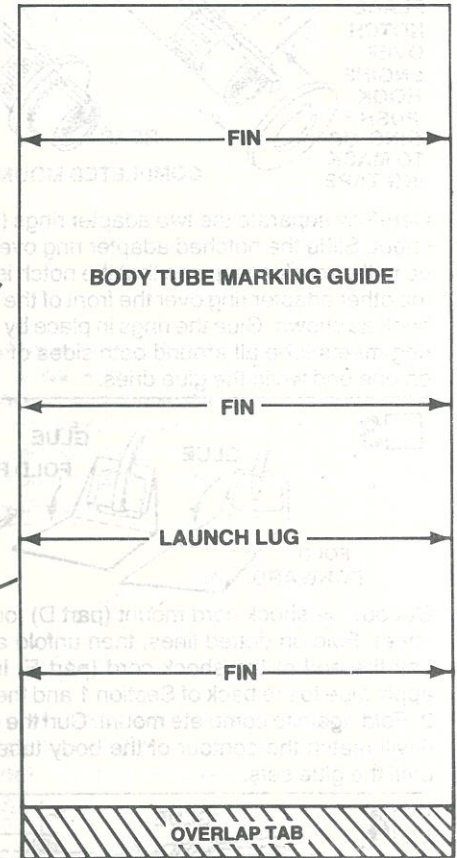
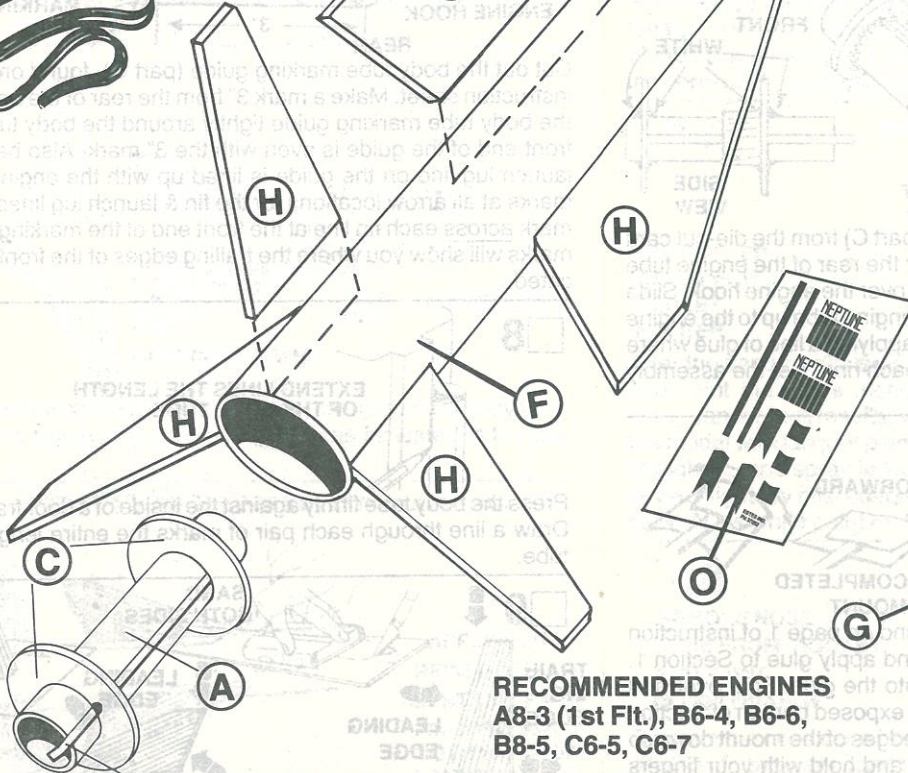
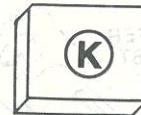
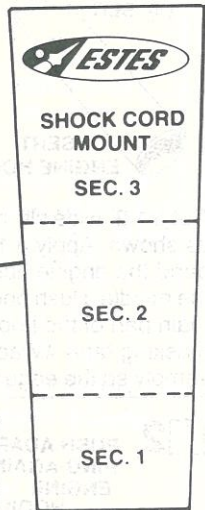
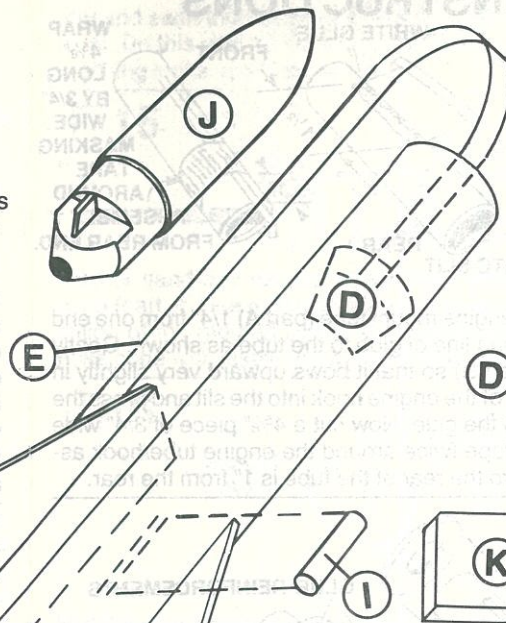
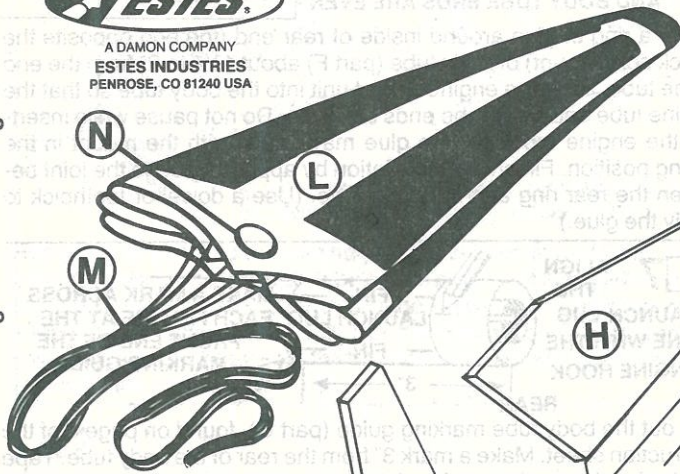


