



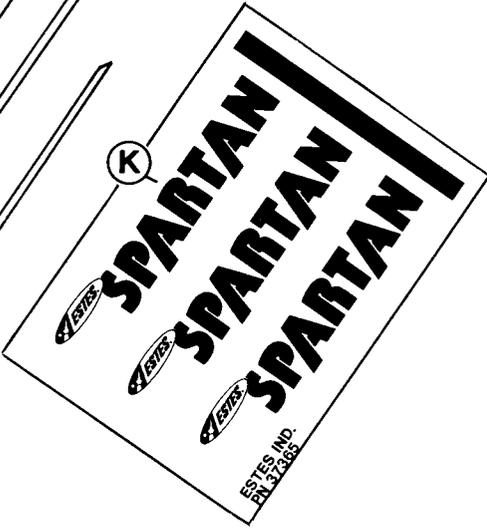
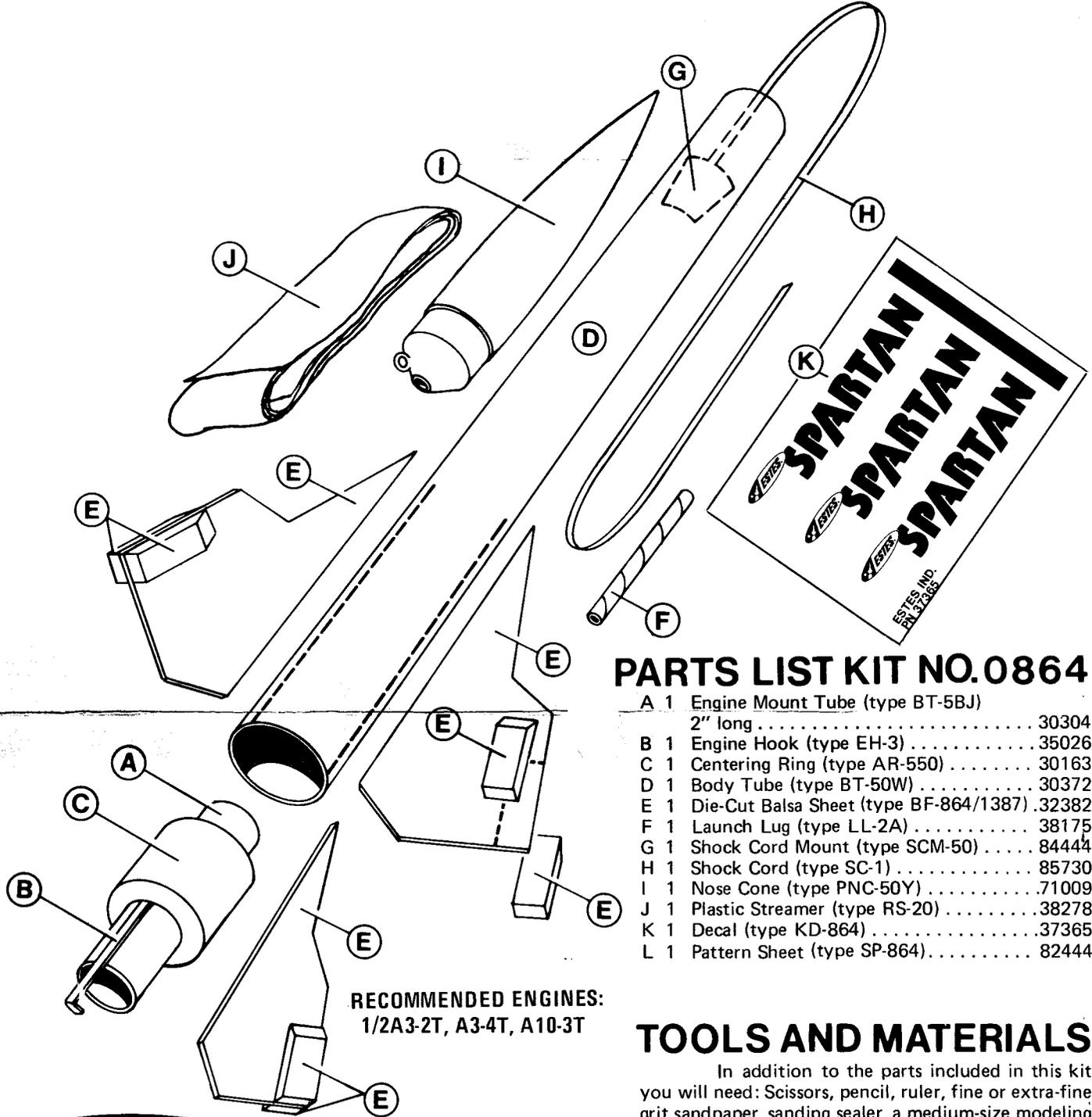
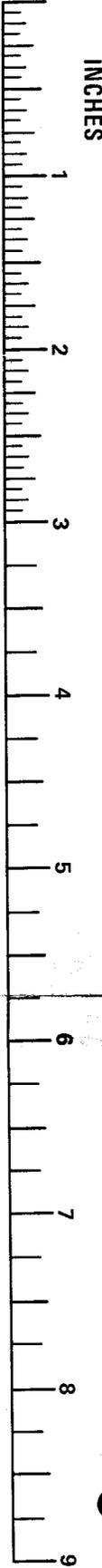


