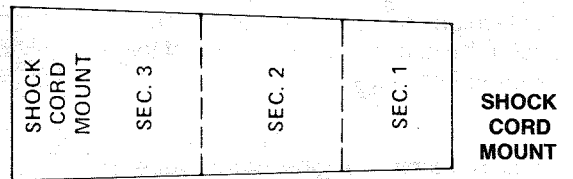


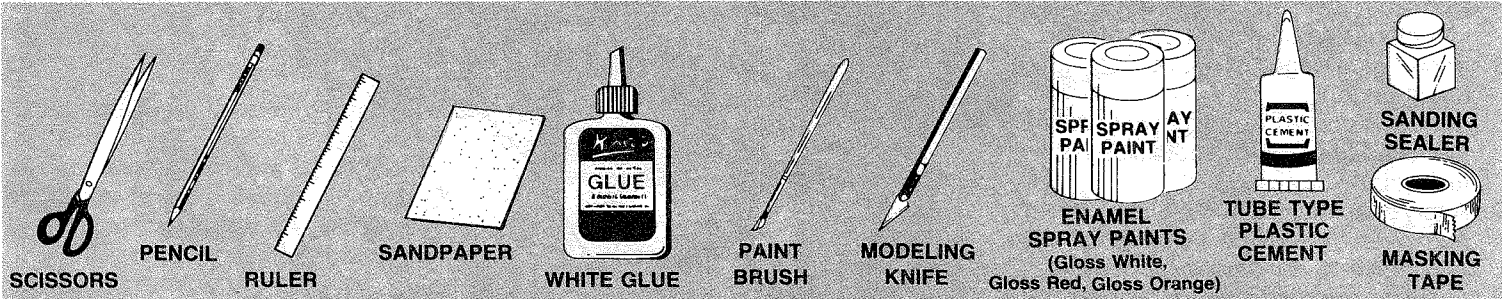
## ASSEMBLY TIP

Read all instructions before beginning work on your model. Make sure you have all parts and supplies. Test-fit all parts together before applying any glue. If any parts don't fit properly, sand as required for precision assembly.



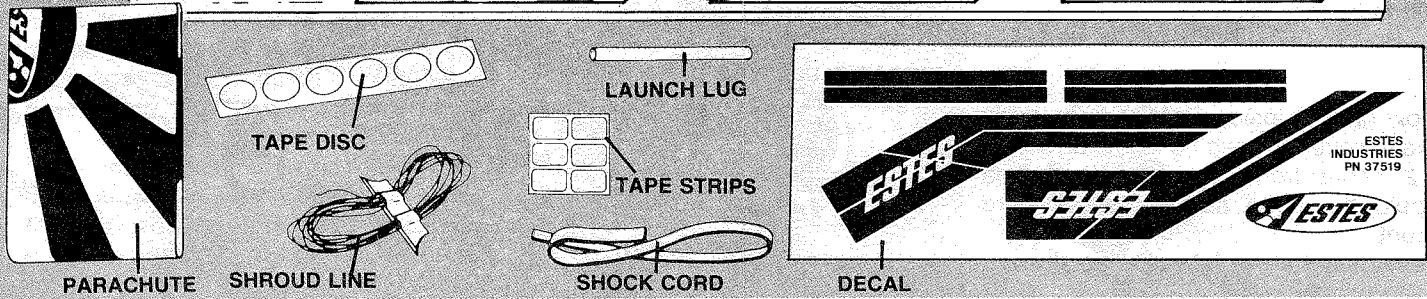
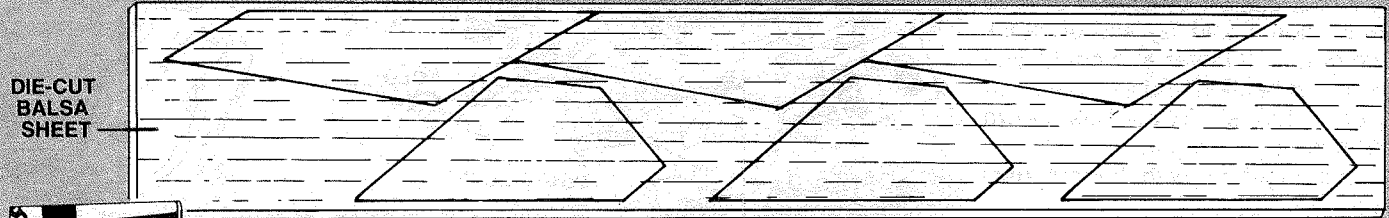
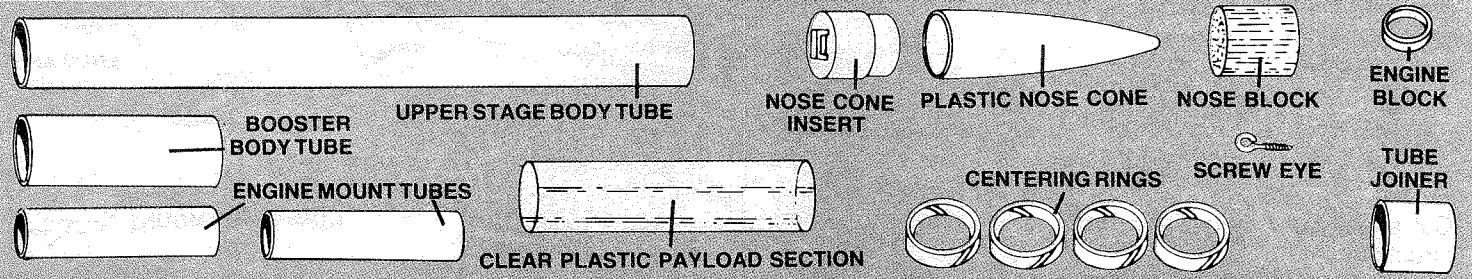
## SUPPLIES

