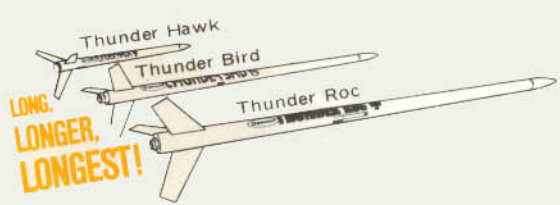




THUNDER

FROM CENTURI'S LONG 'N LEAN LINE



THUNDER HAWK

- GREAT BEGINNER KIT
- ROCKETRY'S BARGAIN
Lowest priced long kit
- EXTREME ALTITUDES
Up to 1200 feet
- STREAMER SYSTEM
For sure recovery
- Balsa Fins
All pre-cut
- DECALS

NEARLY
2
FEET LONG!

RECOMMENDED ENGINES:
(Not included)
1/4 A6-2
A8-3
B4-6
B6-6
C6-7

SKILL LEVEL

1	2	3	4	5
Beginner		Intermediate		Advanced

SPECIFICATIONS:
 Length 21.5" (54.6 cm)
 Body Diam. .76" (1.9 cm)
 Net Weight 1 oz (28 gm)
 ASSEMBLED LENGTH 21.5" (54.6 cm)

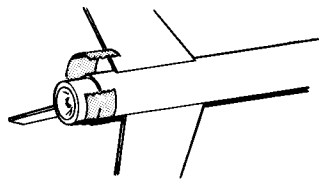
RECOMMENDED FOR AGES 10 THRU ADULT

Centuri

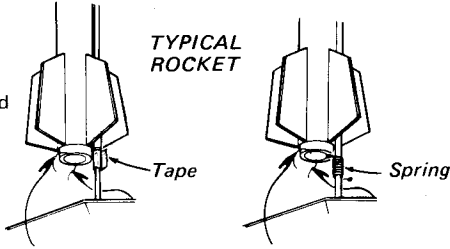
5338

FLYING MODEL ROCKET KIT

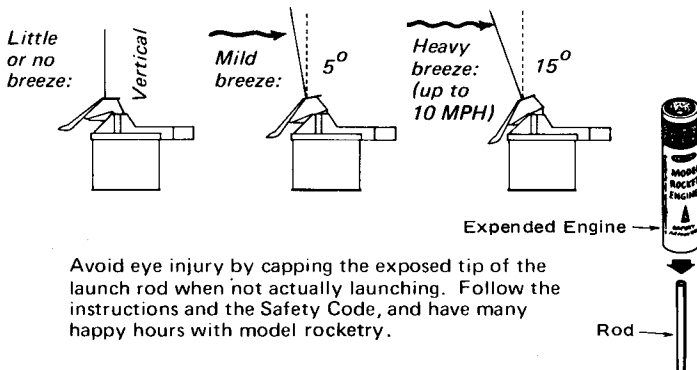
6. Wrap enough masking tape around the engine to ensure a snug fit. Insert the engine into the body tube. If the engine is too loose, remove and add more masking tape until engine is held securely in place. Tape may be added to the outside also as shown.



7. Mount the rocket on launcher and prepare for ignition. The rocket must be raised slightly off the launcher's deflector to avoid a short-circuit which might prevent ignition. If your launcher has a "positioning spring" use it as shown. Otherwise just wrap a little tape around the launch rod to support the rocket and the launch lug.



8. If your launcher has a rod-tilting feature, use it only for launching in breezes . . . normally model rockets are launched straight up. For reliable, impressive flights, never tilt the rod more than 15 degrees when flying your rocket kit . . . do not tilt the rod to its maximum angle.



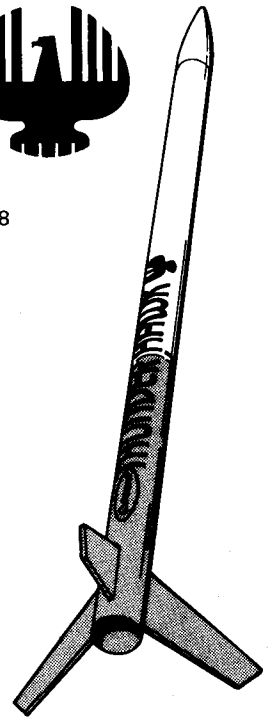
Avoid eye injury by capping the exposed tip of the launch rod when not actually launching. Follow the instructions and the Safety Code, and have many happy hours with model rocketry.

