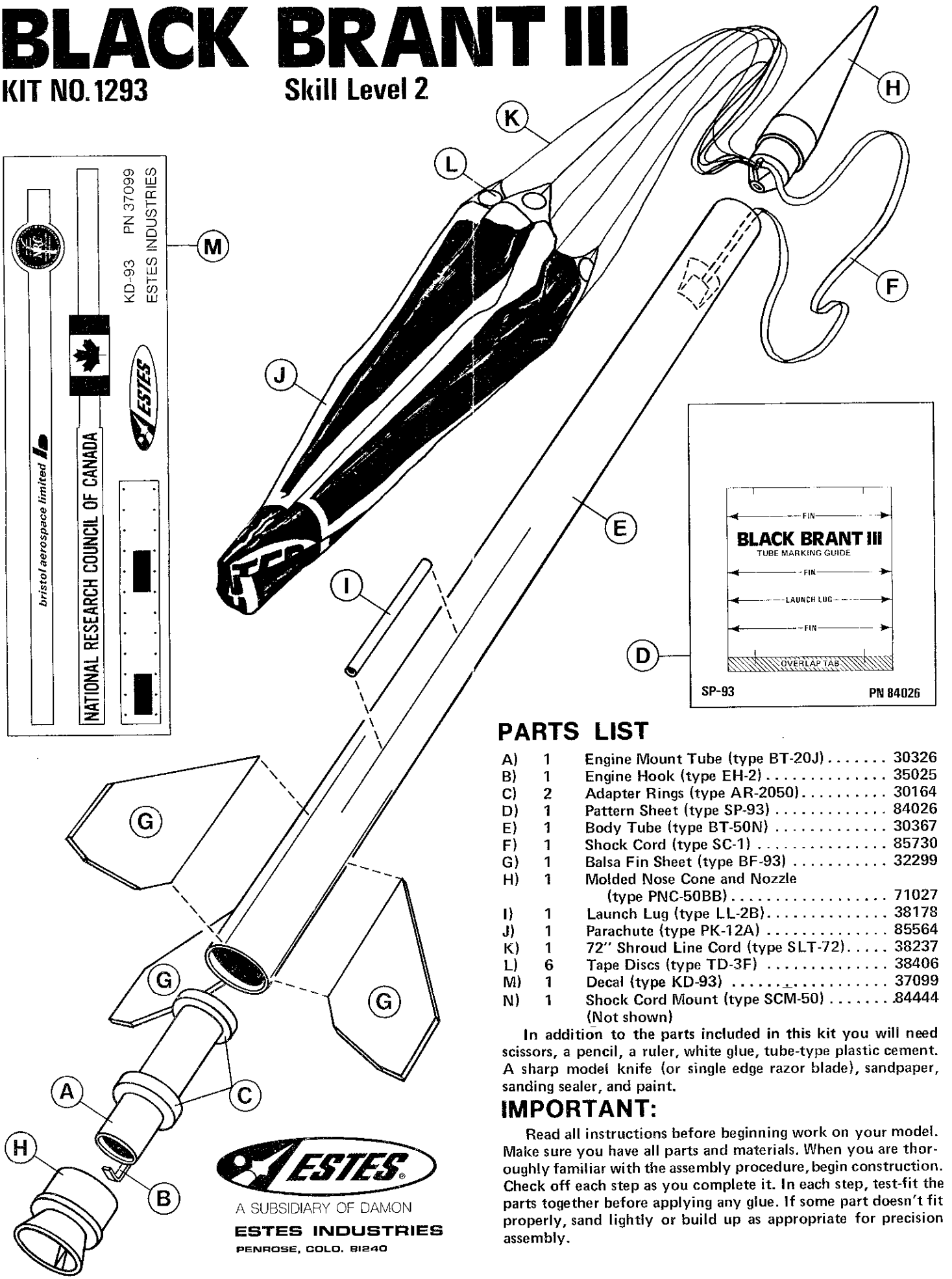

NATIONAL RESEARCH COUNCIL OF CANADA
NRC

BLACK BRANT III

KIT NO. 1293 **Skill Level 2**



PARTS LIST

A)	1	Engine Mount Tube (type BT-20J)	30326
B)	1	Engine Hook (type EH-2)	35025
C)	2	Adapter Rings (type AR-2050)	30164
D)	1	Pattern Sheet (type SP-93)	84026
E)	1	Body Tube (type BT-50N)	30367
F)	1	Shock Cord (type SC-1)	85730
G)	1	Balsa Fin Sheet (type BF-93)	32299
H)	1	Molded Nose Cone and Nozzle (type PNC-50BB)	71027
I)	1	Launch Lug (type LL-2B)	38178
J)	1	Parachute (type PK-12A)	85564
K)	1	72" Shroud Line Cord (type SLT-72)	38237
L)	6	Tape Discs (type TD-3F)	38406
M)	1	Decal (type KD-93)	37099
N)	1	Shock Cord Mount (type SCM-50) (Not shown)	84444

