

FIRECAT

Anti-Tank Missile

FLYING MODEL ROCKET

SKILL LEVEL 1

1-Beginner 2-Intermediate 3-Craftsman
4-Advanced 5-Expert

- Flights Over 1,000 Feet!
- Futuristic Military Appearance
- Easy-to-Build
- 90" Long Streamer Recovery
- Unique Plastic Nose Cone
- Die-Cut Fins
- Quick-Release Engine Mount

Length:

15 inches (38.1 cm)

Dia.:

1.048 inches (26.6 mm)

Weight:

1.5 oz. (41 g)

Engine Types:

1/2A6-2 A8-3 (First Flight)

A8-5 B4-4 B6-4 B8-5

C6-5 C6-7



This is a hobby kit requiring assembly.
Recommended for ages 10 to adult.
Engines, launch system, glue and finishing
supplies are not included. Adult supervision
is suggested for those under 12 years of age
when flying model rockets.



#1378



A DAMON COMPANY

ESTES INDUSTRIES
PENROSE, CO 81240 USA

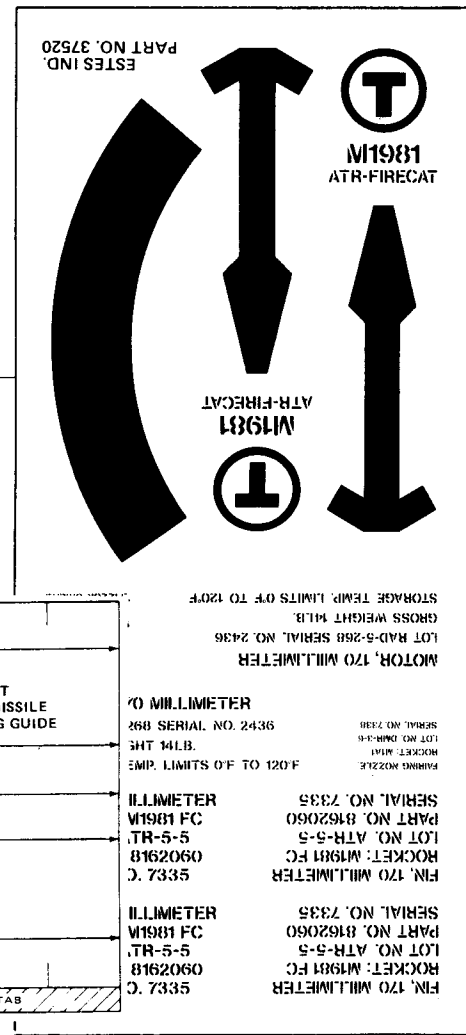
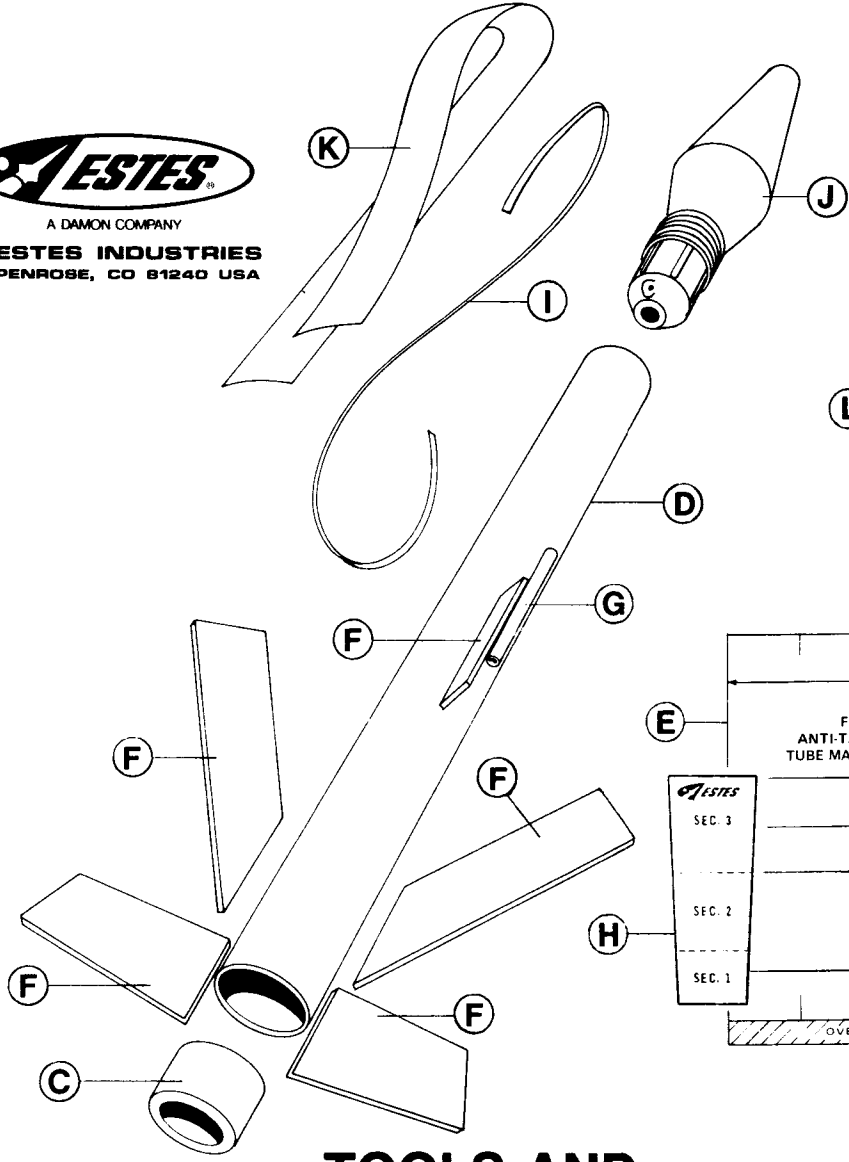
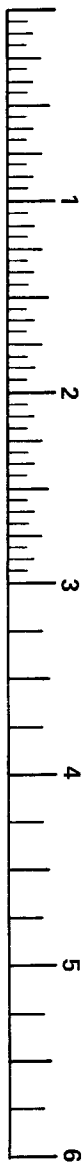
FIRECAT

