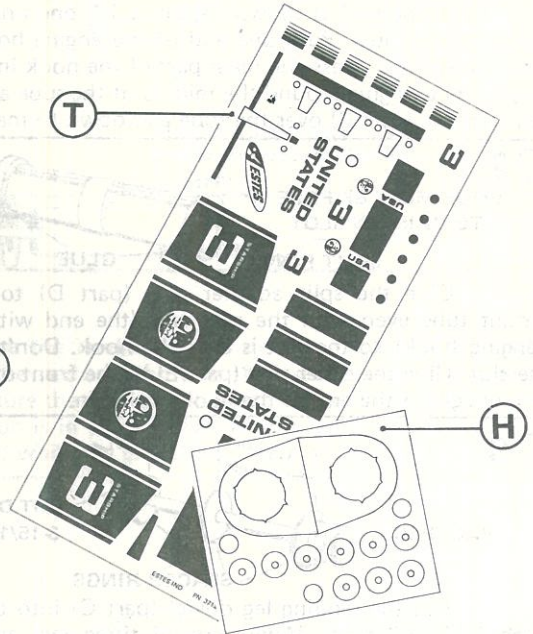
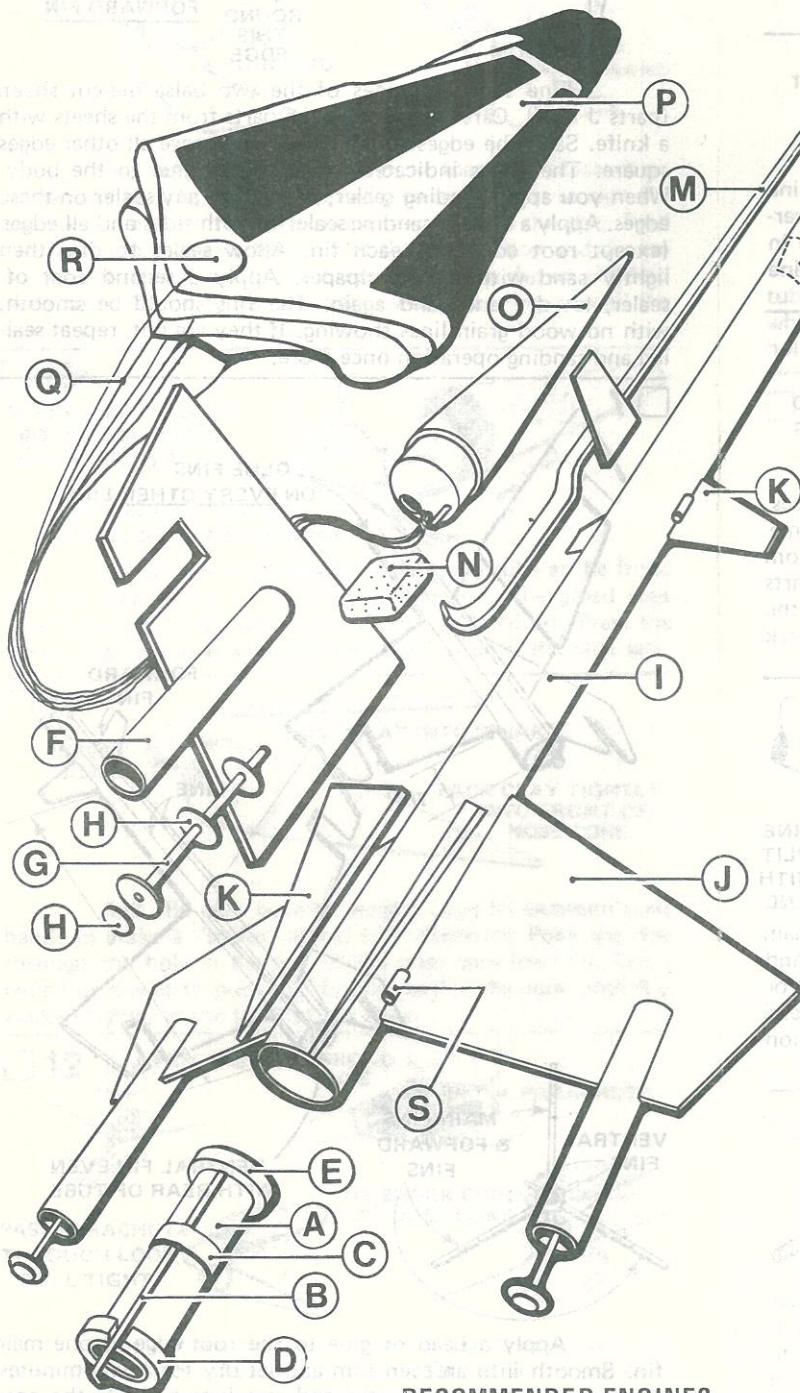


