



HERCULES

SKILL LEVEL 3 - Recommended for Craftsman Rocketeers.

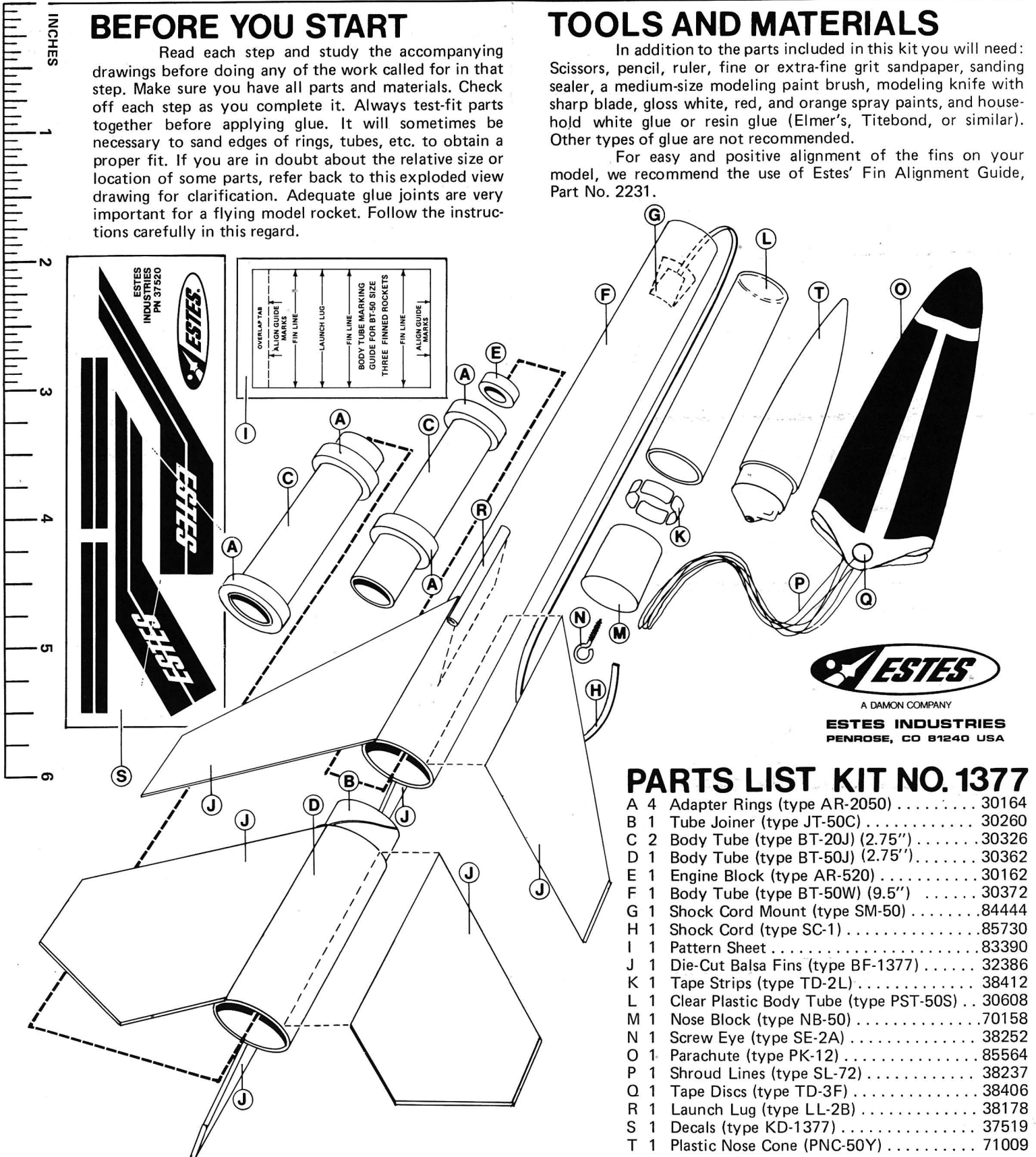
BEFORE YOU START

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.

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, red, and orange spray paints, and household white glue (Elmer's, Titebond, or similar). Other types of glue are not recommended.

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



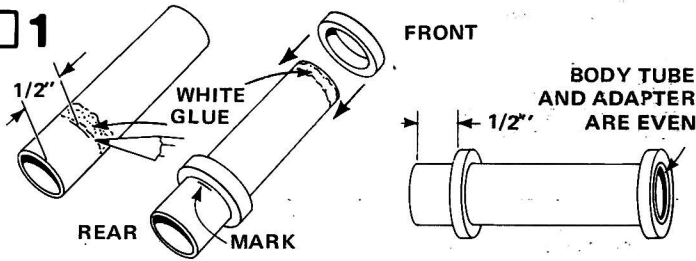
A DAMON COMPANY
ESTES INDUSTRIES
 PENROSE, CO 81240 USA

PARTS LIST KIT NO. 1377

| | | | |
|---|---|--|-------|
| A | 4 | Adapter Rings (type AR-2050) | 30164 |
| B | 1 | Tube Joiner (type JT-50C) | 30260 |
| C | 2 | Body Tube (type BT-20J) (2.75") | 30326 |
| D | 1 | Body Tube (type BT-50J) (2.75") | 30362 |
| E | 1 | Engine Block (type AR-520) | 30162 |
| F | 1 | Body Tube (type BT-50W) (9.5") | 30372 |
| G | 1 | Shock Cord Mount (type SM-50) | 84444 |
| H | 1 | Shock Cord (type SC-1) | 85730 |
| I | 1 | Pattern Sheet | 83390 |
| J | 1 | Die-Cut Balsa Fins (type BF-1377) | 32386 |
| K | 1 | Tape Strips (type TD-2L) | 38412 |
| L | 1 | Clear Plastic Body Tube (type PST-50S) | 30608 |
| M | 1 | Nose Block (type NB-50) | 70158 |
| N | 1 | Screw Eye (type SE-2A) | 38252 |
| O | 1 | Parachute (type PK-12) | 85564 |
| P | 1 | Shroud Lines (type SL-72) | 38237 |
| Q | 1 | Tape Discs (type TD-3F) | 38406 |
| R | 1 | Launch Lug (type LL-2B) | 38178 |
| S | 1 | Decals (type KD-1377) | 37519 |
| T | 1 | Plastic Nose Cone (PNC-50Y) | 71009 |

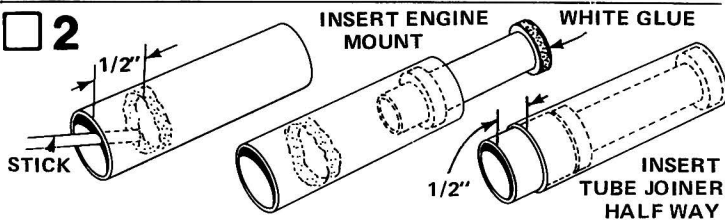
ASSEMBLY INSTRUCTIONS

1



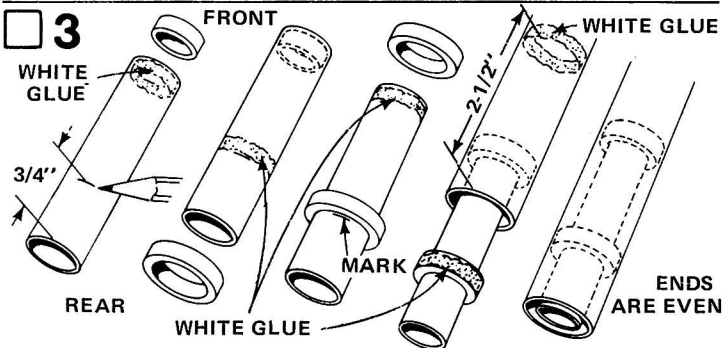
Locate the following items: Two adapter rings (part A), the JT-50C tube joiner (part B), a BT-20J body tube (part C), and the BT-50J body tube (part D). The BT-20J body tube has a smaller diameter than the BT-50J body tube although they are the same length. Mark the BT-20J body tube 1/2" from one end. Apply glue above this mark around the tube. Slide one of the adapter rings over the rear of the body tube until the rear of the ring is at the mark. Apply glue around the front of the tube and slide the other adapter ring over the tube so that the ring and the tube are even as shown. Allow the glue to dry before proceeding.

2



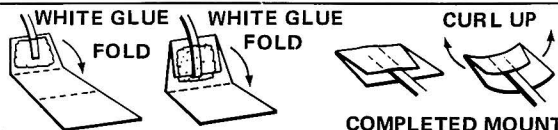
Use a stick to apply a ring of glue 1/2" inside one end of the BT-50J body tube. Slip the BT-20J unit in part way without touching the glue as shown. Apply a bead of glue around the exposed adapter ring and push the unit in the rest of the way until the tube ends are even. Wipe off any excess glue. Apply glue to the inside front of the lower stage body (the BT-50J body tube) and push in the tube joiner until it rests against the adapter ring. The coupler should now extend 1/2" from the end of the tube. Wipe off any excess glue and allow the glue to dry completely.

3



Locate the two remaining adapter rings, the other BT-20J body tube, the engine block (part E), and the main body tube (part F). Glue the engine block into the BT-20J body tube flush with one end. This will be referred to as the front of the tube. Measure 3/4" from the REAR of the tube and mark with a pencil. Apply glue above this mark and slide an adapter ring over the rear of the tube and push it up into the glue. The rear of the ring should be on the pencil mark. Glue the last adapter ring onto the front of the engine tube even with the end of the tube. Let the glue dry before proceeding. Use a stick to apply a generous amount of glue around the inside of the main body tube about 2-1/2" from one end as shown. Using one smooth motion, slide the engine mount into the main body tube FRONT END FIRST. Push in until the ends of the two tubes are even.

