PIGEL 3

FLYING MODEL ROCKET

SKILL LEVEL 3

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

- Two-Stage Interplanetary Voyager
- Highly Detailed Exotic Design
- Futuristic Plastic Nose Section
- Super High Performance
- Die-Cut Balsa Fins
- Quick-Release Engine Mount
- Big 18" Parachute Recovery
- Exotic Kit Decals

Flights Up To 1,500 Feet!

Length: 26.6" (67.6 cm)
Dia: 1.325" (33.7 mm)
Wt: 2.7 oz. (77 g)

Engines:
SINGLE STAGE/ A8-3 B4-4 B6-4 (1st Flt.) B8-5 C6-5
UPPER STAGE/ A8-5 (1st Flt.) B4-6 B6-6 B8-7 C6-7
BOOSTER STAGE/ A8-0 (1st Flt.) B6-0 B8-0 C6-0

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.

ESTES
A DAMON COMPANY

ESTES INDUSTRIES
PENROSE, CO 81240 USA

#1363

RIGEL 3

SKILL LEVEL 3 – Recommended for Craftsman Rocketeers.

RECOMMENDED ENGINES:

Upper Stage	Booster	Single Stage
A8-5 B4-6	A8-0 B6-0	A8-3 B4-4
B6-6 B8-7	B8-0 C6-0	B6-4 B8-5
C6-7		C6-3 C6-5

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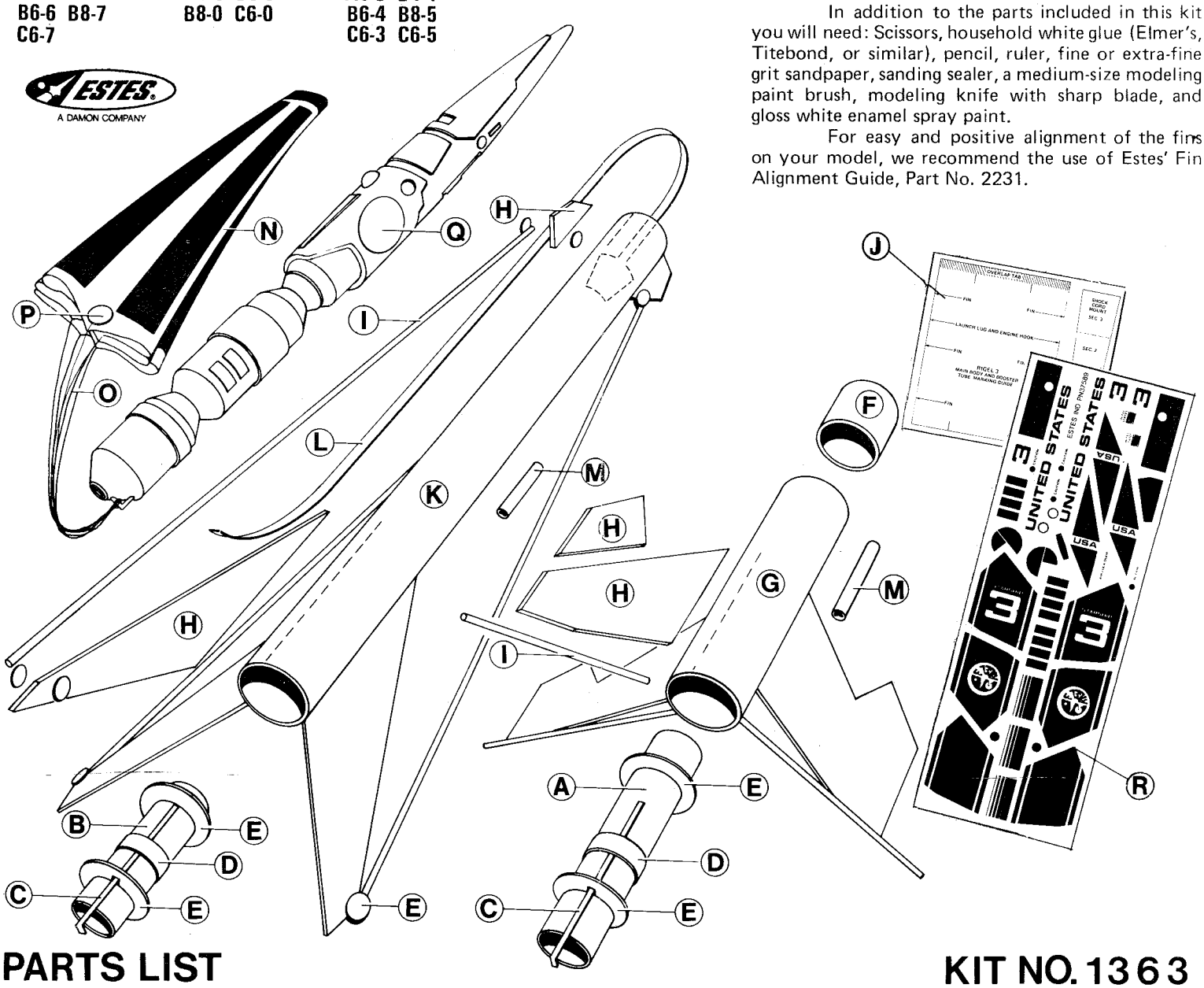
BEFORE YOU START

Read all instructions before beginning construction 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 required for precision assembly.

TOOLS AND MATERIALS

In addition to the parts included in this kit you will need: Scissors, household white glue (Elmer's, Titebond, or similar), pencil, ruler, fine or extra-fine grit sandpaper, sanding sealer, a medium-size modeling paint brush, modeling knife with sharp blade, and gloss white enamel spray paint.

For easy and positive alignment of the fins on your model, we recommend the use of Estes' Fin Alignment Guide, Part No. 2231.



PARTS LIST

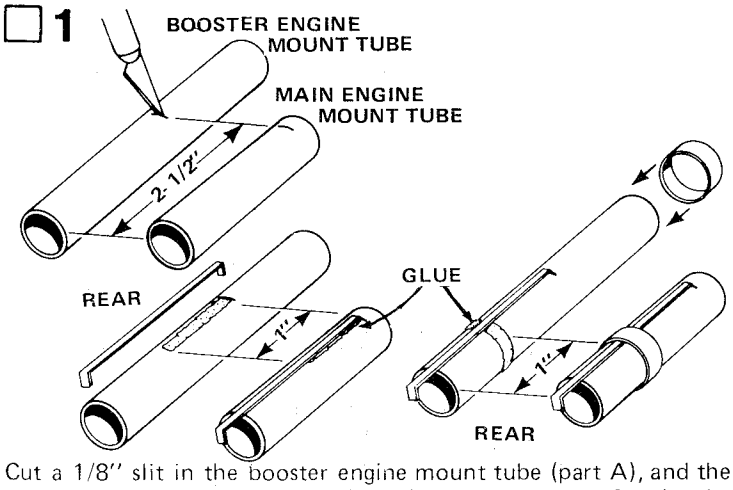
KIT NO. 1363

A	1	Booster Engine Mount Tube (type BT-20DJ) 4"	30332
B	1	Main Engine Mount Tube (type BT-20J) 2-3/4"	30326
C	2	Engine Hooks (type EH-2)	35025
D	2	Hook Retainers (type HR-20)	30168
E	1	Die-Cut Card (type DC-1363)	32465
F	1	Stage Coupler (type JT-55C)	30262
G	1	Booster Body Tube (type BT-55S) 4"	30390
H	1	Die-Cut Balsa Sheet (type BF-1363)	32366
I	3	1/8" Wood Dowels (type WD-1)	32056
J	1	Pattern Sheet (type SP-1363)	83334
K	1	Main Stage Body Tube (type BT-55KA)	30387
L	1	Shock Cord (type SC-2)	85736
M	2	Launch Lugs (type LL-2A)	38175
N	1	Parachute (type PK-18)	85566
O	1	Shroud Line (type SLT-108)	38239
P	1	Tape Disc Set (type TD-3F)	38406
Q	1	Nose Cone (type PNC-55CB)	71036
R	1	Decal (type KD-1363)	37589