STARSHIP VEGA

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.

SKILL LEVEL 3 – Recommended for Craftsman Rocketeers



PARTS LIST

KIT NO. 1320

A	1	Engine Mount Tube (type BT-20J)	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	3	Landing Pod Tubes (type BT-5CJ) 3"	30310
G	1	Landing Leg Dowel	85901
H	1	Die-Cut Card (type TA-M4)	30038
I	1	Main Body Tube (type BT-50L) 12.7"	30366
J	1	Large Die-Cut Balsa Sheet (type BF-M4C)	32259
K	1	Small Die-Cut Balsa Sheet (type BF-M4B)	32244
L	1	Shock Cord Mount (type SCM-50)	84444
M	1	Shock Cord (type SC-1) 18"	85730
N	1	Clay Balance Weight (type CB-M4)	85260
O	1	Plastic Nose Cone (type PNC-50V)	71025
P	1	Parachute (type PK-12A)	85564
Q	1	Shroud Line Cord (type SLT-72) 72"	38237
R	6	Tape Discs (type TD-3F)	38406
S	2	Launch Lugs (type LL-2AM) 3/8"	38176
T	1	Water Transfer Decal (type KD-1320)	37134

TOOLS AND MATERIALS

In addition to the parts included in this kit you will need white glue (Titebond glue, Elmer's, or similar household white glue is recommended), scissors, pencil or ball point pen, 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 enamel spray paint.

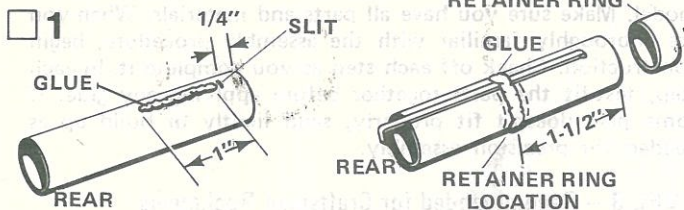
RECOMMENDED ENGINES
B4-2 B4-4 B6-4 C6-5



A DAMON COMPANY

ESTES INDUSTRIES
PENROSE, CO 81240 USA

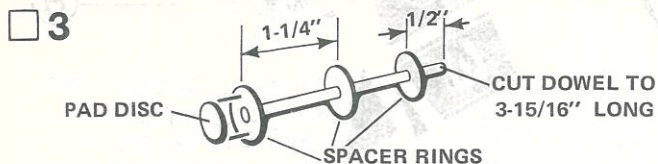
ASSEMBLY INSTRUCTIONS



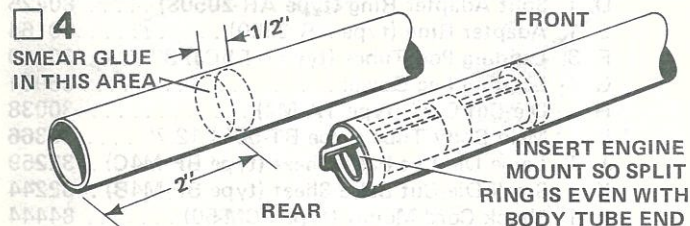
1 Cut a 1/8" long slit in the engine mount tube (part A), 1/4" from one end as shown. Apply a 1" long line of glue to the tube as shown. Push one end of the engine hook (part B) into the slit and press the main part of the hook into the glue. Apply a line of glue around the middle of the tube and slide the retainer ring (part C) over the tube and down to mark.