# SPARTAN

## 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.

SKILL LEVEL 1 - Recommended for Beginning Rocketeers



## PARTS LIST KIT NO.0864

A	1	Engine Mount Tube (type BT-5BJ) 2" long	30304
B	1	Engine Hook (type EH-3)	35026
C	1	Centering Ring (type AR-550)	30163
D	1	Body Tube (type BT-50W)	30372
E	1	Die-Cut Balsa Sheet (type BF-864/1387)	32382
F	1	Launch Lug (type LL-2A)	38175
G	1	Shock Cord Mount (type SCM-50)	84444
H	1	Shock Cord (type SC-1)	85730
I	1	Nose Cone (type PNC-50Y)	71009
J	1	Plastic Streamer (type RS-20)	38278
K	1	Decal (type KD-864)	37365
L	1	Pattern Sheet (type SP-864)	82444

RECOMMENDED ENGINES:  
1/2A3-2T, A3-4T, A10-3T

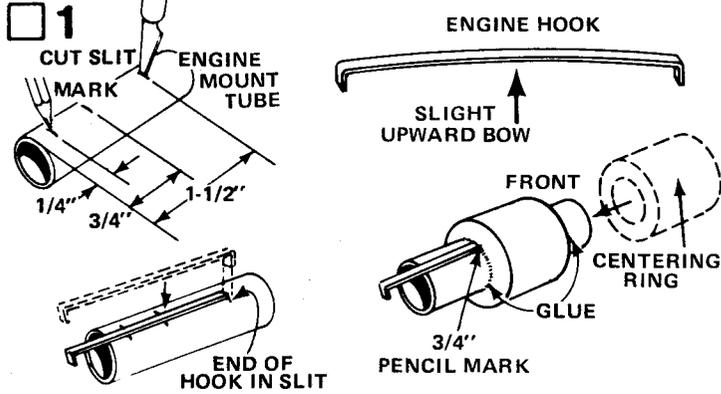
## TOOLS AND MATERIALS

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

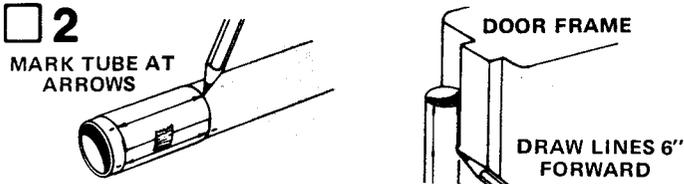


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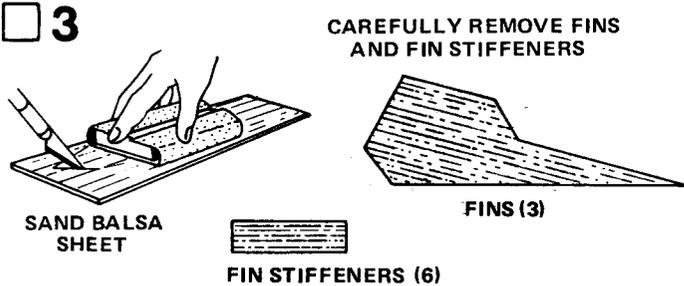
# ASSEMBLY INSTRUCTIONS



