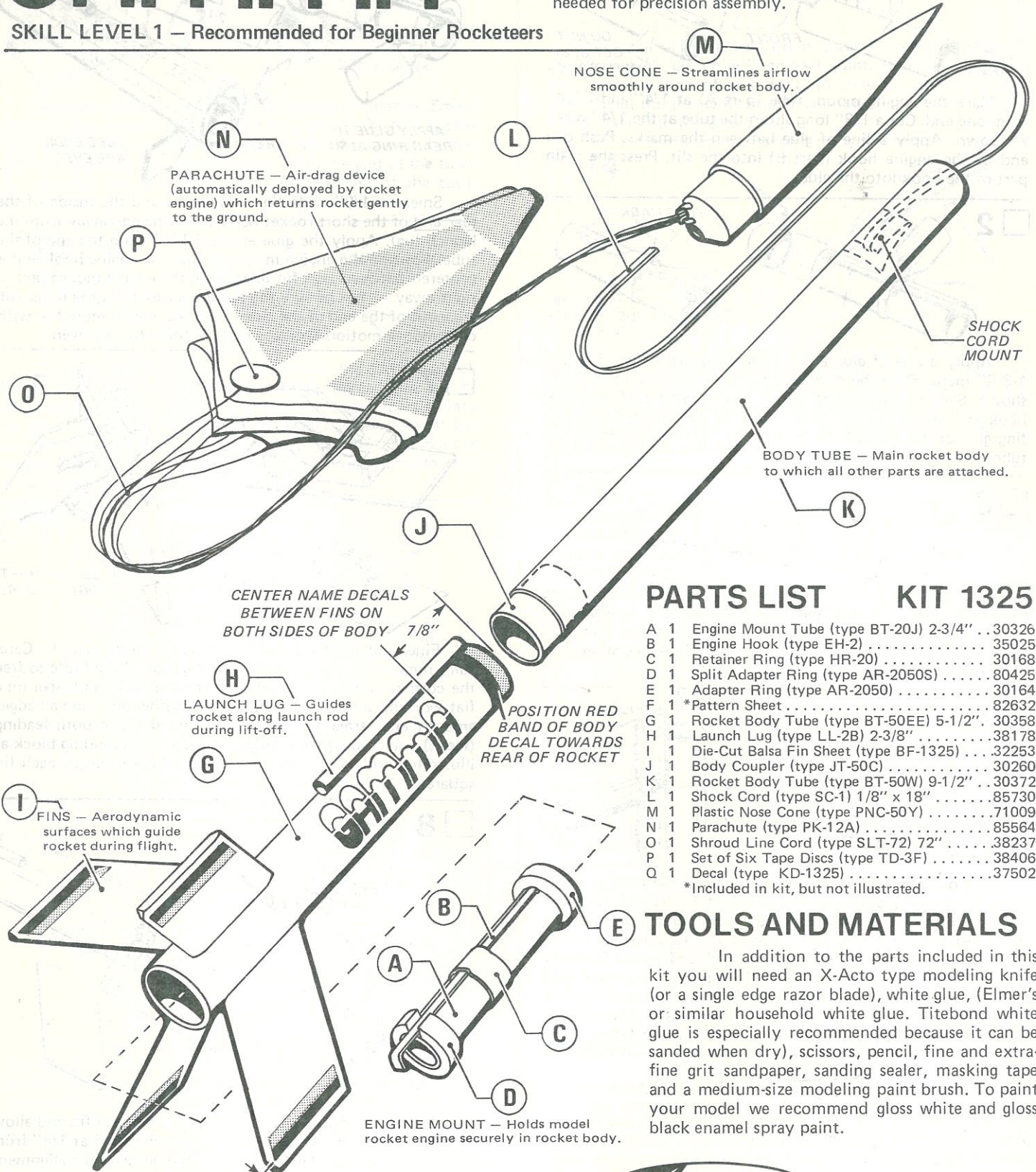


GAMMA

SKILL LEVEL 1 – Recommended for Beginner Rocketeers

Read all instructions before beginning work on your model. Make sure you have all parts and materials. When you are thoroughly familiar with the assembly procedure, begin construction. Check off each step as you complete it. In each step, test-fit the parts together before applying any glue. If some part doesn't fit properly, sand lightly or build up as needed for precision assembly.