2 **HOOK MUST BE FREE TO RAISE IN SLOT**
Glue the split adapter ring (part D) to the engine mount tube even with the rear end (the end with the overhanging hook) so the slot is over the hook. Don't get glue in the slot. Glue the other ring (part E) to the front of the engine mount against the end of the hook as shown.



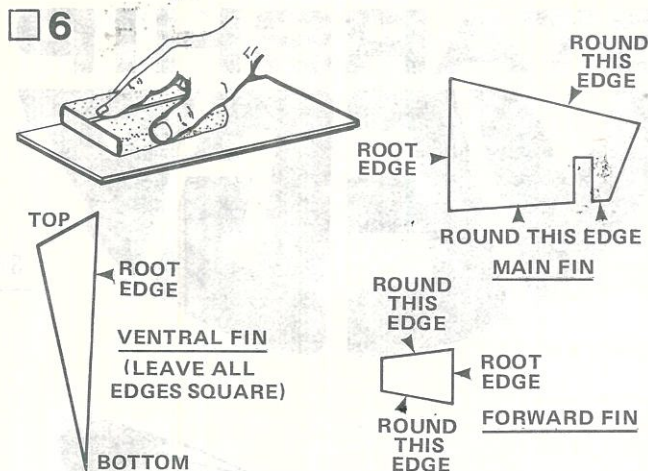
3 Cut the landing leg dowel (part G) into three pieces, each 3-15/16" long. Make sure all three legs are the same length. Remove the landing leg spacer rings and pad discs from the die-cut card (part H). Use a sharp knife to free the parts from the card. Glue the rings and pads to the dowels in the positions shown. Let the glue dry before doing any more work with these parts.



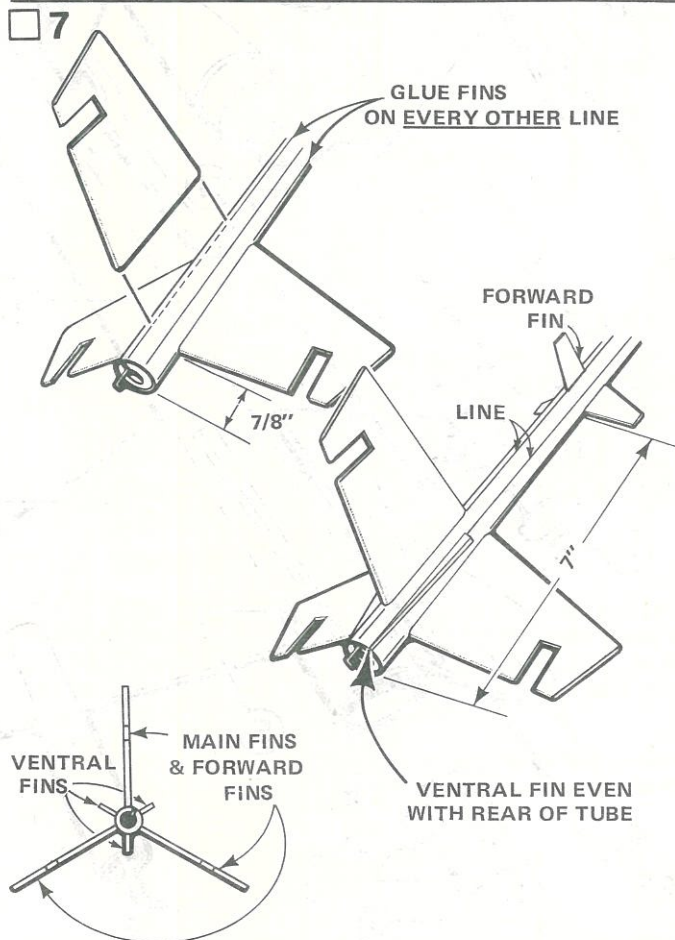
4 Smear glue around the inside of one end of the main body (part I) to cover an area about 2" to 2-1/2" from the end of the tube. Push the engine mount unit in right away—but be sure the mount is turned so the hook will stick out of the end of the tube! Push the engine mount in with one smooth motion until the ends of the tubes (and the split ring) are even.



