FLUTTER-BY

Gyro-Tumble Recovery!

"POWER-SEPARATES" ALLOWING EACH SECTION TO FLUTTER SAFELY TO EARTH

DIE-CUT BALSA FINS!
COLORFUL DECAL!
CHROME TRIM!

SPECIFICATIONS

Weight: .90 oz.
Length: 6.75"
Body Dia.: .908"

RECOMMENDED ENGINES

½A6-2, A8-3

$1.35

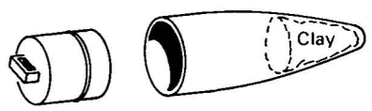
Catalog No. KA-9
Engines Not Included

Oct. '71 IP-442

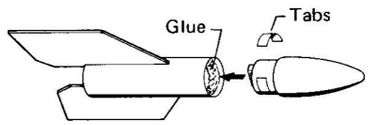
Centuri

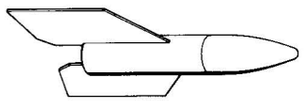
FLYING MODEL ROCKET KIT

12 IMPORTANT: Press all of the clay supplied firmly into the nose cone to provide proper weight relationship for stable flight. Push the plastic insert base into the plastic nose cone until it snaps in place. (Be careful not to break the cone.)

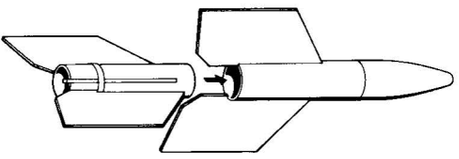


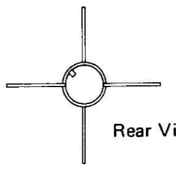
13 The nose cone must be glued on. Apply the two pressure-sensitive tabs firmly to the nose cone base. Smooth the inside edge of the outside assembly tube with thumbnail. Run a generous bead of glue around the inside edge of the tube. Insert the nose cone with a firm, turning motion.

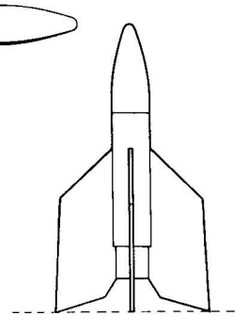




14 When each assembly is dry enough to handle, carefully slide the inside assembly into the outside assembly. Adjust fins to be neatly aligned, and carefully separate the assemblies.

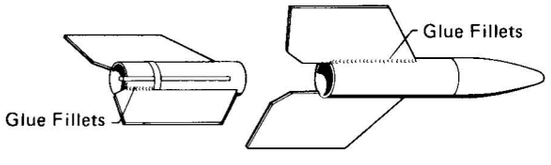




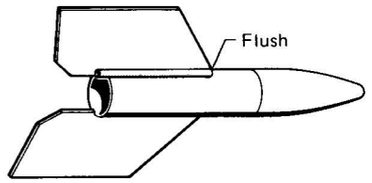


15 It is extremely important to strengthen the fin-body tube joints because of the stresses received in flight and recovery.

Run a bead of glue along both sides of all fin-body tube joints. Using your finger, smooth the glue into even fillets. Allow to dry, checking the alignment again.



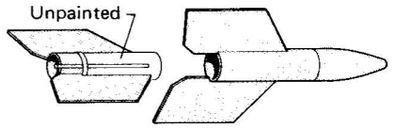
16 Glue the launch lug in place against a fin-body joint on the outside assembly. Forward end of lug must be flush with fin leading edge.



17 When fillets have dried, prepare balsa surfaces for a smooth and realistic finish. Fill the wood grain with Centuri fillercoat or sanding sealer. When dry, sand with fine sandpaper. Repeat until smooth.

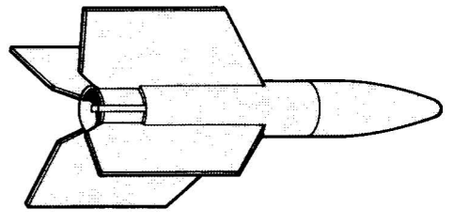
NOTE: If you have used the optional fin-papering method, you will have to fillercoat only the edges of the fins.

18 When painting plastic parts, never use dope or lacquer! First, spray with an enamel primer. NOTE: Avoid getting paint on the part of the engine tube which slides into the outside assembly.



