

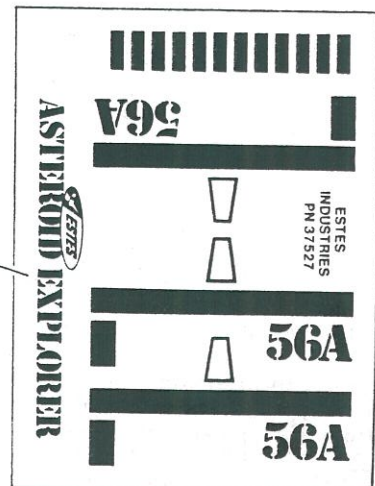
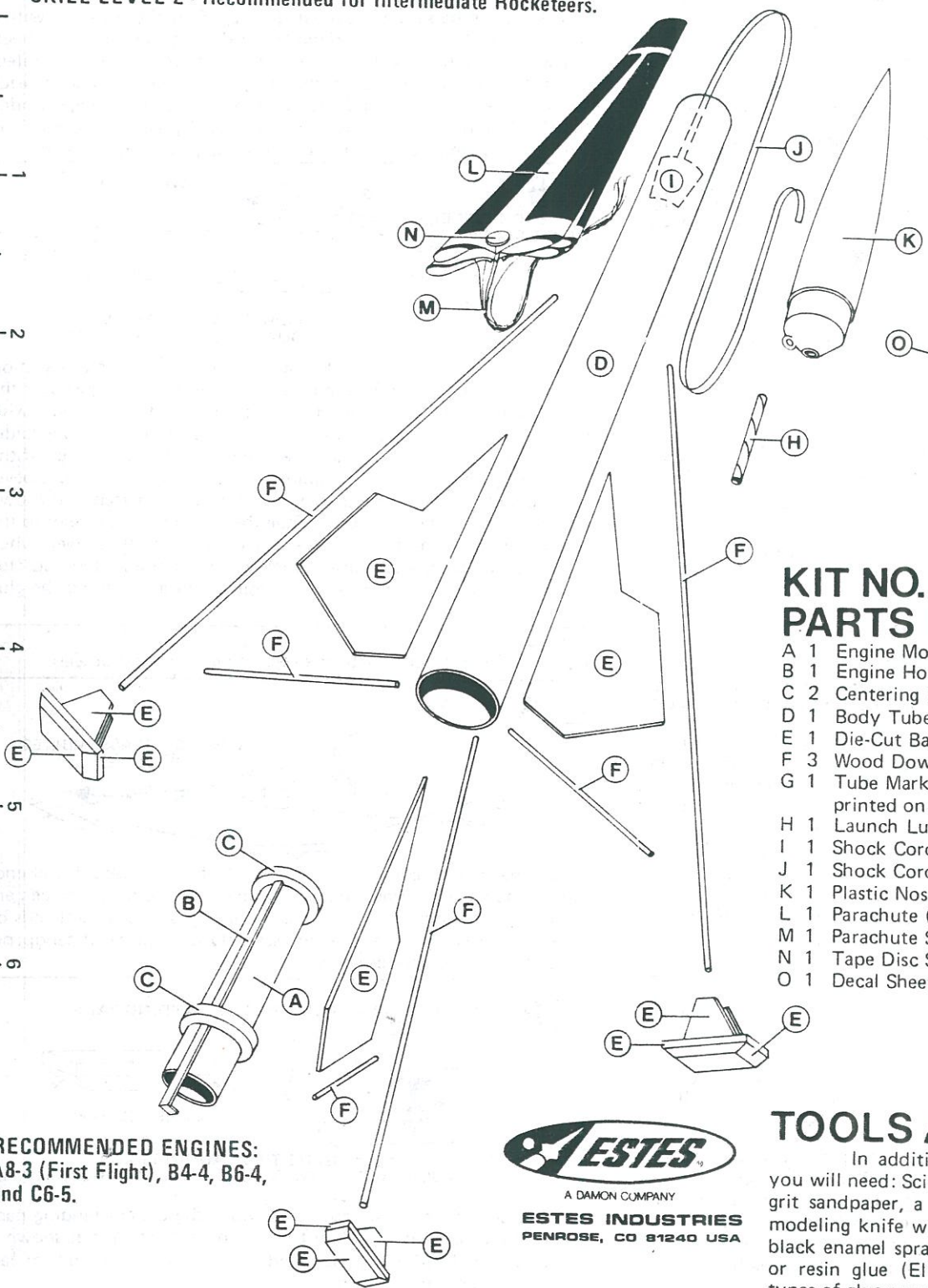
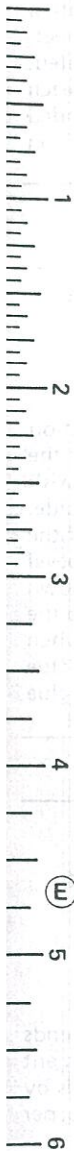


