEL ROCKETEER'S SAFETY CODE

CONSTRUCTION

My model rockets will be made of only lightweight materials such as paper, wood, plastic, and thin metallic foils, with the exception of payloads and engine holders made of wrought material.

ENGINES

I will use only pre-loaded factory made model rocket engines in the manner recommended by the manufacturer. I will not change in any way nor attempt to reload these engines.

RECOVERY

I will always use a recovery system in my model rockets that will return them safely to the ground so that they may be flown again.

WEIGHT LIMITS

My model rocket will weigh no more than 453 grams (16 oz.) at liftoff, and the engines will contain no more than 113 (4 oz.) of propellant, as prescribed by Federal Regulations.

STABILITY

I will check the stability of my model rockets before their first flight except when launching models of already proven stability.

LAUNCHING SYSTEM

The system I use to launch my rockets will be remotely controlled and electrically operated, and will contain a switch that will return to "off" when released. I will remain at least 10 feet away from any rocket that is being launched.

LAUNCH SAFETY

I will not let anyone approach a model rocket on a launcher until I have made sure that either the safety interlock key has been removed or the battery has been disconnected from my launcher.

LAUNCH AREA

My model rockets will always be launched from a cleared area, free of any easy-to-burn materials, and I will only use non-flammable recovery wadding in my rockets.

BLAST DEFLECTOR

My launcher will have a blast deflector device to prevent the engine exhaust from hitting the ground directly.

LAUNCH ROD

To prevent accidental eye injury I will always place the launcher so the end of the rod is above eye level or cap the end of the rod with my hand when approaching it. I will never place my head or body over the launching rod. When my launcher is not in use I will always store it so that the launch rod is not in an upright position.

POWER LINES

I will never attempt to recover my rocket from a power line or other dangerous places.

LAUNCH TARGETS AND ANGLE

I will not launch rockets so their flight path will carry them against targets on the ground, and will never use an explosive warhead nor a payload that is intended to be flammable. My launching device will always be pointed within 30 degrees of vertical.

PRE-LAUNCH TEST

When conducting research activities with unproven designs or methods, I will, when possible, determine their reliability through pre-launch tests. I will conduct launchings of unproven designs in complete isolation from persons not participating in the actual launching.

FLYING CONDITIONS

I will not launch my model rocket in high winds, near buildings, power lines, tall trees, low flying aircraft or under any conditions which might be dangerous to people or property.



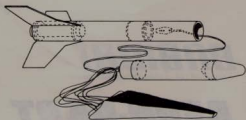
ENERJET

Catalog No. KE-2

Length	33"	Capsule Volume
Body Diameter	2"	(24.5 cu. in.)
Net Weight	6.5 oz.	

Recommended Engines E24-7 F52-8 F67-9

AERO-DART



INTRODUCTION

The Aero-Dart carrier rocket is capable of reaching altitudes of 2500 feet, carrying a 3 to 5 ounce payload, when powered by an "F-67" type ENERJET rocket engine.

The 24.5 cubic inch payload compartment can be used to carry radio transmitters, mechanical measuring devices such as accelerometers, or small biological specimens.

The Aero-Dart features a rugged silk chute. An ejection baffle* protects the chute from the ejection charge by cooling the hot gases and trapping burning particles. It eliminates the need for chute wadding.

Enerjet engines produce considerably more stress on the vehicle than regular A-B-C series engines. For the most satisfaction, please be especially careful in assembling and flying your model.

ASSEMBLY INSTRUCTIONS

TOOLS: In addition to the parts supplied, you will need the following standard model rocket tools to assemble and finish this kit. **DO NOT** use model airplane glue for building flying model rockets.



- 1 Carefully push each fin from the die-cut balsa sheets. If necessary, use a sharp modeling knife to trim around each piece to avoid ragged edges.

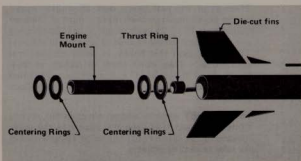
Glue each leading section to its fin, along a straight edge. Wax paper is ideal for this purpose as it protects table tops, and glued pieces don't stick to wax paper. If necessary, sand joint edges to obtain a perfect fit.



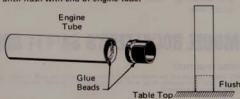
- 2 Apply glue to one face of a centering ring and join neatly with another. Rings must be neatly aligned so the doubling ring will slip over the engine tube. Repeat with second set of rings.