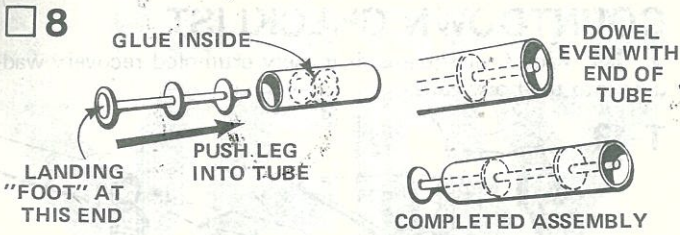
5 **ROTATE PENCIL IN EACH NOTCH TO MARK TUBE** **EXTEND LINES TO THE ENTIRE LENGTH OF BODY TUBE**
ALIGN GUIDES ON FLAT SURFACE
Remove the marking guides from the die-cut card. Slide one guide onto each end of the main body tube. Line up the guides with their straight edges on a flat table. Use a pencil to mark the tube at the middle of each notch in the guide. Draw a straight line the length of the tube through each matching front and rear mark. (Use a door frame as a guide when drawing lines.) Mark every other line at 7/8" and 7" from the rear of the body to show the positions of the main and forward fins.



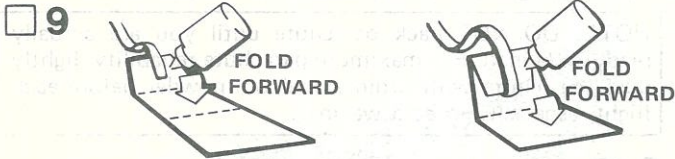
6 Fine sand the sides of the two balsa die-cut sheets (parts J & K). Carefully remove the parts from the sheets with a knife. Sand the edges round as shown. Leave all other edges square. The edges indicated "root edges" glue to the body. When you apply sanding sealer, do not get any sealer on these edges. Apply a coat of sanding sealer to both sides and all edges (except root edges) of each fin. Allow sealer to dry, then lightly sand with fine sandpaper. Apply a second coat of sealer, let dry and sand again. The fins should be smooth, with no wood grain lines showing. If they are not, repeat sealing and sanding operation once more.



7 Apply a bead of glue to the root edge of one main fin. Smooth into an even film and let dry for a few minutes. Apply a second bead of glue and attach to body in the position shown. Make sure the fin extends straight out from body. Let the glue dry, then attach the second and third fins. The ventral and forward fins are attached in the same manner in the locations indicated.



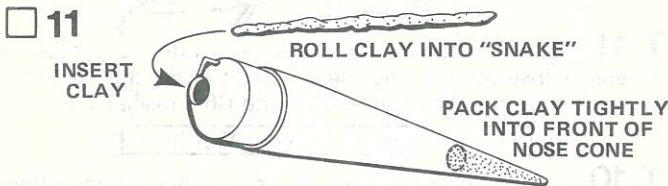
Glue the landing leg assemblies into the pod tubes (part F). Spread glue inside a pod tube and push a leg assembly into tube as shown. Make sure the end of the dowel is even with the end of the tube. Repeat process with two remaining assemblies.



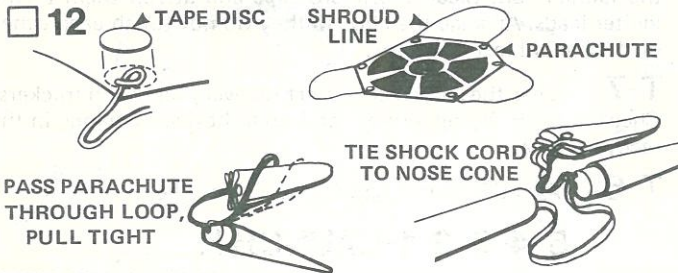
Cut out the shock cord mount (part L). Crease it on the dotted lines by folding. Spread glue on the first section (1) and lay the end of the shock cord (part M) into the glue. Fold over and apply glue to the back of the first section and the exposed part of section 2. Lay the shock cord as shown and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