# ASTEROID EXPLORER

SKILL LEVEL 2 - Recommended for Intermediate 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.



## KIT NO. 1386 PARTS LIST

- A 1 Engine Mount Tube (type BT-20J) . . . . . 30326
- B 1 Engine Hook (type EH-2) . . . . . 35025
- C 2 Centering Ring (type AR-2050) . . . . . 30164
- D 1 Body Tube (type BT-50W) . . . . . 30372
- E 1 Die-Cut Balsa Sheet (type BF-864/1386). 32382
- F 3 Wood Dowel (1/8" diameter, 12" long .. 85901
- G 1 Tube Marking Guide (Not shown, printed on back of kit panel) . . . . . 83427
- H 1 Launch Lug (type LL-2A) . . . . . 38175
- I 1 Shock Cord Mount (type SCM-50) . . . . . 84444
- J 1 Shock Cord (type SC-1) . . . . . 85730
- K 1 Plastic Nose Cone (type PNC-50Y) . . . . . 71009
- L 1 Parachute (type PK-12A) . . . . . 85564
- M 1 Parachute Shroud Line (type SLT-72) .. 38237
- N 1 Tape Disc Strip (type TD-3F) . . . . . 38406
- O 1 Decal Sheet (type KD-1386) . . . . . 37527

RECOMMENDED ENGINES:  
A8-3 (First Flight), B4-4, B6-4,  
and C6-5.



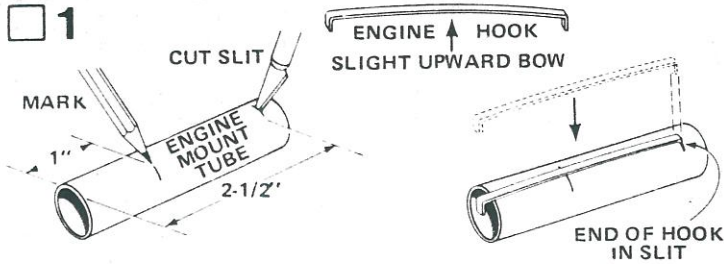
A DAMON COMPANY  
**ESTES INDUSTRIES**  
PENROSE, CO 81240 USA

## TOOLS AND MATERIALS

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

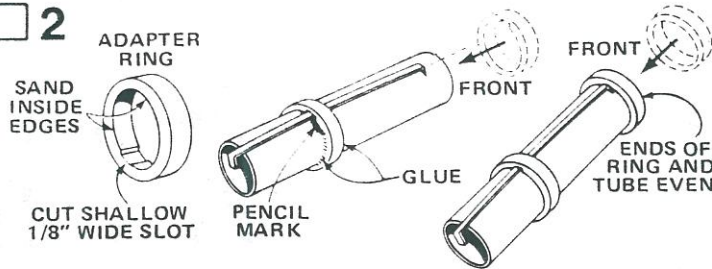
# ASSEMBLY INSTRUCTIONS

1



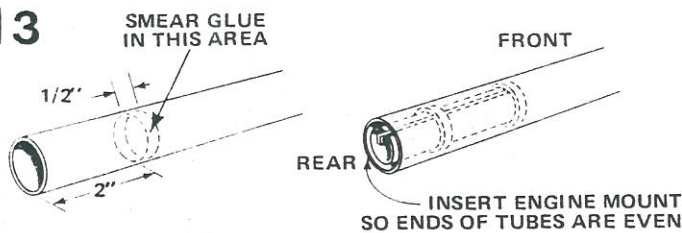
Mark the engine mount tube (part A) at 1" and 2-1/2" from one end. Cut a 1/8" long slit at the 2-1/2" mark. Gently bend the engine hook (part B) so that it bows upward very slightly in the middle. (Study the drawing - Don't bend the wrong way.) Insert one end of the engine hook into the slit in the tube.

