SANDPIPER

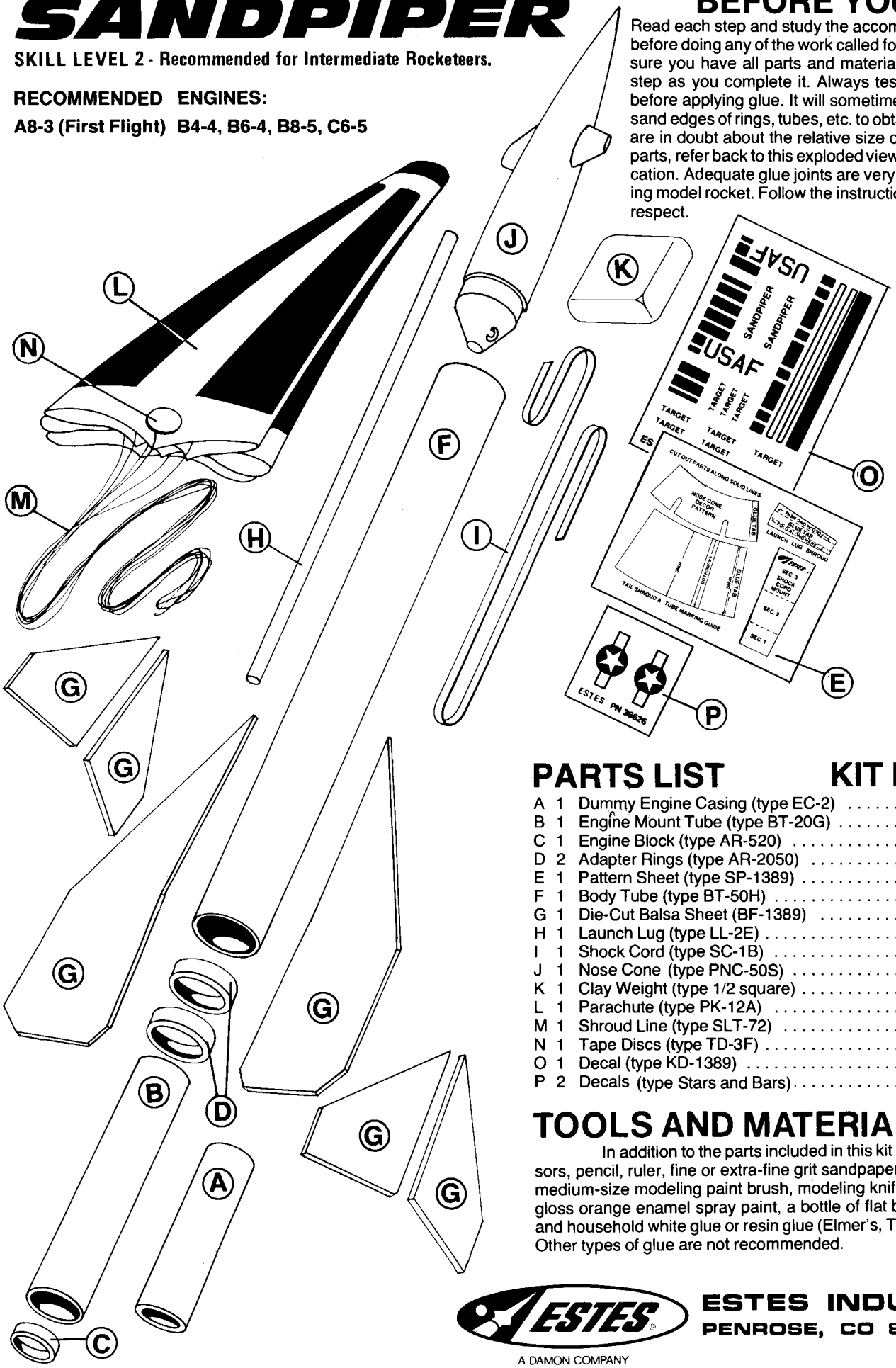
SKILL LEVEL 2 - Recommended for Intermediate Rocketeers.