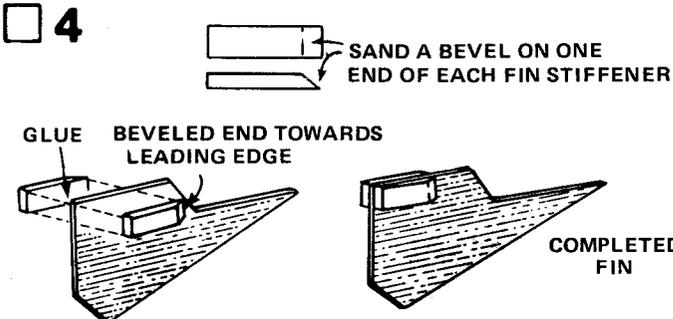
Mark the engine mount tube (part A) 1/4", 3/4", and 1-1/2" from one end. Cut a 1/8" wide slit in the tube at the 1-1/2" mark. Gently bend the engine hook (part B) so that it bows upward very slightly in the middle. (Study the drawing — Don't bend the wrong way.) Push one end of the engine hook into the slit and lay the main part of the hook flat against the tube. Slide the centering ring (part C) onto the forward end of the engine mount tube and over the engine hook until it stops at the 3/4" mark. Apply a bead of glue around both ends of the centering ring where it touches the engine mount tube. Let this assembly dry completely.



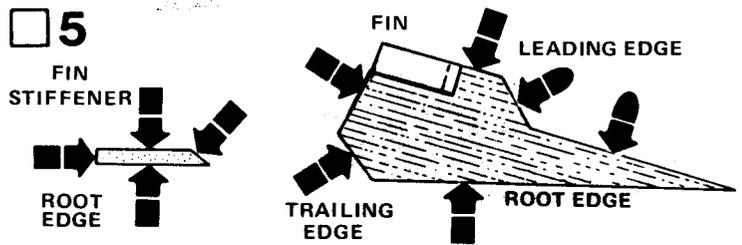
Cut out the body tube marking guide from the pattern sheet (part L). Wrap it around the body tube (part D) near one end. Tape guide around tube. Mark the tube at each arrow point. Draw a straight line connecting each matching front and rear mark (Use a ruler or edge of a door frame when drawing lines). Extend the launch lug line forward 5-1/2".



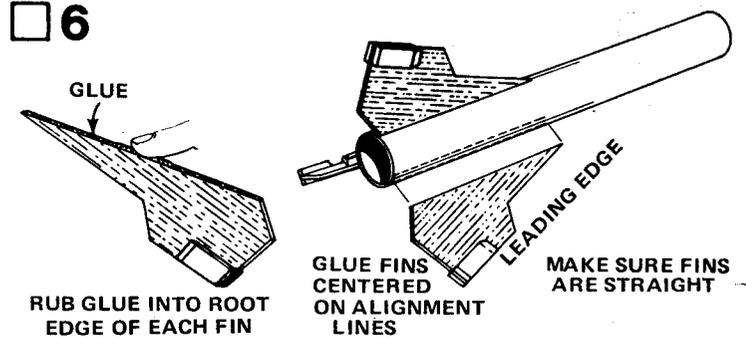
Fine sand both sides of the die-cut balsa sheet (part E), then carefully remove the fins (3) and fin stiffeners (6). Discard the remaining 6 trapezoid-shaped pieces as they will not be used.



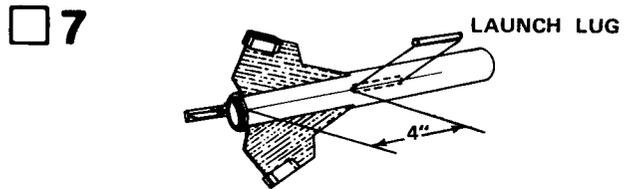
Sand a bevel on one end of each of the fin stiffeners as shown. Align and glue the fin stiffeners with the beveled ends towards the leading edge of the fins. Note that the rear of the stiffeners are to be even with the trailing edges of the fins and that the outside edges are to be even with the outside edges of the fins.