NEPTUNE

SKILL LEVEL 2 - Recommended for Intermediate Rocketeers



A DAMON COMPANY
ESTES INDUSTRIES
PENROSE, CO 81240 USA



RECOMMENDED ENGINES
A8-3 (1st Flt.), B6-4, B6-6,
B8-5, C6-5, C6-7

(B) 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, household white glue (Elmer's, Titebond, or similar), pencil, ruler, fine or extra-fine grit sandpaper, sanding sealer, a medium-size modeling paint brush, modeling knife with sharp blade. Gloss white, Stormy Sea (flat), gloss orange spray enamels and Dull-Cote Spray.

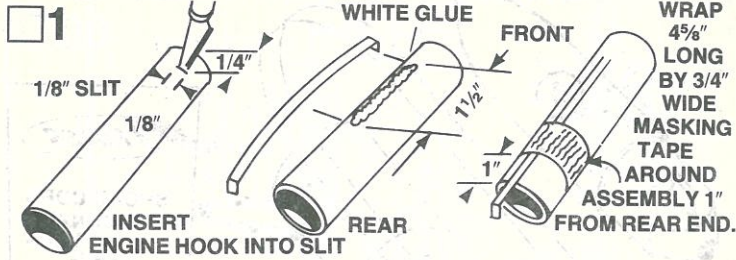
For easy and positive alignment of the rear fins on your model, we recommend the use of Estes' Fin Alignment Guide, Part No. 2231.