Anti-Tank Missile

SKILL LEVEL 1 - Recommended for Beginning Rocketeers

BEFORE YOU START

Read each step and study the accompanying drawings before doing any of the work called for in that step. Make sure you have all parts and materials. Check off each step as you complete it. Always test-fit parts together before applying glue. It will sometimes be necessary to sand edges of rings, tubes, etc. to obtain a proper fit. If you are in doubt about the relative size or location of some parts, refer back to this exploded view drawing for clarification. Adequate glue joints are very important for a flying model rocket. Follow the instructions carefully in this regard.



TOOLS AND MATERIALS

In addition to the parts included in this kit you will need: Scissors, pencil, ruler, fine or extra-fine grit sandpaper, sanding sealer, masking tape, clear cellophane tape, a medium size modeling paint brush, modeling knife with sharp blade, gloss blue and chromate green enamel spray paint, and household white glue or resin glue (Elmer's, Titebond, or similar). Other types of glue are not recommended.

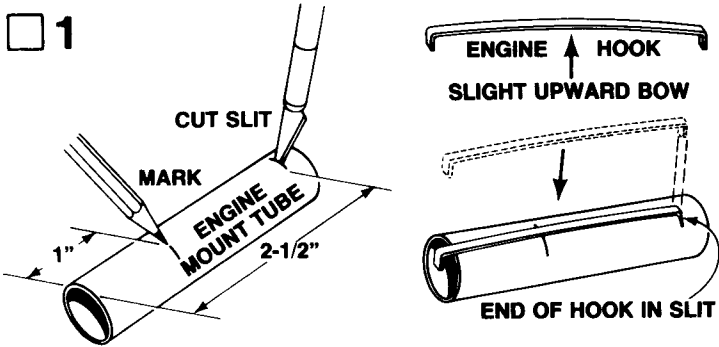
For easy and positive alignment of the fins on your model, we recommend the use of Estes' Fin Alignment Guide, Part No. 2231.