CENTER NAME DECALS BETWEEN FINS ON BOTH SIDES OF BODY 7/8"

POSITION RED BAND OF BODY DECAL TOWARDS REAR OF ROCKET

POSITION RED DECAL STRIPE 1/8" FROM FIN TIP

RECOMMENDED ENGINES
A8-3 B4-4 B6-4 C6-5

PARTS LIST KIT 1325

A	1	Engine Mount Tube (type BT-20J) 2-3/4" ..	30326
B	1	Engine Hook (type EH-2)	35025
C	1	Retainer Ring (type HR-20)	30168
D	1	Split Adapter Ring (type AR-2050S)	80425
E	1	Adapter Ring (type AR-2050)	30164
F	1	*Pattern Sheet	82632
G	1	Rocket Body Tube (type BT-50EE) 5-1/2" ..	30358
H	1	Launch Lug (type LL-2B) 2-3/8"	38178
I	1	Die-Cut Balsa Fin Sheet (type BF-1325) ...	32253
J	1	Body Coupler (type JT-50C)	30260
K	1	Rocket Body Tube (type BT-50W) 9-1/2" ..	30372
L	1	Shock Cord (type SC-1) 1/8" x 18"	85730
M	1	Plastic Nose Cone (type PNC-50Y)	71009
N	1	Parachute (type PK-12A)	85564
O	1	Shroud Line Cord (type SLT-72) 72"	38237
P	1	Set of Six Tape Discs (type TD-3F)	38406
Q	1	Decal (type KD-1325)	37502

*Included in kit, but not illustrated.

TOOLS AND MATERIALS

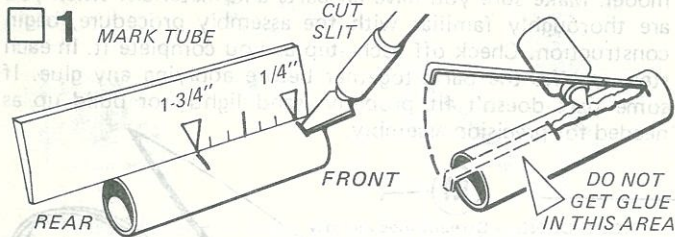
In addition to the parts included in this kit you will need an X-Acto type modeling knife (or a single edge razor blade), white glue, (Elmer's or similar household white glue. Titebond white glue is especially recommended because it can be sanded when dry), scissors, pencil, fine and extra-fine grit sandpaper, sanding sealer, masking tape and a medium-size modeling paint brush. To paint your model we recommend gloss white and gloss black enamel spray paint.



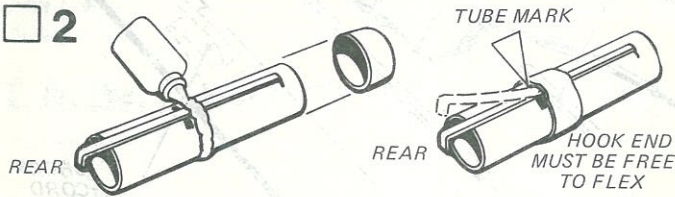
ESTES INDUSTRIES
PENROSE, CO 81240 USA

A DAMON COMPANY

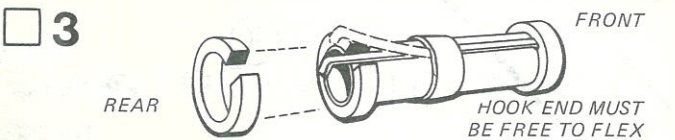
ASSEMBLY INSTRUCTIONS



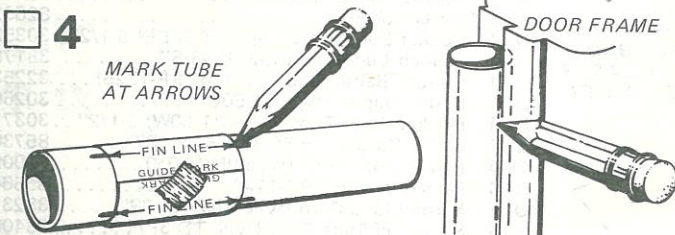
Mark the engine mount tube (part A) at 1/4" and 1-3/4" from one end. Cut a 1/8" long slit in the tube at the 1/4" mark as shown. Apply a line of glue between the marks. Push one end of the engine hook (part B) into the slit. Press the main part of the hook into the glue.