2



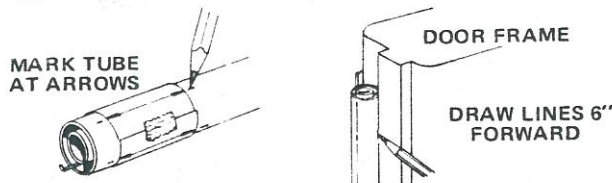
Sand the inside edges of the two centering rings (part C) to remove burrs. The rings should slide easily onto the engine mount tube. Cut a very shallow 1/8" wide slot inside one adapter ring so it will fit over the engine hook. Slip the ring onto the front end of the engine mount tube and slide it down to the 1" mark. Make sure the engine hook runs straight down the tube, then apply glue to both sides of this centering ring. Apply glue around the front end of the engine mount tube and slide the remaining centering ring into place (front of ring even with the end of the tube).

3



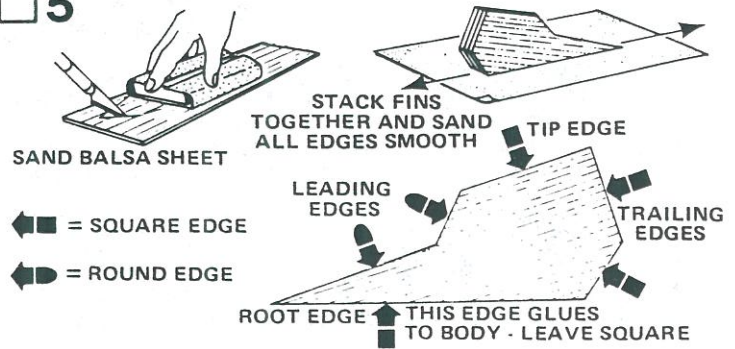
The engine mount unit will be pushed into place so that the rear of the engine mount unit (end with engine hook projecting) is even with the rear of the body tube (part D). Test-fit the engine mount unit several times by smoothly inserting and removing it. Sand if necessary to assure a smooth fit. Once this can be smoothly and easily done, remove the engine mount unit. Apply a ring of glue around the inside of the rear of the main body tube about 2" to 2-1/2" from the end of the tube. Make certain that the engine hook is to the rear and insert the engine mount unit with one smooth motion. Do not pause, or the glue may "lock" with the engine mount unit in the wrong position.

4



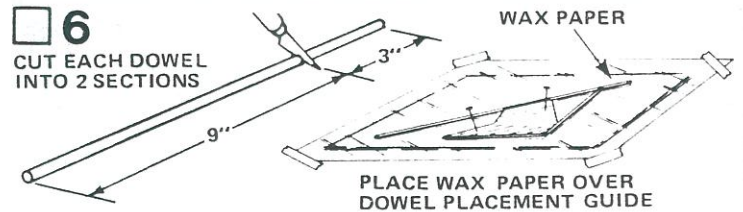
Cut out the tube marking guide from the pattern sheet (part G) and wrap it around the body tube. Place the tube marking guide so that the engine hook will not line up with a fin placement line (arrow point). Mark the body tube at each of the arrow points. Draw straight lines connecting each pair of marks. 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.

5



Fine-sand the balsa die-cut sheet (part E). 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 edges of each fin to make them round. Leave the root (body) edge sanded "flat". The root edge may be identified by careful comparison with the drawings. Leave the tip and trailing edges square also.