In addition to the parts included in the kit you will also need:



## PARTS

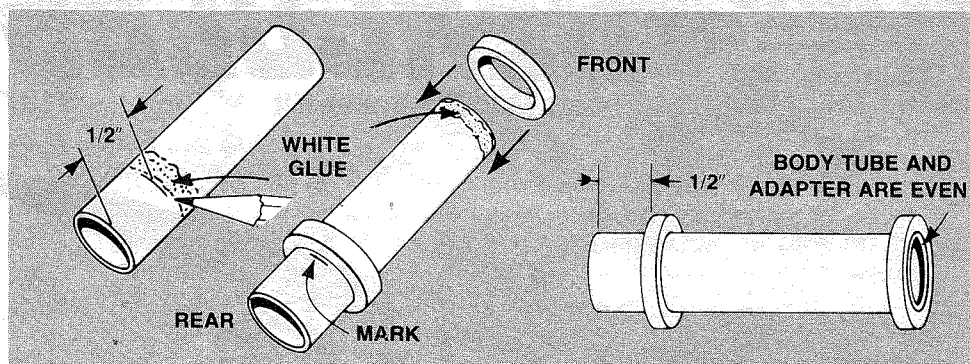
Locate the parts shown below and lay them out on the table in front of you.



# ROCKET ASSEMBLY

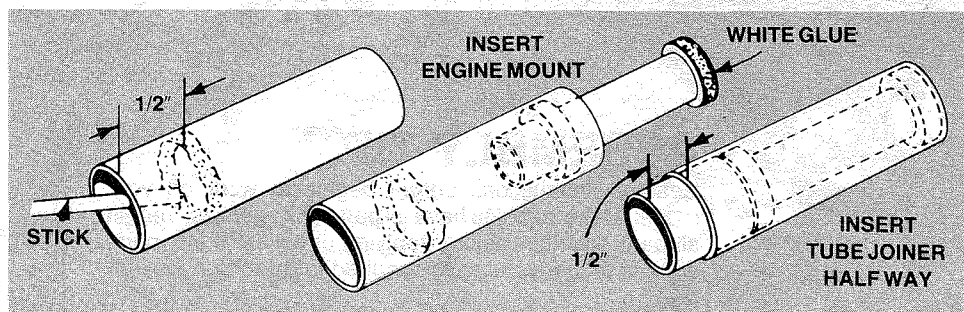
1

- Mark one engine mount tube 1/2 inch from rear of tube.
- Sand inside edges of two centering rings.
- Slide one centering ring down to 1/2 inch mark. Apply glue to both sides of centering ring/tube joint. Wipe away excess glue.
- Apply glue to end of tube. Slide centering ring over glue and position even with end of tube. Allow glue to dry before proceeding.



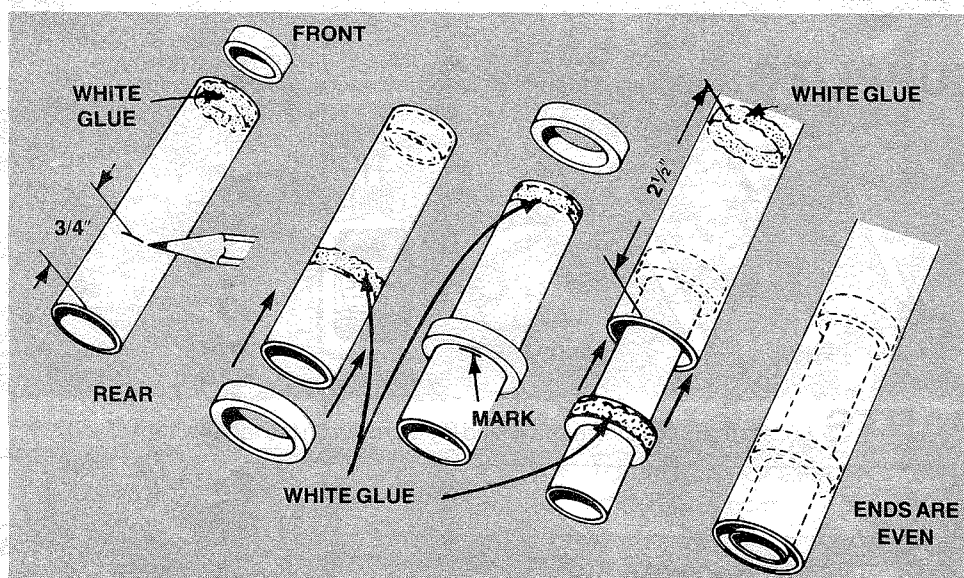
2

- Apply a ring of glue 1/2 inch inside one end of booster body tube.
- Slide engine mount into body tube. Apply glue to centering ring on end of engine mount, and push in until tube ends are even.
- Apply glue to inside of body tube and push tube joiner in until 1/2 inch of joiner extends from tube.



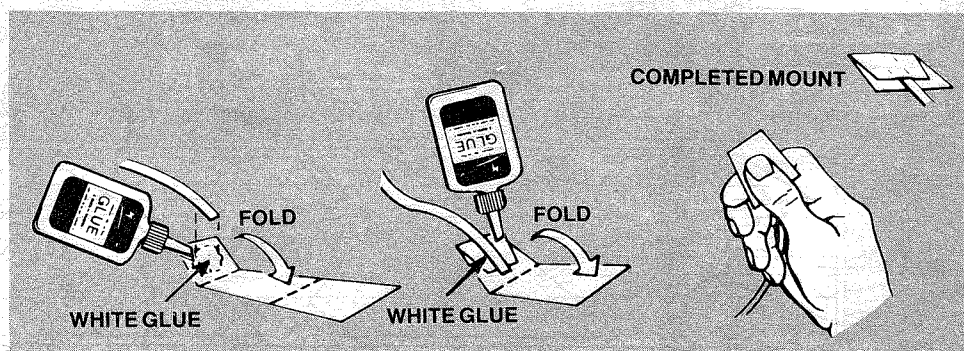
3

- Mark remaining engine mount tube 3/4 inch from one end. Glue engine block into other end flush with end of tube.
- Sand inside edges of two remaining centering rings.
- Slide one centering ring down to 3/4 inch mark and apply glue to both sides of ring/tube joint.
- Apply glue to end of tube. Slide centering ring over glue even with end of tube. Allow glue to dry before proceeding.
- Apply glue around inside main body tube about 2 1/2 inches from one end. Slide engine mount into main body tube until tube ends are even.