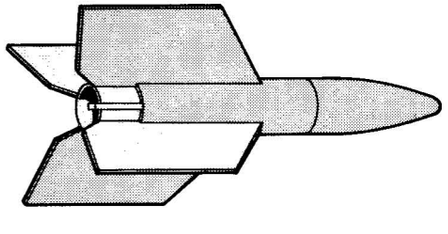
SUGGESTED COLOR SCHEMES:

EASY: Paint the entire model orange, with assemblies joined.



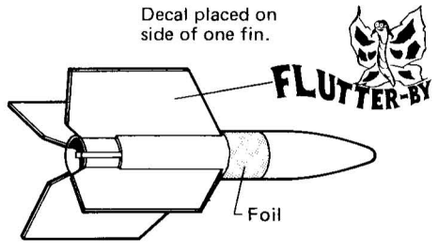
CHALLENGING: Spray paint inside assembly while inserted. Remove outside assembly and paint it contrasting color (outside assembly serves to mask off engine tube).

Inside Assembly: BLUE
Outside Assembly: ORANGE



19 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.

20 When the paint is dry, apply the decals to the fins according to the instructions printed on the decal backing paper. Apply the pressure-sensitive foil trim around the outside assembly. Check fit first, and trim off any excess, if necessary.



ENGINES:

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

The FLUTTER-BY can be launched with the following engines:

½A6-2 MEDIUM ALTITUDE – for first test flights and small launch areas.

A8-3 HIGH ALTITUDE – for general flying and larger launch areas.

NOTE: B4-4 and C6-5 engines may be used, but you will almost certainly lose sight of the FLUTTER-BY and be unable to retrieve it.

FLIGHT PREPPING:

1. Check fins for firm bond before each flight. Repair with glue or tape, if necessary.
2. Check ability of assemblies to easily slide apart.
3. Prepare and insert engine and igniter.
4. Be sure that the two assemblies are coupled so the fins are at right angles to each other, with assemblies firmly nested together.

Launch the FLUTTER-BY from any standard model rocket launcher having a 1/8" diameter x 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 Centuri 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! Follow instructions and the Safety Code, and have many happy hours with Model Rocketry.

Centuri

CENTURI ENGINEERING CO., INC.
P.O. Box 1988, Phoenix, Arizona 85001

FLUTTER-BY

The FLUTTER-BY is a model rocket with "something different!" At apogee the engine's ejection charge power-separates the vehicle into two wing-shapes. These flutter and glide in a tight spiral to a safe landing. With no recovery system to pack, this bird is a sure-fire stunter every launch.

This rocket is designed to be launched only from standard remote-controlled electrical launch systems. Always use the recommended engines. Check with local authorities for possible restrictions before launching model rockets in your community.

Catalog No. KA-9

Centuri

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 wirelike 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 rocket 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.