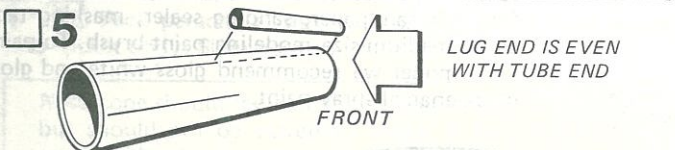
Apply a line of glue around the tube just forward of the 1-3/4" mark. Slide the retainer ring (part C) onto the tube as shown. Slide it back to the 1-3/4" mark as shown. The engine hook end must be free to flex slightly as illustrated. Avoid getting glue on this area. Be sure the hook runs straight along the tube.



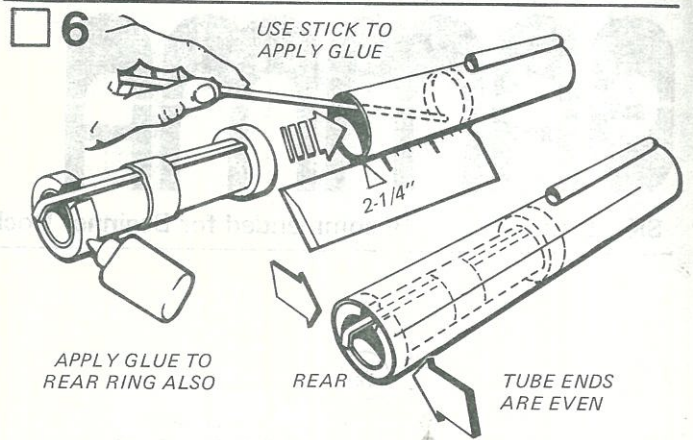
Glue the split adapter ring (part D) to the engine mount tube even with the rear end (the end with the overhanging hook). Be sure the engine hook is centered in the ring gap. Hold the ring in place until the glue sets. Glue the other ring (part E) to the front of the engine tube.



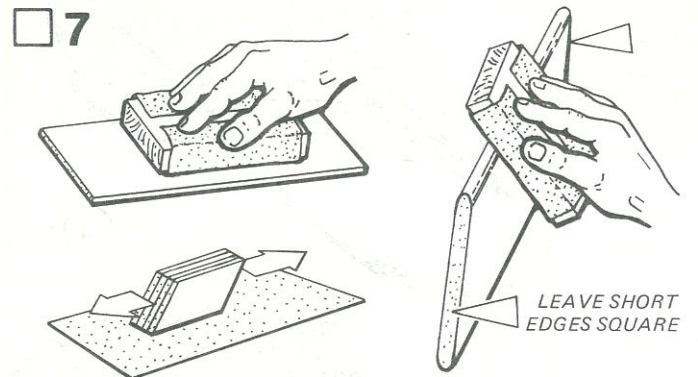
Cut out the body marking guide from the pattern sheet (part F). Wrap it around one end of the short rocket body tube (part G). Match the printed guide marks and tape guide in place. Mark the tube at each arrow point. Remove the guide. Place the body tube against the inside edge of a door frame as shown. Draw a line about 2-1/2" long from the tube end through each pair of fin line marks. Extend the launch lug line the entire length of the tube. You may also use a ruler to connect the tube marks and draw the alignment lines.



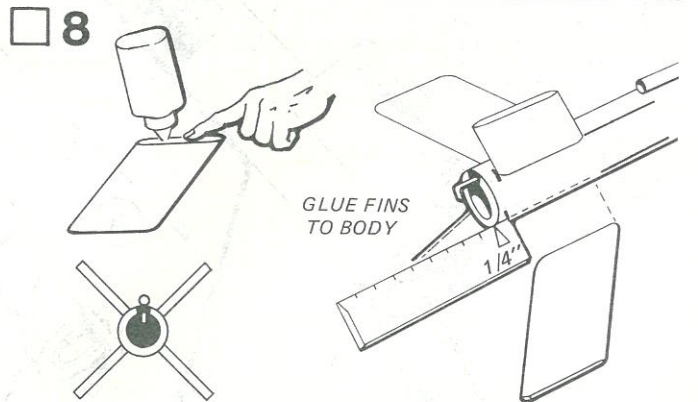
Glue the launch lug (part H) to the short rocket body tube on the launch lug line. The front of the lug should be even with the front end of the body tube. Align the launch lug straight on the body.