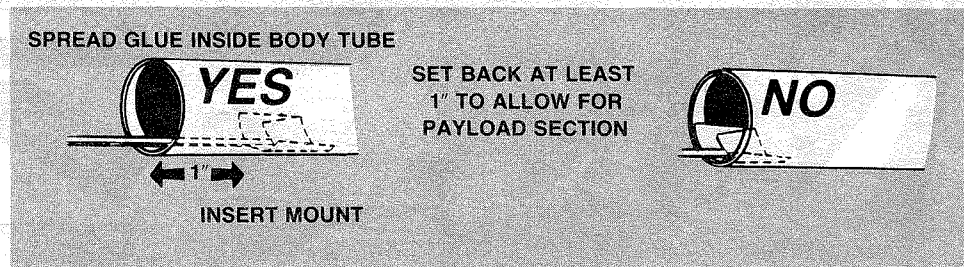
4

- Cut shock cord mount from front of instructions.
- Crease on dotted lines by folding. Spread glue on section 1 and lay end of shock cord into glue. Fold over and apply glue to back of first section and exposed part of section 2. Lay shock cord as shown and fold mount over again.
- Clamp unit together with fingers until glue sets.



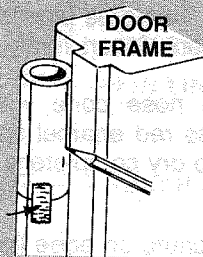
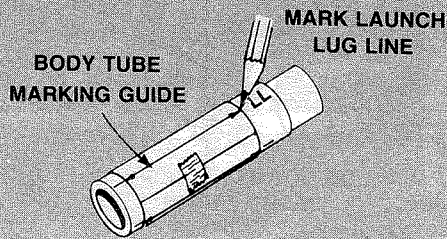
5

- Apply glue to inside front of large body tube to cover an area no less than 1 inch to 2 inches from end. The glued area should be same size as shock cord mount.
- Press mount firmly into glue as shown.
- Hold until glue sets.



## 6

- Cut out body tube marking guide from front of instructions.
- Wrap guide around booster and tape. Mark tube at arrows. Remove guide.
- Slide stage coupler of booster tube into rear of main body tube. Tape tubes together.
- Draw straight lines connecting each pair of marks.
- Extend lines the length of tubes.

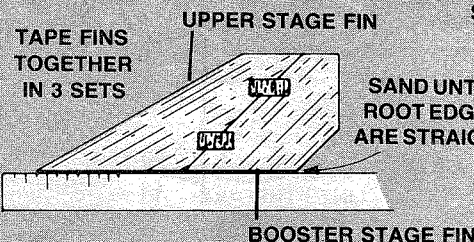
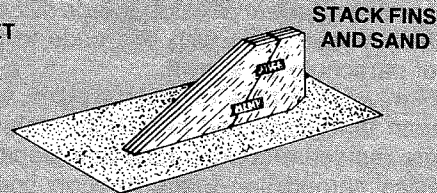
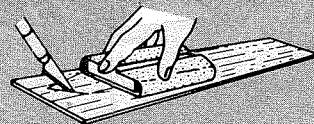


CONNECT MARKS AND EXTEND LINES

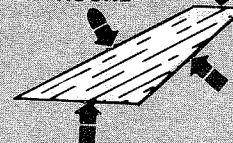
## 7

- Fine sand balsa die-cut sheet. Carefully remove fins by freeing edges with sharp knife.
- Stack alike fins together. Sand all edges smooth.
- Unstack fins and tape upper stage fins and booster fins together tightly in three sets.
- Carefully sand root edges if necessary to obtain proper alignment.

SAND AND REMOVE FINN FROM BALSA SHEET



SAND LEADING EDGE OF UPPER STAGE FIN ROUND



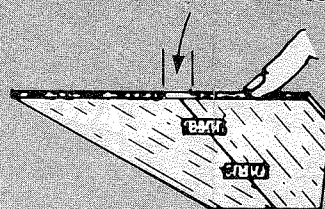
SAND UNTIL ROOT EDGES ARE STRAIGHT

BOOSTER STAGE FIN

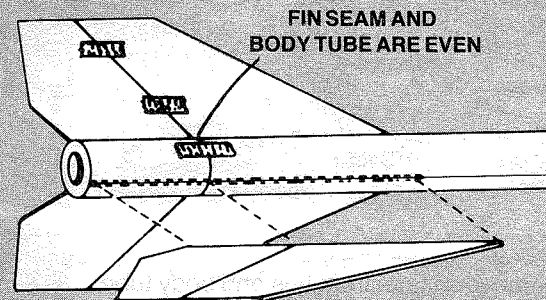
## 8

- Apply a bead of glue to the root edge of each fin set, leaving a 1/8 inch gap on each side of fin joint as shown.
- Attach fin sets to body tubes with fins centered on pencil line and fin joint even with booster and main body tube joint. Repeat for each of other two fin sets.
- Adjust fins to project straight out from tube.
- Do not set rocket on fins while glue is wet.