In addition to the parts included in this kit you will need scissors, a pencil, a ruler, white glue, tube-type plastic cement. A sharp model knife (or single edge razor blade), sandpaper, sanding sealer, and paint.

IMPORTANT:

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 appropriate for precision assembly.

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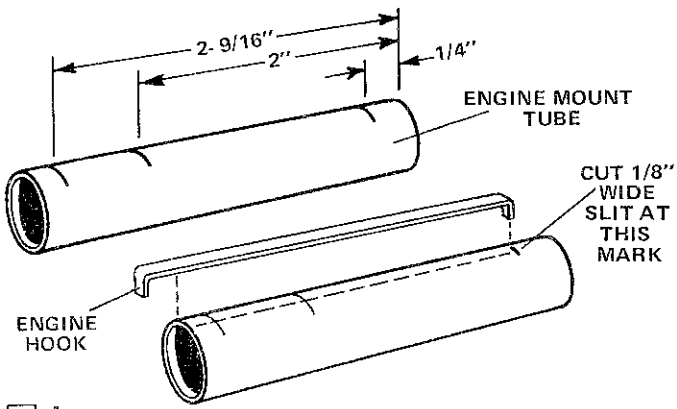
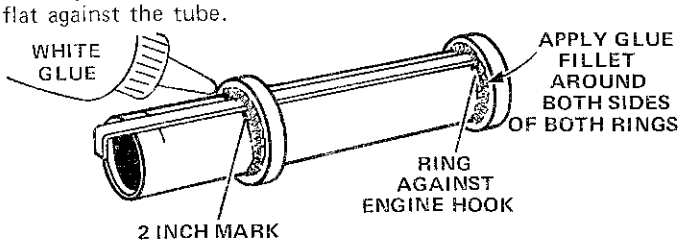
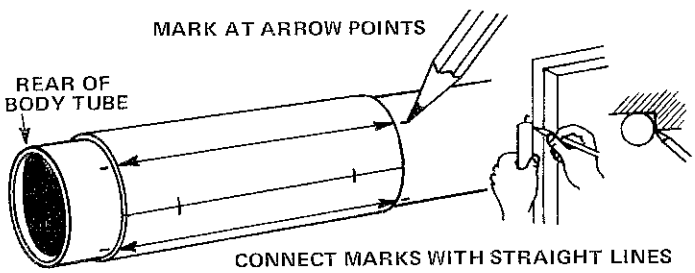
ASSEMBLY INSTRUCTIONS



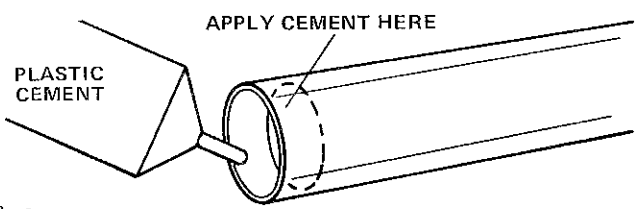
☐ **1** Mark the engine mount tube (part A) 1/4 inch, 2 inches and 2-9/16 inches from one end. Use a pencil and make the marks about 1/4 inch wide. Use a sharp knife to cut a 1/8 inch long slit at the 1/4 inch mark as shown. Push one end of the engine hook (part B) into the slit and position the hook flat against the tube.



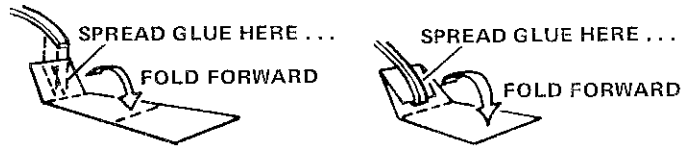
☐ **2** Test fit one of the adapter rings (part C) onto the engine mount tube and over the engine hook. If necessary, sand the inside of the ring until it slides smoothly over the tube and hook. Slide the ring onto the tube and over the hook until the edge of the ring is on the 2 inch mark as shown. Slide the remaining ring onto the forward end of the tube until it just touches the forward end of the engine hook. Apply a line of white glue around both sides of both rings where they touch the tube. Allow the glue to dry completely.