6

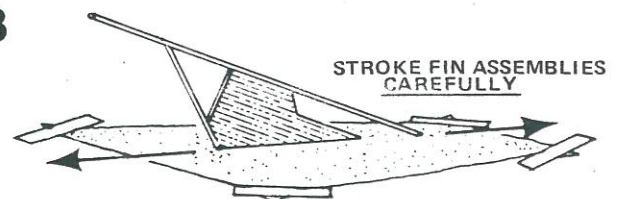


Cut each of the dowels (part F) into two sections. Make one section 9" long and the other 3" long. Lay a piece of wax paper over the dowel placement guide found on the back of the kit panel with the tube marking guide. Pin one of the fins in place on the guide. Now glue one of the 9" lengths of dowel onto the tip edge of the fin exactly as shown on the guide. Use sandpaper to sand a bevel on one end of one of the 3" lengths of dowel to match that shown on the dowel placement guide. Glue the 3" dowel in place onto the trailing edge of the fin and where it touches the 9" dowel. When the glue has completely dried, remove the assembly and add glue reinforcements to both sides of all joints and again allow the glue to dry completely.

7

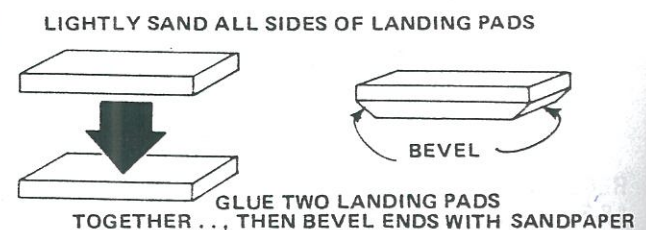
Repeat step 6 with the remaining 2 fins and dowels.

8

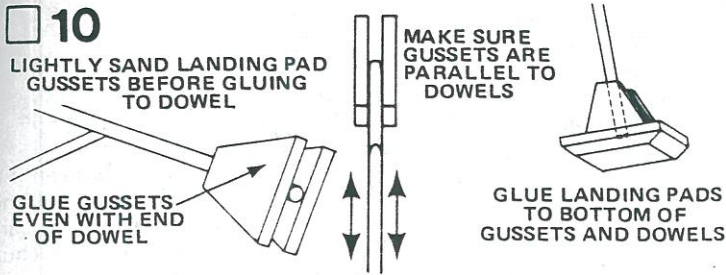


When the glue is completely dry, sand off the excess dowel ends where they will contact the body tube. Use the dowel placement guide for reference. You may wish to even up these dowel ends by carefully stroking the entire fin assembly on a piece of sandpaper taped to a flat surface as shown.

9

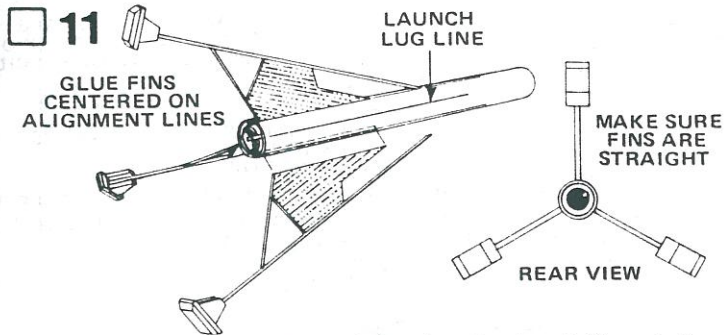


Use a piece of fine sandpaper to smooth the die-cut landing pads. There are a total of six. Glue the landing pads in pairs as shown to make 3 completed units. Use sandpaper to bevel two ends of each completed landing pad as shown.



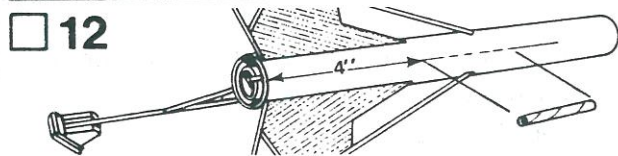
**10** LIGHTLY SAND LANDING PAD GUSSETS BEFORE GLUING TO DOWEL  
 MAKE SURE GUSSETS ARE PARALLEL TO DOWELS  
 GLUE GUSSETS EVEN WITH END OF DOWEL  
 GLUE LANDING PADS TO BOTTOM OF GUSSETS AND DOWELS

Lightly sand all edges of the 6 landing pad gussets. Be careful to keep all edges square. Glue the gussets to the ends of the 9" dowels as shown. The bottom of each gusset should be even with the end of the dowel. When the glue has dried, glue the landing pads to the ends of the gussets and dowel ends as illustrated. Check to be sure the pads are centered on the gussets and are on the same vertical line as the fins. Let the glue dry completely.