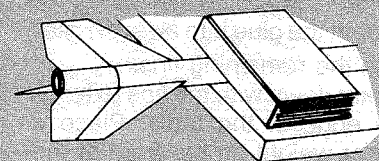
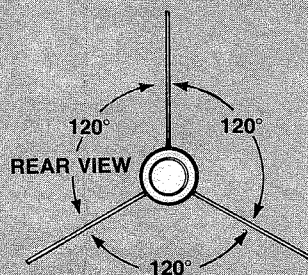
LEAVE 1/4 INCH GAP IN GLUE



RUB GLUE INTO ROOT EDGE



GLUE TO FIN ALIGNMENT LINE

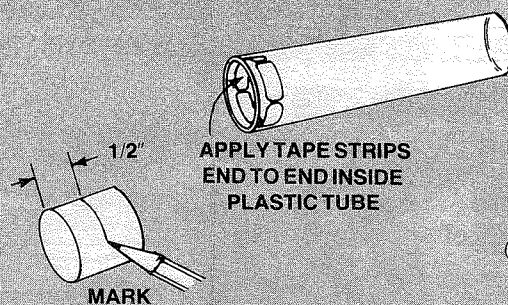


ALLOW FINN TO DRY

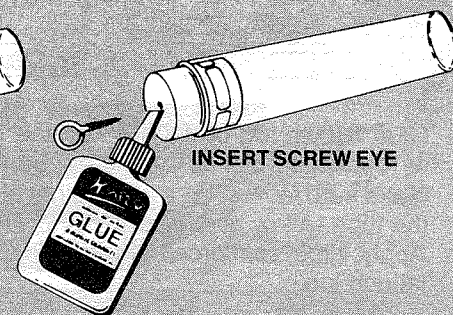
**FINN MUST BE ATTACHED CORRECTLY FOR STABLE FLIGHT**

## 9

- Apply four tape strips to inside of clear plastic payload section.
- Mark nose block 1/2 inch from one end. Smear glue onto 1/2 inch section of nose block all the way around.
- Push nose block into clear payload section until mark is even with edge of tube.
- Insert screw eye into nose block. Remove and squirt glue into hole. Re-insert screw eye.

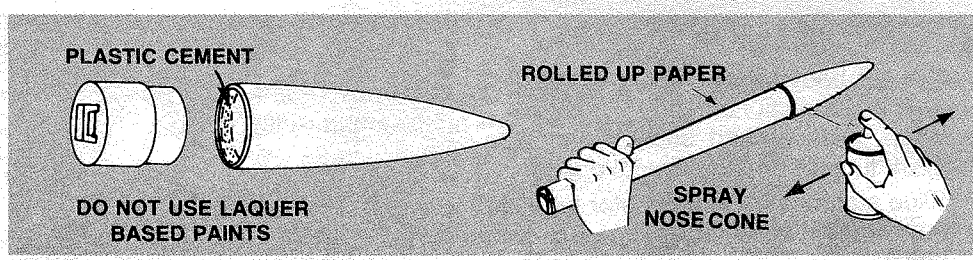


APPLY TAPE STRIPN END TO END INSIDE PLASTIC TUBE



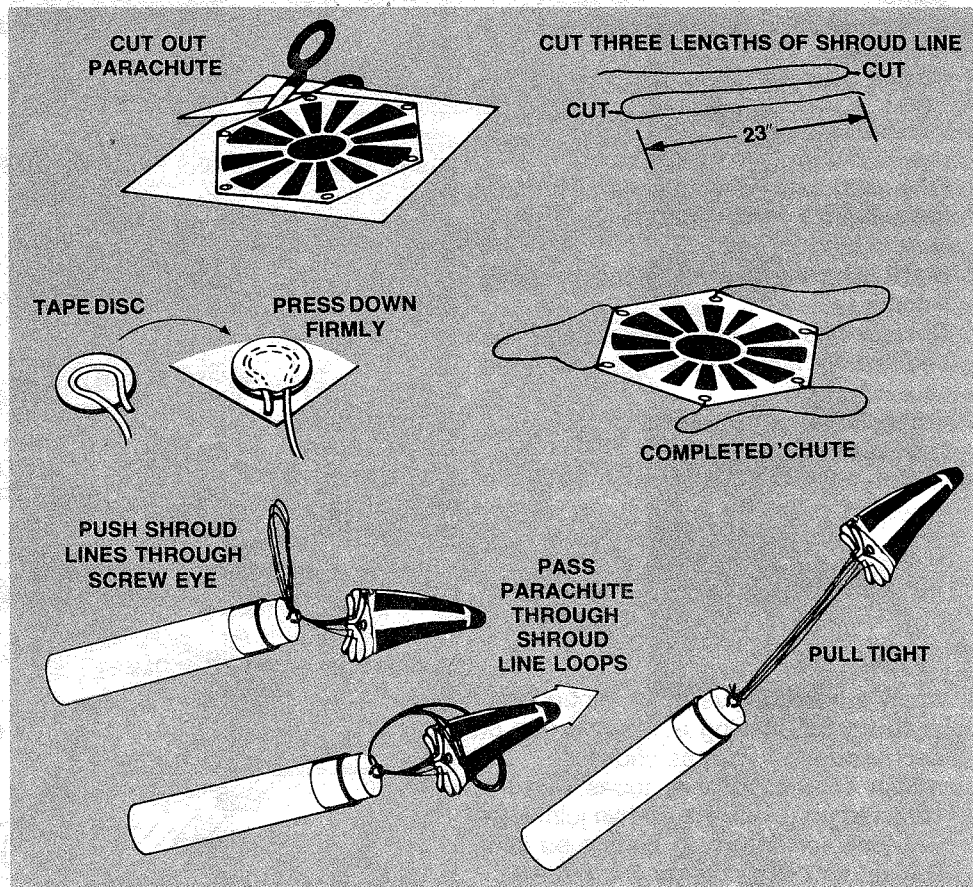
# 10

- A. Cement nose cone and nose cone insert together with tube-type plastic cement.
- B. Push nose cone insert firmly into nose cone.
- C. Spray entire nose cone with several coats of gloss red enamel spray paint. Allow paint to dry completely.