RECOMMENDED ENGINES:

A8-3 (First Flight) B4-4, B6-4, B8-5, C6-5

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 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 respect.



PARTS LIST KIT NO. 1389

A	1	Dummy Engine Casing (type EC-2)	35006
B	1	Engine Mount Tube (type BT-20G)	30324
C	1	Engine Block (type AR-520)	30162
D	2	Adapter Rings (type AR-2050)	30164
E	1	Pattern Sheet (type SP-1389)	83440
F	1	Body Tube (type BT-50H)	30360
G	1	Die-Cut Balsa Sheet (BF-1389)	32398
H	1	Launch Lug (type LL-2E)	38185
I	1	Shock Cord (type SC-1B)	85734
J	1	Nose Cone (type PNC-50S)	72045
K	1	Clay Weight (type 1/2 square)	85263
L	1	Parachute (type PK-12A)	85564
M	1	Shroud Line (type SLT-72)	38237
N	1	Tape Discs (type TD-3F)	38406
O	1	Decal (type KD-1389)	37531
P	2	Decals (type Stars and Bars)	36626

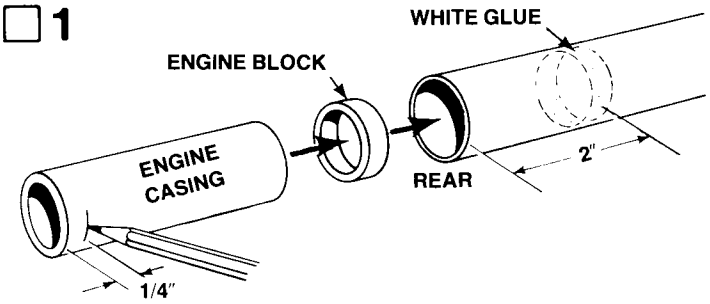
TOOLS AND MATERIALS

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 orange enamel spray paint, a bottle of flat black enamel paint, and household white glue or resin glue (Elmer's, Titebond, or similar). Other types of glue are not recommended.

ESTES INDUSTRIES
PENROSE, CO 81240 USA
A DAMON COMPANY

ASSEMBLY INSTRUCTIONS

☐1



Mark the dummy engine casing (part A) 1/4" from one end. Spread a 1/2" wide band of glue around the inside of the engine mount tube (part B) about 2"in from one end. Insert the engine block (part C) into this end. Push the engine block into place with the dummy engine casing until the mark on the casing is even with the end of the engine mount tube. CAUTION: Once you have started to push the block forward, DO NOT STOP until it is in place, and then remove casing immediately!

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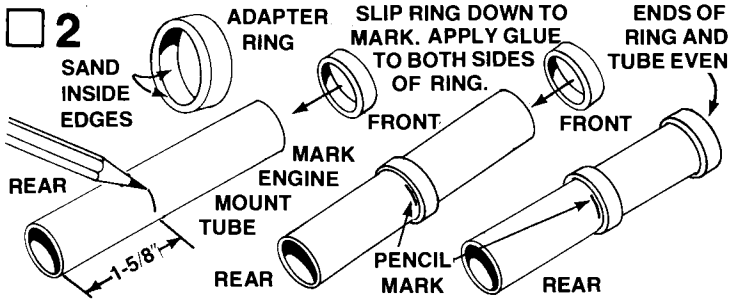

Sand the inside edges of the two adapter rings (part D) to remove burrs. The rings should slide easily onto the engine mount tube. Mark the engine mount tube at 1-5/8" from the rear of the tube. Slip one of the two adapter rings onto the front of the engine mount tube and slide it down to the 1-5/8"mark. Apply glue to both sides of this adapter ring. Apply glue around the front end of the tube and slide the remaining adapter ring onto the tube so the front of the ring is even with the end of the tube.