Centuri THUNDER HAWK™



Prod. No. 5338

The sleek, long Thunder Hawk is easy to build and impressive in flight. A great performer, it streaks up to 1000 feet in the air. At apogee a long, brightly colored streamer pops out and slows the model's descent. The Thunder Hawk is ideal for the beginner and a super quick kit for more advanced rocketeers.



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 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 15 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.

CENTURI Engineering Co., Inc., Phoenix, AZ 85001
Printed in U.S.A.

9/79 #81631

BUILD AND FLY THE WHOLE SERIES!

THUNDER

THUNDER ROC #5340

CENTURI'S LONGEST ROCKET! THE FIRST OF THE NEW 'D' CONVERTIBLES!

Thunder Roc uses two chutes plus 'Pop'n Go' engine mount for use with 'C's'.

Skill Level: 3 Length: 61.5" (156.2 cm)
Recovery: Two 16" chutes Body Diam: 1.64" (4.2 cm)
Engine Mount: standard & Net Weight: 6.6 oz (187 gm)
Magnum D;
2 engine locks

THUNDER BIRD #5339

BIG & EASY TO ASSEMBLE!
IDEAL KIT FOR THOSE IMPRESSIVE DEMO FLIGHTS!

The long Thunder Bird includes extra large chute for eye-catching recovery.

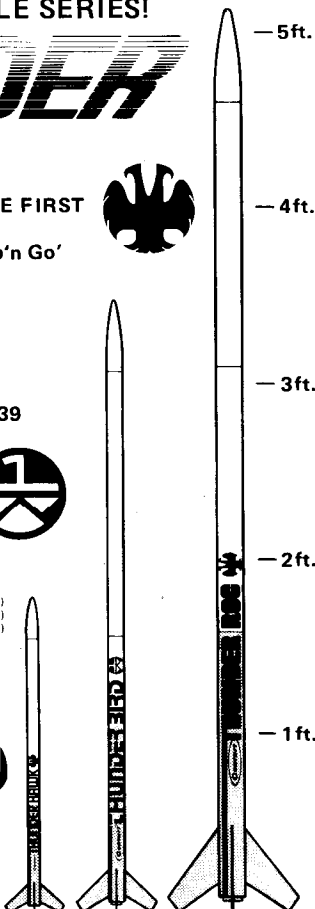
Skill Level: 2 Length: 41.75" (106 cm)
Recovery: 20" chute Body Diam: 1.0" (2.5 cm)
Engine Mount: with engine lock Net Weight: 2.7 oz (77 gm)

THUNDER HAWK #5338

LONG & LOW PRICED!
CENTURI'S LEAST EXPENSIVE LONG KIT!

The sleek Thunder Hawk features extra long streamer for sure recovery.

Skill Level: 1 Length: 21.5" (54.6 cm)
Recovery: Streamer Body Diam:76" (1.9 cm)
Engine Mount: Basic Net Weight: 1 oz (28 gm)



HOW IT WORKS

Your Thunder Hawk model rocket is designed to fly in the same manner as other model rocket kits. The electrically ignited engine provides the power to boost the rocket to peak altitude. The rocket is guided off the launcher by a launch rod. At peak altitude the engine's ejection charge is activated to eject the recovery system. The Thunder Hawk returns to earth, slowed by the recovery system, ready for another flight.

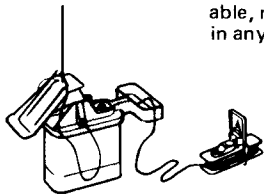
WHAT IT TAKES TO FLY

You will need engines, igniters, an electrical launch system and parachute wadding to fly your rocket. These supplies are NOT included in individual rocket kits, but are available separately and ARE included in every Centuri Starter Set or Rocket Outfit.



We recommend using Centuri Enerjet engines; each package includes the famous "Sure-Shot" igniters, acclaimed as the world's most reliable model rocket igniter.

The popular Centuri "Powr-Pad" is an ideal basic launch system; compact, highly portable, reliable, and offering features not found in any other launch system.