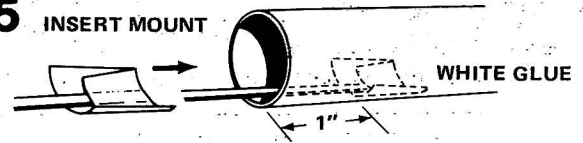
4



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

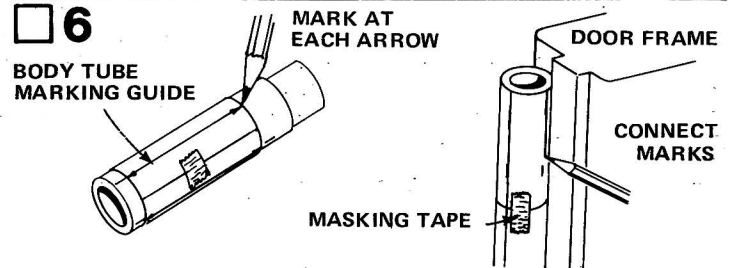
cord (part H) into the glue. Fold over and apply glue to the back of Section 1 and the exposed part of Section 2. Fold again to complete the mount. Curl the edges of the mount up so it will match the contour of the body tube and hold with your fingers until the glue sets.

5



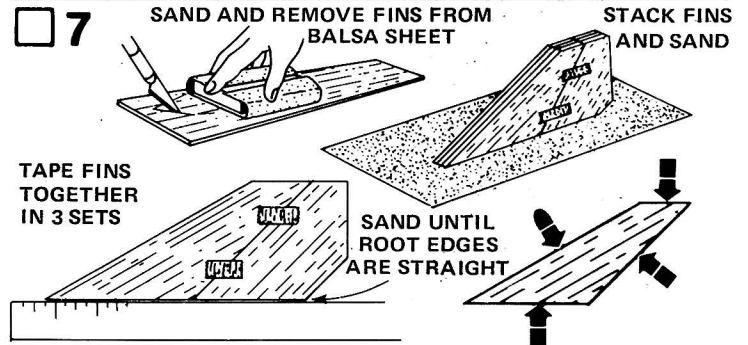
Use a finger or stick to apply glue to the inside of the front of the body tube, 1" to 2" from the front of the tube. Press the shock cord mount firmly into position in glue far enough from the front edge of the tube to allow clearance for the nose cone to fit into place. To insure a good bond use a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

6



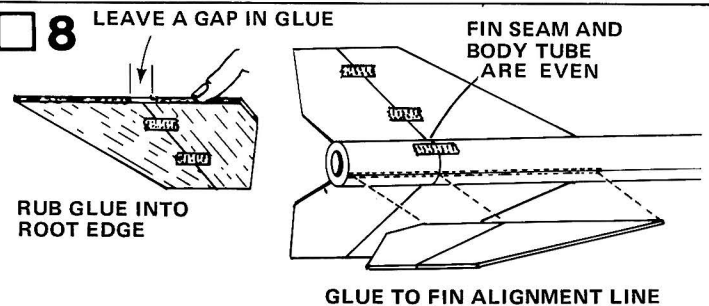
Cut out the body tube marking guide from the pattern sheet (part I). Wrap the guide around the lower stage body (BT-50J body tube), align the guide marks, and tape the guide together. Mark the fin and launch lug lines onto the body tube at both ends of the tube. Slide the guide off the tube. Fit the rear of the upper stage onto the front of the lower stage. Tape the tubes together in two places, making sure the tape does not cover the fin or launch lug lines. Draw straight lines connecting each pair of marks. The inside edge of a door frame can be used as a guide as shown. Extend the lines the length of the lower stage and at least 3" up the upper stage.

7



Fine sand the die-cut balsa fin sheet (part J). Free the fin edges with a sharp knife, then carefully remove the die-cut fins from the sheet. Stack the fins into two sets and sand each set on all sides until they are smooth. Unstack the fins and tape them tightly together in three sets as shown. NOTE: The fins are NOT glued together. Use a ruler or similar straight-edge to be sure the root edges in each set are properly aligned with each other. Carefully sand the root edges if necessary to obtain the proper alignment. Sand the leading edge of each of the first fins in all of the three fin units round as shown. Leave the fin units taped together.

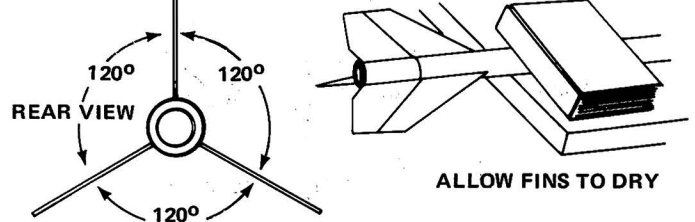
8



RUB GLUE INTO ROOT EDGE

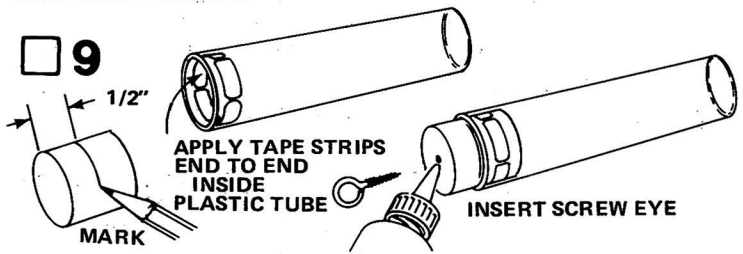
GLUE TO FIN ALIGNMENT LINE

STEP 8 CONTINUED



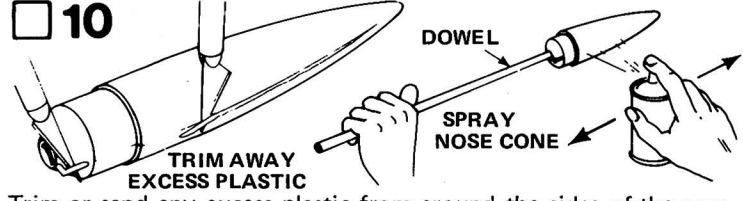
Being careful to leave a 1/8" gap on each side of the joint in each fin set, rub a line of glue into the root edge of each fin. Allow the glue to dry. Repeat the glue application technique to glue each of the fin units onto the body tube alignment lines, placing the fin seams over the joints of the body tube as shown. Adjust the fins so that they project straight away from the body tube. Again check to make sure that there is not any glue on the fin seams or the body tube joint and that the fins are aligned properly on the alignment lines. **DO NOT** set the rocket on its fins while the glue is wet.

9



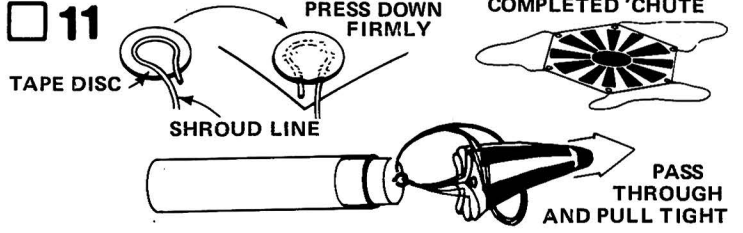
Apply four tape strips (part K) to the inside of the clear plastic body tube (part L) lengthwise, end to end along the end of the tube as shown. Mark the nose block (part M) at 1/2" along the side. Smear glue on one end of the block all the way around. Push the nose block into the clear tube on the taped end, glued end first, until the mark is at the edge of the tube. Let the glue dry. Insert the screw eye (part N) into the nose block. Remove the screw eye, squirt glue into the hole, and reinsert the screw eye.

10



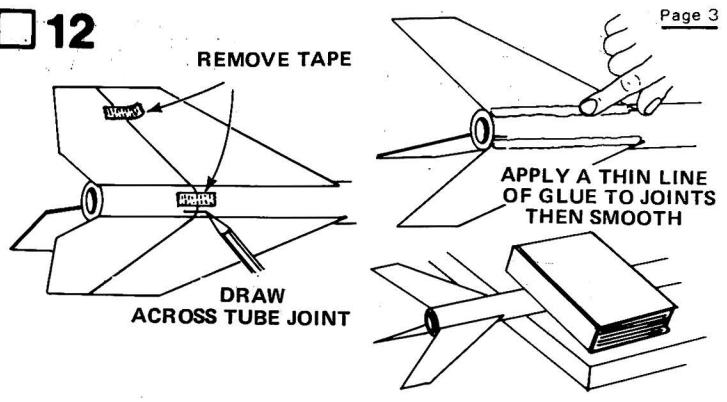
Trim or sand any excess plastic from around the sides of the nose cone (part T). Use a sharp knife to remove any excess plastic from the inside of the molded eyelet at the rear of the nose cone. Wash the nose cone with lukewarm soapy water, rinse well, and let dry. Using a dowel or stick inserted in the rear of the nose cone, spray the entire nose cone with several coats of gloss red enamel spray paint. Allow the paint to dry completely.

11



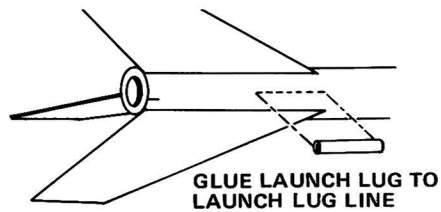
Cut out the parachute (part O) on its edge lines. Cut three 24" lengths of shroud line (part P). Attach line ends to the top of the parachute with the tape discs (part Q) as shown. Form a loop in the end of a shroud line. Holding loop, gently center the loop inside the tape disc on the sticky side. Then carefully press the 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 are molded around the shroud line loop. Repeat for the other shroud lines and tape discs. Pass the shroud line loops through the screw eye in the nose block. Pass the parachute through the loop ends and pull the lines tight against the screw eye. Tie the free end of the shock cord to the screw eye. A square knot or strong double knot should be used.