PARTS LIST KIT NO.1378

- A Engine Mount Tube (type ST-73) 3" long ... 31038
- B Engine Hook (type EH-2) ... 35025
- C Adapter Ring (type CR-10A) ... 30147
- D Body Tube (type ST-1010) ... 31140
- E Pattern Sheet (type SP-1378) ... 83397
- F Die-Cut Balsa Sheet (type BF-1378) ... 32388
- G Launch Lug (type LL-2A) ... 38175
- H Shock Cord Mount (type SCM-50) ... 84444
- I Shock Cord (type SC-1B) ... 85734
- J Nose Cone (type PNC-102) ... 72102
- K Streamer (type SM-1C) ... 38273
- L Decal (type KD-1378) ... 37520

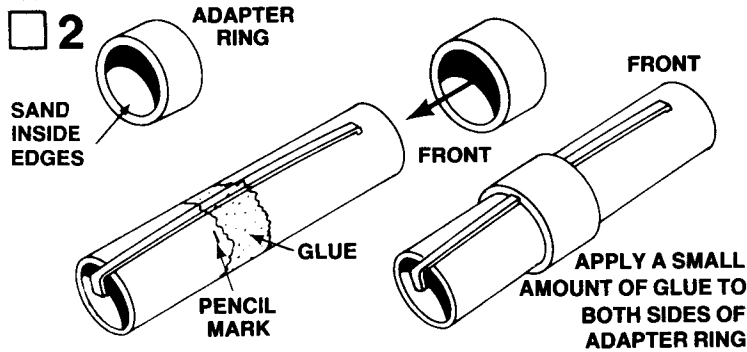
ASSEMBLY INSTRUCTIONS

1



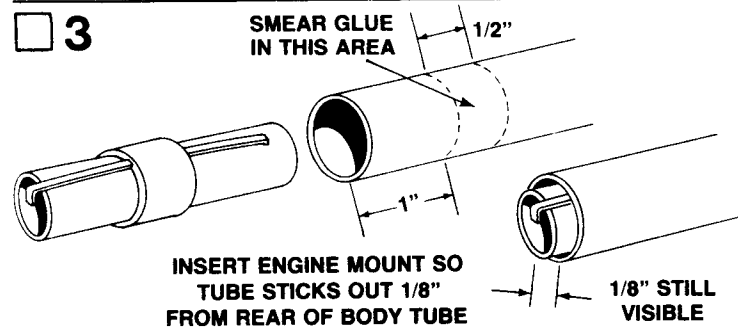
Mark the engine mount tube (part A) at 1" and 2-1/2" from one end. Cut a 1/8" long slit at the 2-1/2" mark. Gently bend the engine hook (part B) so that it bows upward very slightly in the middle. (Study the drawing—Don't bend the wrong way.) Insert one end of the engine hook into the slit in the tube.

2



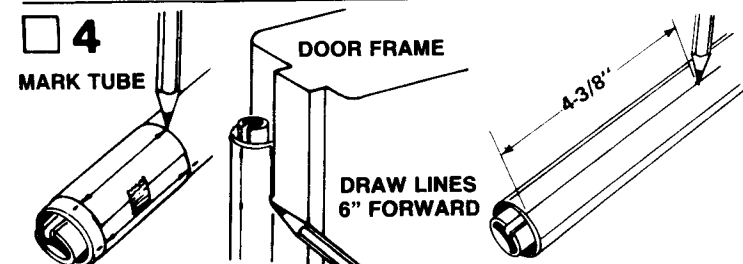
Sand the inside edges of the adapter ring (part C) to remove burrs. The ring should slide easily onto the engine mount tube. Slip the ring onto the front end of the engine mount tube and slide it down to the 1" mark. Make sure the engine hook runs straight down the tube. Then apply glue to both sides of the adapter ring.

3



Test-fit the engine mount into the body tube (part D). Sand adapter ring if necessary to assure a smooth fit. Apply a ring of glue around the inside of the rear of the body tube about 1" from the end of the tube. Make certain that the engine hook is to the rear and insert the engine mount with one smooth motion. Do not pause, or the glue may "lock" with the engine mount in wrong position.