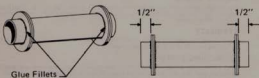
*Pat. Pend. on Baffle Ejection System



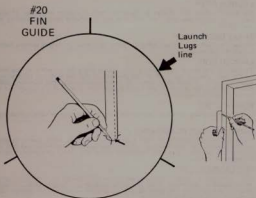
- 3 Apply a bead of glue inside one end of engine tube and around outside of thrust ring. Push thrust ring into place until flush with end of engine tube.



- 4 Glue the assembled centering rings in place as shown. Position each 1/2" from each end. After glue has set a bit, apply a glue bead around both sides of each joint, and smooth into neat fillets with your finger. Set assembly aside to dry, standing vertically.

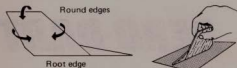


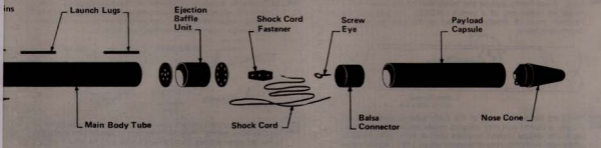
- 5 Stand the main body tube on its fin guide and mark each position on the tube.



Find a convenient groove or channel with straight sides, such as a door jamb or partially open drawer. Extend the marks into straight guide lines the entire length of the tube.

- 6 By now the assembled fins should be dry enough to handle. With fine sandpaper, round all edges except the root edge. Run the root edge over sandpaper to insure a straight edge.

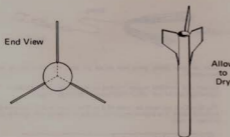




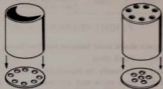
- 7** One at a time, apply glue to the root edges of the fins. Press in place on the drawn lines. Remove the fin. Repeat with remaining fins. Apply fresh glue to each fin and re-position on the body.



- 8** Check fin alignment visually by sighting along tube. Imaginary center lines of fins should all converge at center of body tube. Stand assembly upright to dry, but avoid glue sags.

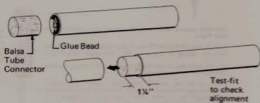


- 9** Apply a bead of glue around the rim of one of the baffle disks. Push the tube coupler down on the disk, gluing the two together. Glue the other baffle disk to the coupler in the same way. Stand the completed unit aside to dry completely before attempting to mount the baffle unit in the rocket.



The baffle unit will cool the ejection gases before they reach the parachute, eliminating the need for chute wadding.

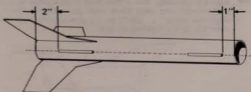
- 10** Run a generous glue bead around the inside of one end of the payload capsule tube. Insert the balsa tube connector with a firm continuous motion to a depth of one-half inch. 1-1/4" of connector should protrude. Gently test-fit assembly into main body tube to be sure connector is straight, then remove, and allow to dry, standing assembly upright.



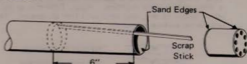
- 11** Thread the screw eye into the base of the connector, remove, squirt glue into the hole, and replace the screw eye.



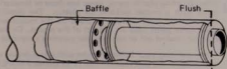
- 12** Run a bead of glue along one side of each launch lug. Glue in place on previously drawn line in positions shown. Sight along assembly to be sure lugs are aligned.



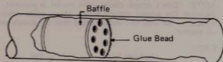
- 13** Sand the inside edge of the body tube and outside edges of the baffle unit to remove any burrs. Test-fit the baffle half-way into body tube and remove. Apply a generous bead of glue about 6" down inside the tube, using a scrap stick or pencil.



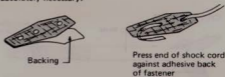
- 14** Use the engine mount assembly as a "tool" to push the baffle unit in place. Push with a firm, but gentle, motion until engine mount assembly is flush with end of body tube. NOTE: Don't stop while pushing, or the glue may "set-up" . . . remove engine mount assembly quickly before glue sets up.



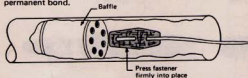
- 15** When the unit is in place, about 5-1/2" in, apply a bead of glue around the joint with a stick. This will secure the forward baffle disk from being blown out by the ejection charge.