12



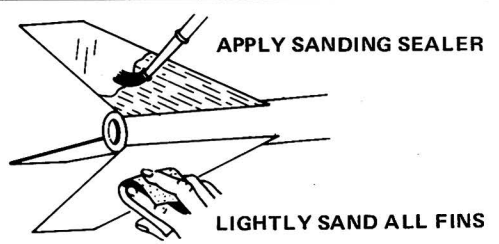
Proceed with this step **ONLY** after all of the glue has **THOROUGHLY DRIED**. Remove all of the tape from the fins and the body tube. Draw a small pencil mark across the tube joint so that the two stages can be put back together in the same position. Separate the upper and lower stages. Run a bead of glue along both sides of a fin. Draw your finger along the joint to smooth the glue and remove any excess. Repeat this with all of the fins. **IMPORTANT** - Support rocket on table edge as shown until the glue dries.

13



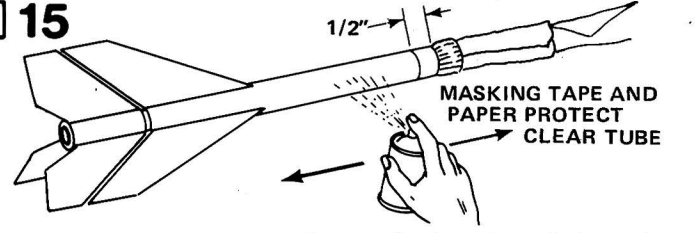
Glue the launch lug (part R) onto the launch lug line on the upper stage so that the front of the launch lug is even with the leading edge of the fins as shown. Sight along the launch lug to make sure that it runs parallel with the body tube. Apply a glue reinforcement to each side of the lug using a scrap of balsa for the applicator.

14



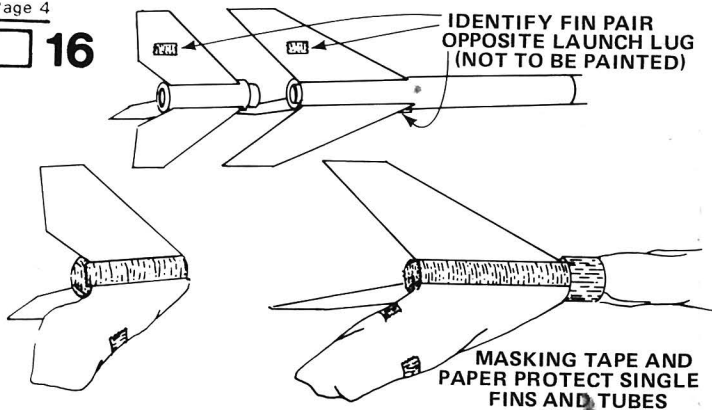
After the glue reinforcements on the fins have thoroughly dried, prepare the balsa surfaces for painting. Proper application of sanding sealer makes the rocket look better and fly higher. Apply a coat of sanding sealer to each fin. When the sealer is dry, lightly sand the fins. Repeat sealing and sanding until the balsa grain is filled and smooth.

15



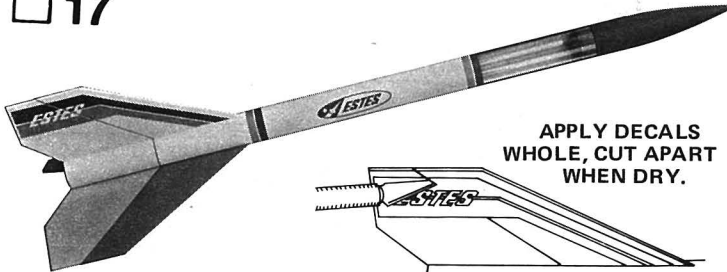
Install the lower stage and the clear payload section of the rocket to the main body tube as shown. Be sure to align the marks on the lower stage and the upper stage. Wrap several layers of paper around the clear payload section and seal with a wrapping of masking tape 1/2" from the rear of the clear payload section as shown. Use rolled-up newspaper or other paper inserted into the payload section to hold the rocket and also to prevent paint from spraying inside the tube. Spray the entire unit with several light coats of gloss white enamel spray paint. Applying the paint in several light coats instead of one heavy coat will help to prevent runs and produce a better finish. Allow the paint to dry **THOROUGHLY** (Overnight is best).

16



Place a small piece of masking tape onto the upper and lower fins opposite the launch lug. These fins will remain white. Separate the two stages. Apply masking tape and paper to the body tube and fin not to be painted on each stage as shown. **BE SURE THE MASKING TAPE IS WELL SEALED ON ALL OF THE EDGES.** Spray the two upper stage fins with gloss red enamel spray paint. Spray the two lower stage fins with gloss orange enamel spray paint. Allow both units to dry, then **CAREFULLY** remove the masking tape from the fin units and the payload section.

17



When all paint is dry, apply the decals (part S) 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 "Gloss-Cote". This is a clear gloss spray that protects the decal and 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 A8-0 — A8-5, B6-0 — B6-6/B8-5 or C6-0 — C6-7 model rocket engines. Use A8-0 and A8-5 engines for your first flight.
- Estes A8-3, B4-4, B8-5, C5-3, or C6-5 model rocket engines may be used when flying single stage rocket only.

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

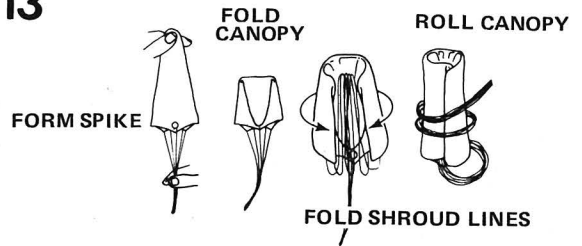
COUNTDOWN CHECKLIST

T-14



Pack 4 or 5 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-13

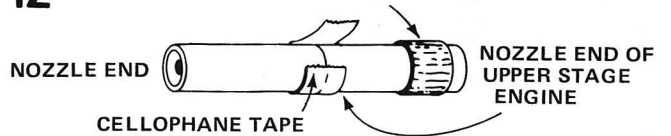


Hold the parachute at its center and pass the other hand down it to form a "spike" shape. Fold this spike in half. Fold shroud lines back along parachute and then back down to lower edge of parachute to reduce length of shroud line "left over". Roll parachute into tube shape to fit easily into body. 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.

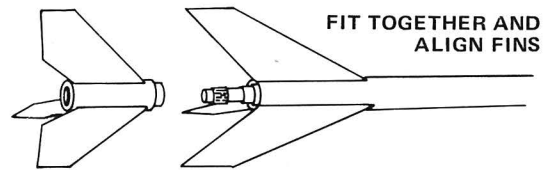
T-12

MASKING TAPE FOR TIGHT FIT



Position the engines with the nozzle of the upper stage engine against the top end of the booster engine. Wrap a layer of cellophane tape tightly around the joint as shown. Check to be sure the engines are in their proper relative positions. Wrap masking tape around the top of the upper stage engine so it makes a tight friction fit in the engine mount tube. Insert the upper stage end of the engine unit into the upper stage engine mount.

T-11



Wrap masking tape around the lower portion of the lower booster engine. Slide the lower stage onto the booster engine. Make sure you have enough masking tape around engine for a tight fit. Twist the lower stage to align the fins exactly.

T-10

Install an igniter in the booster engine as directed in the engine instructions.

T-9

Disarm the launch panel — **REMOVE SAFETY KEY!**

T-8

Place rocket on launch pad, making sure rocket slides freely on launch rod. Clean the micro-clips and attach to the igniter.

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!!

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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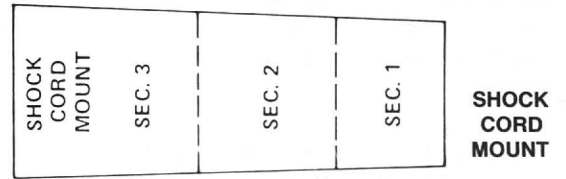
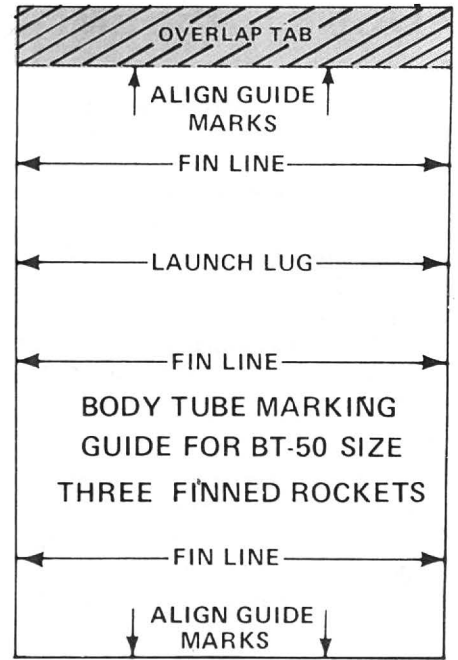
Flying Model Rocket Kit

#1377



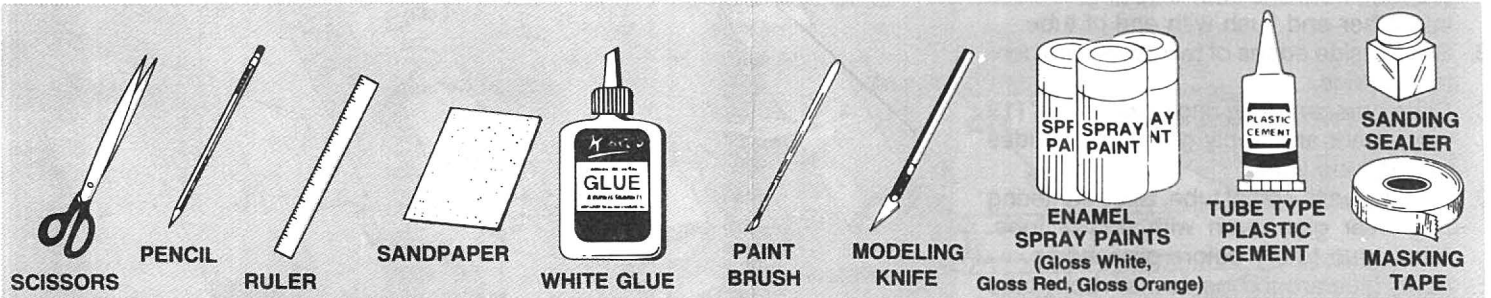
ASSEMBLY TIP

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.