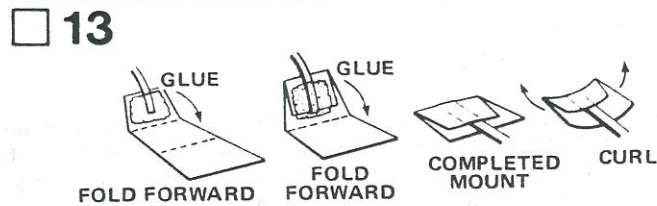


**11** GLUE FINS CENTERED ON ALIGNMENT LINES  
 LAUNCH LUG LINE  
 MAKE SURE FINS ARE STRAIGHT

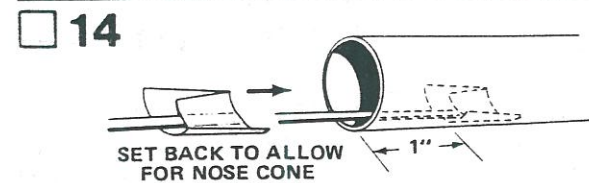
Rub glue into the root edge and dowel ends of each fin and allow to dry. Apply glue to the fins and dowels again and position fins on the alignment lines in positions shown. Adjust the fins so they project straight away from the body tube. DO NOT set the rocket on its fins while the glue is wet.



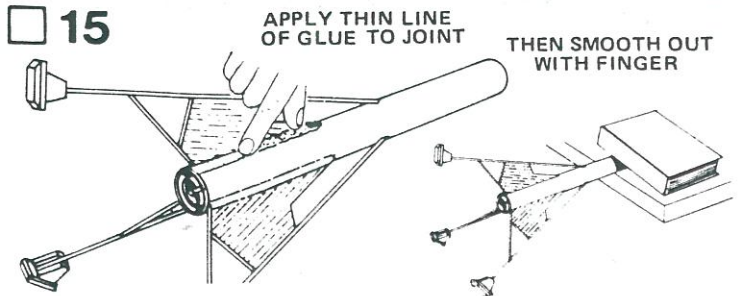
**12** Glue launch lug (part H) to rocket body tube on the launch lug line. The rear of the launch lug should be 4" from the rear of the rocket body tube. Align the launch lug straight along the body.



**13** Cut out the shock cord mount (part I). Fold on dotted lines, then unfold and apply glue to Section 1. Lay the end of the shock cord (part J) 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.

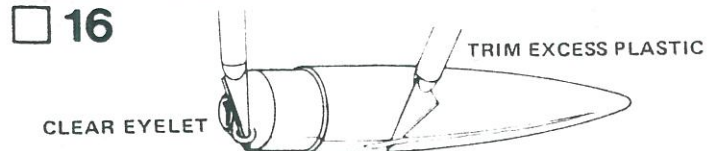


**14** Use a finger or stick to apply glue to the inside of the front of the body tube, 1" to 2" from the front of the tube. Press the shock cord mount firmly into position in glue far enough from the front edge of the tube to allow clearance for the nose cone to fit into place. To insure a good bond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



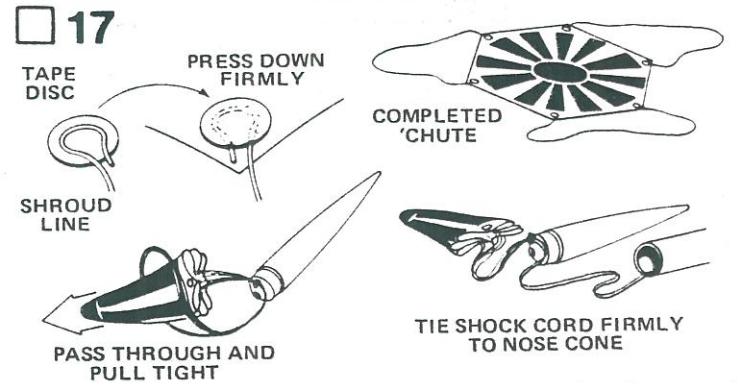
**15** APPLY THIN LINE OF GLUE TO JOINT THEN SMOOTH OUT WITH FINGER

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. Smooth out the glue with your finger. IMPORTANT - Support rocket on table edge as shown until the glue dries.