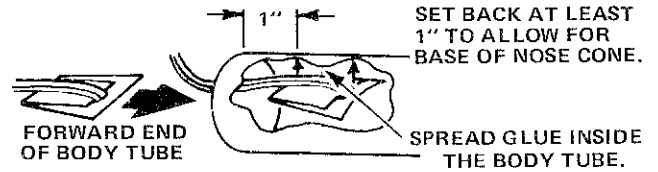
☐ **3** Cut out the marking guide from the pattern sheet (part D). Wrap it around one end of the body tube (part E). Mark the tube with a pencil at each arrow point at both ends of the marking guide. Remove the guide and draw straight lines connecting each matching front and rear marks. (The edge of desk drawer or a door frame makes a suitable guide for drawing the lines.) Extend the launch lug line the length of the tube.



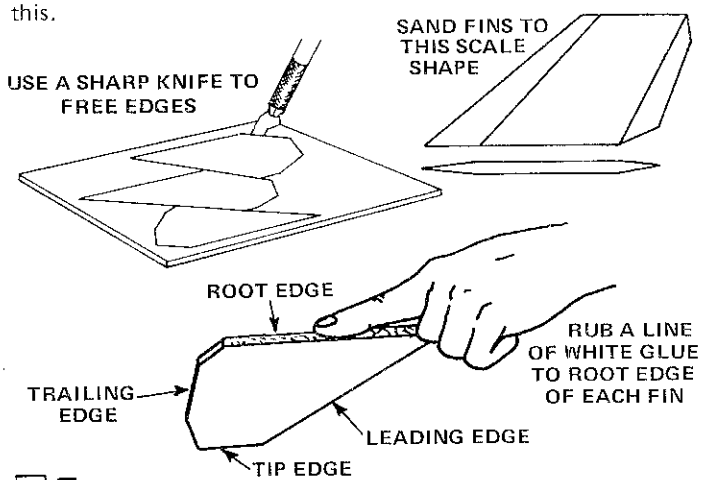
☐ **4** Smear a thin band of tube-type plastic cement around the inside of the body tube at the end with the drawn lines. The cement should extend from the edge of the tube inward to about 1/2 inch. Avoid getting any cement on the outside of the tube. Allow the cement to dry completely.



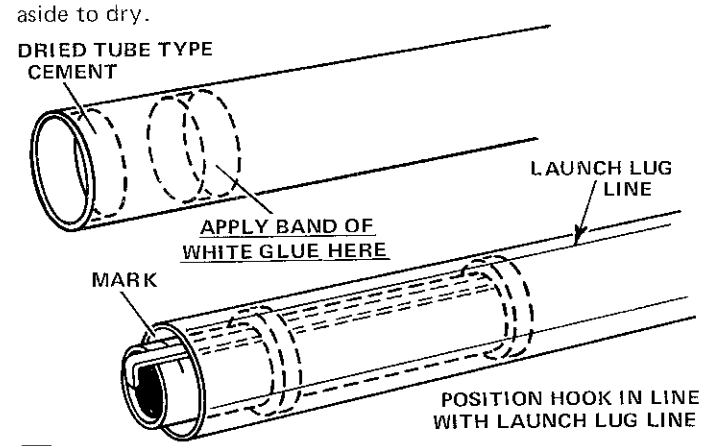
☐ **5** Cut out the shock cord mount (part N). Crease it on the dotted lines by folding. Spread white glue on the first section (1) and lay one end of the shock cord (part F) into the glue. Fold over and apply white glue to the back of the first section and the exposed part of the second section (2). Lay the shock cord as shown and fold over again. Clamp the unit together with your fingers until the glue sets.



☐ **6** Apply white glue to the inside of the forward end of the body tube. The glue should cover an area 1 inch to 2 inches from the end and about the same width as the shock cord mount. Press the mount into the glue and hold in place until the glue sets. Use your fingers inside and outside the tube to do this.