PARTS LIST

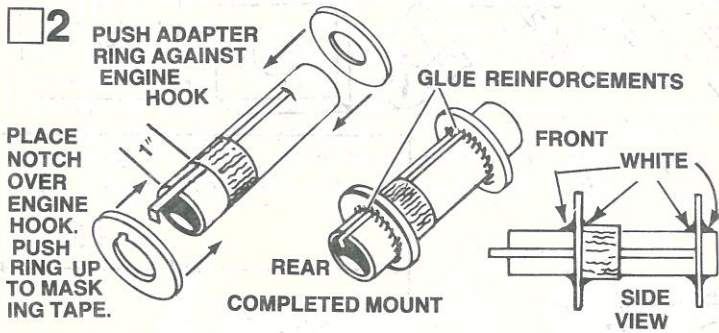
KIT NO. 1935

A	1	Engine Mount Tube (BT-20J)	30326
B	1	Engine Hook (EH-2)	35025
C	1	Adapter Ring Set (TA-1327)	30090
D	1	Shock Cord Mount	on page 1 of inst.
E	1	Shock Cord (SC-1B)	85734
F	1	Body Tube (BT-55C)	30383
G	1	Body Tube Marking Guide	on page 1 of inst.
H	1	Die-Cut Balsa Fin Sheet (BF-1935)	32635
I	1	Launch Lug (LL-2A)	38175
J	1	Plastic Nose Cone (PNC-55EX)	71031
K	1	Clay Balance Weight (6 gram)	85260
L	1	Parachute (PK-12A)	85564
M	1	Shroud Line (SLT-72)	38237
N	1	Tape Discs Set (TD-3F)	38406
O	1	Decal (KD-1935)	37252

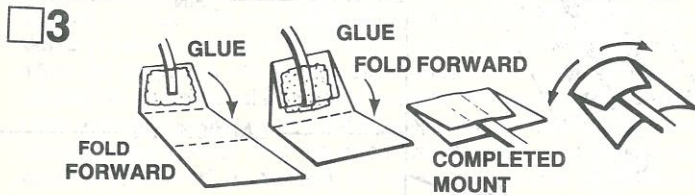
ASSEMBLY INSTRUCTIONS



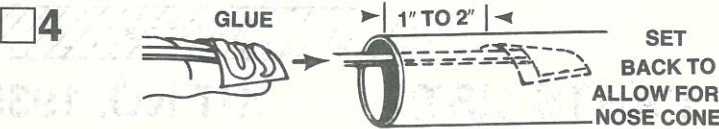
Cut a 1/8" wide slit in the engine mount tube (part A) 1/4" from one end as shown. Apply a 1 1/2" long line of glue to the tube as shown. Gently bend the engine hook (part B) so that it bows upward very slightly in the middle. Push one end of the engine hook into the slit and press the main part of the hook into the glue. Now cut a 4 5/8" piece of 3/4" wide masking tape. Wrap the tape twice around the engine tube/hook assembly so the edge toward the rear of the tube is 1" from the rear.



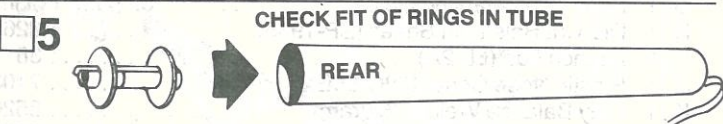
Carefully separate the two adapter rings (part C) from the die-cut card sheet. Slide the notched adapter ring over the rear of the engine tube up to the masking tape so that the notch is over the engine hook. Slide the other adapter ring over the front of the engine tube up to the engine hook as shown. Glue the rings in place by applying a line of glue where ring meets tube all around both sides of each ring. Set the assembly on one end while the glue dries.