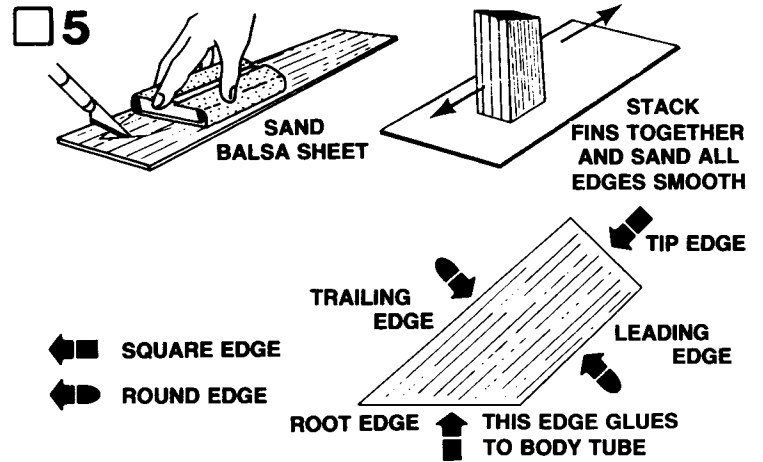
4



Cut out the body tube marking guide from the pattern sheet (part E) and wrap it around the body tube. Place the marking guide so that the engine hook lines up with the arrow points labeled launch lug. Mark the body tube at each of the arrow points. Draw straight lines connecting each pair of marks. A door frame inside edge can be used as a

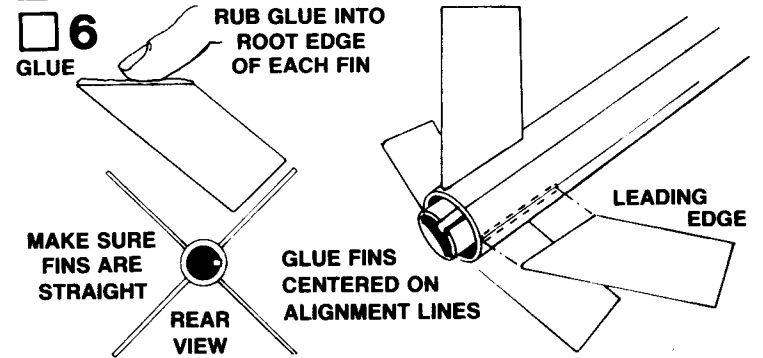
guide as shown. Extend the lines about 6" forward from the rear of the tube. Make a mark on the launch lug/stand-off alignment line 4-3/8" from the rear of the tube.

5



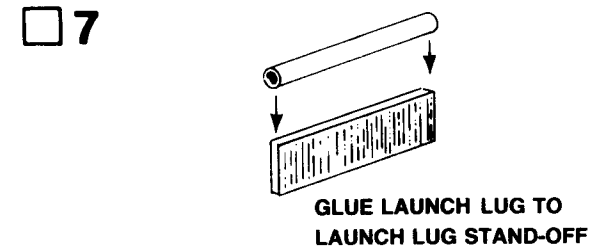
Fine-sand the balsa die-cut sheet (part F). Free the fin edges with a sharp knife, then carefully remove the die-cut fins from the sheet. Stack fins together as shown and sand all four sides as illustrated. Lightly sand both sides of each fin. Sand the leading edge and trailing edge of each fin to make them round. Leave the root (body) edge and tip edge square. The root edge may be identified by careful comparison with the drawings.

6



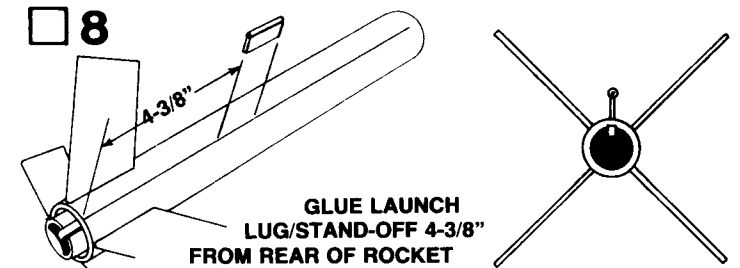
Rub glue into the root edge of each fin and allow to dry. Apply glue to the fins again and position fins on the alignment lines in positions shown. Adjust the fins so they project straight away from the body tube. DO NOT set the rocket on its fins while the glue is wet.

7



Locate launch lug stand-off on balsa die-cut sheet. Sand all edges square. Apply glue to one edge of launch lug stand-off and position the launch lug (part B) on it. Make sure launch lug is straight with the stand-off.