NOTE: Wood Dowels are 18" Long (each)
Die Cut Card (part "E") is approx. 1/32" thick cardboard

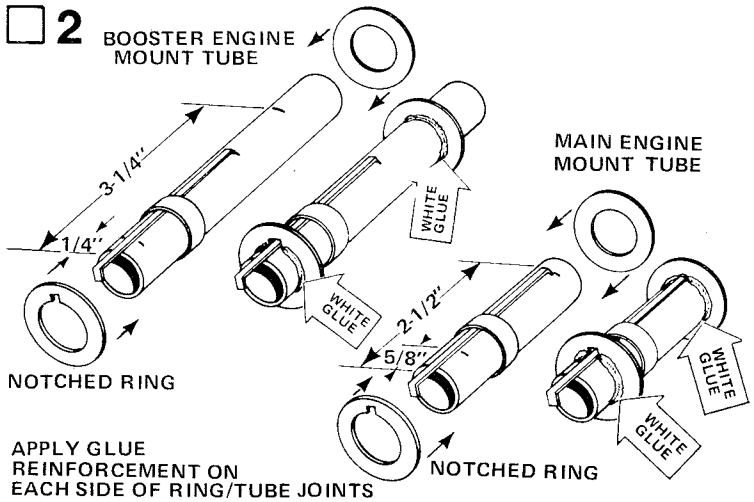
ASSEMBLY INSTRUCTIONS

☐1



Cut a 1/8" slit in the booster engine mount tube (part A), and the main engine mount tube (part B), 2-1/2" from one end of each tube as shown. Apply a 1" long line of glue to each tube. Push one end of an engine hook (part C) into the slit in booster engine mount tube and press the main part of the hook into the glue. Repeat for main engine mount tube. Apply a line of glue around each tube about 1" from the rear of the tube. Slide a hook retainer ring (part D) over each of the tubes and hooks and onto the glue.

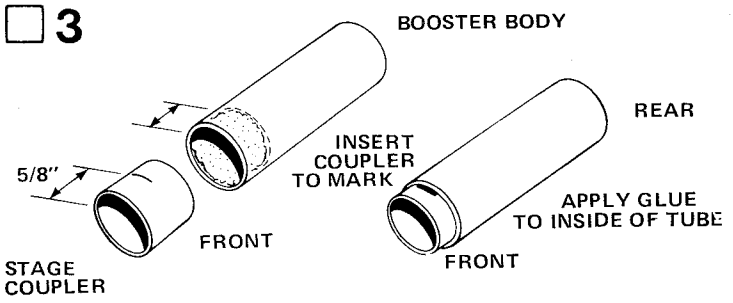
☐2



APPLY GLUE REINFORCEMENT ON EACH SIDE OF RING/TUBE JOINTS

Mark the booster engine mount tube 1/4" and 3-1/4" from the rear (the end with engine hook). Mark the main engine tube 5/8" and 2-1/2" from the rear as shown. Carefully separate the adapter rings from the die-cut card (part E). Slide one of the notched rings onto the booster engine mount tube to the 1/4" mark. Slide the other notched ring onto the main engine mount tube up to the 5/8" mark as shown. Slide each of the remaining rings onto the opposite ends of the engine mount tubes to their respective marks. Apply a line of glue at the ring/tube joints on both sides of each ring. Set these assemblies aside to dry.

☐3



Mark the stage coupler (part F) 5/8" from one end. Apply glue around the last 1/2" in one end of the booster body tube (part G). Immediately slide the coupler in until the mark is even with the end of the tube. Let the unit set a minute, then wipe off any excess glue.

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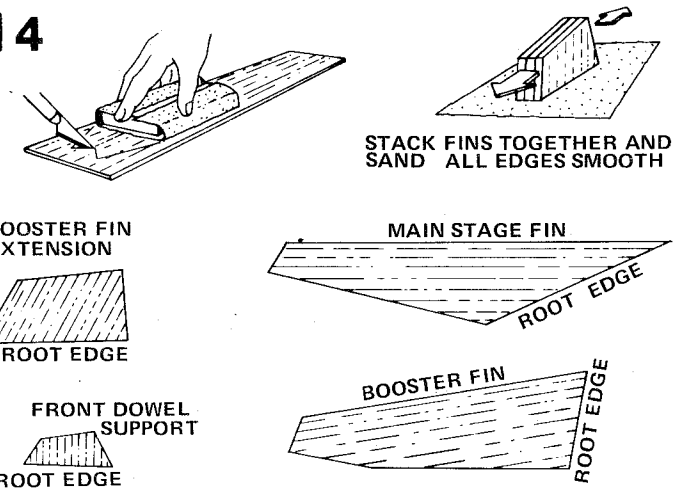
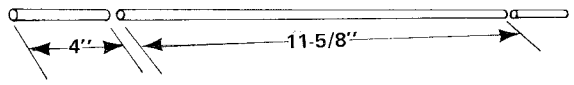


Fine-sand both sides of the balsa die-cut sheet (part H), then carefully remove the die-cut parts from the sheet by freeing the part edges with a sharp knife. Sand the edges of the fin parts slightly to remove any rough spots.

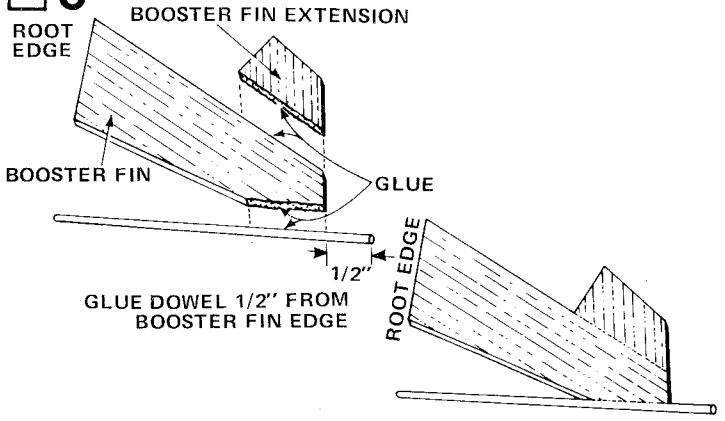
☐5



CUT THREE 4" AND THREE 11-5/8" LENGTHS

Cut one 4" length and one 11-5/8" length from each of the three 1/8" wood dowels (part I). Discard the remaining dowel sections.