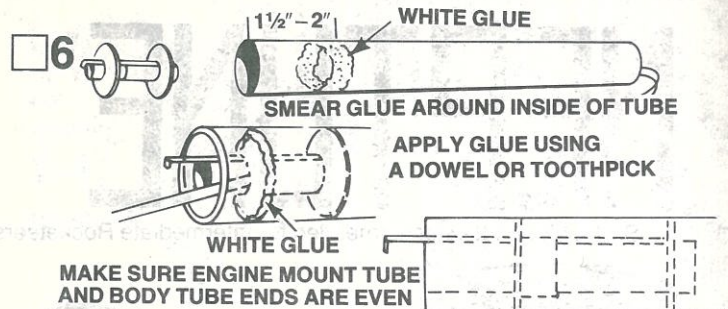
Cut out the shock cord mount (part D) found on page 1 of instruction sheet. Fold on dotted lines, then unfold and apply glue to Section 1. Lay the end of the shock cord (part E) into the glue. Fold over and apply glue to the back of Section 1 and the exposed portion of Section 2. Fold again to complete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



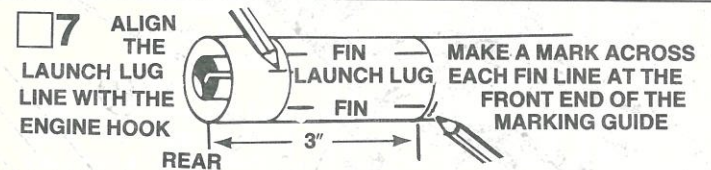
Apply glue to the back of the shock cord mount. With the shock cord mount positioned on the end of your finger, gently position mount down into front of body tube (part F) far enough from the front edge of the tube to allow for the nose cone to fit into place. Press shock cord mount firmly into position. To insure a good bond, smear a film of glue over the mount and surrounding area in the body tube.



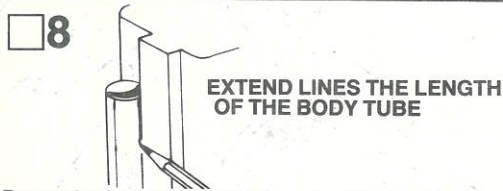
When the glue on the engine mount has dried completely, check the fit of the rings inside the body tube. The rings should slide easily into the tube. If the fit is tight, sand the outer edges of the rings until they slide easily in the body tube.



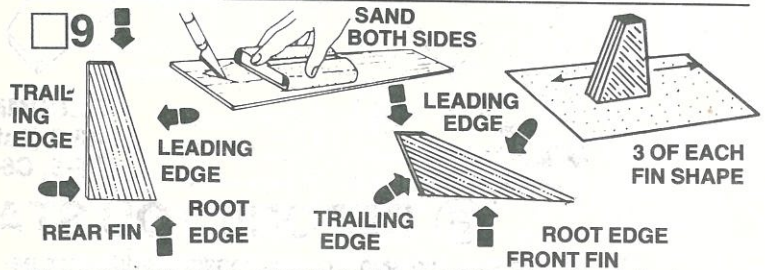
Apply a ring of glue around inside of rear end (the end opposite the shock cord mount) of body tube (part F) about 1 1/2" to 2" from the end of the tube. Slide the engine mount unit into the body tube so that the engine tube and body tube ends are even. Do not pause while inserting the engine mount or the glue may "grab" with the mount in the wrong position. Finish the installation by applying glue to the joint between the rear ring and the body tube. (Use a dowel or toothpick to apply the glue.)