Always use standard remote-control electrical ignition and follow the engine recommendations. Be sure to comply with any laws that may apply in your area, for the good of Model Rocketry and your own enjoyment.

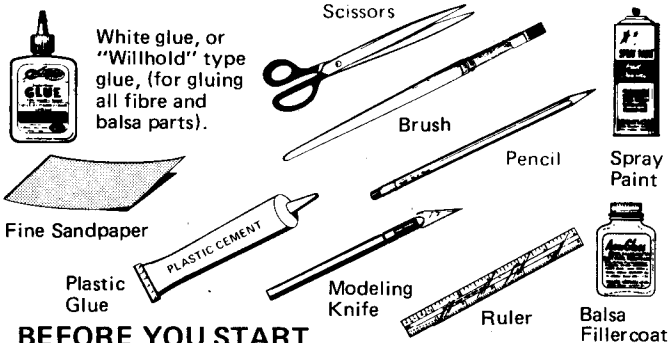
RIGHT MATERIALS FOR THE JOB

Different model rocket kits are made out of a variety of materials, depending on the needs of each kit. The chart below explains why this particular kit is designed using certain materials.

PART	REQUIREMENTS	MATERIAL
Body & Fins	<ul style="list-style-type: none"> • Light Weight • Strength 	Balsa & Paper
Nose Cone	<ul style="list-style-type: none"> • No finishing • Strength 	Plastic

TOOLS YOU WILL NEED

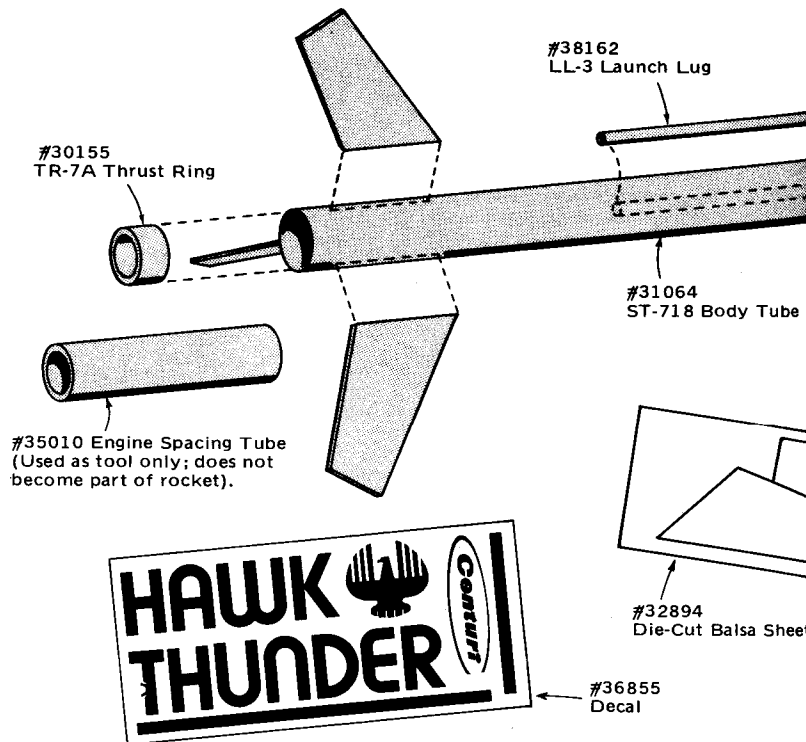
In addition to the parts supplied, you will need the following tools to assemble and finish this kit (DO NOT use model airplane glue for building model rockets).



BEFORE YOU START

If you are new to model rocketry, here are some general tips to get you off to a good start.

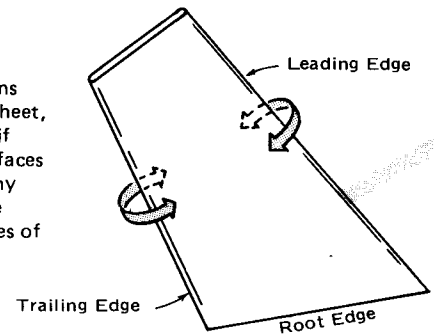
- Choose a practical assembly area: well lighted, big enough to work in, and out of the way of relatives or pets who might accidentally mess up your work.
- Cover your worktable with plywood or heavy cardboard to protect the table from glue, paint, cuts, etc.
- Remove the entire contents of your kit package carefully to avoid losing or damaging small parts. Lay them out neatly and identify each by referring to the "exploded view" drawing on this instruction.
- NOTE: Sometimes certain parts are packed INSIDE of other parts, such as tape discs inside parachutes, decals or couplers inside body tubes, etc.