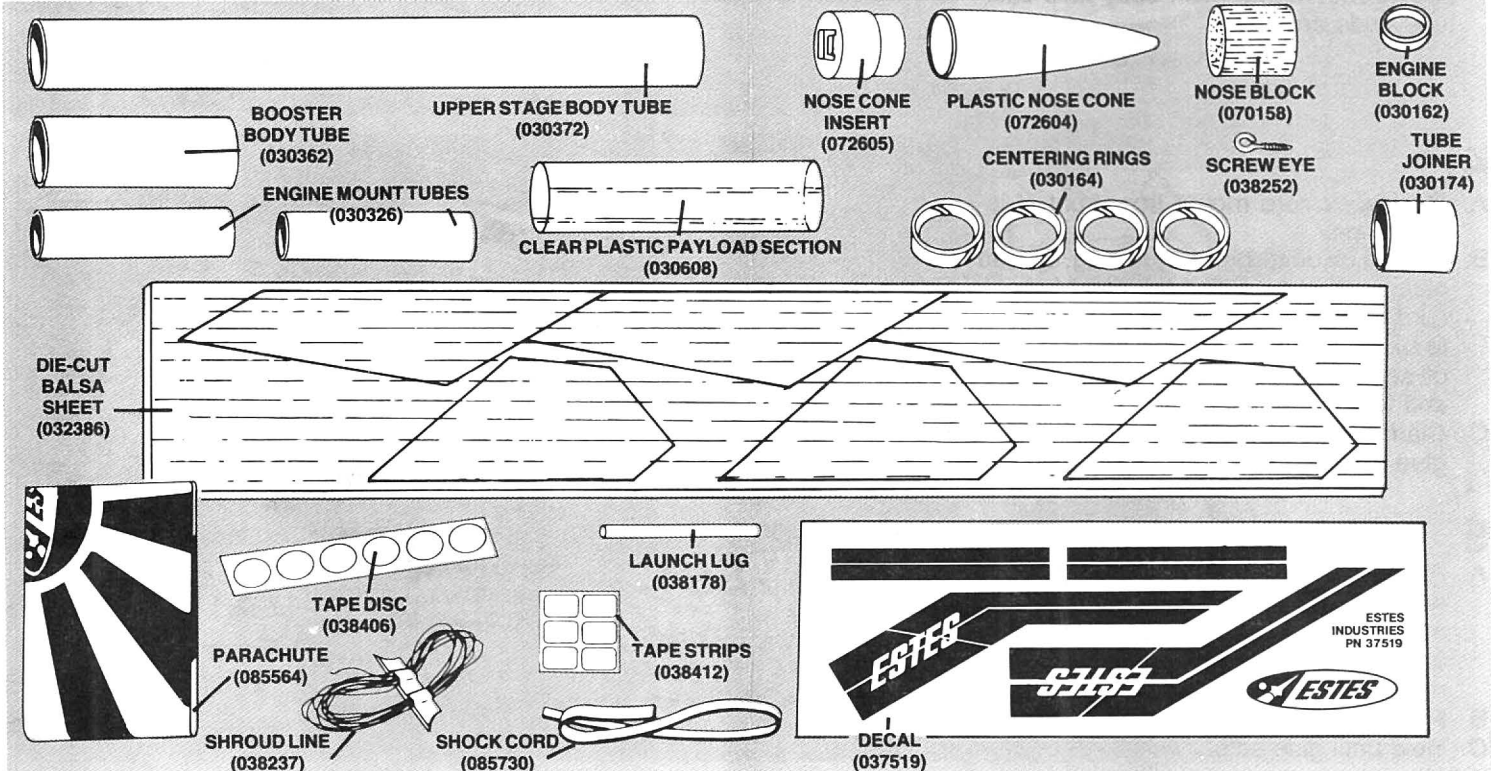
SUPPLIES

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.

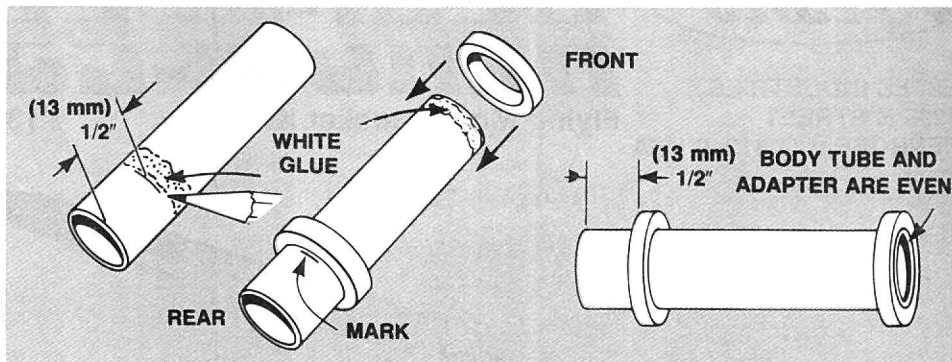


ESTES INDUSTRIES
PN 37519

ROCKET ASSEMBLY

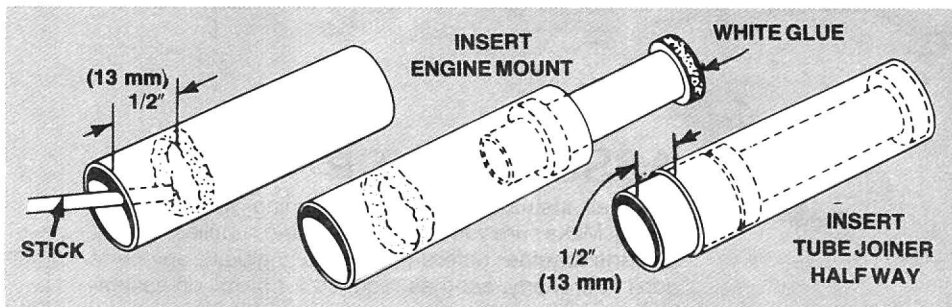
1

- Mark one engine mount tube 1/2" (13 mm) from rear of tube.
- Sand inside edges of two centering rings.
- Slide one centering ring down to 1/2" (13 mm) 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.



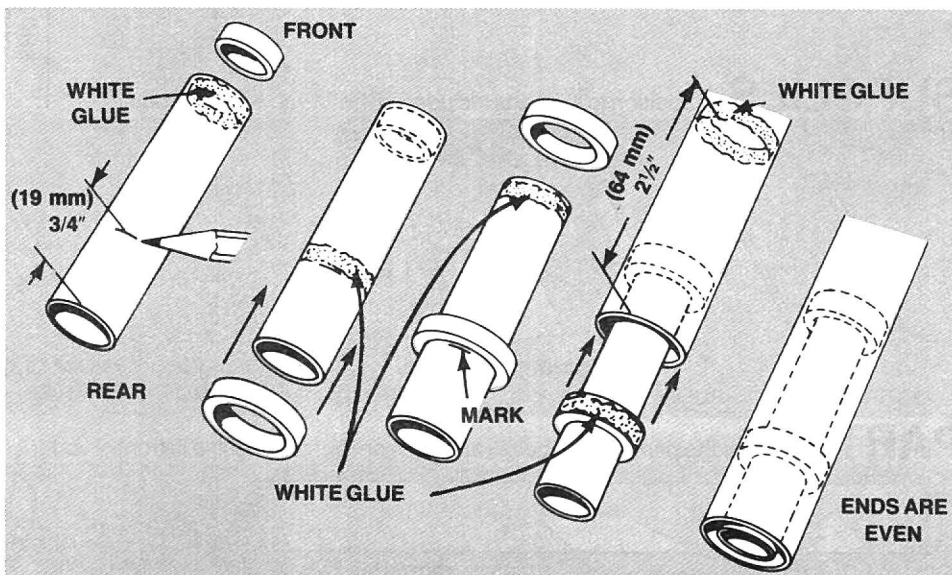
2

- Apply a ring of glue 1/2" (13 mm) 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" (13 mm) of joiner extends from tube.



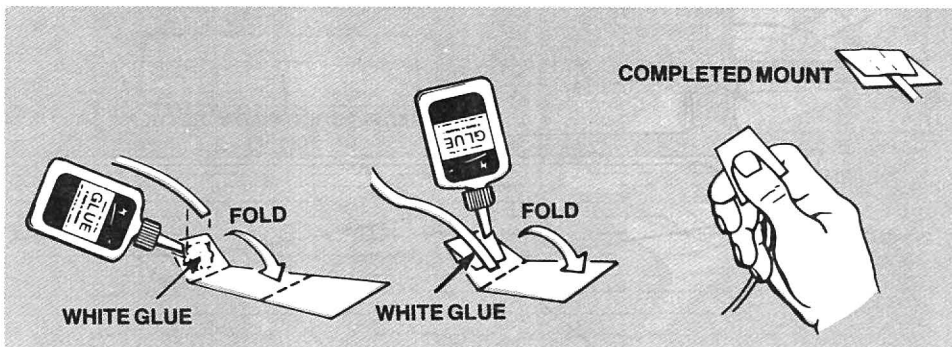
3

- Mark remaining engine mount tube 3/4" (19 mm) 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" (19 mm) 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" (64 mm) from one end. Slide engine mount into main body tube until tube ends are even.