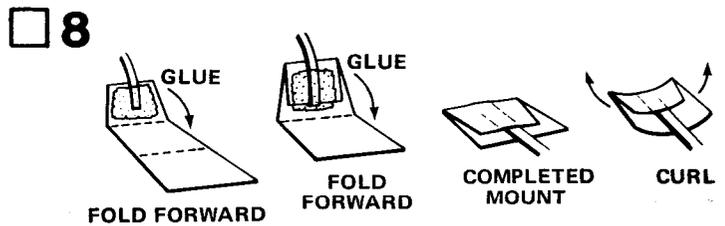
When all of the glue has dried on the fin assemblies, sand the leading edges of the fins round. Leave all other edges square. Use fine sandpaper to sand the surfaces of the fins smooth.



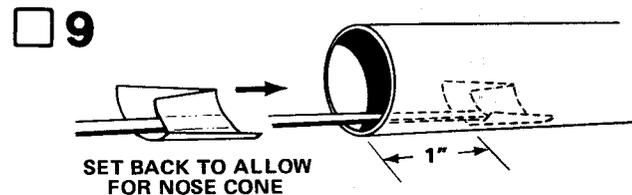
Rub a line of glue into the root edge of each fin and allow to dry. Glue the fins to the body on the alignment lines drawn in step 2. Refer to the illustration to be sure you position the fins correctly. Adjust the fins so they project straight away from the body tube. Do not set the rocket on its fins while the glue is wet.



Glue the launch lug (part F) to the body on its line. The rear of the lug should be 4" from the rear of the body. Align the lug straight on the body.

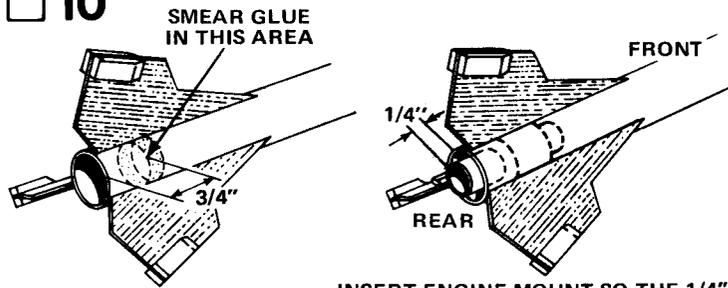


Cut out the shock cord mount (part G). Fold on dotted lines, then unfold and apply glue to Section 1. Lay the end of the shock cord (part H) into the glue. Fold over and apply glue to the back of Section 1 and the exposed portion of Section 2. Fold again to complete the mount. Curl the edges of the mount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



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.

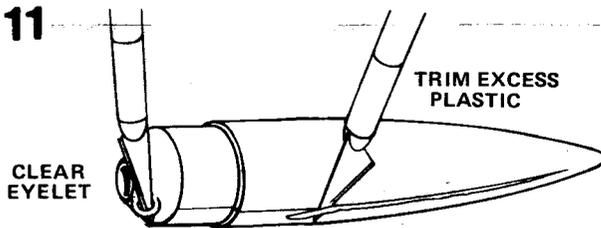
10



INSERT ENGINE MOUNT SO THE 1/4" MARK IS EVEN WITH THE BODY TUBE

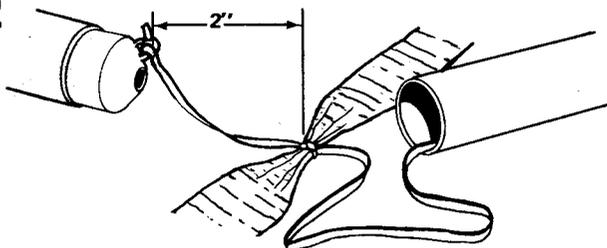
Test the fit of the engine mount assembly in the body tube. It should glide in for proper fit. If necessary, sand the outside of the adapter ring to achieve a smooth fit. Smear glue around the inside of the body tube about 3/4" from the rear. Immediately slide the engine mount tube into place, extended engine hook to the rear, until the 1/4" mark on the engine mount tube is even with the rear of the body tube. Do not pause during this operation, or the glue may stick with the mount in the wrong position.