Smear a 1/8" wide line of glue around the inside of the rear end of the short rocket body tube (the end away from the launch lug). Apply the glue about 2-1/4" from the end of the tube. Position the engine mount so that the engine hook end is centered between two fin lines. Push the engine mount unit in right away - - but be sure the mount is turned so the hook will stick out of the end of the tube. Push the engine mount in with one smooth motion until the ends of the tubes are even.

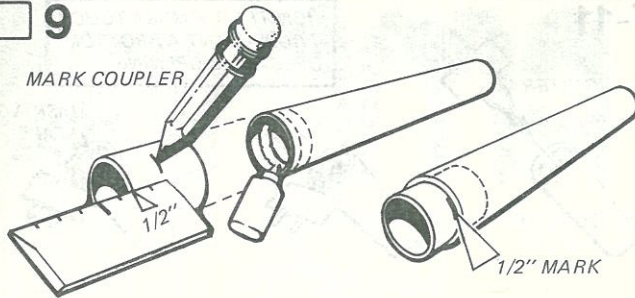


Fine-sand both sides of the balsa fin sheet (part I). Carefully remove the fins from the sheet using a sharp knife to free the corners and fin edges. Place a sheet of fine sandpaper on a flat working surface. Stack the fins together and sand all edges smooth and straight. Sand to a rounded shape both leading (front) and trailing (rear) edges of each fin. A sanding block as illustrated will work best. Sand both short edges of each fin square.



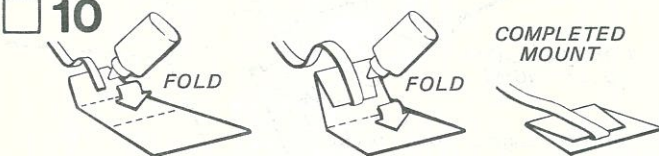
Rub a line of glue into the body edge of each fin and allow to dry. Mark each of the fin lines drawn in step 4 at 1/4" from the rear of the tube. Glue the fins to the body on the alignment lines, with the rear of the fin on the 1/4" mark as shown. Check the illustration to be sure you position the fins correctly. Adjust the fins so they stick straight out from the body tube. Do not set the rocket on its fins while the glue is wet.

□ 9



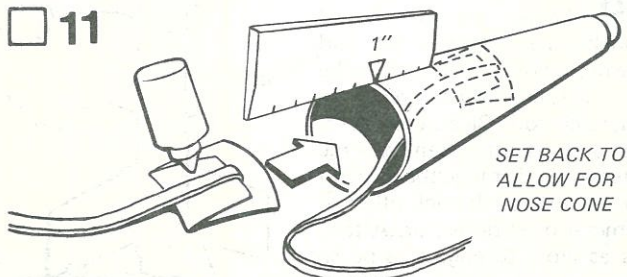
Mark the center of the body tube coupler (part J). Smear a line of glue around the inside at one end of the long rocket body tube (part K). Slide the coupler into the same tube end until the mark on the coupler is even with the end of the tube. The coupler should extend 1/2" from the end of the tube. Allow to dry.

□ 10



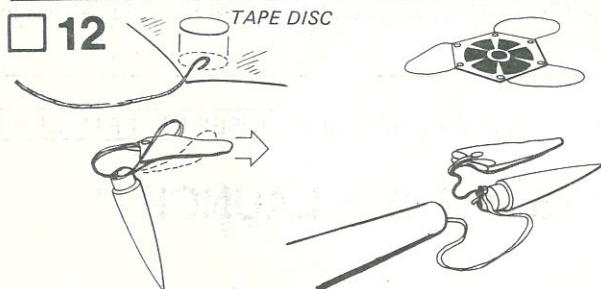
Cut out the shock cord mount from the pattern sheet. Crease it on the dotted lines by folding. Spread glue on the first section (1) and lay the end of the shock cord (part L) into the glue. Fold over and apply glue to the back of the first section and the exposed part of section (2). Lay the shock cord as shown and fold over again. Clamp the unit together with your fingers until the glue sets.