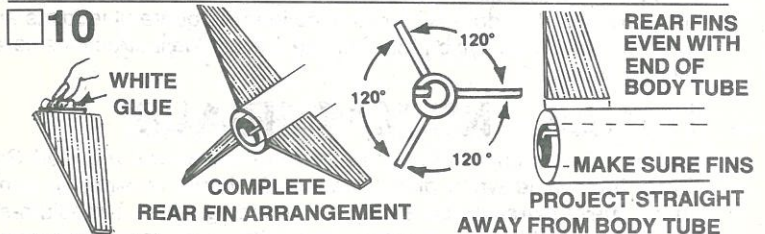
Cut out the body tube marking guide (part G), found on page 1 of the instruction sheet. Make a mark 3" from the rear of the body tube. Tape the body tube marking guide tightly around the body tube so that the front end of the guide is even with the 3" mark. Also be sure that the launch lug line on the guide is lined up with the engine hook. Make marks at all arrow locations for the fin & launch lug lines. Also make a mark across each fin line at the front end of the marking guide. These marks will show you where the trailing edges of the front fins will be located.



Press the body tube firmly against the inside of a door frame as shown. Draw a line through each pair of marks the entire length of the body tube.

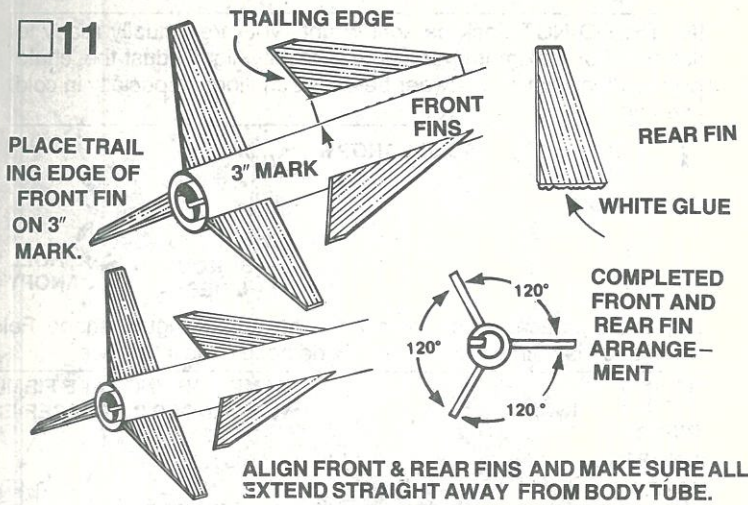


Fine sand both sides of the balsa fin sheet (part H). Carefully remove the fins from the sheet using a sharp knife to cut free the corners and edges. Stack the rear (smaller) fins and sand as shown. Repeat sanding with the stack of front (larger) fins. Round the leading and trailing edges of both sets of fins.



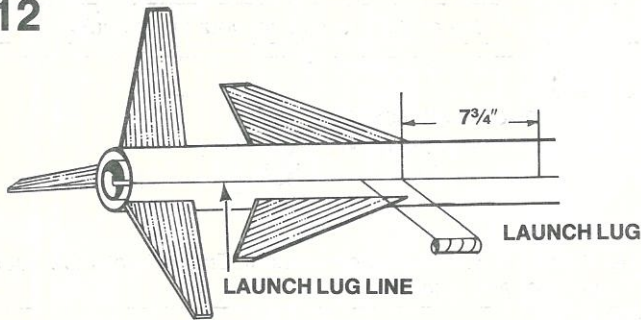
Rub a line of glue into the root edge of each rear fin and allow to dry. Glue the fins to the main body on the alignment lines, with the rear of each fin even with the rear of the body tube. Adjust the fins so they stick straight out from the body. Do not set the rocket on its fins while the glue is wet.

11



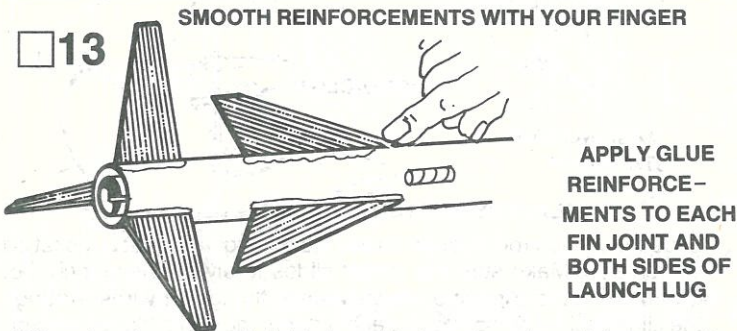
Rub a line of glue into the root edge of each front fin and allow to dry. Glue the front fins to the body tube on the alignment lines, with the rear of each fin even with the 3" marks made in step 7. Adjust the front fins so they are exactly aligned with the rear fins (when viewed from the rear), and straight away from the body tube. Do not set the rocket on its fins while the glue is wet.