8

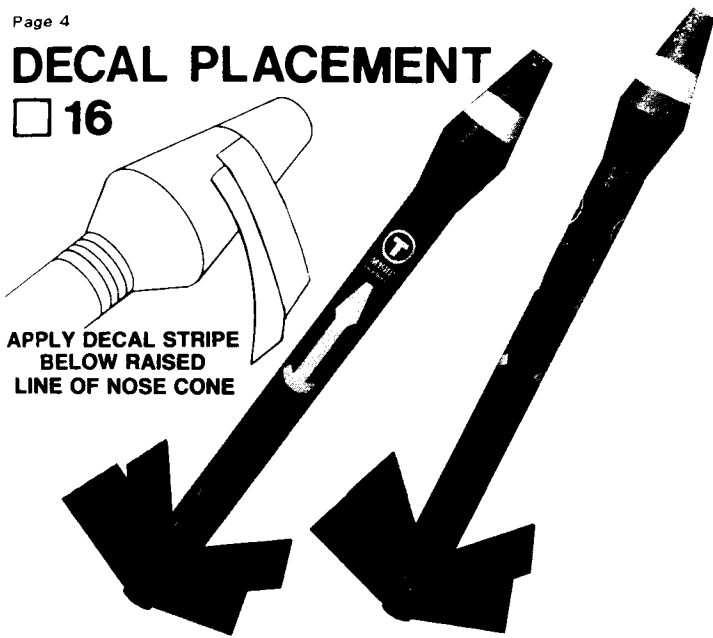


Glue launch lug/stand-off to rocket body tube on the launch lug line. The rear of the stand-off should be 4-3/8" from the rear of the rocket.

DECAL PLACEMENT

□ 16

APPLY DECAL STRIPE BELOW RAISED LINE OF NOSE CONE



When all paint is dry, apply the decals (part L) in the positions shown. (A) Cut only one decal at a time from sheet. (B) Submerge decal in lukewarm water until decal slides on backing paper (usually 15 to 30 seconds). (C) Gently slide decal from backing paper onto model. (D) Move decal into exact position and carefully blot away excess water with a soft cloth. (E) If the decal "sticks" before you have it in position, apply water over the decal with a brush. This will permit the decal to be moved. (F) Smooth out all wrinkles and air bubbles before the decal dries. We recommend that the completed model be sprayed with Testor's "Dull-Cote." This is a clear flat spray paint that kills the decal shine and protects the model's finish.

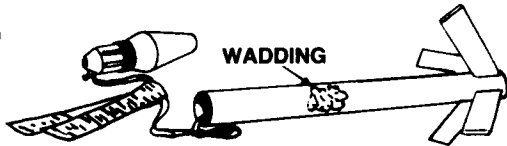
LAUNCHING COMPONENTS

To launch your rocket you will need the following items:
 -An Estes model rocket launching system
 -Flameproof recovery wadding (Estes Cat. No. 2274)
 -Estes 1/2A6-2, A8-3, A8-5, B4-4, B6-4, B8-5, C6-5, or C6-7 model rocket engines. Use an A8-3 engine for your first flight.

Be sure to follow the HIAA-NAR* Model Rocket Safety Code when carrying out your model rocket activities.
 *HIAA—Hobby Industry of America
 *NAR—National Association of Rocketry

COUNTDOWN CHECKLIST

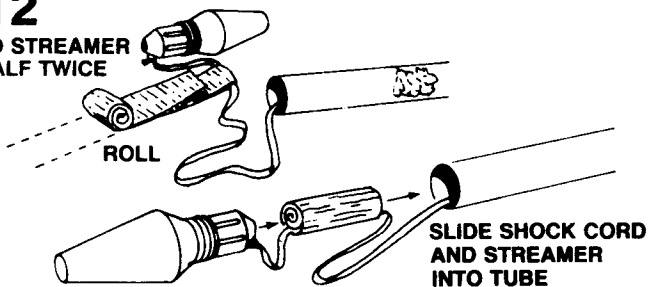
T-13



Pack 4 or 5 squares of loosely crumpled recovery wadding into the body tube. Usually this will fill the body tube for a distance equal to about 1-1/2 times its diameter.