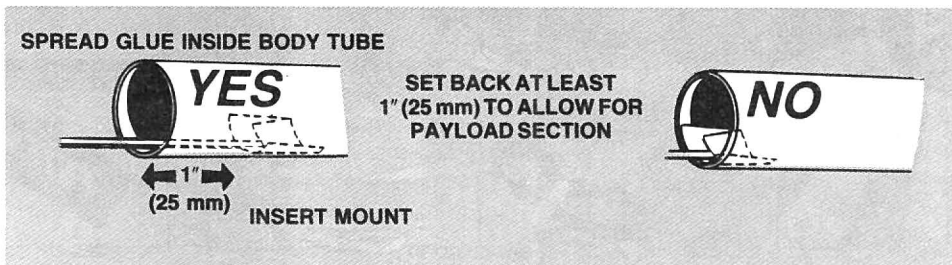
4

- 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.



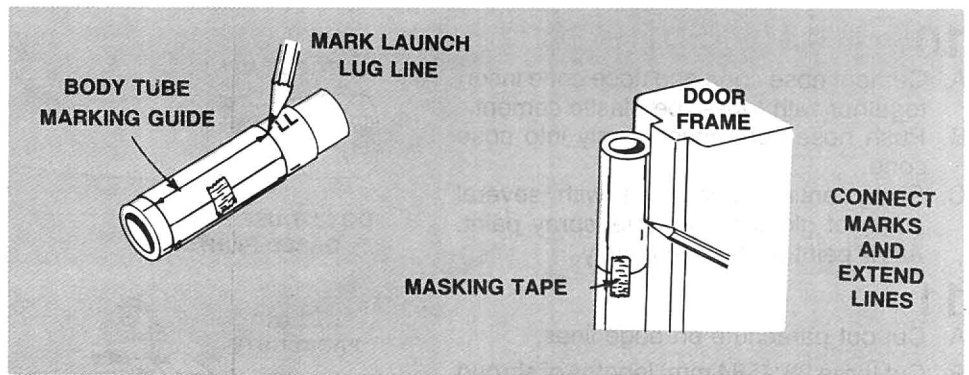
5

- Apply glue to inside front of large body tube to cover an area no less than 1" (25 mm) to 2" (51 mm) from end. The glued area should be same size as shock cord mount.
- Press mount firmly into glue as shown.
- Hold until glue sets.



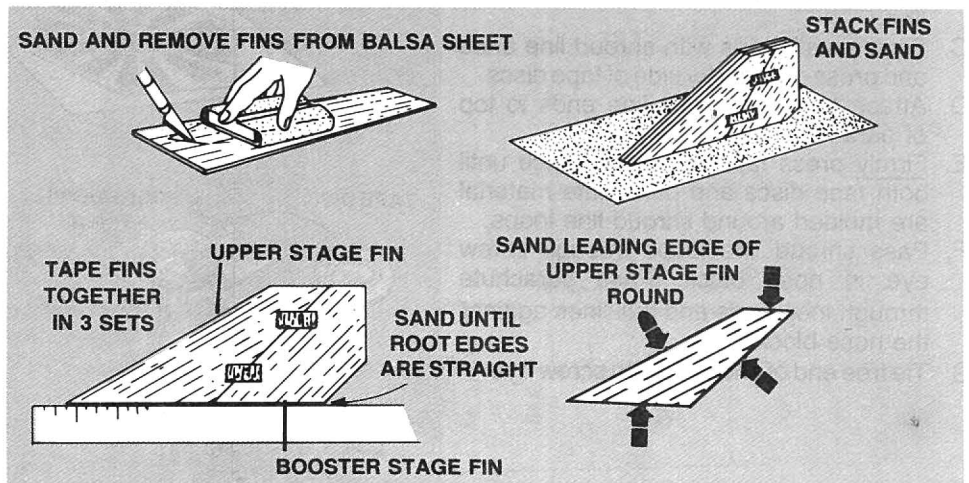
6

- 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.



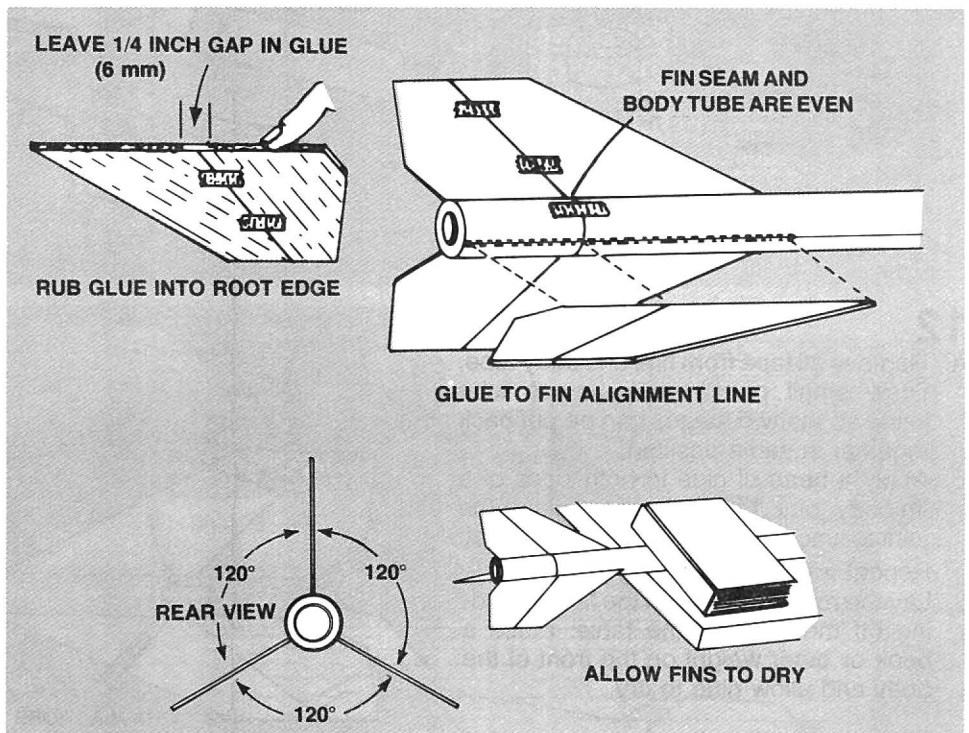
7

- 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.



8

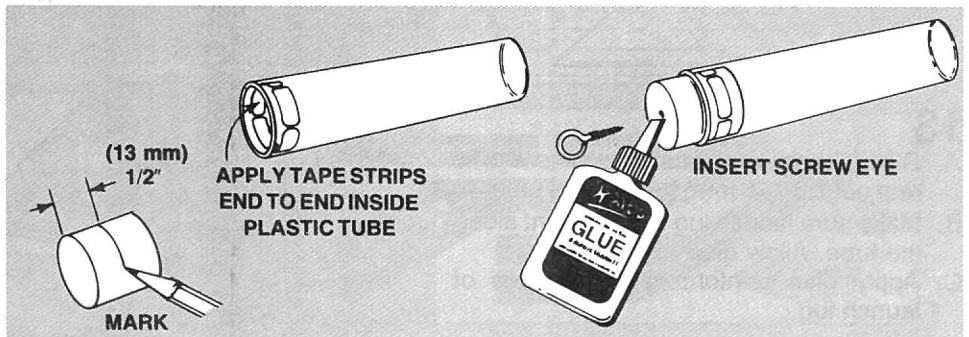
- Apply a bead of glue to root edge of each fin set, leaving a 1/8" (3 mm) gap on each side of fin joint as shown.
- Attach fin sets to body tubes with fins centered on pencil line and fin joint even with booster and main body tube joint. Repeat for each of other two fin sets.
- Adjust fins to project straight out from tube.
- Do not set rocket on fins while glue is wet.



FINS MUST BE ATTACHED CORRECTLY FOR STABLE FLIGHT

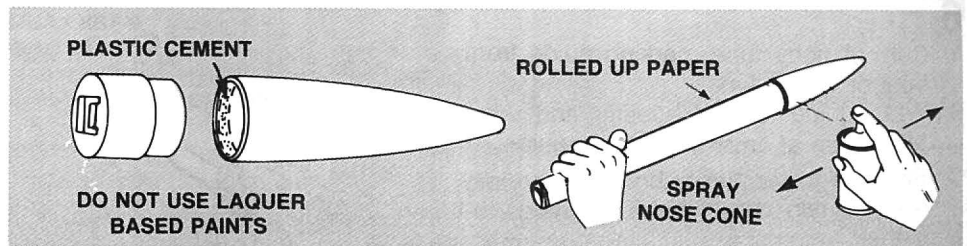
9

- Apply four tape strips to inside of clear plastic payload section.
- Mark nose block 1/2" (13 mm) from one end. Smear glue onto 1/2" (13 mm) 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.