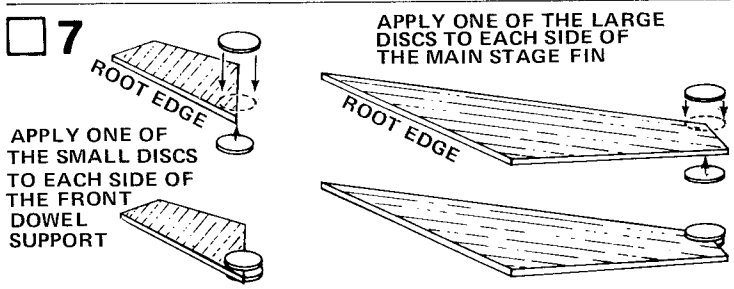
☐6



COMPLETED BOOSTER FIN/BOOSTER FIN EXTENSION SET

Sort and identify parts as shown. Apply glue to edges of booster fin and booster fin extension as shown. Let glue partially dry. Apply second bead of glue to one edge and press parts together as shown. Repeat for other two booster fin/booster fin extension sets. Mark each 4" length of dowel 1/2" from one end of the dowel. Apply glue to dowel as shown. Apply dowel to each booster fin unit so 1/2" of dowel projects from the edges of fin as shown. Wipe away excess glue and set units aside to dry.

☐7

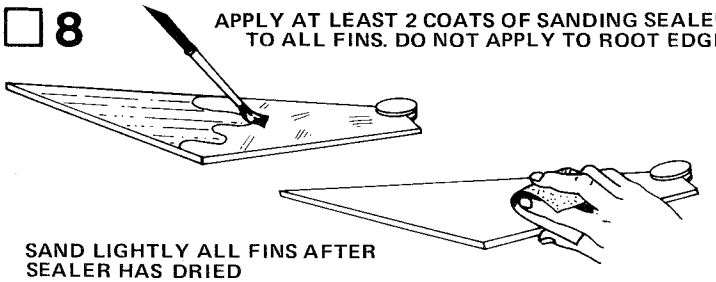


EXACTLY AS SHOWN

Punch out the large and small discs from the die-cut card. Apply a small amount of glue to the flat side of each disc and allow the glue

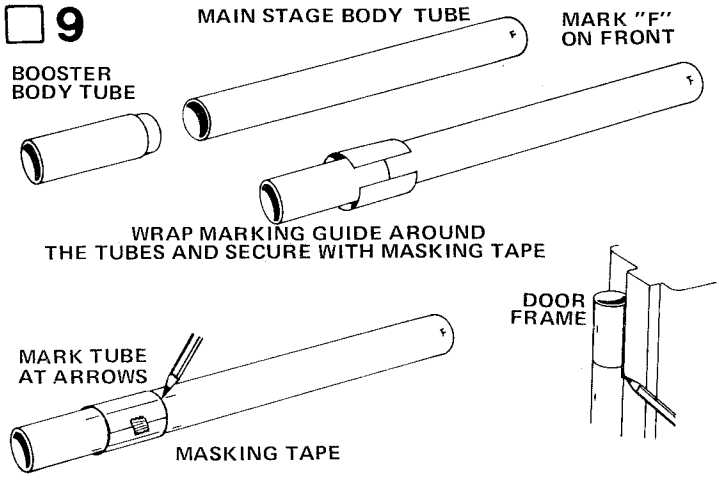
to dry. Re-apply a small amount of glue to each disc and position them in their correct positions. Refer to the illustration to be sure of these positions.

☐ 8



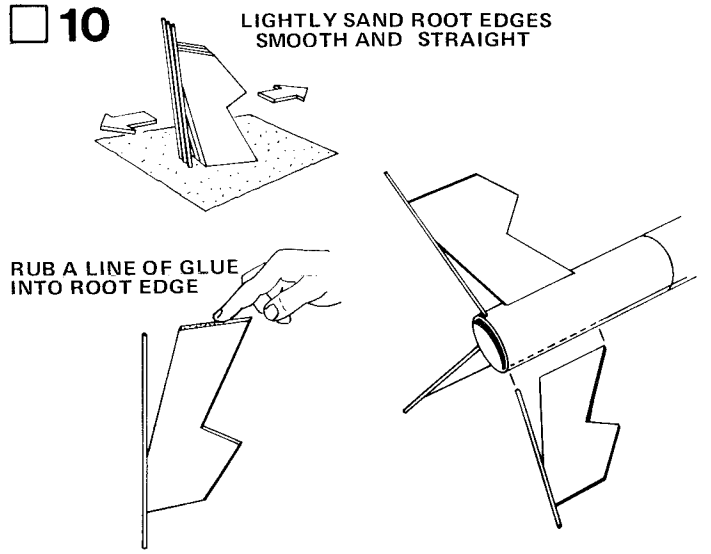
Apply a coat of sanding sealer to each of the fin assemblies. Apply sealer to all edges except the root edges. When sealer is dry, lightly sand all the sealed surfaces. Repeat sealing and sanding process until balsa grain no longer shows and fins are smooth.

☐ 9



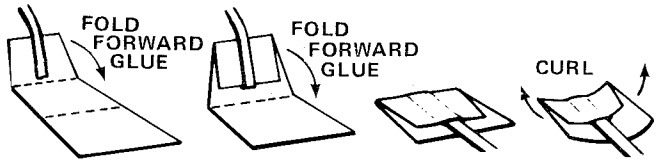
Cut out the tube marking guide from pattern sheet (part J). Slide the booster body tube/coupler into one end of the main stage body tube (part K) and wrap marking guide around the body tubes. Mark the body tubes at each of the arrow points. Draw straight lines connecting each mark. A door frame inside edge can be used as a guide as shown. Extend the lines the full length of the tubes.

☐ 10



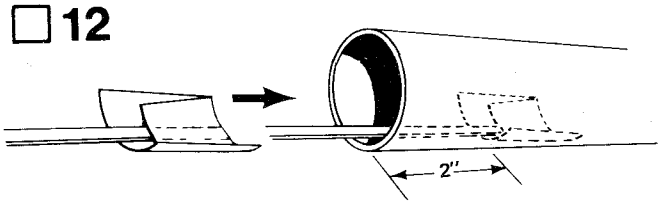
Stack the booster fins together and sand the root edge of the fins until the dowel and root edge are straight. Rub a line of glue into the root edge of each booster fin and allow to dry. Apply glue to the fins and position fins on the alignment lines in their correct positions on the booster body tube. Refer to the illustration to be sure of these positions. 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.