**16** TRIM EXCESS PLASTIC  
 CLEAR EYELET

Trim or sand any excess plastic from around the sides of the nose cone (part K). 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.



**17** TIE SHOCK CORD FIRMLY TO NOSE CONE  
 PASS THROUGH AND PULL TIGHT

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.



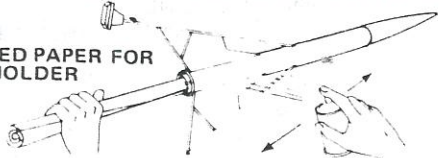
**18** APPLY SANDING SEALER  
 LIGHTLY SAND ALL FINS

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.

# PAINTING AND DETAILING

## 19

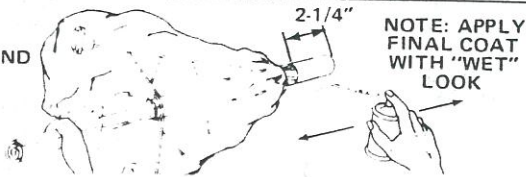
USE ROLLED PAPER FOR ROCKET HOLDER



After the sanding sealer is completely dry, paint the entire model gloss grey. 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.

## 20

MASKING TAPE AND PAPER PROTECT MODEL FROM SECOND COLOR SPRAY

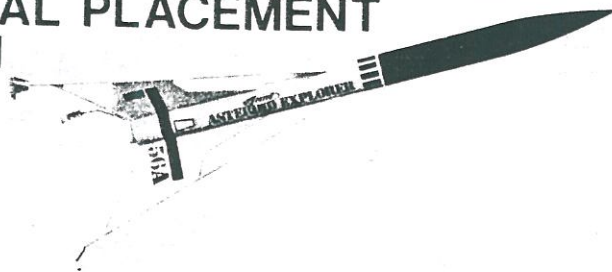


NOTE: APPLY FINAL COAT WITH "WET" LOOK

When the grey paint has dried, apply masking tape and paper to cover and protect the areas which will remain grey. Paint the nose cone and the forward 2-1/4" of the body tube gloss black. Allow the paint to dry completely. Carefully remove the masking tape and paper when the paint is dry.

# DECAL PLACEMENT

## 21



When all paint is dry, apply the decals (part O) 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 A8-3, B4-4, B6-4, or C6-5 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

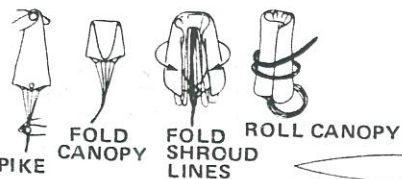
## T-13



RECOVERY WADDING

Pack 4 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.

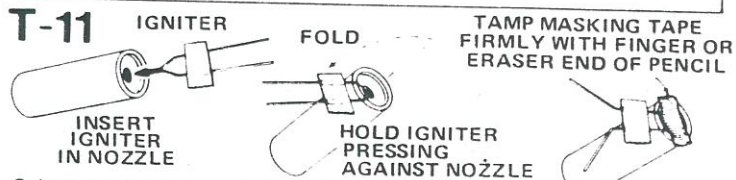
## T-12



Hold the parachute at its center and pass the other hand down it to form a "spike" shape. Fold this spike in half. Fold shroud lines back along parachute and then back down to lower edge of parachute to reduce length of shroud line "left over". Roll parachute into tube shape to fit easily into body. Any remaining shroud line should be loosely wrapped around parachute. Pack chute into the body tube on top of the wadding. Pack the shroud lines and shock cord in on top of the parachute and slip the nose cone into place.

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-11



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, B4-4, B6-4, and C6-5 made by Estes.

Use an A8-3 engine for your first flight.