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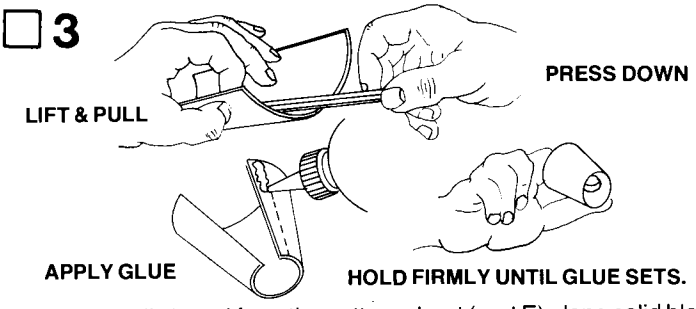

Cut out the tail shroud from the pattern sheet (part E) along solid black lines. Pre form the shroud by pulling it under a knife handle or pencil and up at the same time so it will curl up. Do this several times until the cone can be formed easily. Apply glue to the tab on the cone and position the edge of the shroud on the dotted line and press tab against inside of shroud. Hold it in place until glue sets.

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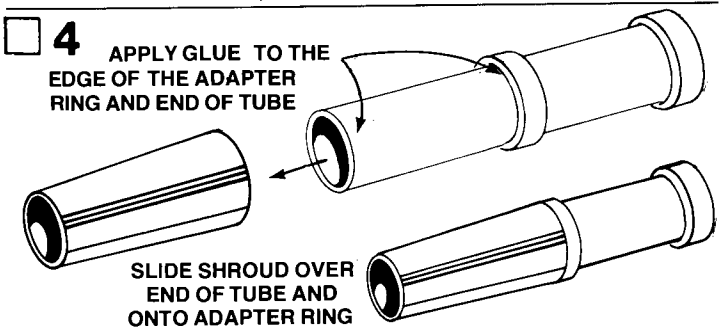

Apply glue to the edge of the adapter ring and the end of the tube. Slide the tail shroud into place so the small end is even with the end of the tube.

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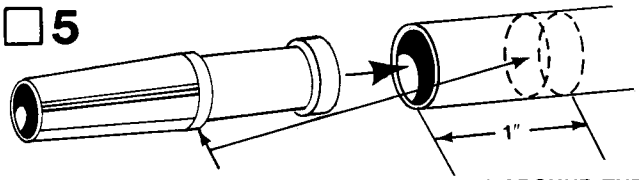

APPLY GLUE TO THE ADAPTER RING AND AROUND THE INSIDE OF THE BODY TUBE ABOUT 1" FROM ONE END OF TUBE.

Smear a band of glue around the inside of the body tube (part F) 1" inside the end of the tube. Also apply glue to the rear adapter ring by the shroud. With a single movement, slide the engine mount tube assembly into position so that the tail shroud just touches the rear of the body tube. Carefully wipe away any excess glue from this joint.

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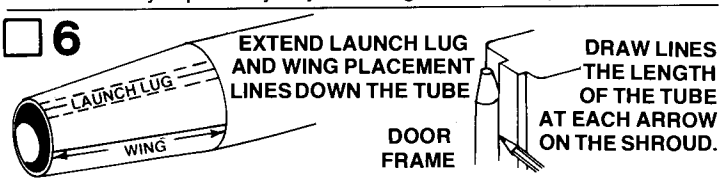

Locate each of the three arrow points on the shroud. Draw straight lines from the arrow points down the length of the tube. A door frame inside edge can be used as a guide as shown. Make sure these lines are straight on the tube.

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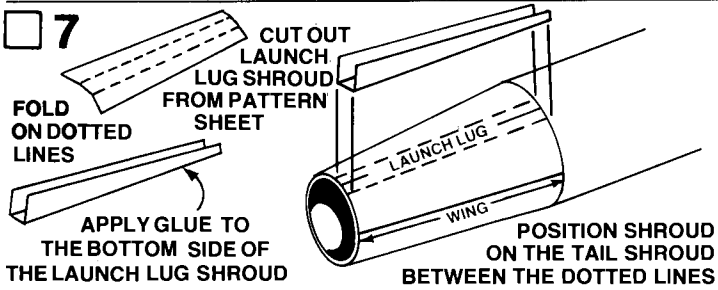

Cut out the launch lug shroud from the pattern sheet along the solid lines. Fold on dotted lines and apply glue to the bottom of the launch lug shroud as shown. Position the launch lug shroud between the dotted lines and even with the front and back of the tail shroud.