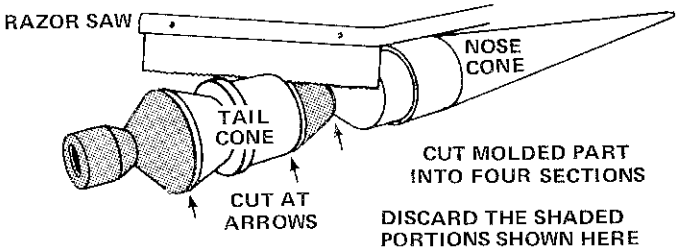


☐ **7** Fine sand the die-cut balsa sheet (part G), then carefully remove the fins from it. Free the edges with a sharp knife. For semi-scale appearance, sand the leading, trailing, and tip edges of the fins round. For full scale appearance, sand the fins as shown in the illustration. Leave the root edge of each fin square so that they can be properly glued to the body tube. Rub a line of white glue into the root edge of each fin and set aside to dry.



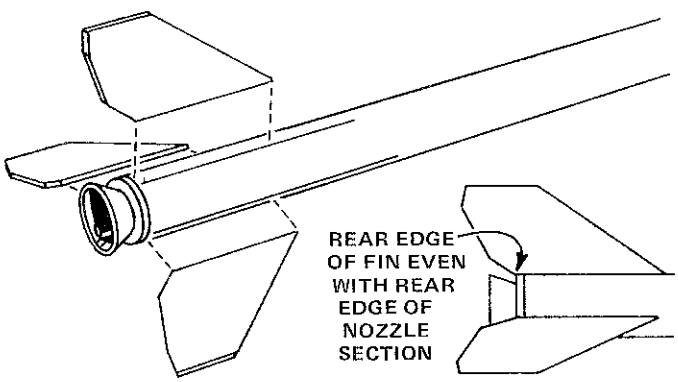
☐ **8** Test fit the engine mount assembly into the rear of the body tube. It should slide in easily. If not, sand the outside of the adapter rings until a smooth fit is achieved. Remove the engine mount and apply a band of white glue around the inside

of the body tube in FRONT of the area where the tube type plastic cement has been applied. Position the engine mount assembly so that the engine hook is in line with the launch lug line and insert the mount in the body tube. Push the mount in until the mark on the tube is even with the end of the body tube. Set the assembly aside to dry.

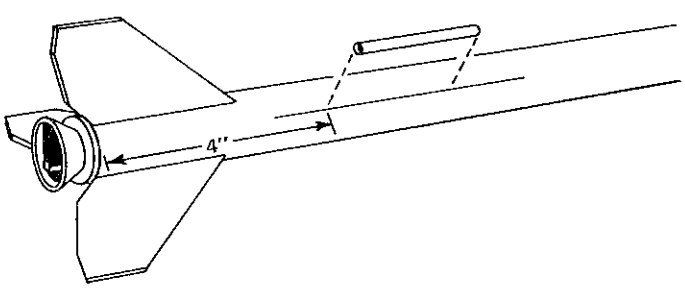


☐ **9** Using a razor saw or sharp knife, cut the molded nose cone/nozzle section into four parts as shown. Discard the two small conical sections previously attached to the nozzle. Lightly sand both front and rear edges of the nozzle section to remove any small plastic flash or burrs. This is best accomplished by rotating the part over fine sandpaper placed on a flat surface.

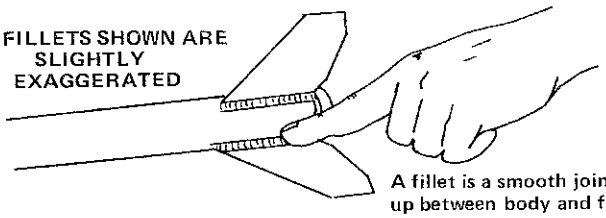
☐ **10** Use your finger to smear a thin layer of tube type plastic cement around the outside of the forward end of the nozzle. Carefully align the engine hook relief area with the engine hook already installed in the body tube. Insert the nozzle into the body tube and push until the plastic detail just touches the end of the body tube.



☐ **11** Glue the fins to the body tube on the fin alignment lines drawn in step 3. Refer to the illustration to be sure you position the fins correctly. 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.

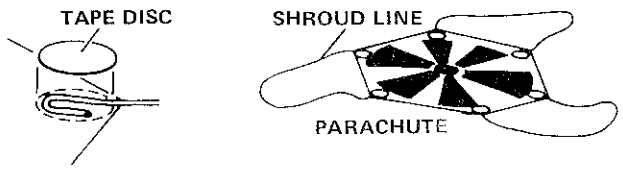


☐ **12** Glue the launch lug (part I) to the body tube on its line. The rear of the lug should be 4" from the rear of the body. Align it straight on the body.