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

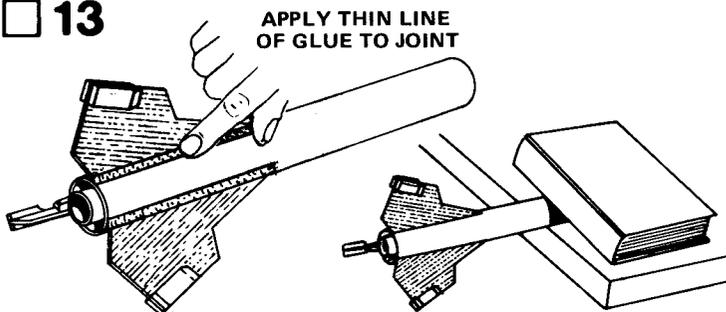
12



Using a double knot, tie the shock cord around the middle of the plastic streamer about 2" from the end of the shock cord. Attach the free end of the shock cord to the nose cone with a firm knot.

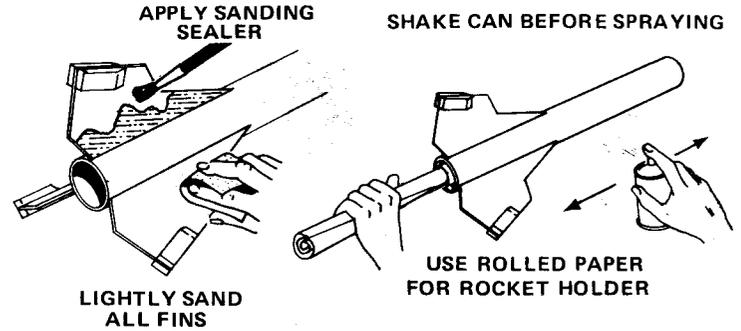
**NOTE:** Nose cone should separate easily from rocket body tube, but should not be extremely loose. If fit is too tight, sand inside of body tube and shoulder of nose cone with fine sandpaper. If fit is too loose, add a wrapping of masking tape to the shoulder of the nose cone.

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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.

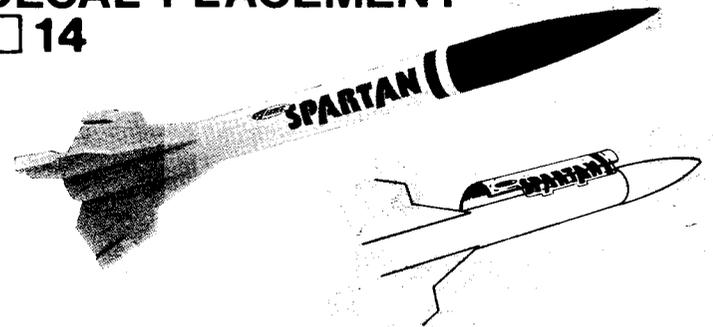
## PAINTING AND DETAILING



When all glue on the outside of the body 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. Spray the entire rocket with a light base coat of gloss white. First "mist" coat the entire model and let dry. Follow with one more "mist" coat, let dry, and one final even coat of paint. After the paint is thoroughly dry, paint the nose cone bright red.

## DECAL PLACEMENT

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When all paint is dry, apply the single body wrap decal (part K). Dip the decal in lukewarm water for about 15 to 30 seconds (until the decal slides freely on the backing sheet). Referring to the illustration, slide only about 1/2 of the word "SPARTAN" off the decal paper and lay this portion onto the rocket body. Now carefully and slowly pull the remainder of the decal paper out from under the decal as you contour it around the rocket body. Be sure the forward decal stripe ends match, then blot away any excess water from the decal. Let the decal dry in place overnight, then apply a coat of clear spray to protect the decal.

## 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 1/2A3-2T, A3-4T, or A10-3T model rocket engines. Use a 1/2A3-2T 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

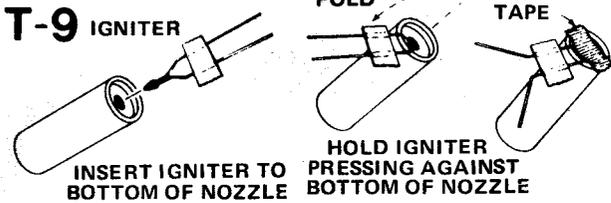
## COUNTDOWN CHECKLIST

T-11



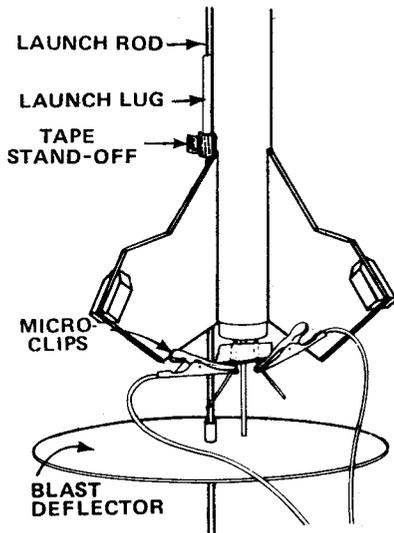
Loosely pack three or four squares of flameproof wadding into the body tube from the shock cord end. Fold the streamer in half lengthwise from where it is attached to the shock cord. Roll the streamer compactly enough to enter the body tube easily. Push the rolled streamer down into the body tube on top of the wadding.