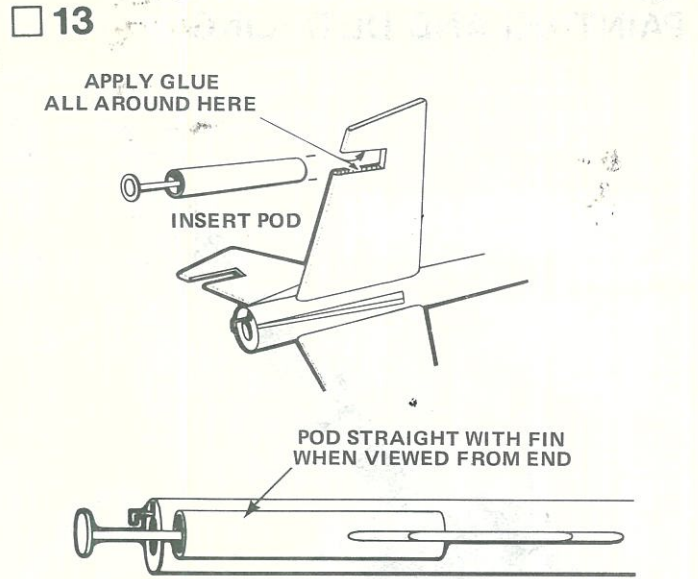
Apply glue to the inside of the body tube at the front over an area about 1" to 2" from the end. The glued area should be the same size as the shock cord mount. Press the mount into the glue as shown and hold in until the glue sets.



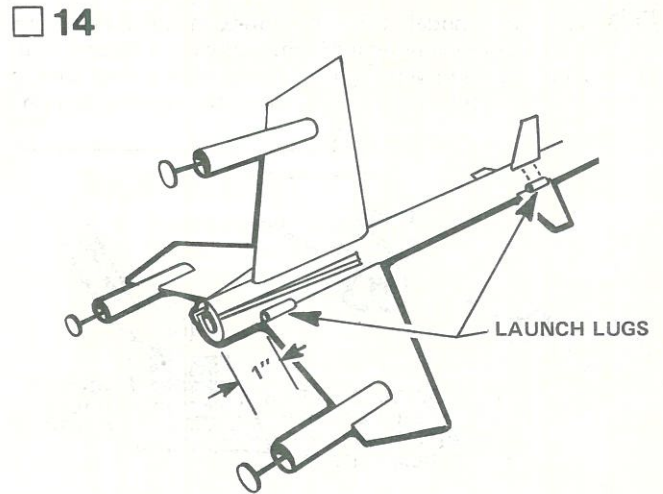
Roll the clay balance weight (part N) between your hands to make a "snake" about 1/4" diameter. Poke the clay through the hole in the rear of the nose cone (part O). Use a pencil or dowel to push the clay forward in the cone until it is packed tightly in the front of the cone.



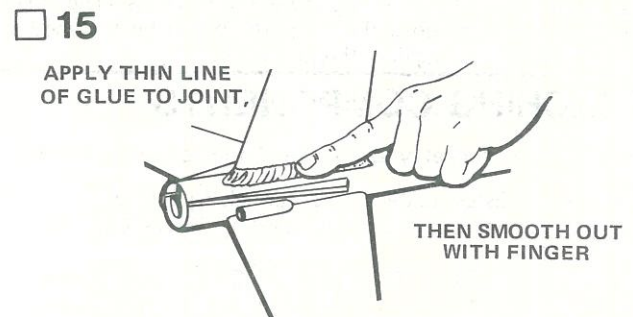
Cut out the parachute (part P) on its edge lines. Cut three 24" lengths of shroud line (part Q). Attach line ends to the top of the parachute with tape discs (part R) as shown. Pass the shroud line loops through the ring on the nose cone. Pass the parachute through the loop ends and draw the lines tight against the ring. Set the knot with a drop of glue. Tie the free end of the shock cord to the nose cone.



Glue the landing pods into the notches in the main fins. Align the pods carefully so they are parallel to the body tube. Make sure that the rear edge of the main fin is still straight when the pod is in place. Small bits of masking tape will help hold the pod while the glue dries.