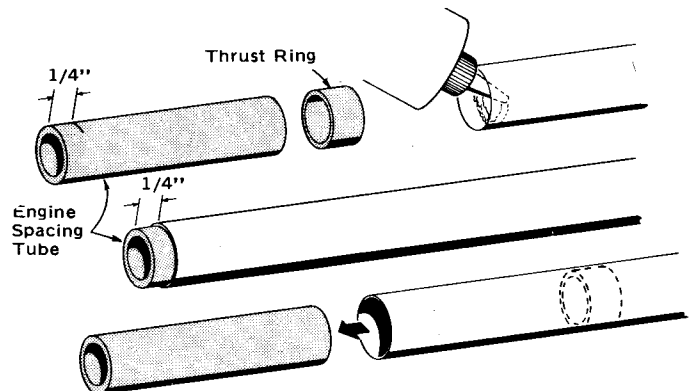
ASSEMBLY INSTRUCTIONS

You **MUST** follow these instructions for satisfactory flights. The shape and placement of the model's parts has been carefully engineered for safe flights. DO NOT try to change the design, "customize" it, or leave off any parts.

- 1 Carefully remove the fins from the die cut balsa sheet, using a modeling knife if necessary. Sand the surfaces of the fins to remove any rough edges. Round the leading and trailing edges of the fins as shown.



- 2 Locate the thrust ring, body tube and engine spacing tube. The insertion of the thrust ring in the body tube must be done in one complete motion, without stopping, or the ring may be glued in the wrong place. Read this entire step before proceeding. Mark the engine spacing tube 1/4" from one end. Place a ring of glue inside one end of the body tube, place the thrust ring in the body tube and push forward in the tube, without stopping, using the engine spacing tube. Push the ring forward until the mark on the engine spacing tube is even with the end of the body tube. REMOVE THE ENGINE SPACING TUBE IMMEDIATELY.



Exploded View

#32933 Shock Cord Fastener SCF-5

#85730 Shock Cord

#72507 PIN-7 Nose Cone Insert

#72076 PNC-76G Nose Cone

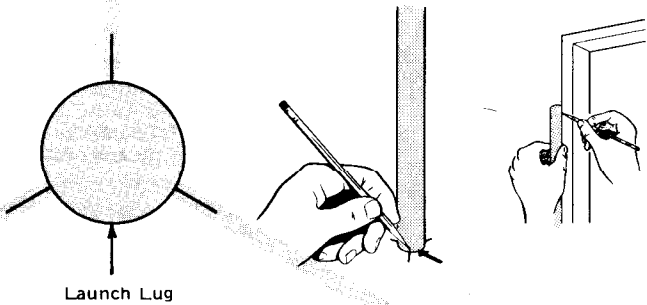
#38273 Streamer (Cut 50" from the 90" supplied).

#85669 Parachute
#38239 Shroud Line
#38406 Tape Discs

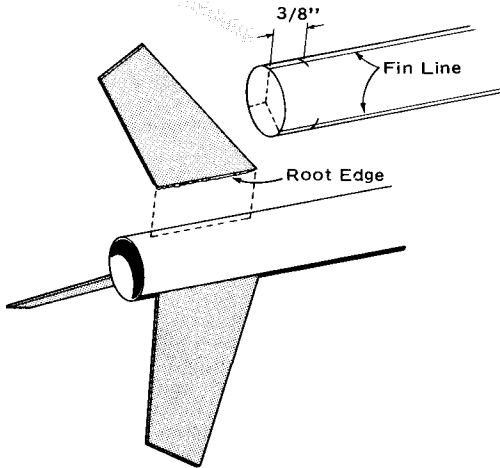
The above parts make up a complete parachute. Also available as a kit: CP-12 #5854

NOTE: The Thunder Hawk sold as a kit includes streamer recovery. The Thunder Hawk included in the Thunderbolt outfit has a parachute. The Thunder Hawk does not include both.