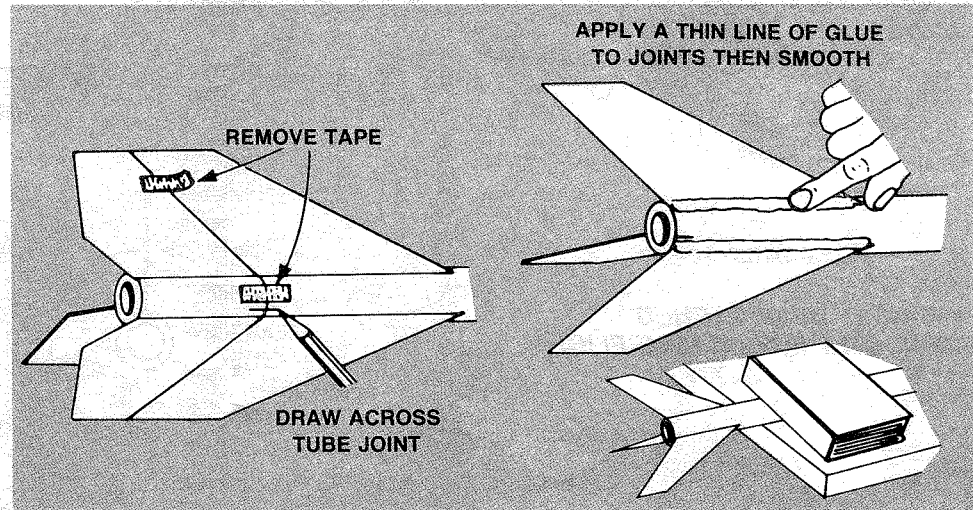
# 11

- A. Cut out parachute on edge lines.
- B. Cut three 23 inch lengths of shroud line.
- C. Form small loops with shroud line ends and press onto sticky side of tape discs.
- D. Attach tape discs with line ends to top of parachute as shown.
- E. Firmly press tape discs into place until both tape discs and parachute material are molded around shroud line loops.
- F. Pass shroud line loops through screw eye in nose block. Pass parachute through loop ends and pull lines against the nose block.
- G. Tie free end of shock cord to screw eye.



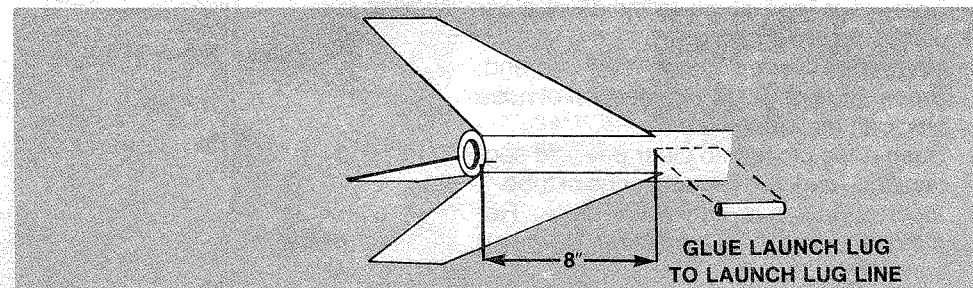
# 12

- A. Remove all tape from fins and body tube. Draw small pencil mark across tube joints so the two stages can be put back together in same position.
- B. Apply a bead of glue to both sides of a fin/body joint. Pull your finger along the joint to smooth the glue into an even fillet. Repeat with the remaining fins.
- C. Lay the rocket down with the fins extending off the edge of the table. Place a book or other weight on the front of the body and allow glue to dry.



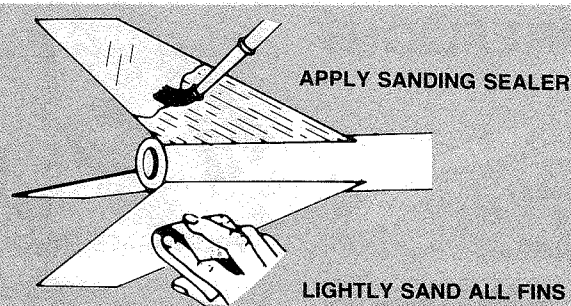
# 13

- A. Glue launch lug on launch lug line with its rear edge 8 inches from rear of tube.
- B. Make sure launch lug runs straight along the tube. Allow glue to dry.
- C. Apply glue reinforcement to sides of launch lug.



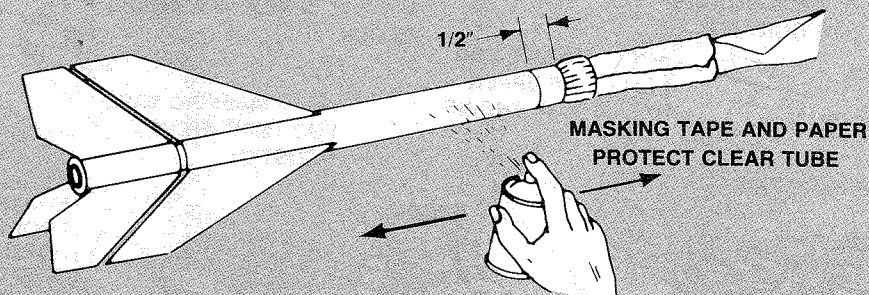
## 14

- After glue reinforcement on fins has thoroughly dried, apply sanding sealer to fins.
- When sealer is dry, lightly sand balsa parts. Repeat sealing and sanding until balsa grain lines are filled.