12



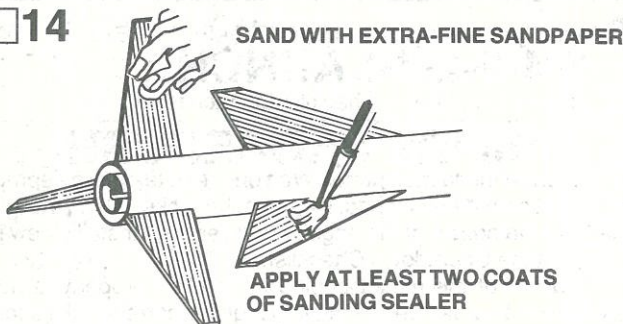
Make a mark on the launch lug line $7\frac{3}{4}$ " from the front of the body tube. Glue the launch lug (part I) to the body tube as indicated in the diagram.

13



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. Smooth the glue with your finger. **IMPORTANT**—Keep the model level until the glue dries.

14



When all the glue on the model is dry, prepare the balsa fins for painting. Apply at least two coats of sanding sealer to all balsa surfaces. Let

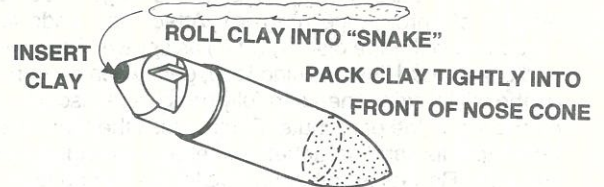
dry and sand thoroughly with the extra-fine grit sandpaper after each coat. Do this until all the tiny grain lines in the wood are filled and everything looks and feels smooth.

15



Trim or sand any excess plastic from around the sides of the nose cone (part J). Use a sharp knife to remove any excess plastic from the inside of the molded eyelet at the rear of the nose cone. Wash the nose cone with lukewarm soapy water, rinse well, and dry.

16

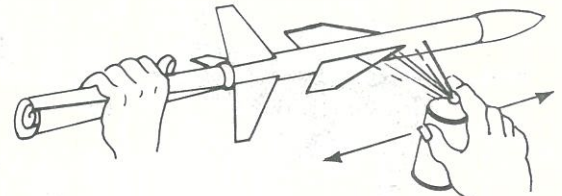


Roll the clay balance weight (part K) between your hands to make a "snake" about $\frac{1}{8}$ " diameter. Poke the clay through the hole in the rear of the nose cone. Use a pencil or dowel to push the clay forward into the cone until it is packed tightly in the front of the cone.

17

PAINT ENTIRE ROCKET GLOSS WHITE

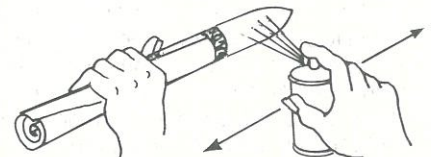
USE ROLLED PAPER FOR ROCKET HOLDER



After the sanding sealer is completely dry, insert nose cone in rocket and paint the entire model gloss white. 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: Allow white paint to dry thoroughly.