☐ 11



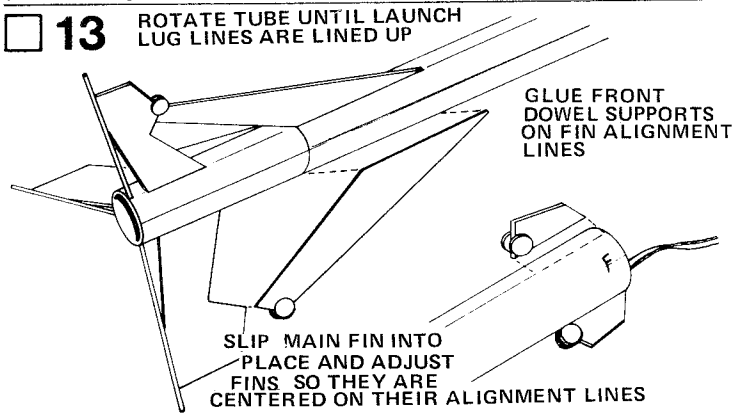
Cut out the shock cord mount. Fold on dotted lines, then unfold and apply glue to Section 1. Lay the end of the shock cord (part L) in the glue. Fold over and apply glue to the back of Section 1 and the exposed portion of Section 2. Fold again to complete the mount. Curl the edges of the mount up so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

☐ 12



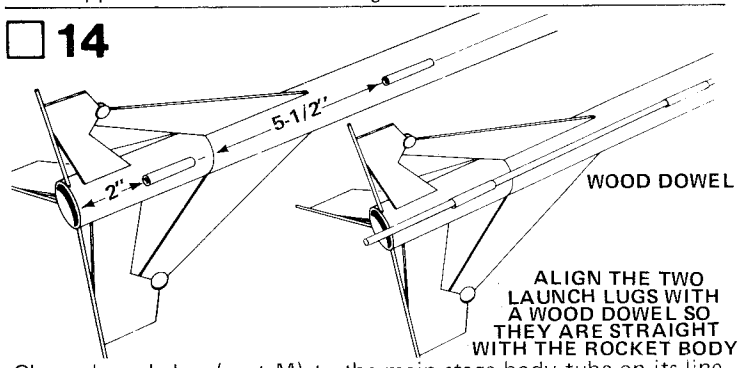
Smear glue over the back of the shock cord mount. Hold the mount as shown and press it into place at least 2" from one end of the main stage body tube to allow for the nose cone. Hold mount in place until glue sets.

☐ 13



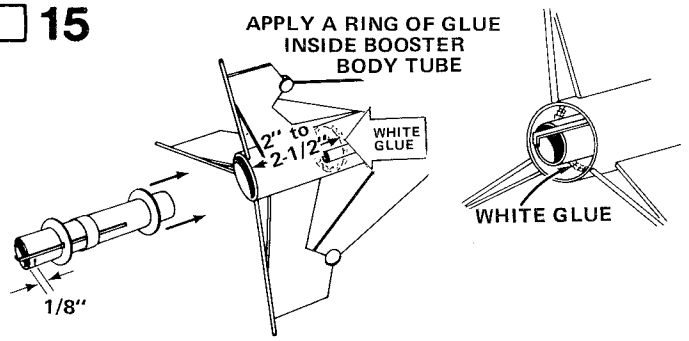
Slide booster body/stage coupler unit and main stage body tube together. Rotate main stage tube until the launch lug lines and fin alignment lines are lined up as shown. Rub a line of glue into the root edge of each main stage fin and allow to dry. Apply glue again to the root edges of main fins. Glue the fins to the main body on their alignment lines as shown. The rear edge of each fin should be even with the rear edge of the body tube. Then slip each booster fin between the two discs on its main fin as shown. Glue front dowel support on each fin alignment lines so the front edge of each support is even with front edge of the tube as shown.

☐ 14



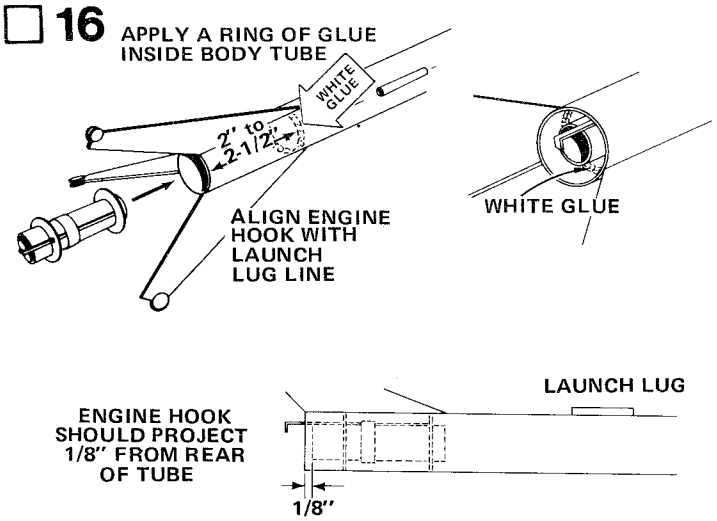
Glue a launch lug (part M) to the main stage body tube on its line. The rear of the lug should be 5-1/2" from the rear of the main stage body tube. Glue the other launch lug to the booster body tube on its line, with the rear of the lug 2" from the rear of the booster body tube. Align the two launch lugs straight with a wood dowel as shown.

☐ 15



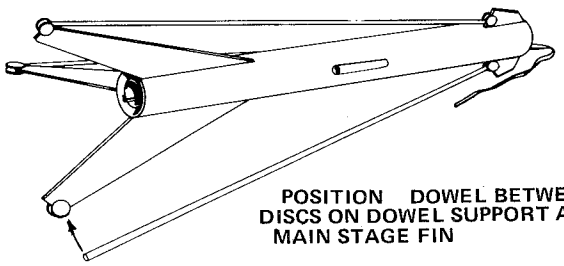
Check the fit of the engine mounts inside the body tubes. The rings should slide easily into the tubes. If the fit is tight, sand the outer edges of the rings until they slide easily into the body tubes. Mark the booster engine mount tube 1/8" from the end with the engine hook. Smear glue around the inside of the booster body tube at about 2-1/2" from the end of the tube. Slide the engine mount into the body until the mark is even with the end of the tube and the engine hook is aligned with the launch lug. Apply a line of glue, with a dowel, around the rear ring/body tube joint as shown.

☐ 16



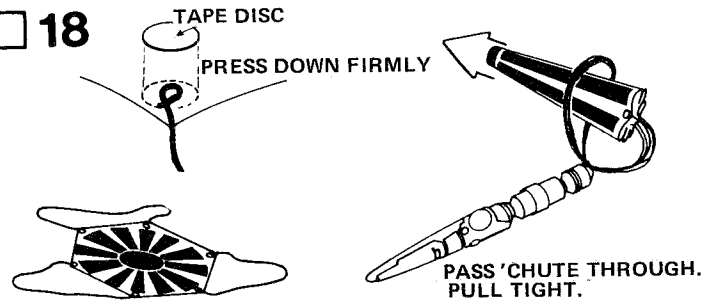
Apply a ring of glue around inside of the main stage body tube about 2" to 2-1/2" from the end of the tube (the end opposite the shock cord). Slide in the main stage engine mount, being careful to position it so the engine hook is aligned with the launch lug. Push the engine mount in with one smooth motion until the engine hook projects past the rear of the main stage body tube 1/8" as shown. Apply a line of glue, with a dowel, around the rear ring /body tube joint as shown.

☐ 17



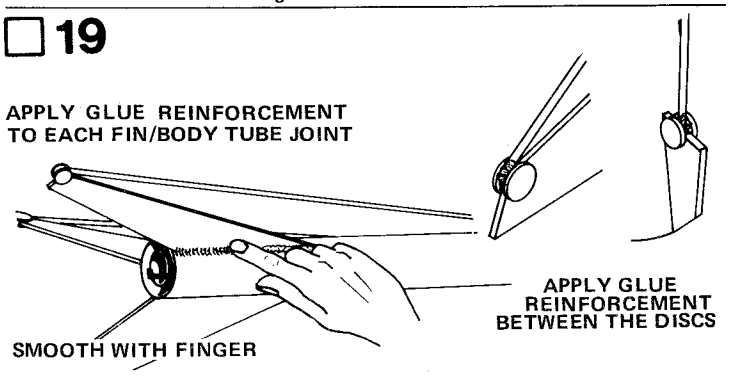
Apply glue to each end of one of the three long wood dowels. Position dowel between the discs on the front dowel support and the discs on each main stage fin as shown. Repeat for other two dowels.