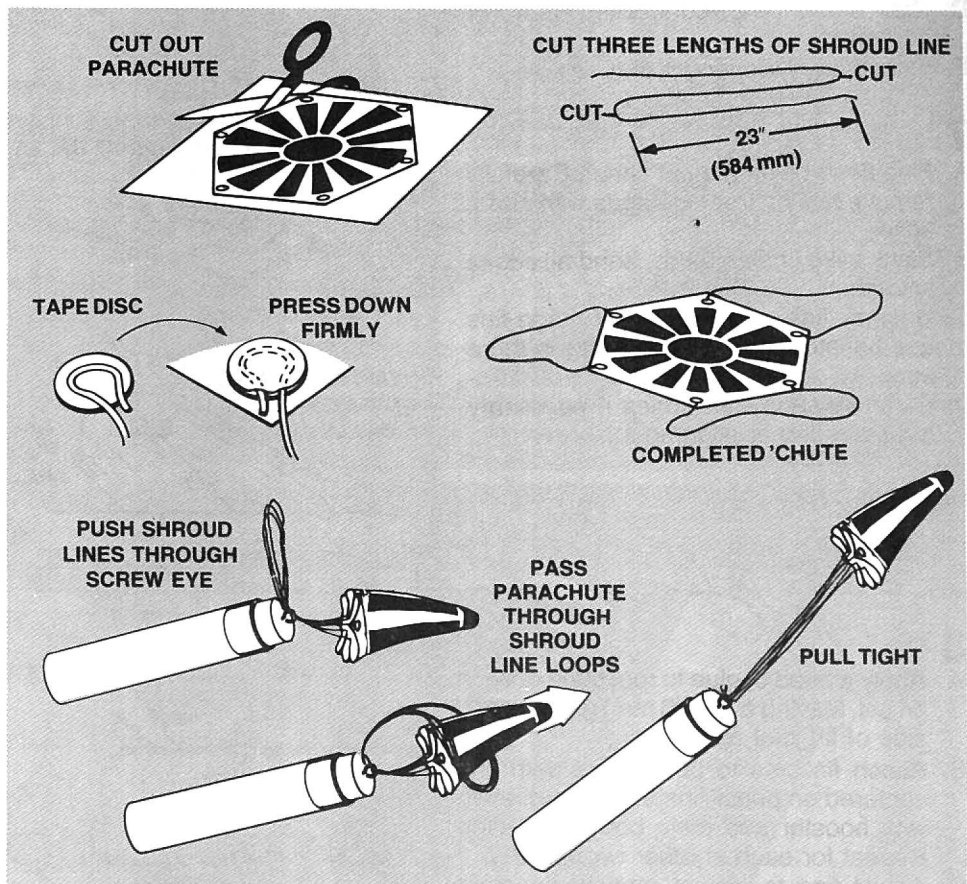
10

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



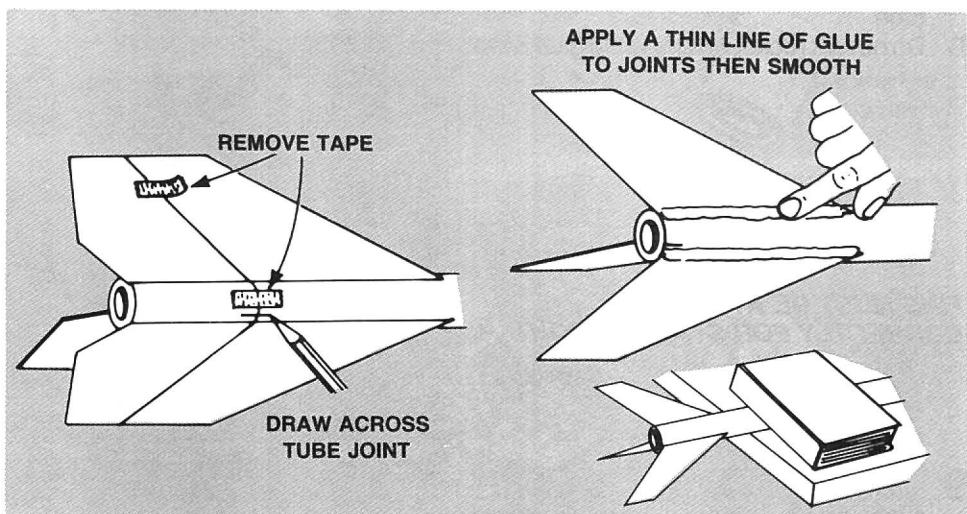
11

- Cut out parachute on edge lines.
- Cut three 23" (584 mm) lengths of shroud line.
- Form small loops with shroud line ends and press onto sticky side of tape discs.
- Attach tape discs with line ends to top of parachute as shown.
- Firmly press tape discs into place until both tape discs and parachute material are molded around shroud line loops.
- Pass shroud line loops through screw eye in nose block. Pass parachute through loop ends and pull lines against the nose block.
- Tie free end of shock cord to screw eye.



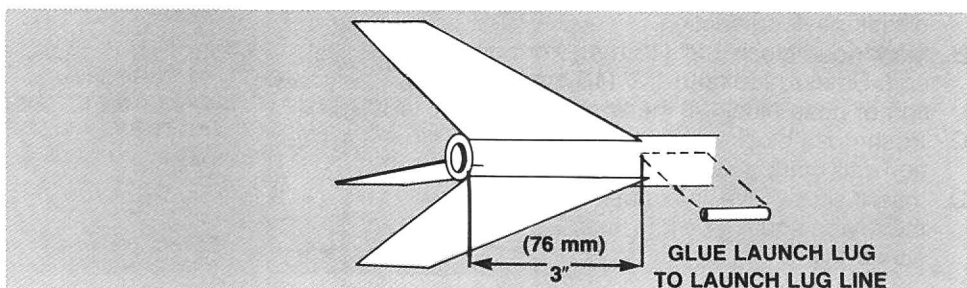
12

- 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.
- 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.
- 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.



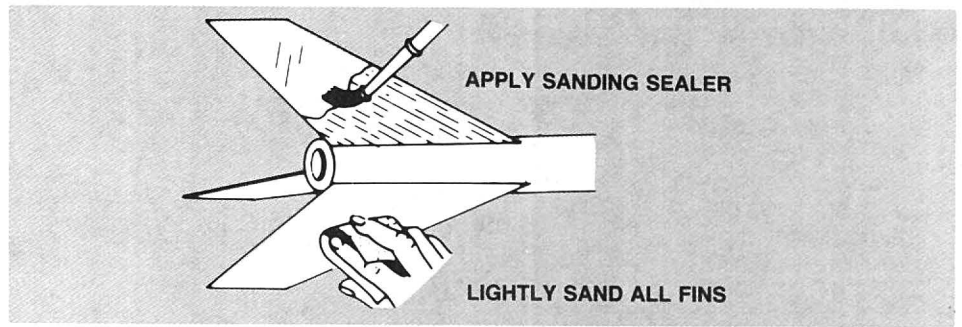
13

- Glue launch lug on launch lug line with its rear edge 3" (76 mm) from rear of tube.
- Make sure launch lug runs straight along the tube. Allow glue to dry.
- Apply glue reinforcement to sides of launch lug.



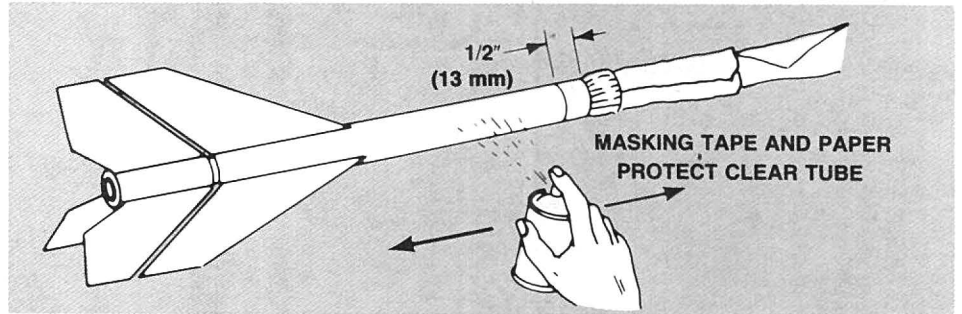
14

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



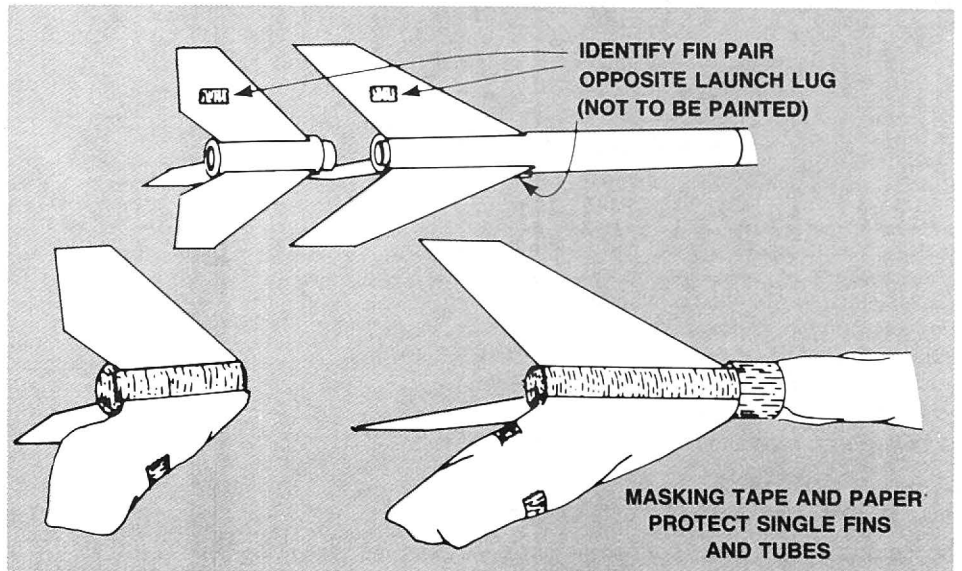
15

- A. Install booster stage and clear payload section to main body as shown. Align marks on upper stage and booster.
- B. Mask off clear payload section 1/2" (13 mm) from section joint. Paint entire rocket gloss white. Allow paint to dry for a couple of hours before removing mask.