18

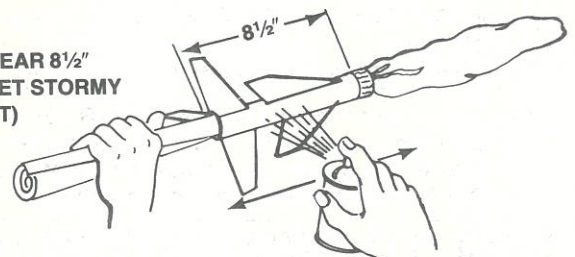
REMOVE NOSE CONE FROM ROCKET AND PAINT GLOSS ORANGE.



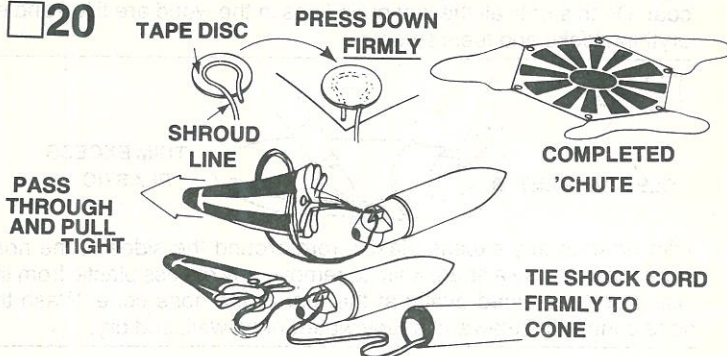
Remove the nose cone from the rocket. Apply masking tape to a 3" or 4" strip of newspaper and tape it around the nose cone shoulder (rear part that fits into the body tube). Paint the nose cone gloss orange and set it aside to dry thoroughly.

19

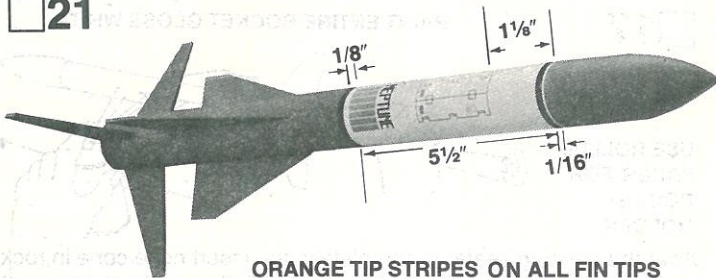
PAINT REAR $8\frac{1}{2}$ " OF ROCKET STORMY SEA (FLAT)



Make a light pencil mark $8\frac{1}{2}$ " from the rear of the body tube. Carefully wrap a $\frac{1}{2}$ " piece of masking tape around the body at the $8\frac{1}{2}$ " mark. Be sure the tape matches, edge to edge where it overlaps itself. Place a $\frac{1}{2}$ " piece of masking tape along the edge of the kit plastic bag and wrap it around the masking tape so $\frac{1}{4}$ " of the masking tape is showing. Tape the end of the plastic bag closed so no paint can get on the upper body. Now paint the fins and lower body stormy sea (flat). Remove the plastic bag and masking tape and allow the model to dry overnight.

20

Cut out the parachute (part L) on its edge lines. Cut three equal lengths of shroud line (part M). Attach line ends to the top of the parachute with tape discs (part N) as shown. Form a small loop in the end of a shroud line. Holding loop, gently center loop inside tape disc on the sticky side. Then carefully press tape disc onto its proper place on the top of the parachute. Firmly press the tape disc into place until both tape disc and parachute material are molded around the shroud line loop. Repeat for other shroud line ends and tape discs. Pass the shroud line loops through the loop on the nose cone. Pass the parachute through the loop ends and pull the lines tight against the nose cone. Tie the free end of the shock cord firmly to the nose cone loop. A square knot or strong double knot should be used.

21

ORANGE TIP STRIPES ON ALL FIN TIPS

When all paint is dry, apply the decals (part O) in the positions shown above. (1) Cut only one decal at a time from sheet. (2) Submerge decal in lukewarm water until decal slides on backing paper (usually 15 to 30 seconds). (3) Gently slide decal from backing paper onto model. (4) Move decal into exact position and carefully blot away excess water with a soft cloth. (5) 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. (6) 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 dulls the decal shine and protects the model's finish. Allow decals to dry overnight before applying "Dull-Cote".