□ 11



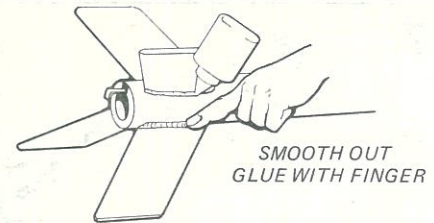
Smear glue over the back side of the shock cord mount. Hold the mount as shown and press it into place in the front of the long body tube. Make sure the front of the mount is at least 1" from the tube end to allow for the nose cone. Hold the mount in place until the glue sets.

□ 12



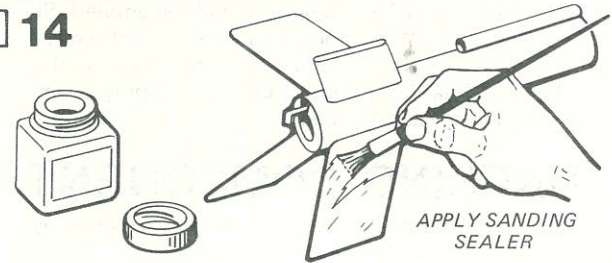
Trim or sand any excess plastic from around the sides of the nose cone (part M). Use a sharp knife to remove any excess plastic from the inside of the molded eyelet at the rear of the nose cone. Wash the nose cone in lukewarm soapy water, rinse well and dry. Cut out the parachute (part N) on its edge lines. Cut three 24" lengths of shroud lines (part O). Attach line ends to the top of the parachute with tape discs (part P) as shown. Pass the shroud line loops through the nose cone eyelet. Pass the parachute through the loop ends and pull the lines tight against the eyelet. "Set" the knot with a drop of glue. Tie the free end of the shock cord to the eyelet with a double knot.

□ 13



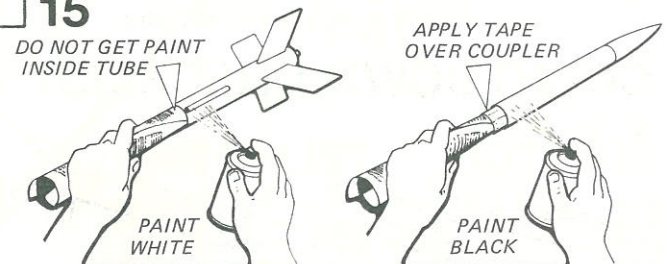
When the fin joints have dried, apply a glue reinforcement (usually called "glue fillet") to each joint. Holding the model level, apply a line of glue to both sides of each fin joint. Smooth out the glue with your finger. **IMPORTANT** - Keep the model level until the glue dries.

□ 14



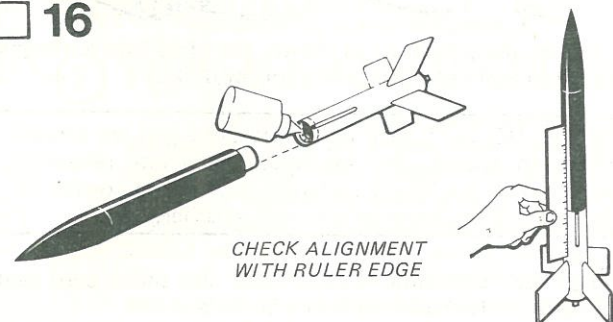
When all glue on the outside of the body is dry, prepare the balsa fins of the model for painting. Apply at least two coats of sanding sealer to all exposed balsa surfaces. Let dry and sand thoroughly with extra-fine sandpaper after each coat. Do this until the tiny grain lines in the wood are filled and everything looks and feels smooth.

□ 15



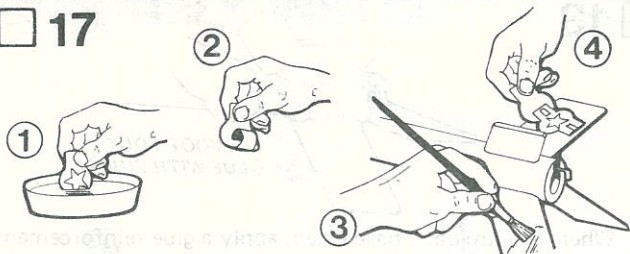
Insert a sheet of rolled-up newspaper or heavy paper into both rocket body sections as shown. The paper **MUST FIT TIGHTLY** against the inside of the body at the front of the finned body section. Apply two or three light coats of gloss white spray enamel to the entire finned body section. Apply a wrapping of masking tape to the exposed portion of the body coupler. Give the entire forward body section at least two light coats of gloss black spray enamel. Allow each coat of paint to dry completely. Remove masking tape after painting.