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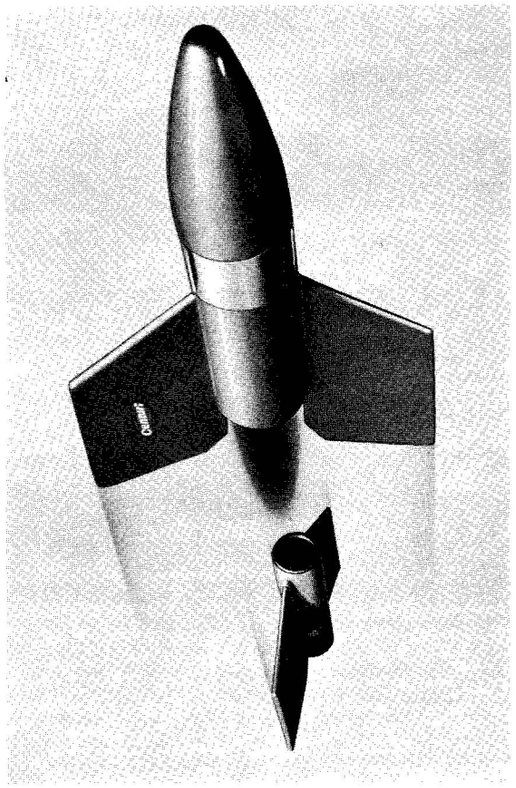
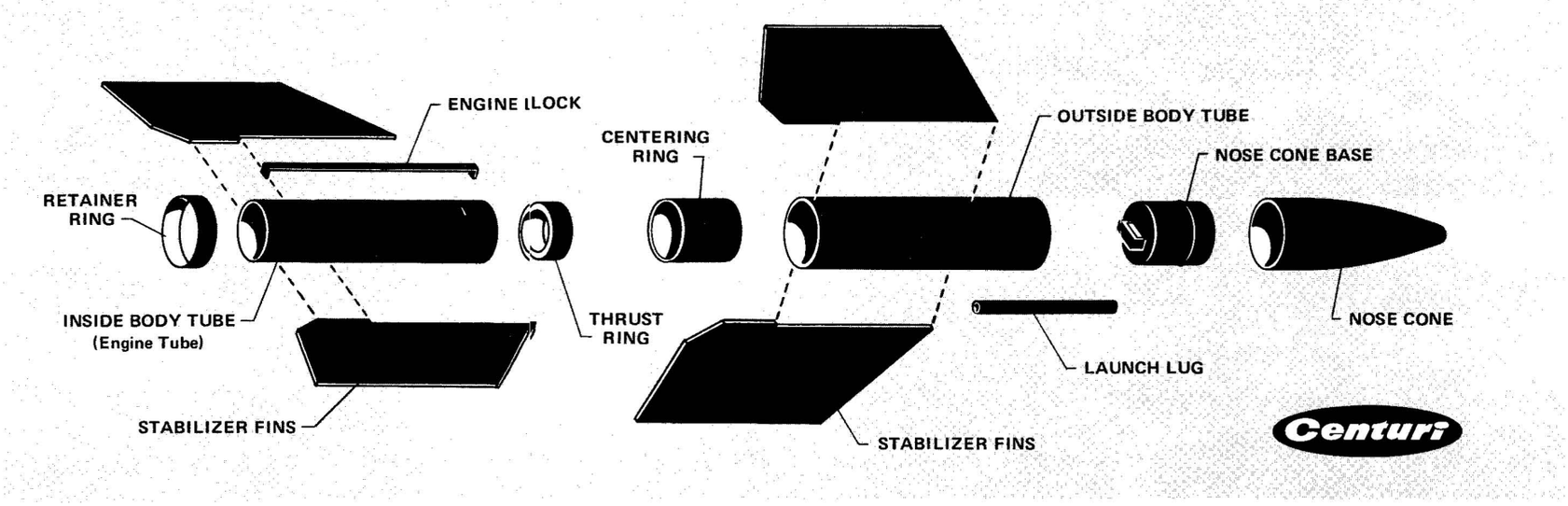
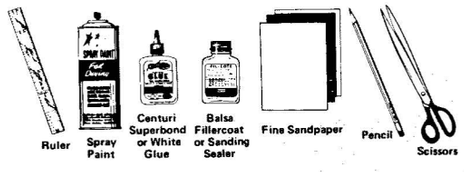




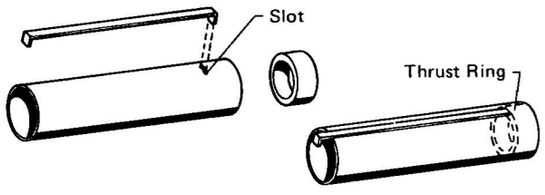
ASSEMBLY INSTRUCTIONS

READ BEFORE STARTING ASSEMBLY

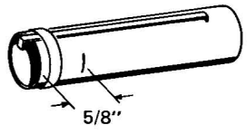
TOOLS: In addition to the parts supplied, you will need the following tools to assemble and finish this kit. DO NOT use model airplane glue for building flying model rockets.



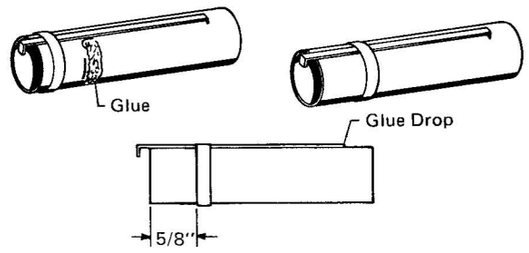
1 Start building the inside assembly by placing one end of the engine lock in the pre-cut slot of the 3" engine tube. Apply a bead of glue around the inside of that end. Insert the thrust ring until it butts against the engine lock.



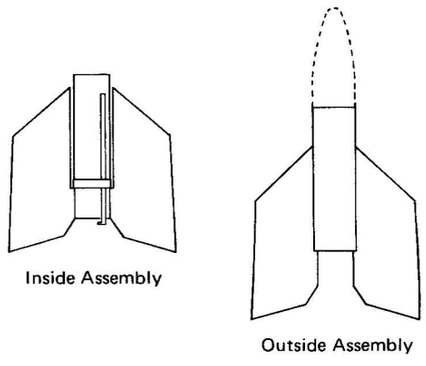
2 Slide the retainer ring over the engine lock. Make a pencil mark 5/8" from the end of the tube.