T-12

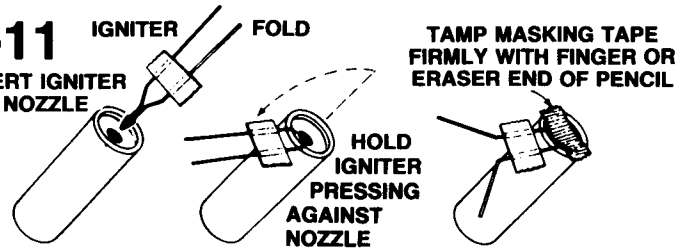
FOLD STREAMER IN HALF TWICE



Fold the streamer in half lengthwise. Fold again, then roll streamer tightly until the streamer fits loosely into the rocket body. Pack the shock cord neatly into the rocket body. Slide nose cone into place.

T-11

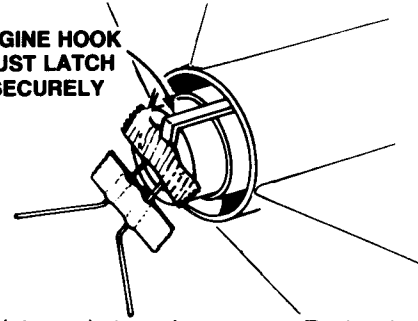
IGNITER
 INSERT IGNITER IN NOZZLE



Select an engine and install an igniter as directed in the engine instructions. The engines recommended for use with this rocket are the 1/2A6-2, A8-3, A8-5, B4-4, B6-4, B8-5, C6-5, and C6-7 made by Estes. Use an A8-3 engine for your first flight.

T-10

ENGINE HOOK MUST LATCH SECURELY



Insert engine into rocket engine mount. Engine hook must latch securely over end of the engine.

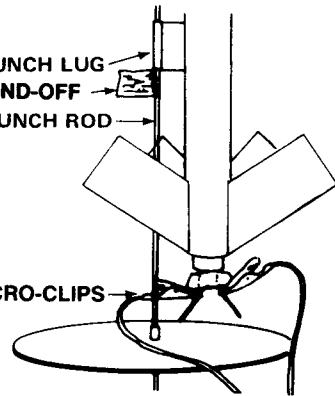
T-9

Disarm the launch panel—REMOVE SAFETY KEY!

T-8

LAUNCH LUG
 TAPE STAND-OFF
 LAUNCH ROD

MICRO-CLIPS



Slide launch rod through rocket launch lug and place rocket on launch pad. Make sure the rocket slides freely on the launch rod. Clean the micro-clips and attach them 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.

T-7

Clear the launch area. Alert recovery crew and trackers. Check for low flying aircraft and unauthorized persons in the recovery area.

T-6

Arm the launch panel—INSERT SAFETY KEY!

—5—4—3—2—1—LAUNCH!!

Repeat Countdown Checklist for each flight.

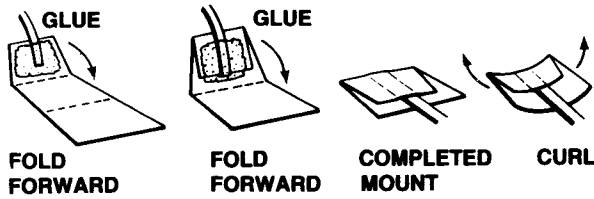
MISFIRE PROCEDURE

Disarm the launch panel. Wait one minute before approaching the rocket on the launch pad. Remove the rocket, clean the igniter residue from the nozzle of the engine, and carefully install a new igniter. Repeat the Countdown Checklist.

Failure of the rocket engine to function properly is nearly always caused by a failure to install the igniter correctly. This failure permits the igniter to heat and burn into two pieces without igniting the engine.

Align the stand-off straight along the body, and so it projects straight away from the body.

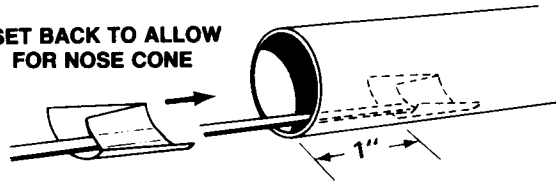
9



Cut out the shock cord mount (part H). Fold on dotted lines, then unfold and apply glue to Section 1. Lay the end of the shock cord (part I) into the glue. Fold over and apply glue to the back of Section 1 and the exposed portion of Section 2. Fold again to complete mount. Curl the edges of the mount up so it will match the contour of the body tube and hold with your fingers until the glue sets.