LAUNCHING COMPONENTS

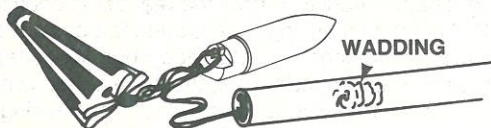
To launch your rocket you will need the following items:

- An Estes model rocket launching system
- Flame resistant recovery wadding (Estes Cat. No. 2274)
- Estes A8-3 (First Flight) B6-4, B6-6, 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 Association of America
 *NAR—National Association of Rocketry

COUNTDOWN CHECKLIST

T-13

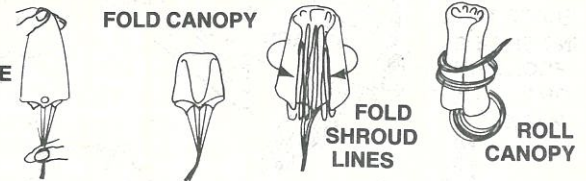
Slide 5 or 6 squares of loosely crumpled recovery wadding into the body tube. Usually this will fill the body tube for a distance equal to about 1-1/2 times its diameter.

NOTE: DO NOT pack parachute until you are actually ready to launch. For maximum parachute reliability, lightly dust the 'chute with ordinary talcum powder before each flight, especially in cold weather.

T-12

FORM SPIKE

FOLD CANOPY



Gather the parachute as shown then fold into a triangular shape. Fold again and insert into rocket body. Slide nose cone into place.

T-11

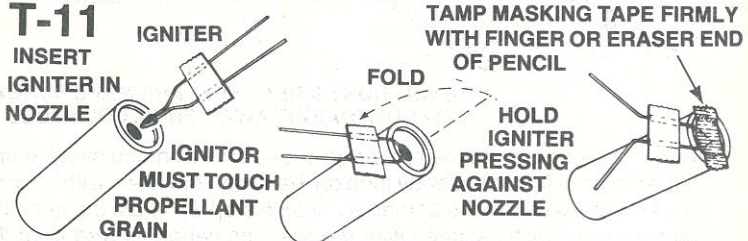
INSERT IGNITER IN NOZZLE

IGNITER
MUST TOUCH
PROPELLANT
GRAIN

TAMP MASKING TAPE FIRMLY WITH FINGER OR ERASER END OF PENCIL

FOLD

HOLD IGNITER
PRESSING
AGAINST
NOZZLE

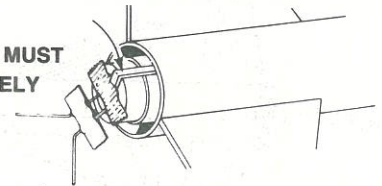


Select an engine and install an igniter as directed in the engine instructions. The engines recommended for use with this rocket are the A8-3, B6-4, B6-6, B8-5, C6-5, and C6-7 made by Estes.

Use an A8-3 engine for your first flight.

T-10

ENGINE HOOK MUST
LATCH SECURELY



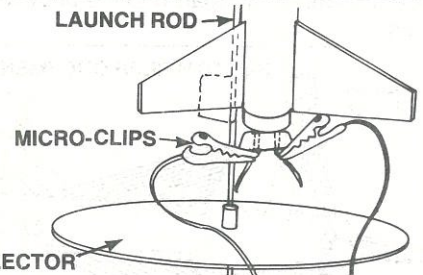
Insert engine into rocket engine mount. Engine hook must latch securely over end of the engine.

T-9

Disarm the launch panel—REMOVE SAFETY KEY!

T-8

MASKING TAPE
STAND-OFF



BLAST DEFLECTOR

Slide the 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.