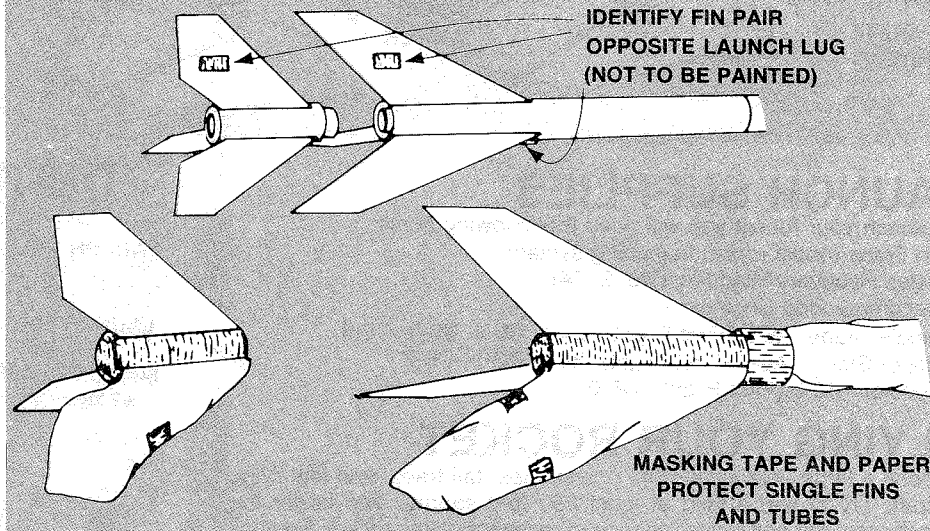
## 15

- Install booster stage and clear payload section to main body as shown. Align marks on upper stage and booster.
- Mask off clear payload section 1/2 inch from section joint. Paint entire rocket gloss white. Allow paint to dry for a couple of hours before removing mask.



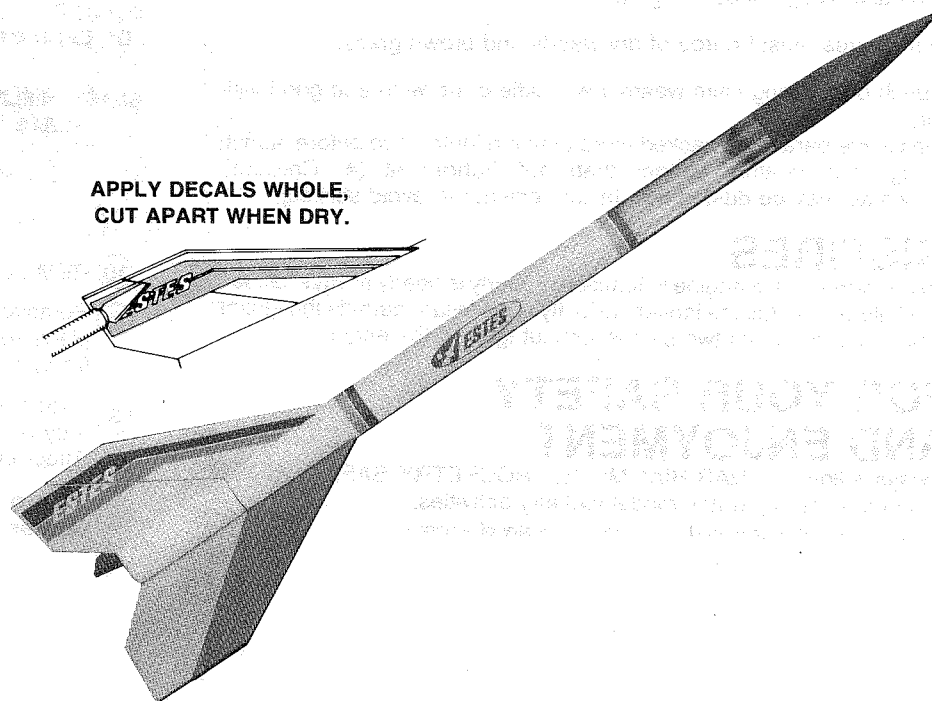
## 16

- Place a small piece of masking tape onto booster and upper stage fins opposite launch lug. These fins will remain white.
- Separate the two stages. Apply masking tape and paper to body tube and fin not to be painted on each stage as shown.
- Spray paint upper stage fins gloss red. Spray paint booster stage fins gloss orange. Allow both units to dry before removing masking.

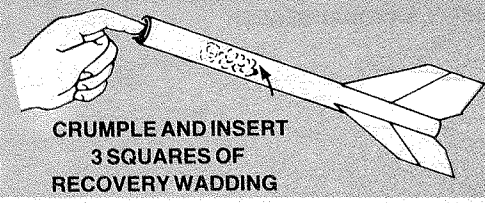


## 17

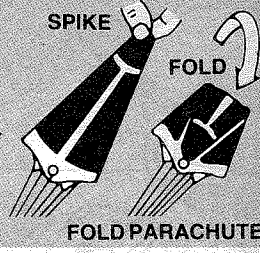
- When all paint is dry, apply decals in positions shown.
- Refer to photo on instructions and photo on panel for decal placement. To apply decals, cut out each decal, dip in lukewarm water for 20 seconds, and hold until it uncurls. Slip decal off backing sheet and onto model. Blot away excess water.