**T-10** The nose cone should separate easily from the rocket body tube, but should not be extremely loose. If it is too tight, sand the inside of the body tube end and the shoulder of the nose cone with extra fine sandpaper. If the nose cone is too loose, add a wrapping of transparent tape or masking tape to the shoulder of the nose cone.



Select an engine and install an igniter following the instructions with the engines. (Use a 1/2A3-2T engine for your first flight.)

**T-8** Disarm the launch panel – REMOVE SAFETY KEY!



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.

Clean the flat jaws of the micro-clips frequently to insure good contact with igniter. (An emery board, nail file, or sandpaper works well.)

**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!!**

Release launch button as soon as rocket leaves launch pad. Remove safety key and install safety cap on the launch rod.

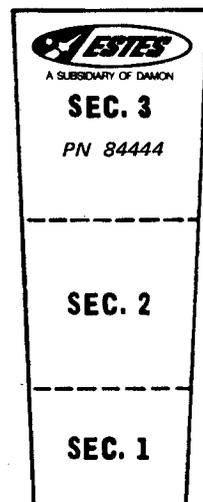
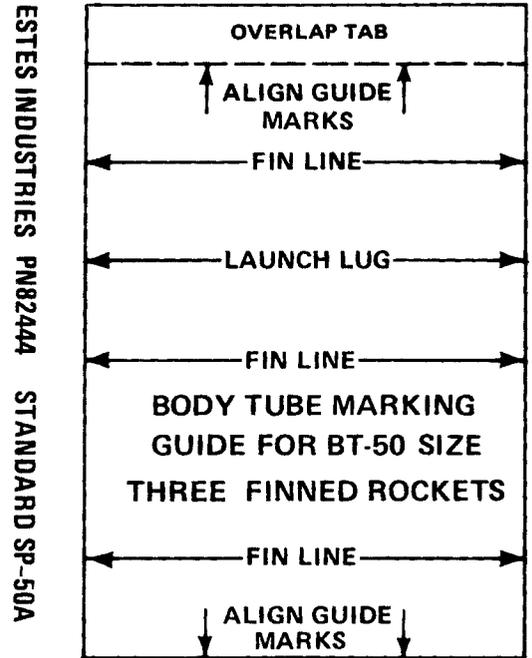
Repeat Countdown Checklist for each flight.