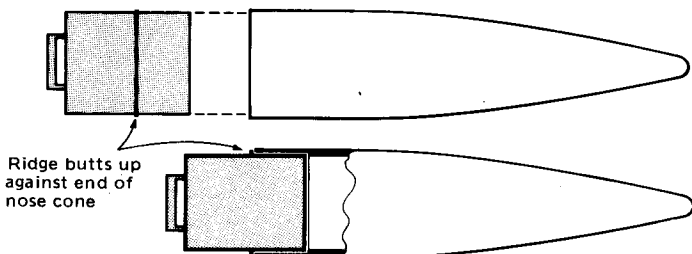
- 3** Place the body tube over the fin guide below. Mark the body tube with a pencil at each location of the fins and launch lug. Find a convenient groove or channel such as a partially open drawer or door jamb and extend the marks 8 inches forward on the tube.



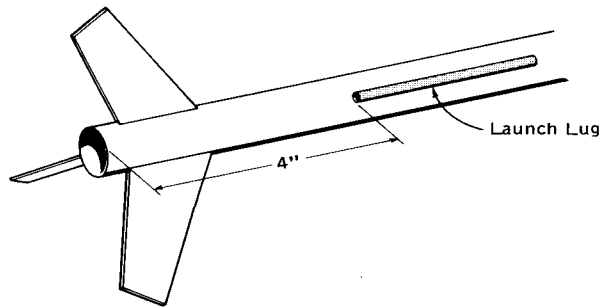
- 4** Mark each fin line $3/8''$ from the end of the body tube. Apply a line of glue to the root edge of one fin. Place it on one of the fin lines so the rear edge of the fin is even with the mark you just made. Remove fin and allow glue to become tacky. Apply more glue and replace fin. Align carefully and allow to dry. Repeat with the other two fins.



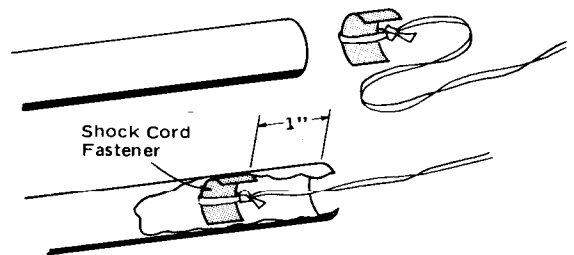
- 5** Locate the nose cone and nose cone insert. Glue the insert into the base of the nose cone using plastic glue.



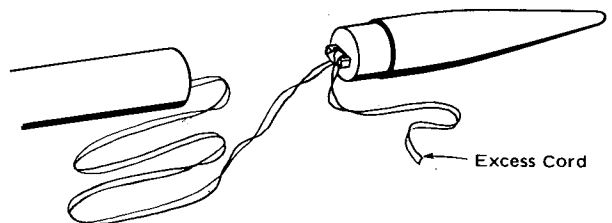
- 6** Locate the launch lug. Mark the launch lug line 4 inches from the end of the body tube. Place a line of glue on the launch lug and glue it in place so the rear of the launch lug is even with the mark you just made. Align carefully so launch lug is straight in relation to the body tube and allow to dry.



- 7** Locate the shock cord and shock cord fastener. Bend the shock cord fastener slightly so it can be glued to the inside wall of the body tube. Tie the shock cord around the shock cord fastener and apply glue to the fastener. Glue it in place inside the body tube, making sure it is at least one inch below the forward end of the tube. Use the eraser end of a pencil to tamp the fastener firmly in place against the wall of the tube. Allow to dry.

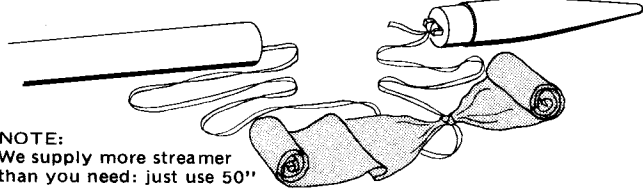


- 8** Tie the free end of the shock cord to the nose cone insert. If your kit has a parachute allow 2" of excess shock cord for attaching the parachute.