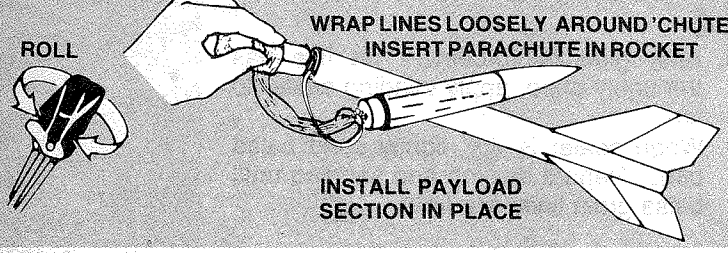
# ROCKET PREFLIGHT



CRUMPLE AND INSERT  
3 SQUARES OF  
RECOVERY WADDING

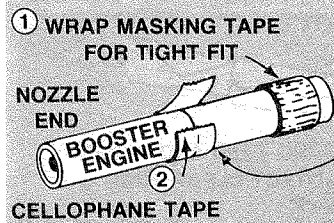


SPIKE  
FOLD  
ROLL  
FOLD PARACHUTE

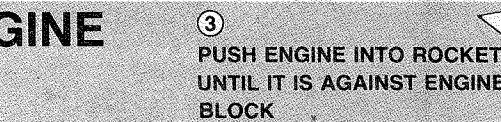


WRAP LINES LOOSELY AROUND CHUTE  
INSERT PARACHUTE IN ROCKET  
INSTALL PAYLOAD  
SECTION IN PLACE

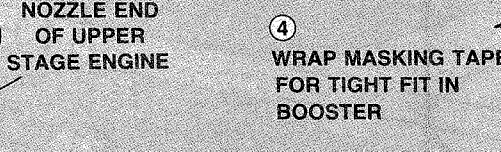
# PREPARE ENGINE



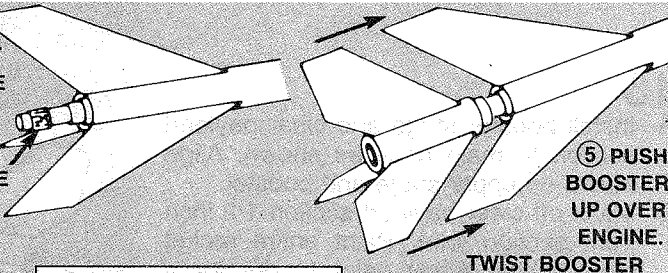
1 WRAP MASKING TAPE  
FOR TIGHT FIT  
NOZZLE  
END  
BOOSTER  
ENGINE  
2  
CELLOPHANE TAPE



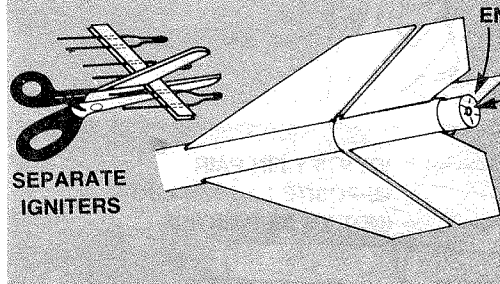
3 PUSH ENGINE INTO ROCKET  
UNTIL IT IS AGAINST ENGINE  
BLOCK



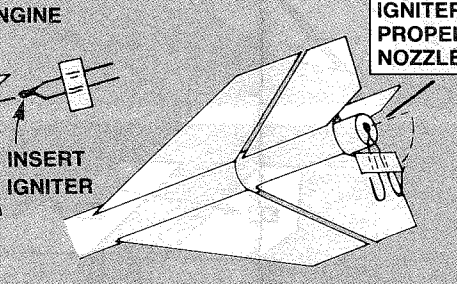
4 WRAP MASKING TAPE  
FOR TIGHT FIT IN  
BOOSTER



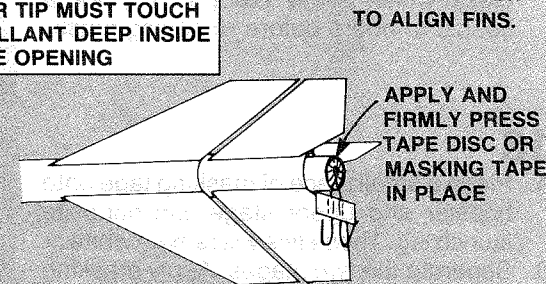
5 PUSH  
BOOSTER  
UP OVER  
ENGINE.  
TWIST BOOSTER  
TO ALIGN FINNS.



SEPARATE  
IGNITERS  
ENGINE  
INSERT  
IGNITER



IGNITER TIP MUST TOUCH  
PROPELLANT DEEP INSIDE  
NOZZLE OPENING



APPLY AND  
FIRMLY PRESS  
TAPE DISC OR  
MASKING TAPE  
IN PLACE

# LAUNCH SUPPLIES

- To launch your rocket you will need the following items:
- An Estes model rocket launching system
  - Estes Recovery Wadding (No. 2274)
  - Recommended Engines:
    - Single Stage: A8-3 (First Flight), B4-4, B6-4, B8-5, C6-5
    - Upper Stage: A8-5 (First Flight), B6-6, B8-5, C6-7
    - Booster: B6-0 (First Flight), C6-0

# FLYING YOUR ROCKET

Choose a large field away from power lines, tall trees, and low flying aircraft. Try to find a field at least 250 feet square. The larger the launch area, the better your chance of recovering your rocket. Football fields and playgrounds are great.

Launch area must be free of dry weeds and brown grass.

Launch only during calm weather with little or no wind and good visibility.

Don't leave parachute packed more than a minute or so before launch during cold weather [colder than 40° Fahrenheit (4° Celsius)]. Parachute may be dusted with talcum powder to avoid sticking.