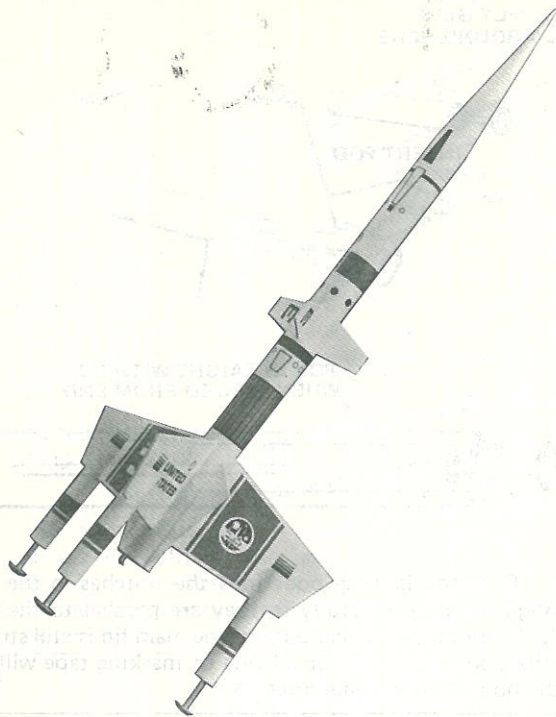


Glue the two launch lugs (part S) to the body. One lug fits against a main fin 1" from the rear of the body. The other lug at the middle of the forward fin straight in front of the rear lug.



When the fin joints have dried, apply glue reinforcements to each joint. Holding the model level, apply a narrow line of glue to both sides of each fin joint. Smooth out the glue with your finger. Keep the model level until the glue dries.

PAINTING AND DETAILING



16 Paint the model. Give the entire model a light base coat of gloss white spray enamel. Follow with a second light coat, let dry, and sand very lightly. Finish with a final coat of gloss white. When the white is dry, paint the landing legs and pad discs silver.



17 When all paint is completely dry, apply decals. Apply water transfer decals (part T) as shown in the illustration. To apply decals, cut out a decal section, dip it in lukewarm water for 15 seconds, and hold it until it starts to uncurl. Slip the decal off the backing sheet and onto your model. Blot excess water away. For best results, let the model dry overnight and apply a coat of clear spray to protect the decals. The small black decals that fit above the fin pods should be trimmed as shown so they will fit against the pod tubes.

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 B4-2, B4-4, B6-4 or C6-5 model rocket engines. Use a B6-4 engine for the first flight.

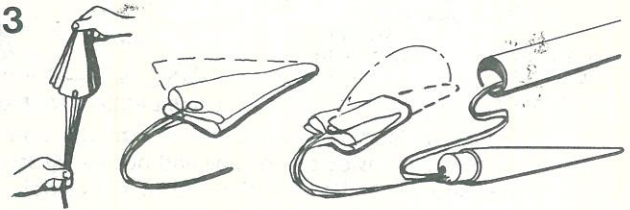
Be sure to follow the HIAA-NAR* Model Rocketry Safety Code when carrying out your model rocketry activities.

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

COUNTDOWN CHECKLIST

T-14 Pack four squares of loosely crumpled recovery wadding into the body tube.

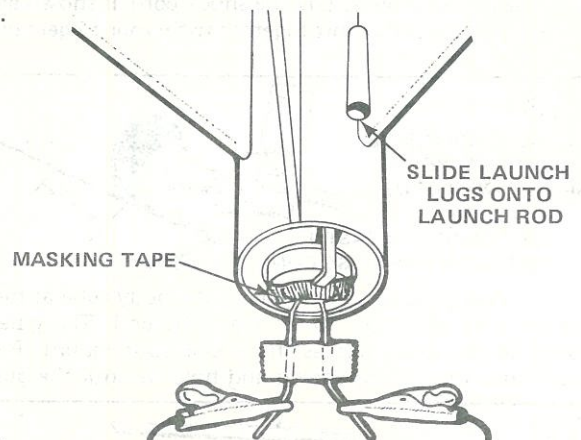
T-13



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 the body tube. 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 the inside of the body tube and the nose cone shoulder with extra fine sandpaper.



T-11 Select an engine and install an igniter as directed in the engine instructions. The engines recommended for use with this rocket are the B4-2, B4-4, B6-4 and C6-5 made by Estes.

Use a B6-4 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 lugs and place rocket on launching pad. Make sure the rocket slides freely on the launch rod. Clean the micro-clips and attach them to the igniter leads. Arrange the clips so they do not touch each other or the metal blast deflector.

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!!

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.