☐ 18



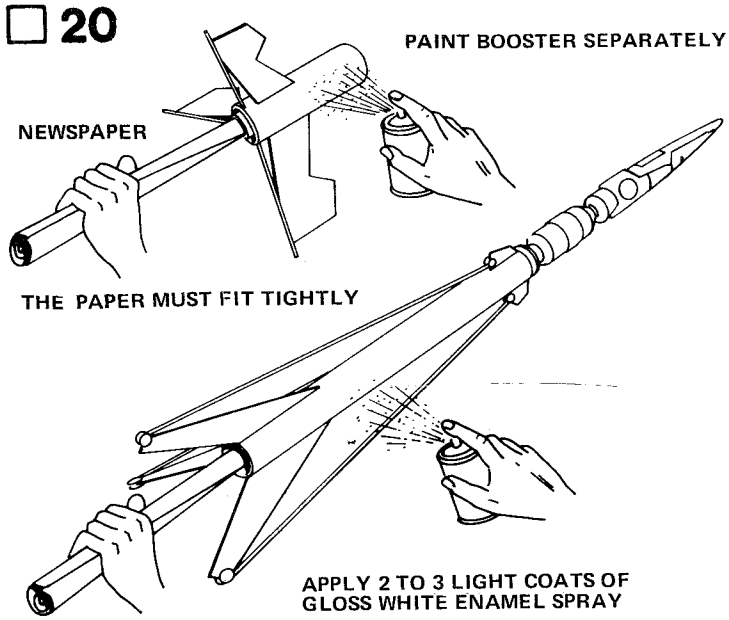
Cut out the parachute (part N) on its edge lines. Cut three 24" lengths of shroud line (part O). Attach line ends to top surface of parachute with tape discs (part P) as shown. Pass shroud line loops through ring on nose cone (part Q). Pass parachute through loop ends and draw lines tight against ring.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

☐ 19



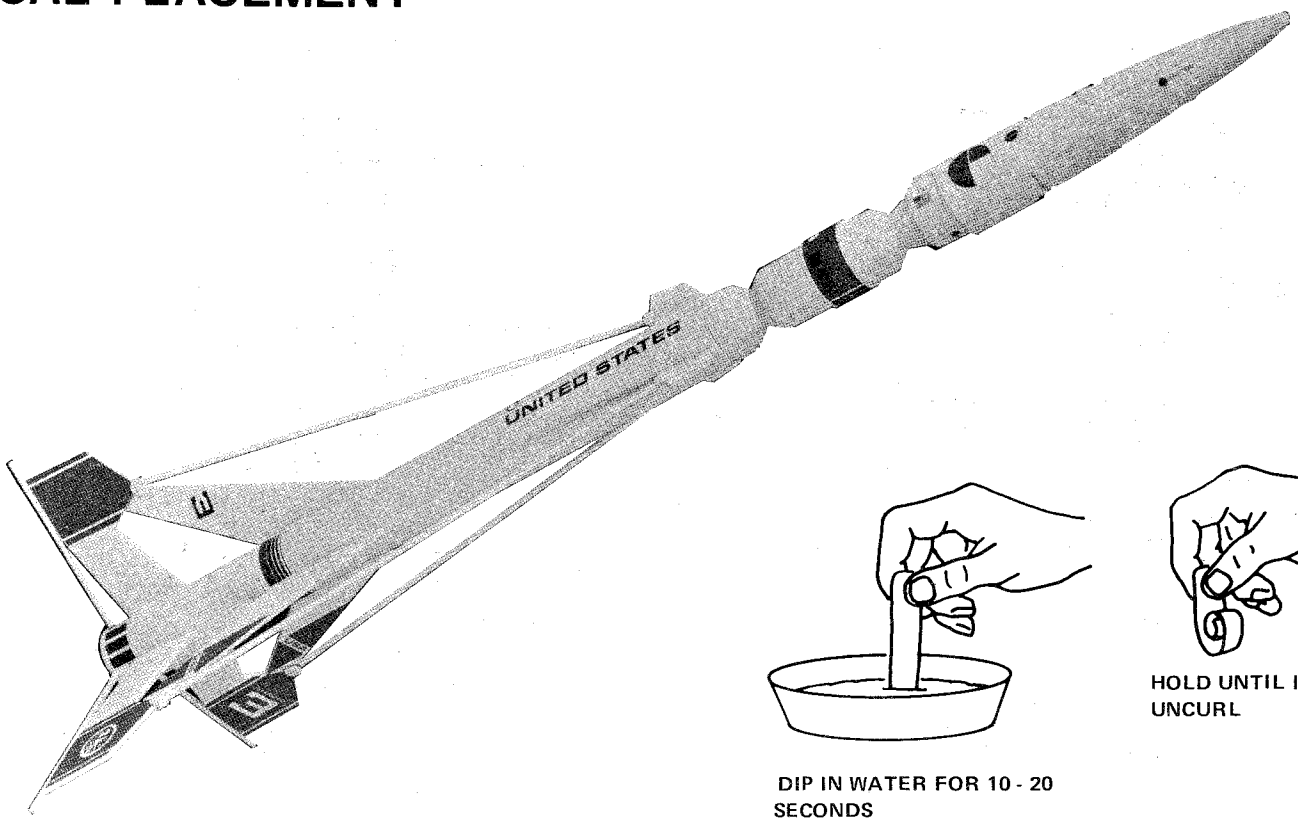
Apply a glue reinforcement to each fin/body tube joint. Holding the model level, apply a line of glue to both sides of each fin joint. Smooth out the glue with your finger. Apply glue reinforcements to each disc/dowel joint as shown. Smooth out the glue with your finger. IMPORTANT -- Keep the model level until the glue dries.

☐ 20



When all glue on the outside of the body is dry, insert a sheet of rolled-up newspaper or heavy paper into the rear of the rocket as shown. THE PAPER MUST FIT TIGHTLY. For best results, paint the booster separately from the main stage. Apply two or three light coats of gloss white spray enamel to entire rocket model. Allow each coat of paint to dry completely. Follow painting instructions on spray can for best results.

DECAL PLACEMENT



DIP IN WATER FOR 10 - 20 SECONDS

HOLD UNTIL IT STARTS TO UNCURL

Apply the decals (part R) in the positions shown. Cut out a decal section, dip in lukewarm water for 10-20 seconds, and hold it until it starts to uncurl. Slip the decal off the backing sheet and onto the model. Blot excess water away. For best results, let model dry overnight and apply a coat of clear spray to protect the decals.

LAUNCHING COMPONENTS

Your Rigel 3 model has been designed as a two-stage exotic model. The upper stage may also be flown by itself as a single stage model. Here are some suggestions for getting the best results from your model.

Always be extra careful when installing engines. Make sure they face the correct direction for proper staging. Make sure they are held tightly in place to insure proper recovery operation.

Have an extra person with you when launching to watch the booster stage and retrieve it after flight.

Launch in calm weather. The upper stage will drift a long way in the wind.

Always follow the countdown checklist when launching your model.