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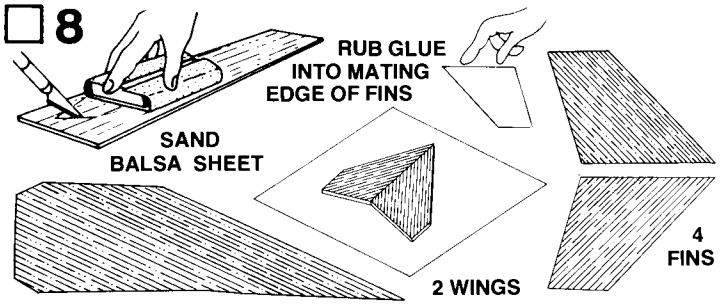
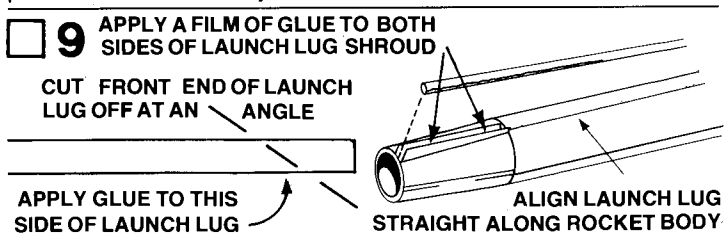


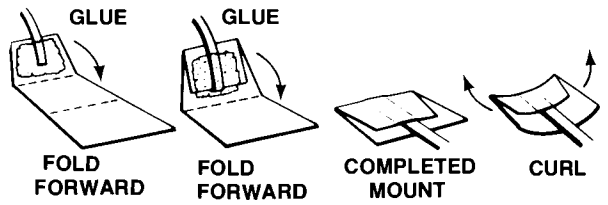
Fine-sand the balsa die-cut sheet (part G). Free the fin edges with a sharp knife, then carefully remove the die-cut fins from the sheet. Sort and identify parts as shown. Rub a line of glue into the mating edges of fins. Cover your work surface with waxed paper and apply a second bead of glue to the mating edges and press fin parts together as shown. Wipe away excess glue. Repeat assembly of the other fin parts and set aside to dry.

☐9



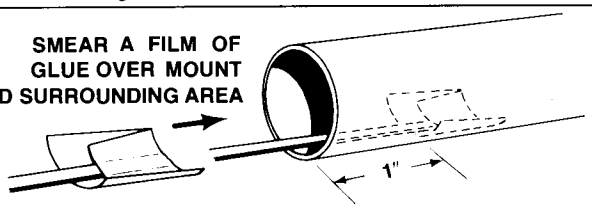
Locate the long launch lug (part H). Using the illustration shown above as a guide. Cut the end of the launch lug at an angle as shown. Glue the launch lug to rocket body centered between the sides of the launch lug shroud and on the launch lug alignment line. Make sure end of the launch lug is even with the end of the shroud and is aligned straight along the rocket body.

☐ 10



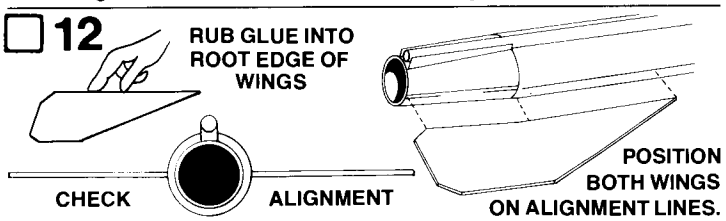
Cut out the shock cord mount from the pattern sheet. Crease it on the dotted lines by folding. Spread glue on the first section (1) and lay the end of the shock cord (part I) into the glue. Fold over and apply glue to the back of the first section and the exposed part of section 2. Lay the shock cord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