# MISFIRES

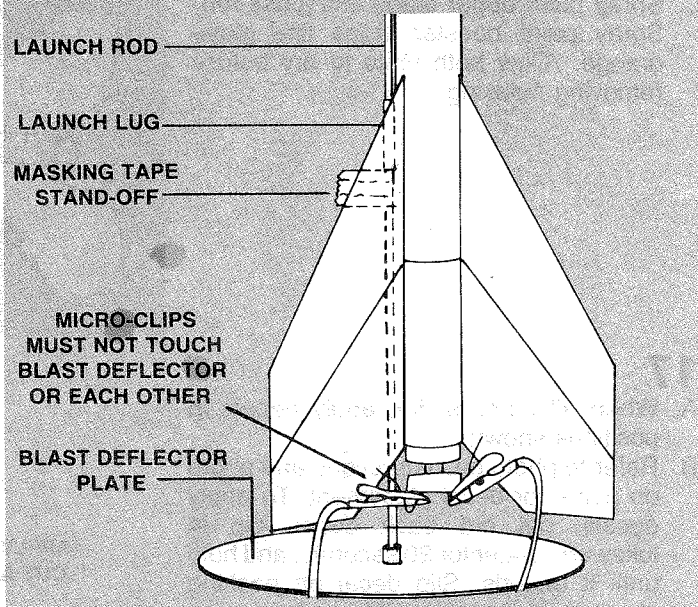
Failure of the rocket engine to function properly is nearly always caused by a failure to install the igniter correctly. This failure permits the igniter to heat and burn into two pieces without igniting the engine.

# FOR YOUR SAFETY AND ENJOYMENT

Always follow the NAR-HIA\* MODEL ROCKETRY SAFETY CODE while participating in any model rocketry activities.

\*National Association of Rocketry-The Hobby Industry of America

# COUNTDOWN AND LAUNCH

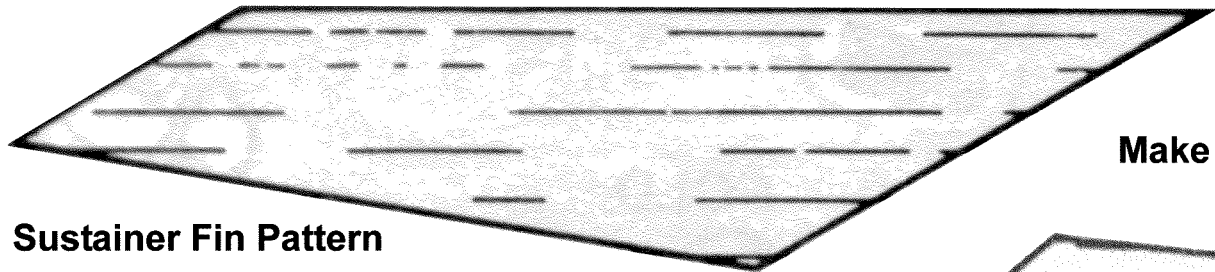


- 10 REMOVE SAFETY KEY to disarm the launch controller.
- 9 Remove safety cap and slide launch lug over launch rod to place rocket on launch pad. Make sure the rocket slides freely on the launch rod.
- 8 Attach micro-clips to the igniter wires. Arrange the clips so they do not touch each other or the metal blast deflector. Attach clips as close to protective tape on igniter as possible.
- 7 Move back from your rocket as far as launch wire will permit, (at least 15 feet).
- 6 INSERT SAFETY KEY to arm the launch controller.

Give audible Countdown 5...4...3...2...1

**LAUNCH!!** PUSH AND HOLD LAUNCH  
BUTTON UNTIL ENGINE IGNITES

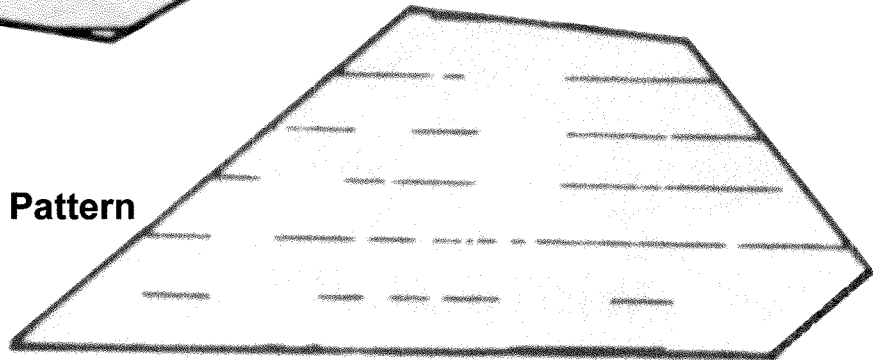
Remove safety key—Replace cap on rod.



**Sustainer Fin Pattern**

**Make Three (3) Each**

**Booster Fin Pattern**



**BFS-30 Fin Stock  
(3/32" Thick)**

ESTES  
INDUSTRIES  
PN 37519





Estes #1377 "Hercules" Two-Stage Payloader

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Parts List  
-----

1	BT-50W	9.5"	Sustainer Body
1	BT-50J	2.75"	Booster Body
1	PST-50S	4"	Clear Payload Body
1	BT-20J	2.75"	Sustainer Engine Mount Tube
1	BT-20M	2.25"	Booster Engine Mount Tube
1	PNC-50AD	4 1/16"	Plastic Nose Cone
1	JT-50C	1"	Tube Joiner
1	NB-50	1"	Nose Block
1	EB-20B	1/8"	Engine Block
1	LL-2A	1.25"	Launch Lug
4	AR-2050		Centering Rings
1	SE-3	Medium	Screw Eye
1	PK-12	12"	Parachute Set
1	BFS-30LA	3/32" x 3" x 12"	Balsa Sheet (Fins)

# HEADLINES HERCULES

## FLYING MODEL ROCKET

SKILL LEVEL 3

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

- Multi-Stage Performance
- Flights Over 2,500 Feet
- Clear Payload Section
- 12" Parachute Recovery
- Die-Cut Balsa Fins
- Plastic Nose Cone
- 2-Color Kit Decal

Length:  
21.625" (54.93cm)

Diameter:  
.976" (24.8mm)

Weight:  
1.84 oz. (52g)

**Engine Types:**

Single Stage:

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

Upper Stage:

A8-5 (First Flight), B6-6,  
B8-5, C6-7

Booster Stage:

A8-0 (First Flight), B6-0,  
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.



#1377



ESTES INDUSTRIES