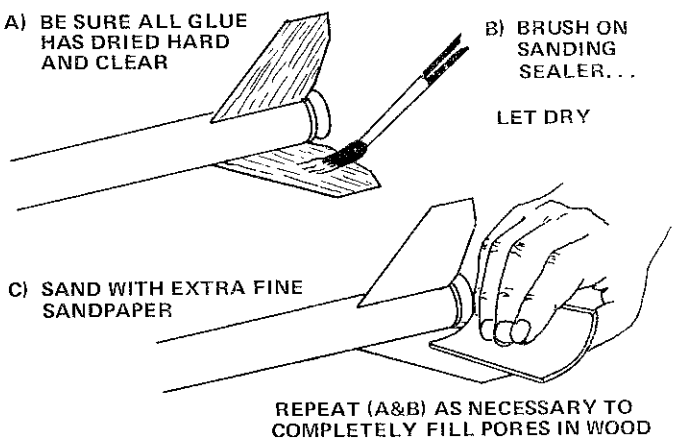


A fillet is a smooth joint built up between body and fin by applying glue along the joint and smoothing the glue with a finger.

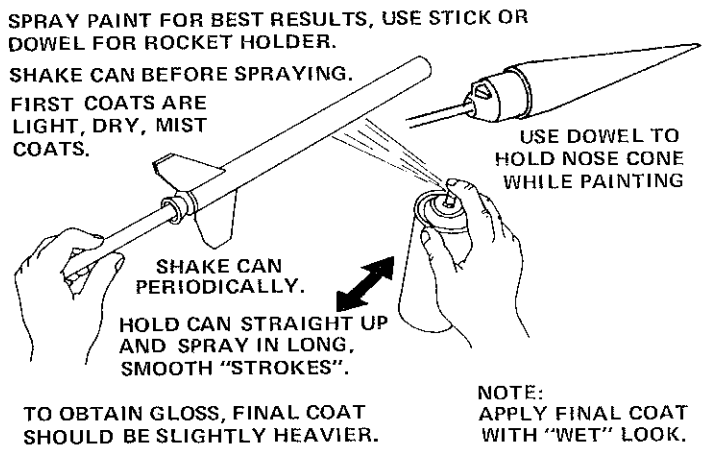
☐ **13** Apply a glue fillet to each fin joint. Holding the rocket horizontally, apply a line of glue to the joint and smooth it out with your finger. Support the rocket horizontally until the glue drys on all six fillets.



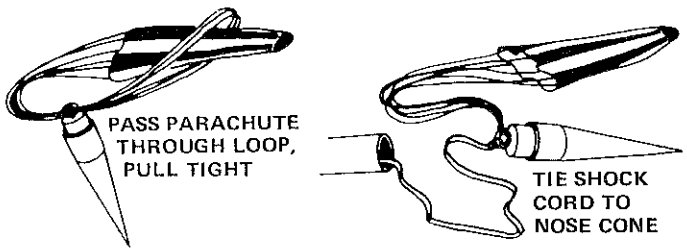
☐ **14** Cut out the parachute (part J) on its edge lines. Cut three 24" lengths of shroud line (part K). Attach the line ends to the top of the parachute with tape discs (part L) as shown.



☐ **15** When all the glue on the outside of the model is dry, prepare the fins for painting. Apply at least two coats of sanding sealer to the fins. Let dry and sand lightly between coats. Do this until the tiny holes in the wood are filled and everything looks and feels smooth.



☐ **16** After the sanding sealer is completely dry, paint the entire body tube and fins white. Set the model aside to dry. Install a dowel or pencil in the rear of the nose cone to act as a paint stick and paint the nose cone silver. When the paint on the body tube and fins is dry, apply masking tape and paper over one fin to protect it from overspray. Paint the body tube and the two remaining fins bright red. Allow the rocket body and nose cone to dry completely, then hand paint the nozzle flat black inside and out.



☐ **17** When all the paint on the nose cone and rocket body is dry, pass the parachute shroud lines through the loop on the nose cone. Pass the parachute through the shroud line loop ends and draw the lines tight against the nose cone loop. Set the knot with a drop of glue. Tie the free end of the shock cord to the nose cone.

Paint body tube and fins white, then repaint two fins and entire body tube bright red. Paint nose cone silver, then apply decals as shown. Paint engine nozzle flat black inside and out.