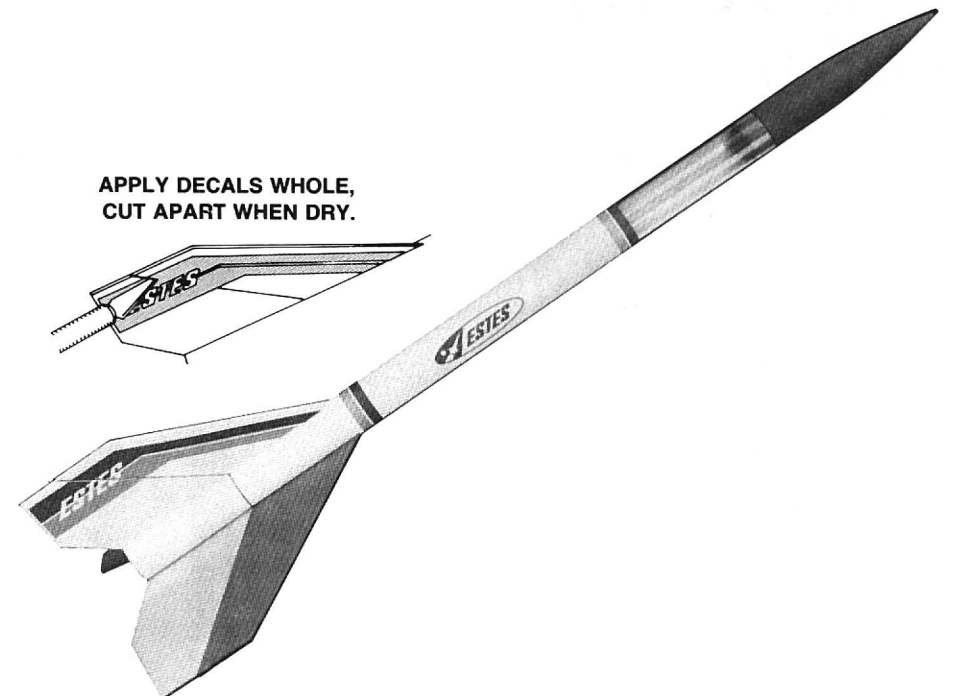
16

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

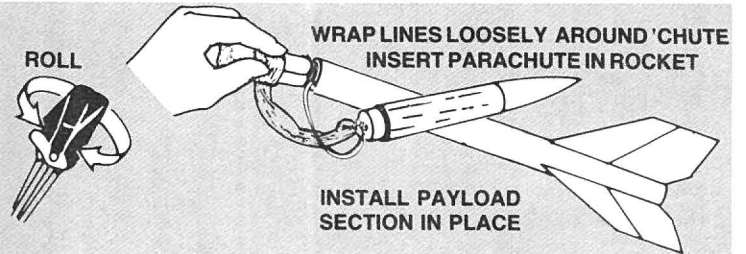
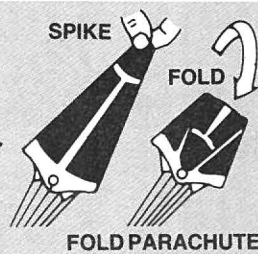
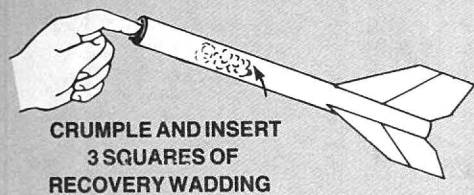


17

- A. When all paint is dry, apply decals in positions shown.
- B. 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.

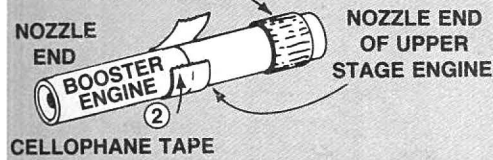


ROCKET PREFLIGHT



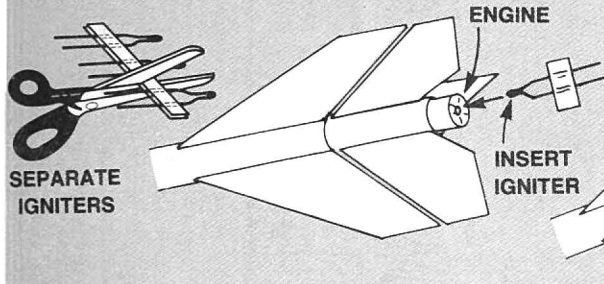
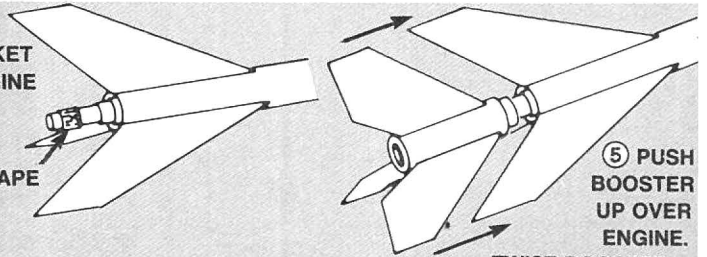
PREPARE ENGINE

- ① WRAP MASKING TAPE
FOR TIGHT FIT



- ③ PUSH ENGINE INTO ROCKET
UNTIL IT IS AGAINST ENGINE
BLOCK

- ④ WRAP MASKING TAPE
FOR TIGHT FIT IN
BOOSTER



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

Use with Estes products only.

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 (76 meters) square. The larger the launch area, the better your chance of recovering your rocket. Football fields and playgrounds are great.

MISFIRES

Failure of the model rocket engine to ignite is nearly always caused by incorrect igniter installation. An Estes igniter will function properly even if the coated tip is chipped. However, if the coated tip is not in direct contact with the engine propellant, it will only heat and not ignite the engine.

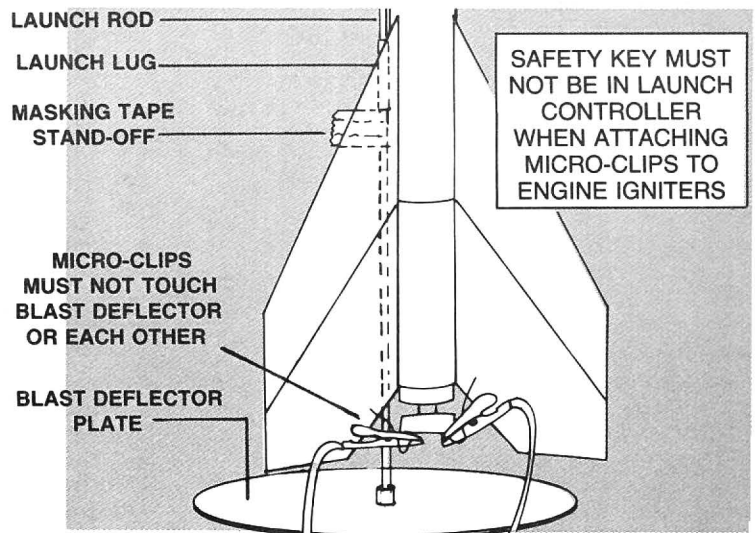
When an ignition failure occurs, remove the safety key from the launch control system and wait one minute before approaching the rocket. Remove the expended igniter from the engine and install a new one. Be certain the coated tip is in direct contact with the engine propellant, then tape the igniter leads firmly to base of engine as illustrated above. Repeat the countdown and launch procedure.

FOR YOUR SAFETY AND ENJOYMENT

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

*National Association of Rocketry

COUNTDOWN AND LAUNCH

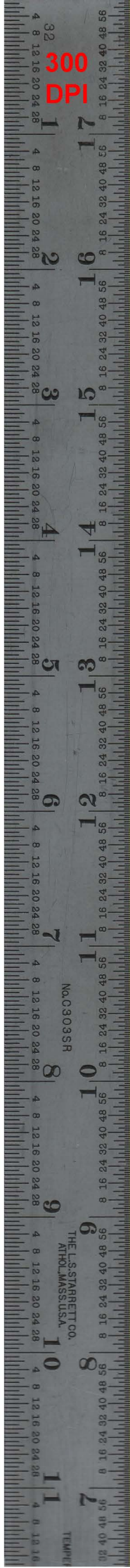
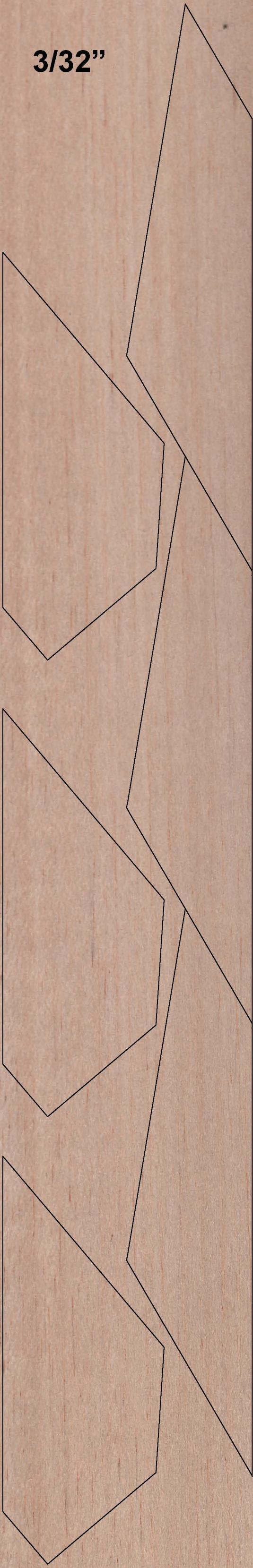


- ⑩ BE CERTAIN SAFETY KEY IS NOT IN LAUNCH CONTROLLER.
- ⑨ Remove safety cap and slide launch lug over launch rod to place rocket on launch pad. Make sure the rocket slides freely on the launch rod.
- ⑧ Attach micro-clips to the igniter wires. Arrange the clips so they do not touch each other or the 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 - 5 meters).
- 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 FROM LAUNCH CONTROLLER.
REPLACE SAFETY KEY AND SAFETY CAP ON
LAUNCH ROD.