☐ 11



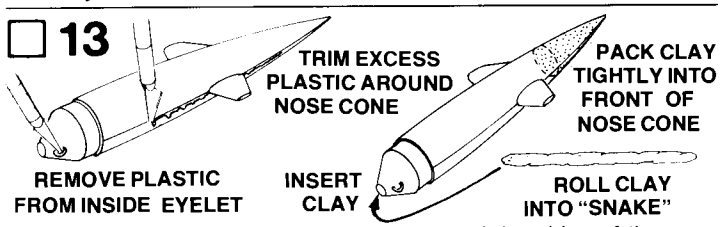
Use a stick or scrap dowel to apply a generous amount of glue inside the body tube 1" from the front of the tube to allow for the nose cone to socket into place. Slide the shock cord mount into the tube and press it into the glue. To insure a good bond use a stick or your finger to smear a film of glue over the mount and surrounding area in the body tube.

☐ 12



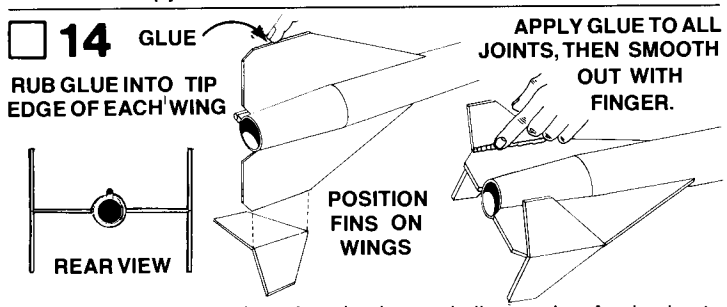
Rub a line of glue into the root edge of each wing and allow to dry. Apply glue to the wings and position fins on the alignment lines in their correct positions on the tube. Refer to the illustration to be sure of these positions. Adjust the wings so they project straight away from the body tube. Do not set the rocket on its wings while the glue is wet.

☐ 13



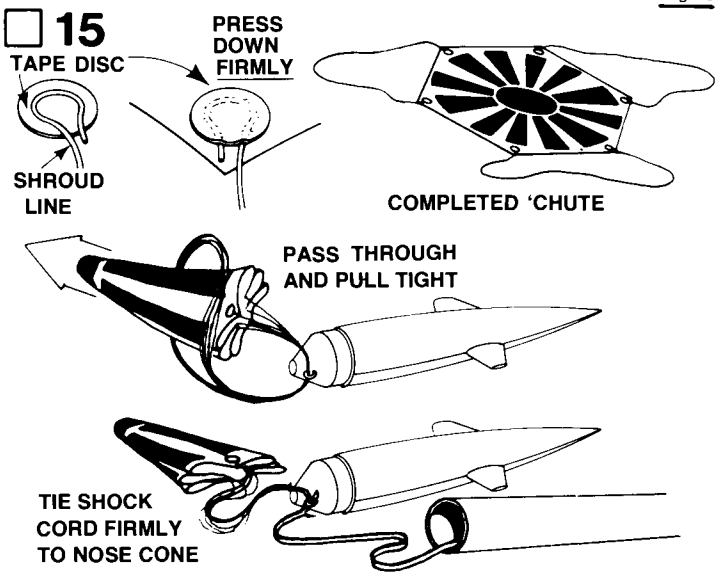
Trim or sand any excess plastic from around the sides of the nose cone (part J). Use a sharp knife to remove any excess plastic from the inside of the molded eyelet at the rear of the nose cone. Roll the clay balance weight (part K) between your hands to make a "snake" about 1/8" diameter. Poke the clay through the hole in the rear of the nose cone. Use a pencil or dowel to push the clay forward into the cone until it is packed tightly in the front of the cone. Wash the nose cone with lukewarm soapy water, rinse well, and dry.