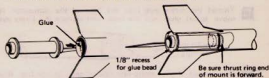
- 16** Peel the backing from the shock cord fastener. Thread the end of the elastic shock cord through the fastener as shown. Take care not to touch the adhesive backing any more than absolutely necessary.



- 17 Position fastener down into tube until it touches the baffle unit. Press firmly against the inside wall of the tube with a finger or eraser end of a pencil. **NOTE:** All edges of the fastener must be firmly contacted to the tube to insure a permanent bond.



- 18 Sand the inside rear edge of the body tube to remove burrs. Apply a liberal quantity of glue inside the body tube, then push the engine mount in place with a firm, even motion, until rear centering ring is recessed about 1/8". Apply a glue bead around the recess to secure engine mount.



- 19 The fin-to-body joints must be reinforced to withstand the engine's thrusting. Run a thin bead of glue along each joint and smooth into neat fillets with your finger. Check fin alignment again... don't let the glue sag and run! Allow assembly to dry standing upright.



- 20 Balsa wood fins may be sealed when glue joints are dry.

Your model will look and perform better if the wood grain is eliminated before painting. Apply fillercoat or sanding sealer, allow to dry, and sand with fine sandpaper. Repeat until wood surface is smooth.



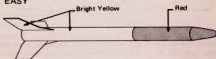
- 1st coat of fillercoat
2nd coat of fillercoat
After sanding
3rd coat of fillercoat
After final sanding

- 21 When painting plastic parts, never use dope or lacquer! First spray with a primer suitable for plastic. The plastic parts may then be spray painted in place on the model with the same spray paint used on the rest of the model. Or the parts may be masked off or removed for painting a separate color.

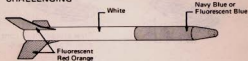
Spray painting your finished model with a fast-drying enamel will produce the best results... IF IT IS DONE PROPERLY!! Most important is the number of coats of paint. DO NOT try to paint your model with one heavy coat! Instead, give it a couple of quick, light coats first and then a finish coat. Let each coat dry before applying the next.

NOTE: Don't attach chute until model is painted. Avoid painting the engine mount tube. Many paint schemes are effective. Be sure to choose colors that the decals will show up against.

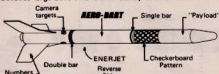
EASY



CHALLENGING



- 22 When the paint has dried, apply the decals, one at a time, according to instructions printed on the decal backing paper. Test-fit the white checkerboard wrap-around, and trim before applying. Adjust and smooth out the checkerboard as it dries, because large decals have a tendency to wrinkle.



- 23 When decals are dry, attach parachute. Gather the silk chute's shroud lines neatly. Pass the free end of shock cord through gathered shroud lines, through screw eye, and tie a firm knot.



- 24 Here are a few parachute tips:

- A. If your chute has one single-strand shroud line (in addition to the looped ones), simply tie a small loop in the end of the line and pass the shock cord through it.



- B. You may wish to incorporate a snap swivel on the shroud lines, to facilitate changing chutes quickly.



When all glue joints, paint and decals are dry, the Aero-Dart is ready to be prepared.

Igniters and complete engine installation instructions are included in "Engine Operating Instructions" which accompany all ENERJET engines.

The Aero-Dart can carry payloads of 3 to 5 ounces with only moderate penalties in performance. The engines recommended below may be used whether a payload is flown or not.

Recommended Engines	Approximate Altitude (feet)	Purpose
E24-7	1800	First test flights - Medium size launch areas.
F52-8	2000	General flying - Large launch areas.
F67-9	2500	Maximum altitudes - Extremely large launch areas.

FLIGHT PREPARATIONS

1. Inspect shock cord fastener for firm bond.
2. Tuck in shock cord.
3. Fold chute neatly, as shown, and insert.
4. Socket nose cone and payload section in place. Must fit snugly. "Beef-up" the nose cone base with tape, if necessary.



Carefully prepare and check all parts of your rocket before each flight.

Launch the AERO-DART from any standard model rocket launcher having a one-piece 36" long steel launch rod. Do not leave the rocket sitting in the sun for long periods as this may soften the adhesives.

Referring to the specific instructions which accompany launchers and firing panels, mount the rocket on the launcher and prepare for ignition. Avoid eye injury by capping the exposed tip of the launch rod when not actually launching!



Expanded engine makes a handy launch rod cap.