## T-10

ENGINE HOOK MUST LATCH SECURELY

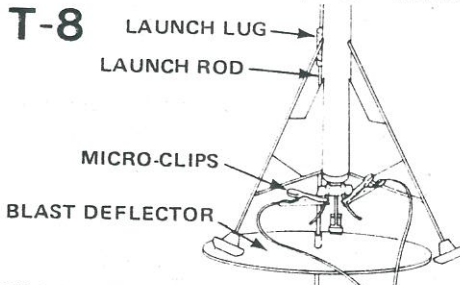


Insert engine into rocket engine mount. Engine hook must latch securely over end of the engine.

## T-9

Disarm the launch panel - REMOVE SAFETY KEY!

## T-8



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!!

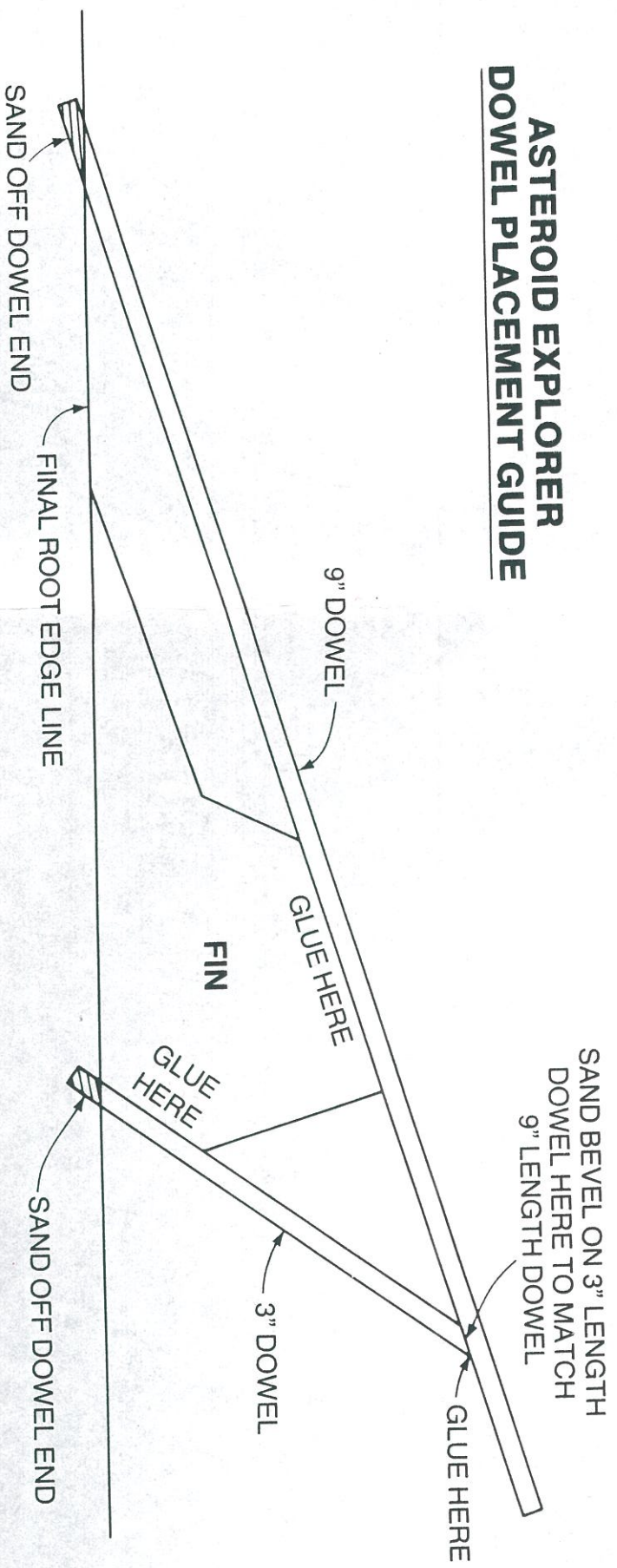
Repeat Countdown Checklist for each flight.

# 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.

**ASTEROID EXPLORER  
DOWEL PLACEMENT GUIDE**



**ASTEROID EXPLORER  
DOWEL PLACEMENT GUIDE**