To launch your rocket you will need the following items:
An Estes model rocket launch system
Parachute recovery wadding (Estes Cat. No. 2274)
Recommended engines:
BOOSTER: A8-0 (First Flight), B6-0, B8-0, C6-0
UPPER STAGE: A8-5 (First Flight), B4-6, B6-6, B8-7, C6-7
SINGLE STAGE: A8-3, B4-4, B6-4 (First Flight), B8-5, C6-3, C6-5

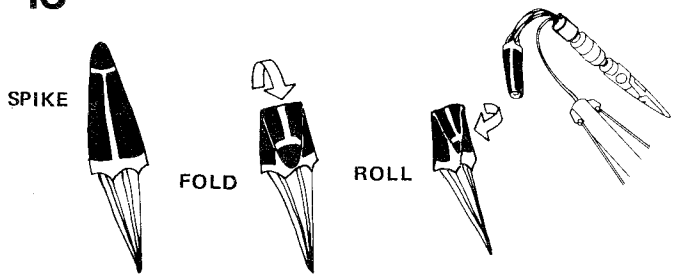
Be sure to follow the HIAA-NAR* Model Rocket Safety Code when carrying out your model rocket activities.

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

COUNTDOWN CHECKLIST

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

T-13

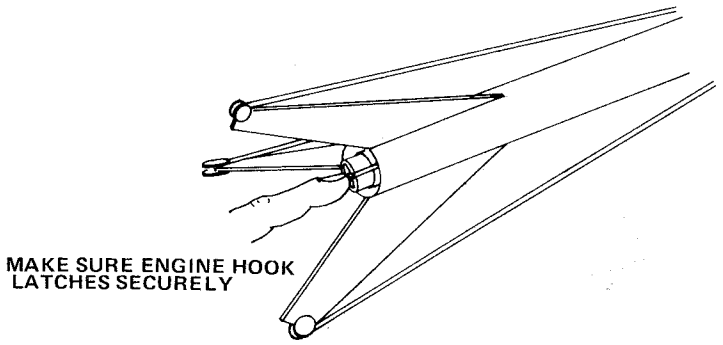


Hold the parachute at its center and pass the other hand down it to form a "spike" shape. Fold this spike in half. Roll parachute into tube shape to fit easily into body. Pack 'chute into the tube on top of the wadding. Pack the shroud lines and shock cord in on top of the parachute and slip the nose 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.

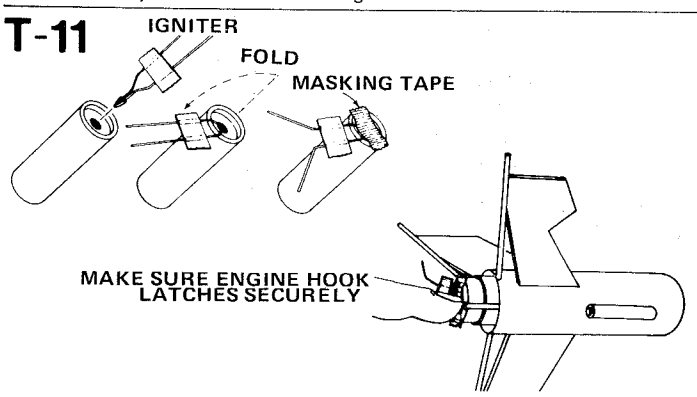
NOTE: Nose cone should separate easily from rocket body tube, but should not be extremely loose. If fit is too tight, sand inside of body tube and shoulder of nose cone with fine sandpaper. If fit is too loose, add a wrapping of transparent tape or masking tape to the shoulder of the nose cone.

T-12



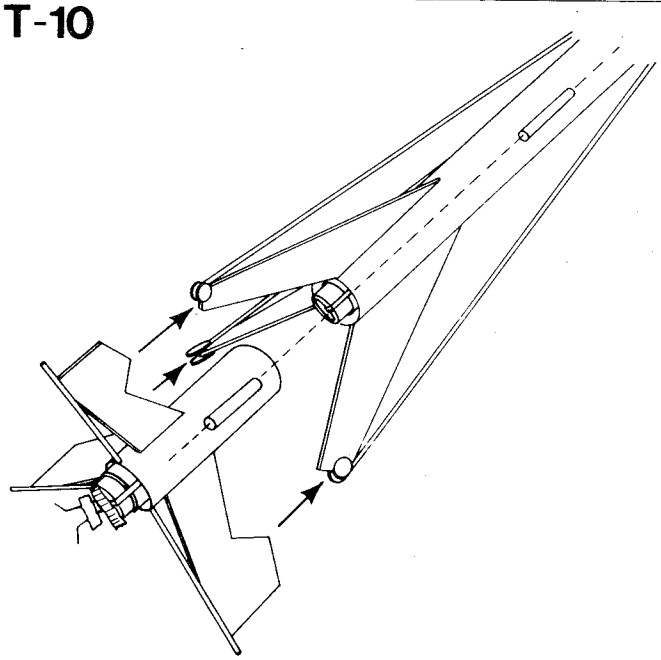
Select an upper stage engine. Use an A8-5 engine for your first flight. Insert engine into rocket engine mount. Engine hook must latch securely over end of the engine.

T-11



Select a booster stage engine. Use an A8-0 engine for your first flight. Install an igniter as directed in the engine instructions. Insert engine into booster engine mount. Engine hook must latch securely over end of the engine.

T-10

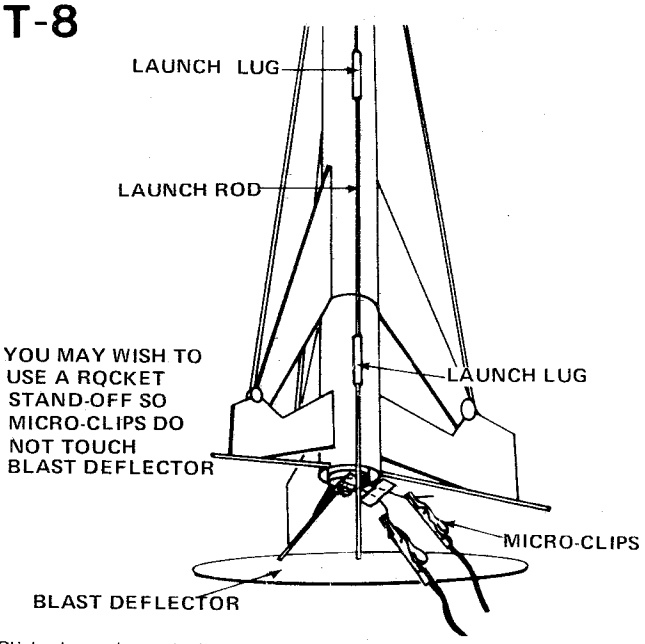


Slide the booster into place with the upper stage of the rocket so the launch lugs line up.

T-9

Disarm the launch panel -- REMOVE SAFETY KEY!