☐ 14



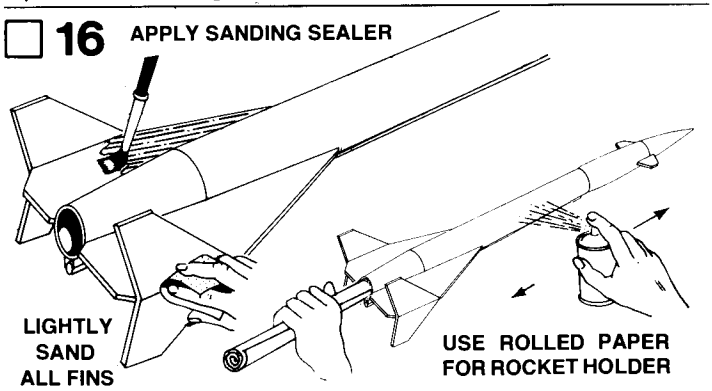
Rub glue into the tip edge of each wing and allow to dry. Apply glue to the wings again and center fins on wings as shown. Make sure fins and wings are square, then set aside to dry. When the glue on the fin joints has dried, apply a glue reinforcement to each fin/wing joint and to each wing/body tube joint. Smooth out the glue with your finger. Support rocket so rocket is level until the glue dries.

☐ 15



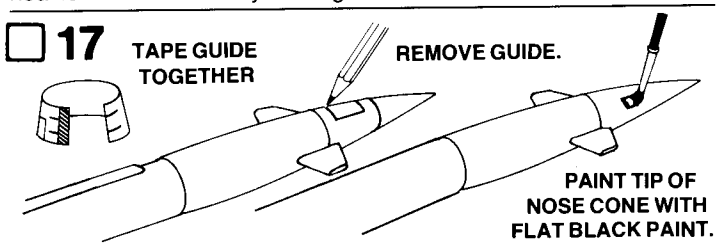
Cut out the parachute (part L) on its edge lines. Cut three equal lengths of shroud line (part M). Attach line ends to the top of the parachute with tape discs (part N) as shown. Form a small loop in the end of a shroud line. Holding loop, gently center loop inside tape disc on the sticky side. Then 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.

☐ 16



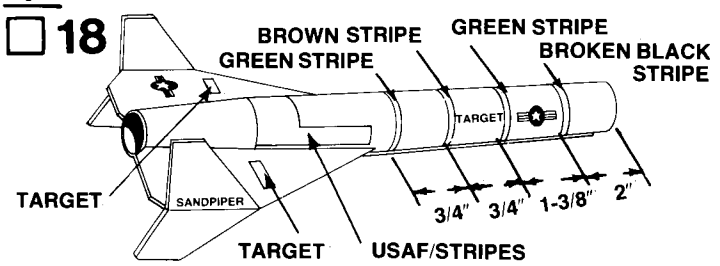
Apply a coat of sanding sealer to each fin. When sealer is dry, lightly sand all the sealed surfaces. Repeat sealing and sanding process until balsa grain is filled and smooth. After the sanding sealer is completely dry, paint the entire model gloss orange. Follow instructions on the spray can for best 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.

☐ 17



Cut out the nose cone marking guide from the pattern sheet. Match lines and tape to hold guide together. Slip guide over nose tip. Hold in place while tracing around the nose with a pencil. Remove guide and apply a coat of flat black enamel paint from the line, around the canard fins, to the tip of the nose.

☐ 18



When all paint is dry, apply the decals (part O) and (part P) in the positions shown. Use the panel photo for positions of decals also. (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.