10

SET BACK TO ALLOW FOR NOSE CONE

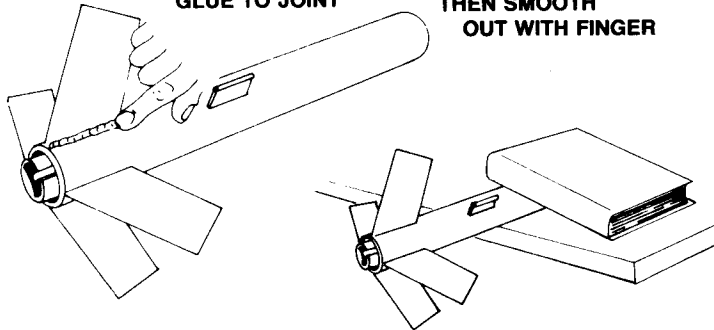


Use a finger or stick to apply glue to the inside of the front of the body tube, 1" to 2" from the front of the tube. Press the shock cord mount firmly into position in glue far enough from the front edge of the tube to allow clearance for the nose cone to fit into place. To insure a good bond use a stick or your finger and smear a film of glue over the mount and surrounding area in the body tube.

11

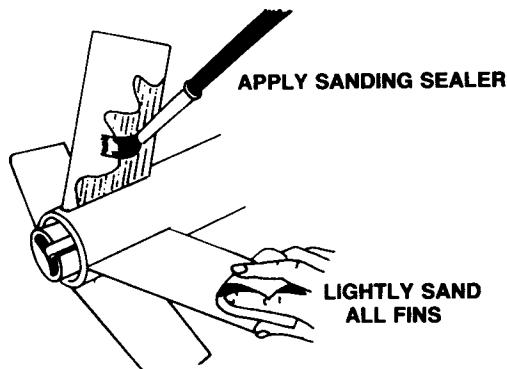
APPLY THIN LINE OF GLUE TO JOINT

THEN SMOOTH OUT WITH FINGER



When the glue on the fin joints has dried, apply a glue reinforcement to each fin/body tube joint. Holding the model level, apply a line of glue to both sides of each fin joint and on both sides of the launch lug/stand-off. Smooth out the glue with your finger. **IMPORTANT:** Support rocket on table edge as shown until the glue dries.

12

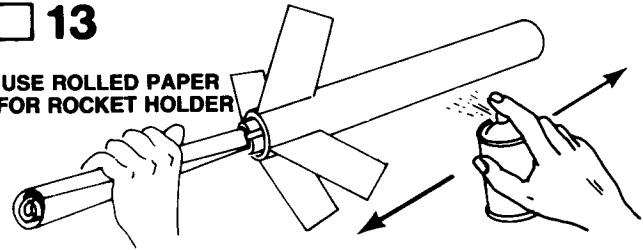


Proper application of sanding sealer makes the rocket look better and reduces drag so that the rocket will fly higher. However, this step is not essential to make a safe, attractive rocket. Apply a coat of sanding sealer to each fin. When sealer is dry, lightly sand all the sealed surfaces. Repeat sealing and sanding process until balsa grain is filled and smooth.

PAINING AND DETAILING

13

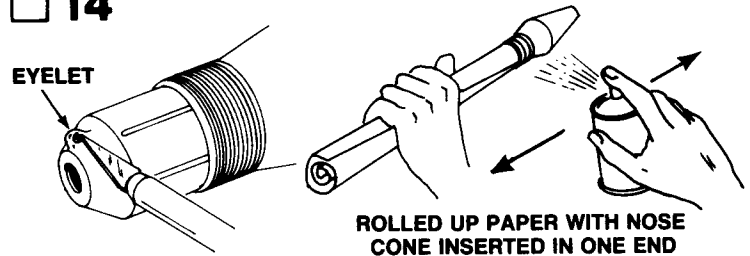
USE ROLLED PAPER FOR ROCKET HOLDER



After the sanding sealer is completely dry, paint the entire rocket body and fins with chromate green spray enamel. Follow instructions on the spray can for best results. We recommend spray enamel. Do not paint the model with lacquer paint. Shake can before spraying. Hold the can straight up and spray in long, smooth "strokes". Spray the model with several light, dry mist coats of paint to avoid "runs". Shake can periodically. To obtain a gloss, final coat should be applied slightly heavier. Let this coat dry overnight. Be sure paint is completely dry before applying decals.