☐ **18** Apply the decals (part M) to the model as shown in the photograph. To apply the water transfer decals, cut out an individual section of the decal and dip in lukewarm water for about 10 seconds. When the decal slides freely on the backing paper, slip it from the backing sheet onto the model. Use tissue paper to blot away any excess water and allow the decals to dry completely. Once the decals are dry, it is recommended that the entire model be given a light coat of clear paint to protect it.

LAUNCHING COMPONENTS

To launch your rocket you will need the following items;

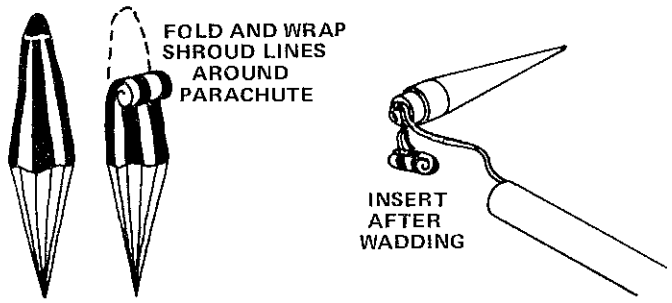
- **An Estes model rocket launching system.**
- **Parachute recovery wadding (Estes Cat. No. 2274).**
- **Estes model rocket engines. Engine types to be used with this model are A8-3, B4-4, B6-4 and C6-5.**

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

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

COUNTDOWN CHECKLIST

T-14 Pack 5 or 6 squares of loosely crumpled recovery wadding into the body tube.



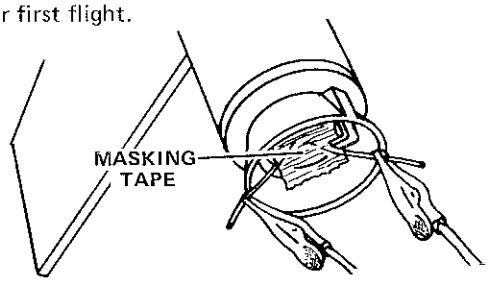
T-13 Fold the parachute into a triangular shape. Roll 'chute tightly as shown and wrap shroud lines around it. If 'chute is too large, unroll it and repack until it slides easily into rocket. A fit that is too tight may prevent parachute from ejecting properly.

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 shock cord neatly in rocket, then slide nose cone into place. Nose cone should separate easily from rocket body tube, but should not be extremely loose. If it is too tight, sand inside of body tube end and shoulder of nose cone with extra fine sandpaper.

If nose cone 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. Engines recommended for use with this model rocket are A8-3, B4-4, B6-4 and C6-5. Use an A8-3 for your first flight.



T-10 Insert engine into rocket. Engine hook must latch securely over end of engine.

T-9 Disarm the launch panel--remove safety key.

T-8 Place rocket on launch pad, making sure rocket slides freely on launch rod. Clean the micro-clips and attach them to the igniter.

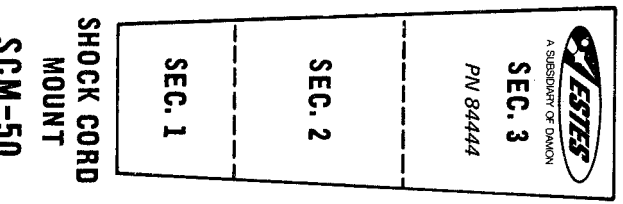
T-7 Clear the launch area, alert the recovery crew and trackers. Check for low flying aircraft and unauthorized persons in the recovery area.

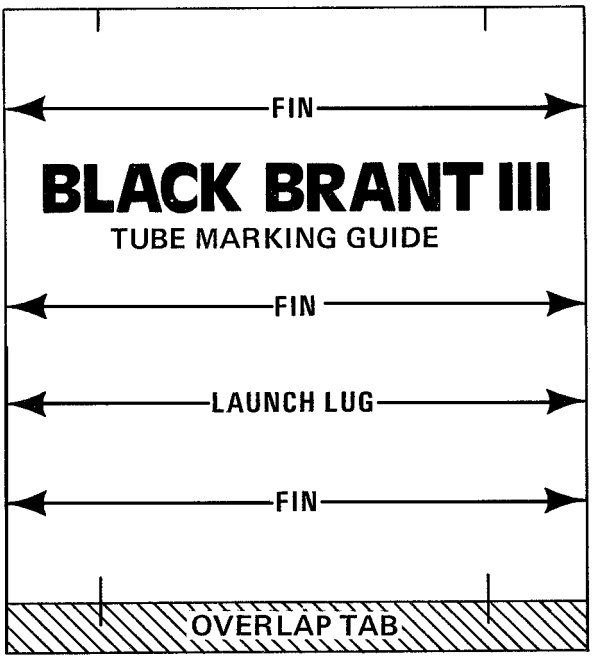
T-6 Arm the launch panel--insert safety key.