T-8



Slide launch rod through rocket launch lugs 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 engine 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

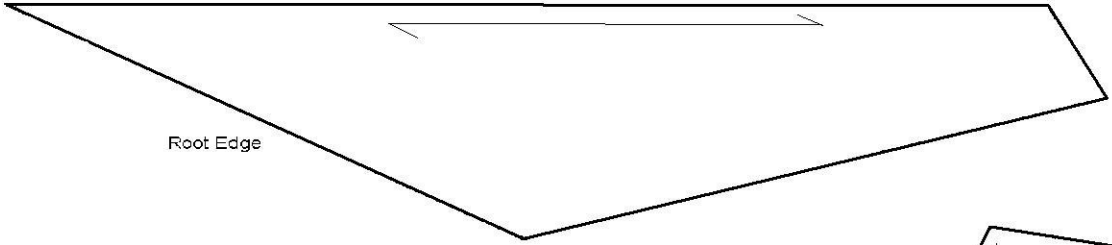
Arm the launch panel -- INSERT SAFETY KEY!

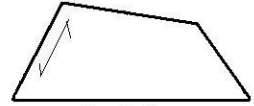
-5-4-3-2-1-LAUNCH!!

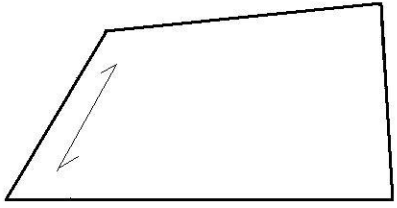
Repeat the Countdown Checklist for each flight.

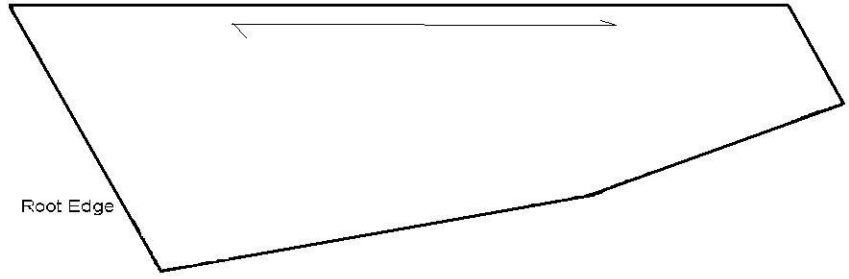
MISFIRE PROCEDURE

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. REMOVE SAFETY KEY from the launch panel, remove the model, clean the igniter residue from the engine nozzle, and install a new igniter. Repeat the Countdown Checklist.