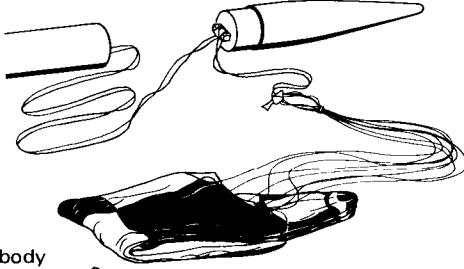
- 9 If your kit includes a streamer follow this step and skip step 10. If your kit has a parachute, proceed directly to step 10.

Tie the shock cord to the streamer at the halfway point of its length and about 6 inches from the nose cone.

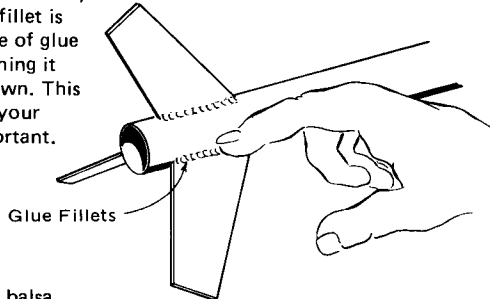


NOTE:
We supply more streamer than you need: just use 50"

- 10 Assemble the parachute according to the directions printed on it. Tie the free end of the shock cord to the loop on the end of the shroud lines.

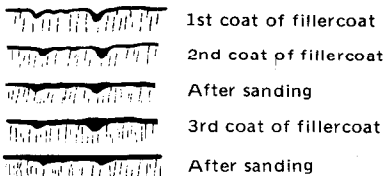


- 11 Apply a fillet of glue to all body/tube/fin joints. A glue fillet is made by applying a line of glue to the joint and smoothing it with your finger as shown. This adds extra strength to your model and is very important.



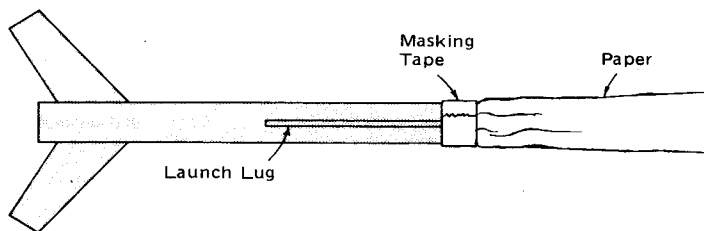
Glue Fillets

- 12 Using sanding sealer or balsa fillercoat, fill the wood surfaces of your model to obtain a smooth finish. Use several coats and sand between each coat to get a good finish.

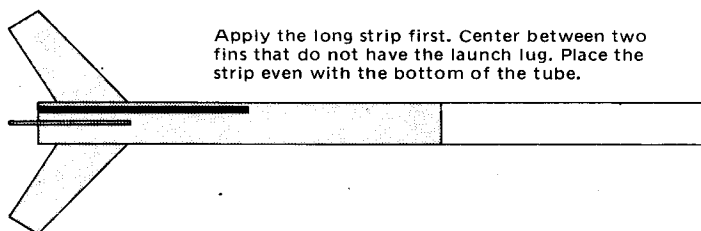


- 13 Painting your model will make it look more attractive and last longer. Use enamel spray paint for the best results. Do not try to paint your model in one coat, but use several light coats and one finish coat.

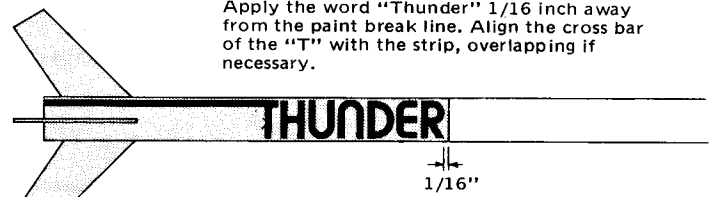
The standard paint scheme for the Thunder Hawk is white for the upper body and yellow for the lower body. Paint the white first and allow it to dry. Then apply masking tape to the body just above the front end of the launch lug. Mask off the upper body with paper and paint the lower body yellow. When the paint is dry remove the masking.



- 14 The decals provided in the kit will give it a final professional touch. Follow the directions printed on the back of the decals for best results.