3 Run a bead of glue around the tube, above the pencil mark. Slide the retainer ring into place, 5/8" from the end. Apply a drop of glue where the engine lock sticks into the tube. Wipe away any excess glue, before it dries.



4 Carefully push the die-cut fins from their sheet. Start at one point on each fin and work gently around. Each fin is identical, but they are glued onto the body tubes differently. Study this diagram to understand their arrangement, before going to the next step.

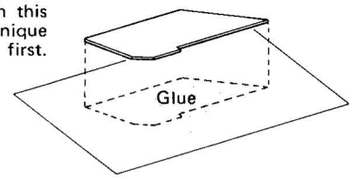


5 NOTE: The FLUTTER-BY, when properly constructed, will survive countless flights over soft grassy areas. However, it is strongly recommended that the following technique be used to insure maximum durability:

OPTIONAL STRENGTHENING TECHNIQUE:

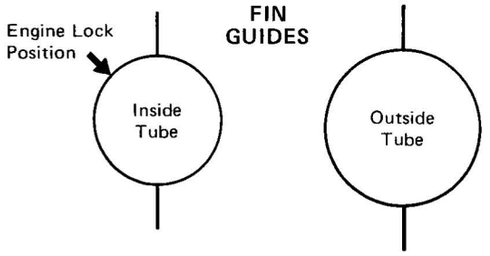
6 Smear glue evenly in a thin coat over any good quality paper (such as typing paper) and immediately apply to side of fin. Smooth out wrinkles. When glue is dry, carefully trim away all excess paper. Repeat with remaining fins, on each side if desired. This optional strengthening technique will also save time in the sanding and sealing step later.

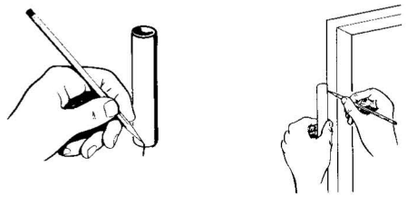
Experiment with this "plywood" technique on scrap balsa first.



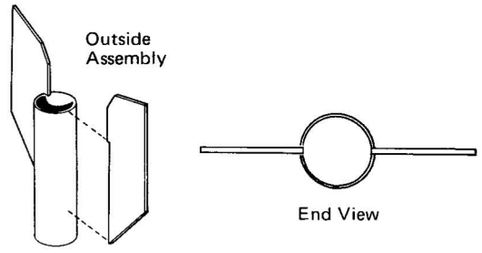
7 Stand each body tube on its fin guide and make fin position marks. Position engine lock directly over arrow when marking the engine tube.

8 Find a convenient channel or groove, such as a door jamb, partially open drawer, or molding. Extend the marks the full length of the tube.

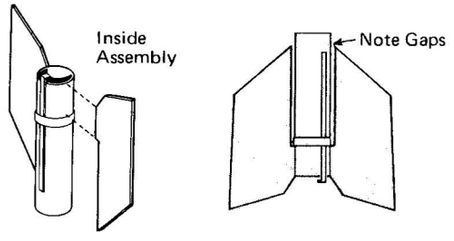




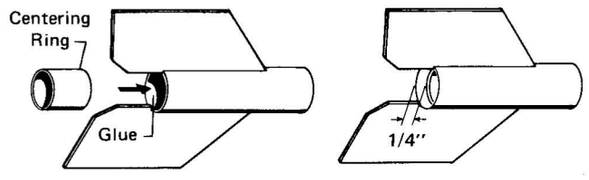
9 Apply glue to the indicated edges of two fins and position along lines drawn on the outside body tube. Remove, allow to dry, apply glue again, and re-position. Allow to dry standing vertically, and check alignment.



10 The remaining 2 fins are glued on the engine tube in a different manner. Use pre-gluing technique, as before, but leave the gaps between fins and tube. Allow to dry standing upside down, and check alignment as before.



11 When the outside assembly is dry enough to handle, run a generous bead of glue around the inside aft end of the tube. Push the centering ring in place with a firm turning motion until it is recessed about 1/4".




4 fins
1/16 balsa

Centuri

FLUTTER-BY

M-329