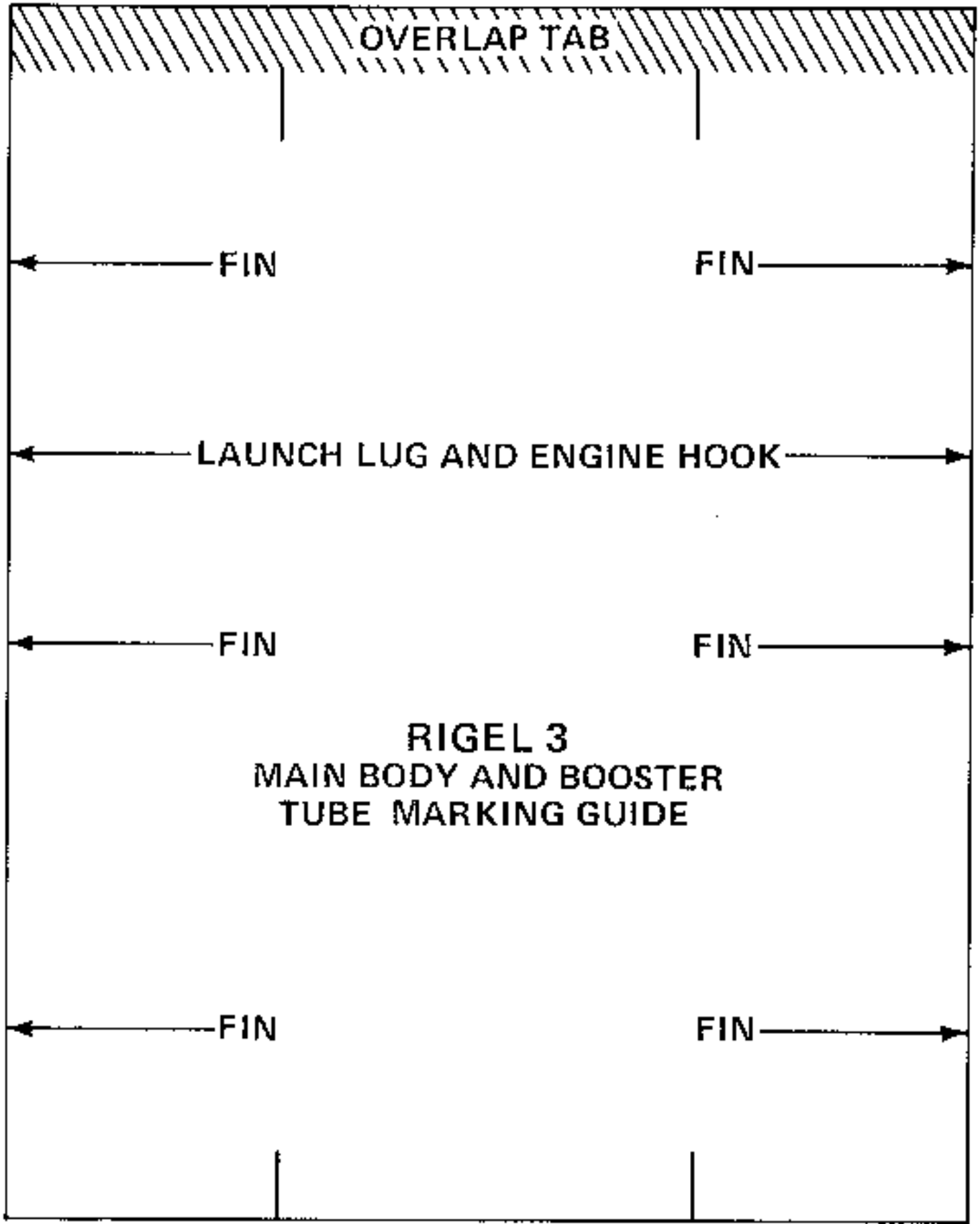


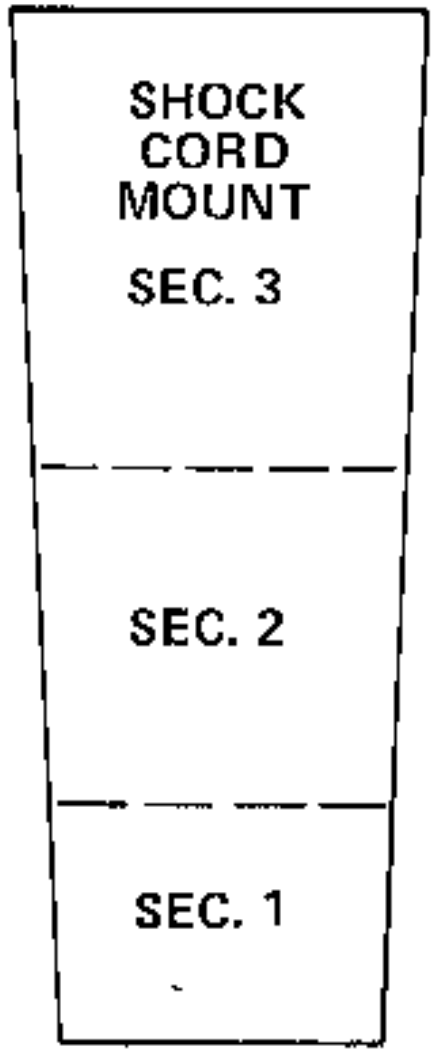






Make Three (3) of each fin from
1/8" Balsa Fin Stock

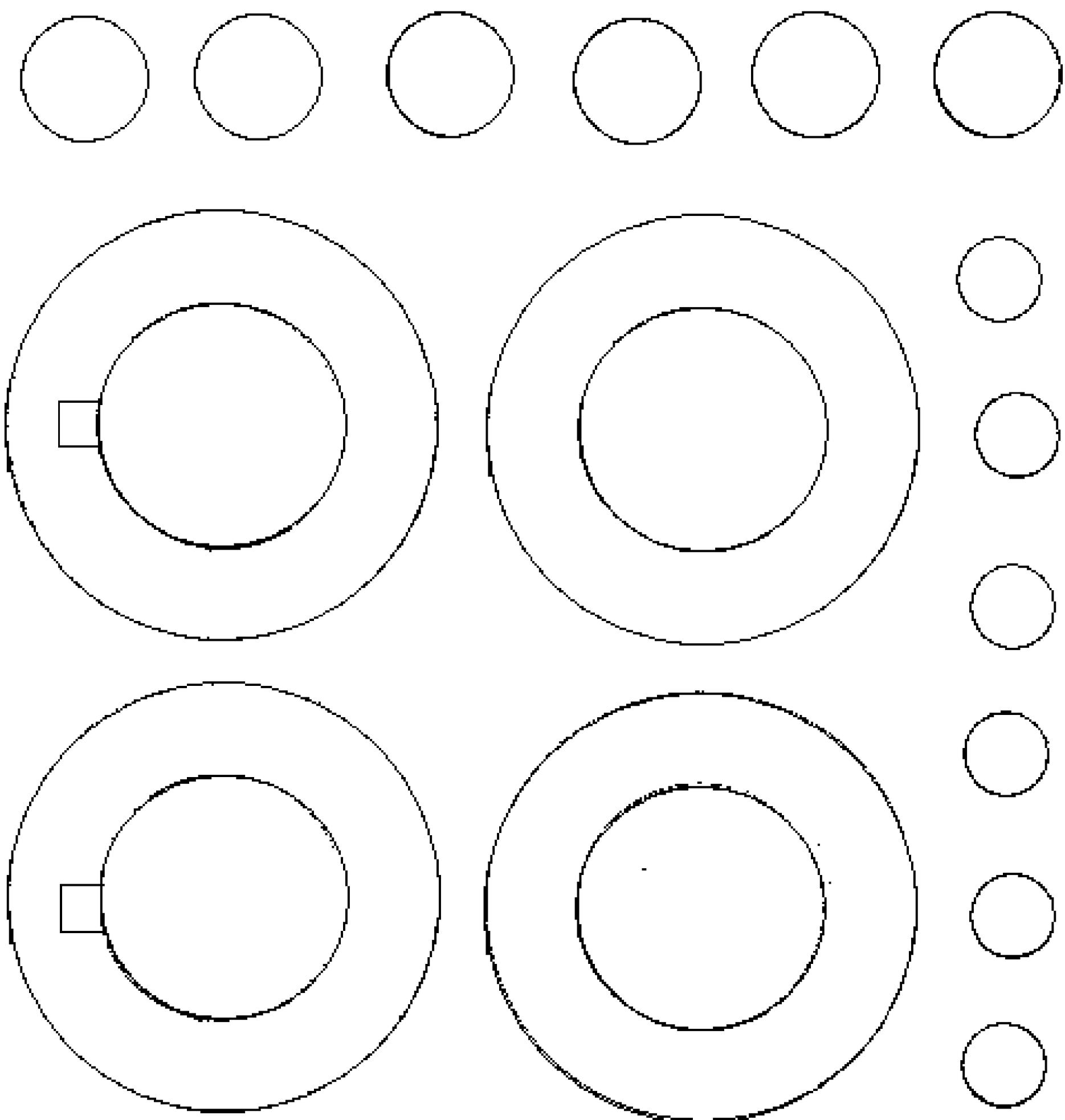


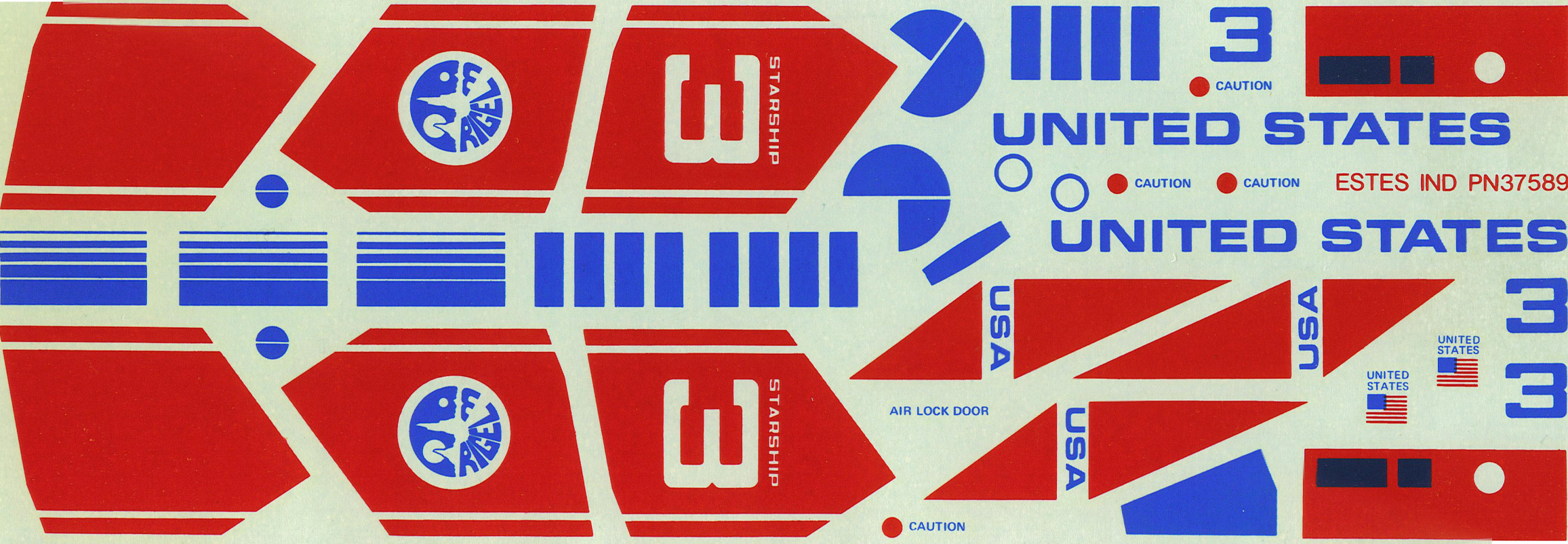


RIGEL 3
MAIN BODY AND BOOSTER TUBE MARKING GUIDE

ESTES
A DAMON COMPANY

PN 83334




STARSHIP
3
CAUTION
UNITED STATES
CAUTION
CAUTION
ESTES IND PN37589
UNITED STATES
USA
USA
UNITED STATES
UNITED STATES
AIR LOCK DOOR
USA
CAUTION
STARSHIP
3