3/32"





**ESTES
INDUSTRIES
PN 37519**

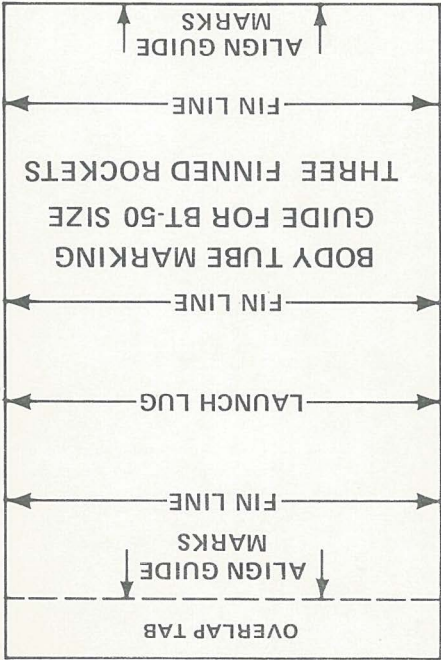


SHOCK
CORD
MOUNT

SEC. 3

SEC. 2

SEC. 1



ESTES INDUSTRIES PN 83331 STANDARD SP-50A



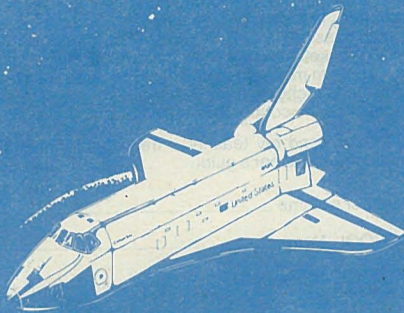


32
8 12 16 20 24 28
**300
DPI**

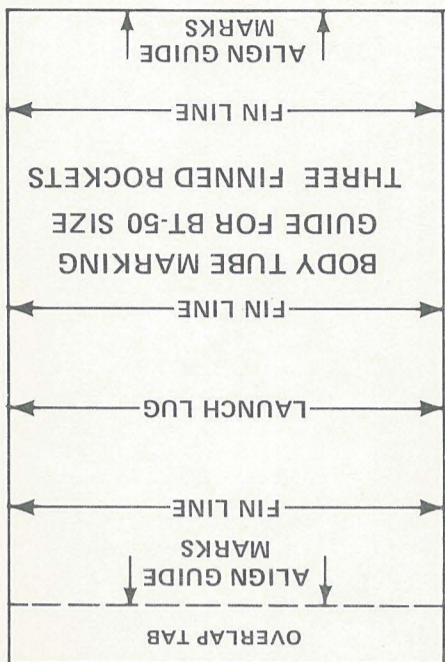
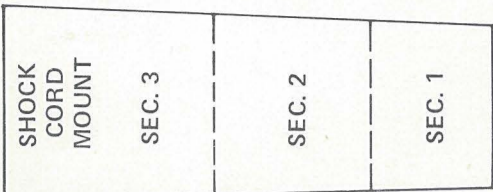
No.C303SR

THE L.S.STARRETT CO.
ATHOL, MASS. U.S.A.

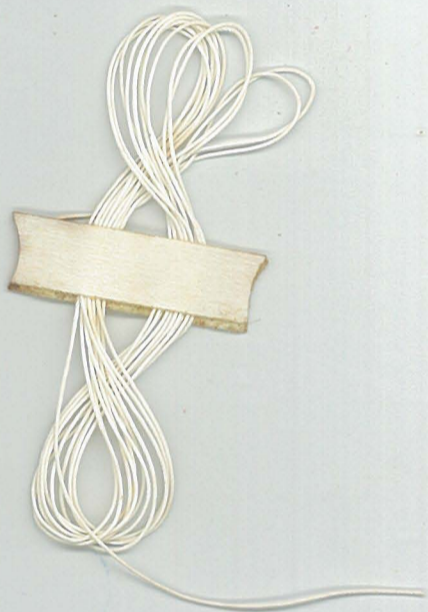
Be Part of the
Excitement...



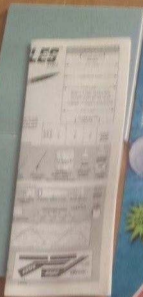
ESTES Flying
Model Rockets



ESTES INDUSTRIES PN 83331 STANDARD SP-50A



| PARTS LIST KIT NO. 1377 - Hercules | | | | | | | | |
|--------------------------------------|---------------------|---------|--------|-------------|-------------|--------------|---------------|-------------|
| Quantity | Description | Type | Number | Detail1 | Detail2 | Detail3 | Detail4 | Comment |
| 4 | CENTERING RINGS | AR-2050 | 30164 | 0.25" long | 0.737" ID | 0.949" OD | 0.106" wall | Green |
| 1 | STAGE COUPLER | JT-50C | 30260 | 0.920" ID | 0.949" OD | 1" long | fits BT-50 | |
| 2 | PAPER BODY TUBE | BT-20J | 30326 | 2.75" long | 0.710" ID | 0.736" OD | 0.013" wall | Glassine |
| 1 | PAPER BODY TUBE | BT-50J | 30362 | 2.75" long | 0.950" ID | 0.976" OD | 0.013" wall | Glassine |
| 1 | CENTERING RINGS | AR-520 | 30162 | .69" OD | .542" ID | 0.25" long | BT-5 in BT-20 | |
| 1 | PAPER BODY TUBE | BT-50W | 30372 | 9.5" long | 0.950" ID | 0.976" OD | 0.013" wall | Glassine |
| 1 | Shock Cord Mount Fo | SCM-50 | *84444 | | | | | Scan |
| 1 | Shock Cord | SC-1 | 85730 | 18" long | 1/8" wide | | | Rubber |
| 1 | Pattern Sheet | SP-1377 | *83390 | | | | | Scan |
| 1 | BALSA FIN STOCK | BF-1377 | 32386 | 3/32" thick | 3" wide | 18" long | BFS-30 | Scan |
| 1 | Tape Strip | TD-2L | 38412 | 1/4" wide | 3/4" long | | Self Stick | 4X Set |
| 1 | PLASTIC BODY TUBE | PST-50S | 30608 | 4" long | 0.950" ID | 0.976" OD | 0.013" wall | |
| 1 | BALSA NOSE BLOCK | NB-50 | 70158 | 1.0" long | 0.950" dia. | | | BT-50 |
| 1 | Screw Eye (Small) | SE-2A | 38252 | 3/4" long | | | | |
| 1 | Parachute | PK-12 | 85564 | 12" dia. | | | | |
| 1 | Shroud Line | SLT-72 | 38237 | 72" | | | | |
| 1 | Tape Disc | TD-3F | 38406 | 1/2" dia. | | | | 6x Set |
| 1 | LAUNCH LUG | LL-2B | 38178 | 5/32" ID | 1/8" rod | 2-3/8" long | | |
| 1 | Decal | KD-1377 | 37519 | 3" wide | 9" long | Red/Org | Waterslide | Scan |
| 1 | PLASTIC NOSE CONE | PNC-50Y | 71009 | 4.35" long | .974" dia. | .6" shoulder | BT-50 - Ogive | Blow Molded |
| * Included on part number 83331 scan | | | | | | | | |



ESTES
Flying Model Rocket

FLY ESTES
Model Rockets

HERCULES HERCULES

FLYING MODEL ROCKET

SKILL LEVEL 3

- 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: 27 1/2" (70 cm)
 Diameter: 1 1/2" (38 mm)
 Weight: 2.5 oz (70 g)
 Age: 12+
 Retailer: ESTES INDUSTRIES, INC.
 P.O. BOX 1600, GAITHERSBURG, MD 20878

This is a party for
 exciting activity!
 Recommended for
 ages 12 to adult.
 Supplies, launch
 system, glue and
 flying supplies are
 not included. Adult
 supervision & suggested
 for those under 12
 years of age when
 flying model rockets.

#1377

ESTES



ESTES INDUSTRIES
 GAITHERSBURG, MD 20878 USA



HERCULES

FLYING MODEL ROCKET

SKILL LEVEL 3

Recommended for the Advanced Modeler.

- Two-Stage Rocket
- Colorful Decals
- 12" Parachute Recovery

Length: 21.6 in. (54.9 cm)

Dia: .976 in. (24.8 mm)

Weight: 1.84 oz. (52 g)

Recommended Engines:

1st Stage: A8-0 (First Flight), B6-0, C6-0

2nd Stage: A8-5 (First Flight), B6-6,

B8-5, C6-7

or Single Stage: A8-3 (First Flight),

B4-4, B6-4, B8-5, C6-5

**FLIES
PAYLOADS
OVER 2500
FEET**

ESTES

ESTES



A DAMON COMPANY

ESTES INDUSTRIES
PENROSE, CO 81240 USA

This is a model kit requiring assembly. Glue and finishing supplies, launch system and engines for flight are not included.

#1377