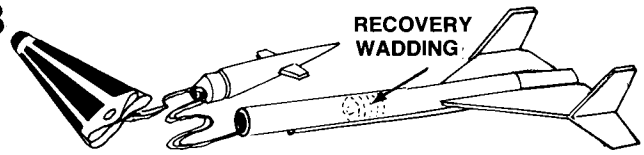
LAUNCHING COMPONENTS

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 (First Flight), B4-4, B6-4, B8-5, 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 of America
*NAR—National Association of Rocketry

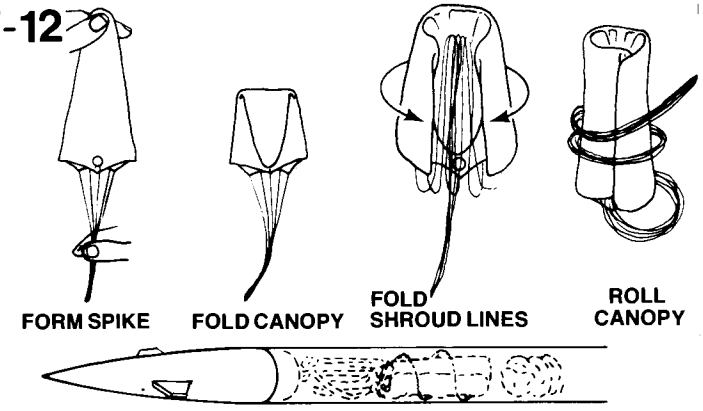
COUNTDOWN CHECKLIST

T-13



Pack 2 or 3 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.

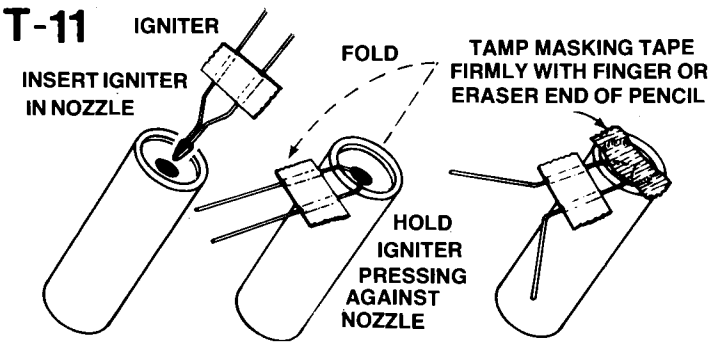
T-12



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.

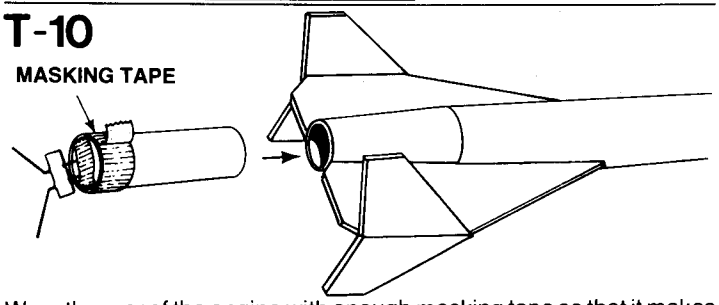
T-11



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, B8-5, and C6-5 made by Estes.

Use an A8-3 engine for your first flight

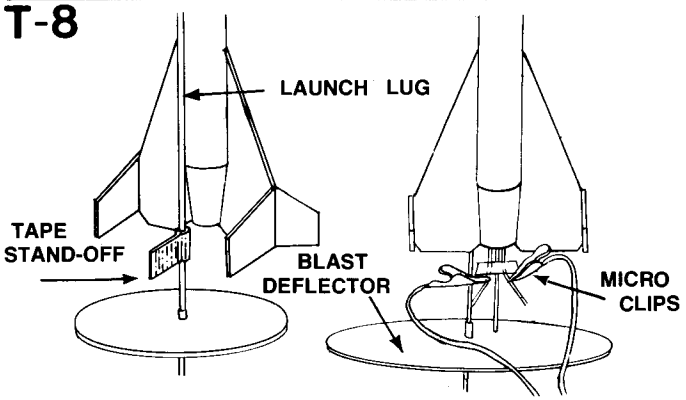
T-10



Wrap the rear of the engine with enough masking tape so that it makes a tight fit in the body tube. This fit must be tight to obtain proper parachute deploymnent. Insert the engine into the rocket so the rear of the engine projects 1/4" from the rear of the body tube.

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.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PN 37531


ESTES PN 36626


METRIC
INCHES

Sandpiper


METRIC
INCHES
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