14

EYELET



ROLLED UP PAPER WITH NOSE CONE INSERTED IN ONE END

Trim away the excess plastic from nose cone eyelet and from around the nose cone (part J). Spray paint the nose cone with several light coats of blue spray enamel paint. The nose cone can be supported by wrapping newspaper around the shoulder of the nose cone and securing it with masking tape.

15

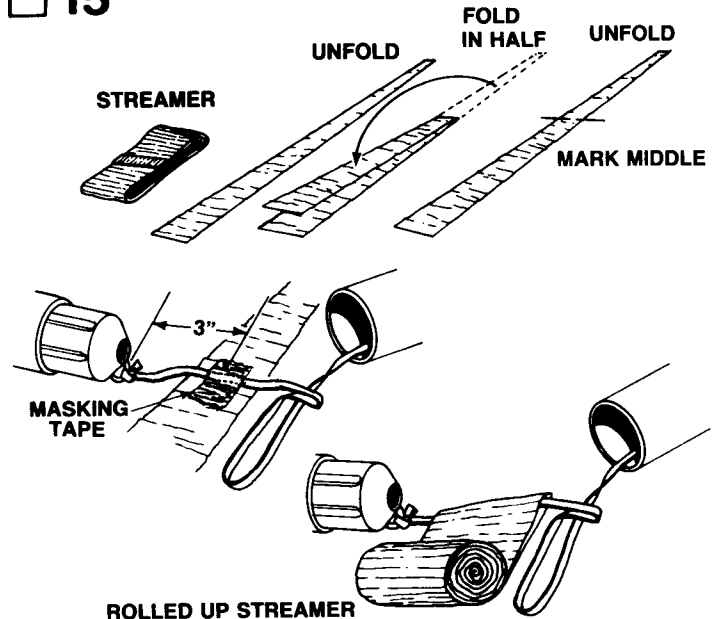
STREAMER

UNFOLD

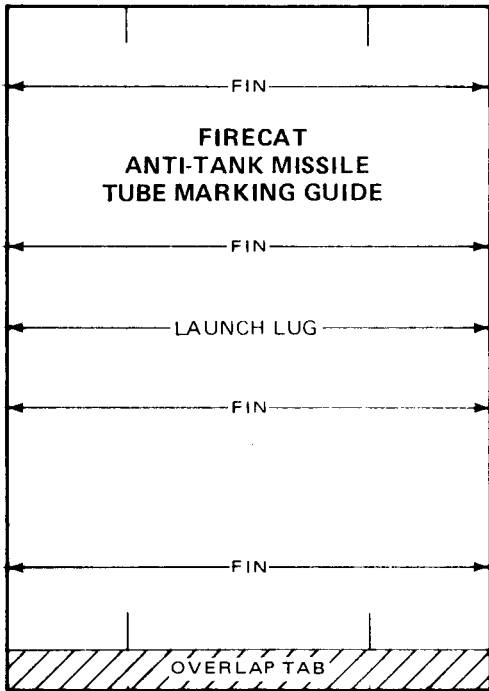
FOLD IN HALF

UNFOLD

MARK MIDDLE



When all the paint on the rocket body and nose cone is thoroughly dry, tie the free end of the shock cord to the nose cone. Unfold the streamer (part K) and refold lengthwise to find its center. The streamer should be secured to the shock cord about 3" from the nose cone, as shown. Lay the shock cord across the center of the streamer and secure it with about a 1-1/2" strip of masking tape. Press tape down firmly and rub so tape will adhere to the streamer. Fold the streamer twice lengthwise and roll until it fits into the body tube. Place the remainder of the shock cord and nose cone into the body tube while completing the model.



PN 83397



A SUBSIDIARY OF DAMON

SEC. 3

PN 84444

SEC. 2

SEC. 1

**SHOCK CORD
MOUNT
SCM-50**