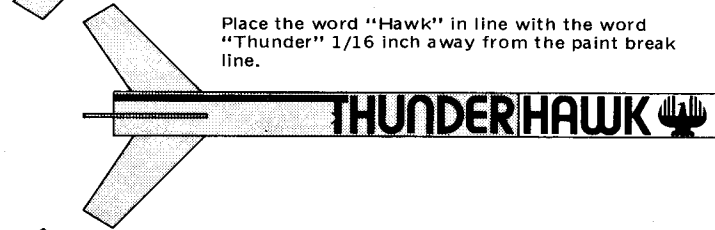


Apply the long strip first. Center between two fins that do not have the launch lug. Place the strip even with the bottom of the tube.

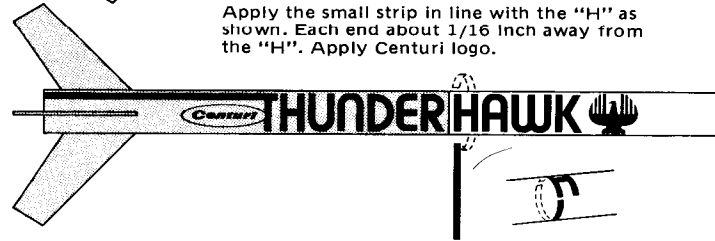


Apply the word "Thunder" 1/16 inch away from the paint break line. Align the cross bar of the "T" with the strip, overlapping if necessary.

1/16"



Place the word "Hawk" in line with the word "Thunder" 1/16 inch away from the paint break line.



Apply the small strip in line with the "H" as shown. Each end about 1/16 inch away from the "H". Apply Centuri logo.

FLYING INSTRUCTIONS

ENGINES

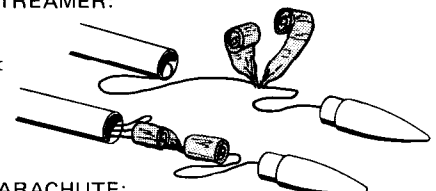
Igniters and complete engine installation instructions are included in "Engine Operating Instructions" which accompany all Centuri Engines.

Your THUNDER HAWK can be launched with the following engines:

ENGINE	APPROXIMATE ALTITUDE	PURPOSE
½A6-2 A8-3	300—400 feet	LOW ALTITUDE—for first test flight and small fields.
B4-6 B6-6 B14-7	500—800 feet	MEDIUM ALTITUDES—for general flying and medium sized fields.
C6-7	900—1200 feet	HIGH ALTITUDES—for extremely high altitudes and large launch fields.

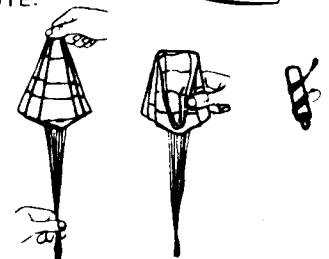
FLIGHT PREPPING

1. Inspect entire recovery system for good condition before each flight. If the recovery system is tangled from the last flight, cut it apart to untangle and repair.
2. Insert flameproof chute wadding to protect your recovery system from being melted by the engine's ejection charge. We recommended using 2 sheets of Centuri crepe wadding (#5846/SPW-19).
3. IF YOUR KIT HAS A STREAMER: Roll your streamer as shown and insert it into the body tube. Be sure it is loose enough to eject. Streamers should be unfurled and repacked right before each flight.



IF YOUR KIT HAS A PARACHUTE:

Fold parachute as shown and tuck neatly into rocket . . . try to avoid tangles. Chutes should be packed just before flight to avoid them possibly sticking together and not unfurling.



4. Tuck in shock cord and insert nose cone. The cone should fit snugly, yet be loose enough to eject properly.
5. Install igniter into engine, following instructions enclosed with engines.

HAWK

TM

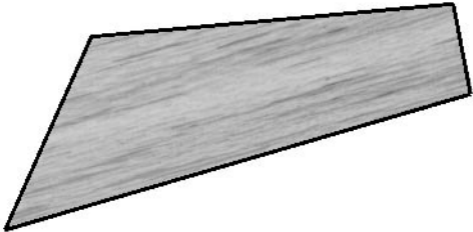


#36855



THUNDER





Body tube: BT-20 18"