## MISFIRE PROCEDURE

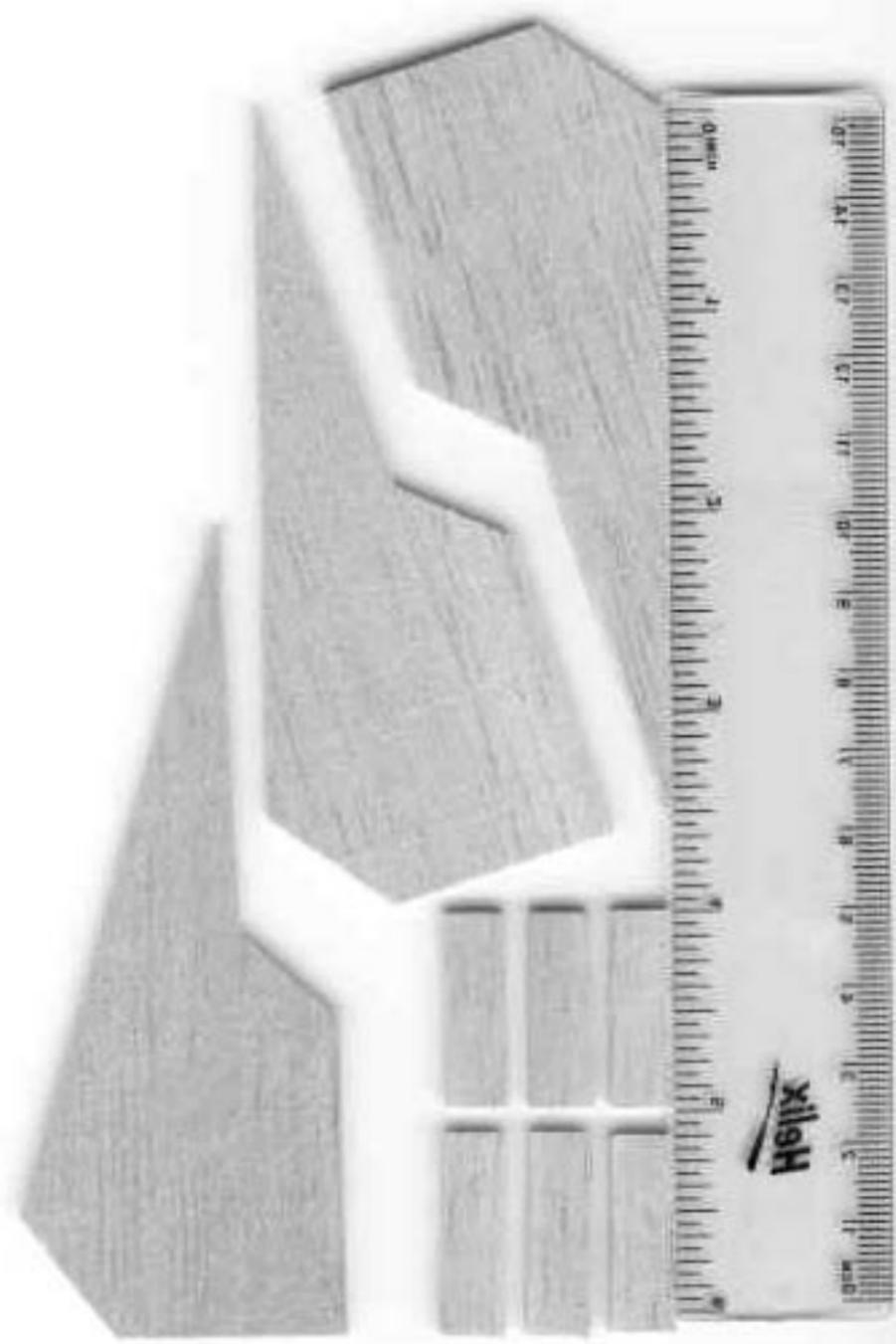
Disarm the launch panel. Wait one minute before approaching the rocket on the launch pad. Remove the rocket, clean the igniter residue from the nozzle of the engine, and carefully install a new igniter. Repeat the Countdown Checklist.

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.

After each flight, remove the used engine by springing the engine hook back and pulling on the end of the engine. Inspect the model to be sure that everything is in order and you're ready to prepare the rocket for another flight.



**SHOCK CORD MOUNT  
SCM-50**





**SPARTAN**



**SPARTAN**



**SPARTAN**

**PN 37365  
ESTES IND.**



Spartan Estes #0864 Part Measurements List

Quantity	Part Description	Length
1	Main Body Tube	9 1/2 "
1	Engine Mount Tube	2"
1	Engine Mount Centering Ring	1"
1	Rubber Shock Cord	20"
1	1 1/8" Wide Streamer	29 1/2"
1	Launch Lug	1 1/4"

\*Note: Balsa Thickness is 3/32"

# SPARTAN

## FLYING MODEL ROCKET

SKILL LEVEL 1

1-Beginner 2-Intermediate 3-Advanced  
4-Advanced 5-Expert

- Mini Engine Power
- Unique Sport Model
- Flights Over 300 Feet
- Die-Cut Balsa Fins
- Plastic Nose Cone
- Streamer Recovery
- Quick-Release Engine Mount

Length:  
14.2" (36.1cm)

Diameter:  
.976" (24.8mm)

Weight:  
.91 oz (25g)

Engine Types:  
1/2A3-2T, A3-4T (First  
Flight), A10-3T

This is a hobby kit requiring assembly. Recommended for ages 10 to adult. Engines, launch system, glue and finishing supplies are not included. Adult supervision is suggested for those under 12 years of age when flying model rockets.



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