□ 16



When all paint is completely dry, glue the two rocket sections together. Apply a generous line of glue around the inside of the body tube at the front of the finned body section. Push both body sections together firmly so that the tube ends meet evenly around the rocket body. Check the sides of the rocket with a ruler edge to be sure that both sections are joined straight. Stand the rocket on its fins to dry.

17



Apply the decals (part Q) in the positions shown on page 1. To apply decals, cut out a decal section and dip it in luke-warm water for 10-20 seconds. Hold decal until it starts to uncurl or slides easily on the backing sheet. Use a small brush to "wet" the model surface where decal will be applied. Slide decal off the backing sheet and onto model. Blot excess water away with a damp cloth. Allow decal to dry overnight. Apply a final light coat of gloss clear spray enamel over decal areas to protect the decals.

LAUNCHING COMPONENTS

To launch your rocket you will need the following items:

- An Estes model rocket launch system.
 - Flameproof recovery wadding (Estes cat. no. 2274).
 - Estes A8-3, B4-4, B6-4, C6-5 model rocket engines.
- Use an A8-3 for the first flight.

Be sure to follow the HIAA-NAR* Model Rocketry Safety Code when carrying out your model rocketry activities.

*HIAA-NAR — Hobby Industry Association of America
— National Association of Rocketry

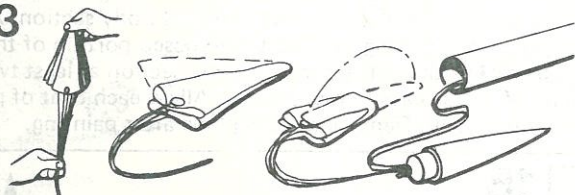
COUNTDOWN CHECKLIST

T-14



Pack four or five squares of loosely crumpled recovery wadding into the rocket body tube.

T-13



Gather the parachute as shown, then fold into a triangular shape. Fold again and insert into rocket body.

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 Pack parachute, shroud lines and shock cord neatly into rocket body. Slide nose cone into place.

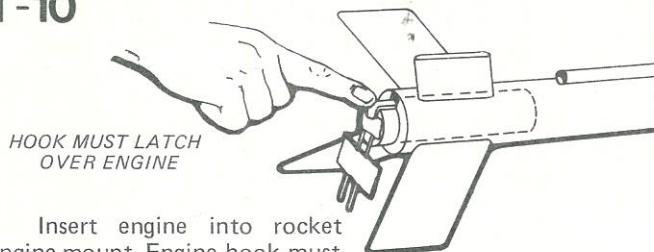
Nose cone should separate easily from rocket body tube, but should not be extremely loose. If fit is too tight, sand inside of body tube and shoulder of nose cone with fine sandpaper. If fit is too loose, add a wrapping of transparent tape or masking tape to the shoulder of the nose cone.

T-11



Select an engine and install an igniter as directed in the engine instructions. Use an A8-3 engine for your first flight.

T-10

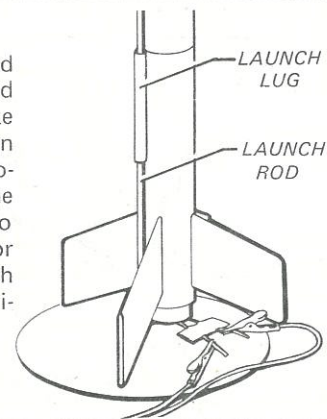


Insert engine into rocket engine mount. Engine hook must latch securely over end of engine.

T-9 Disarm the launch panel -- **REMOVE SAFETY KEY!**

T-8

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 engine 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

Occasionally the igniter will heat and burn into two pieces without igniting the engine. This is almost always caused by a failure to install it correctly. **REMOVE SAFETY KEY** from launch panel, remove the model, clean the igniter residue from the nozzle and install a new igniter. Follow the launching procedure again.