-5-4-3-2-1-LAUNCH!!

MISFIRE PROCEDURE

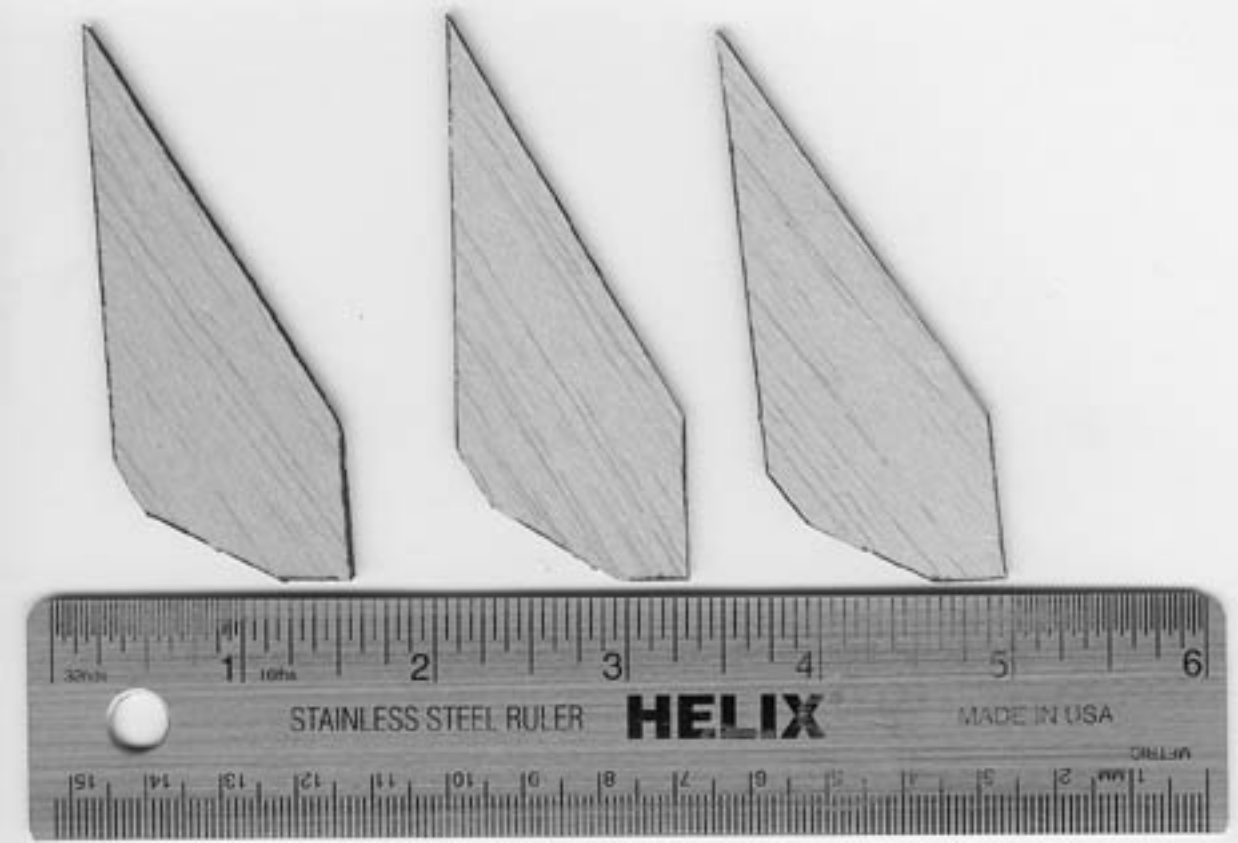
Occasionally the igniter will heat and burn into two pieces without igniting the engine. This is almost always caused by a failure to install it correctly. Disarm the launch panel, remove the model, clean the igniter residue from the nozzle, and install a new igniter. Follow the launching procedure again.





SP-93

PN 84026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