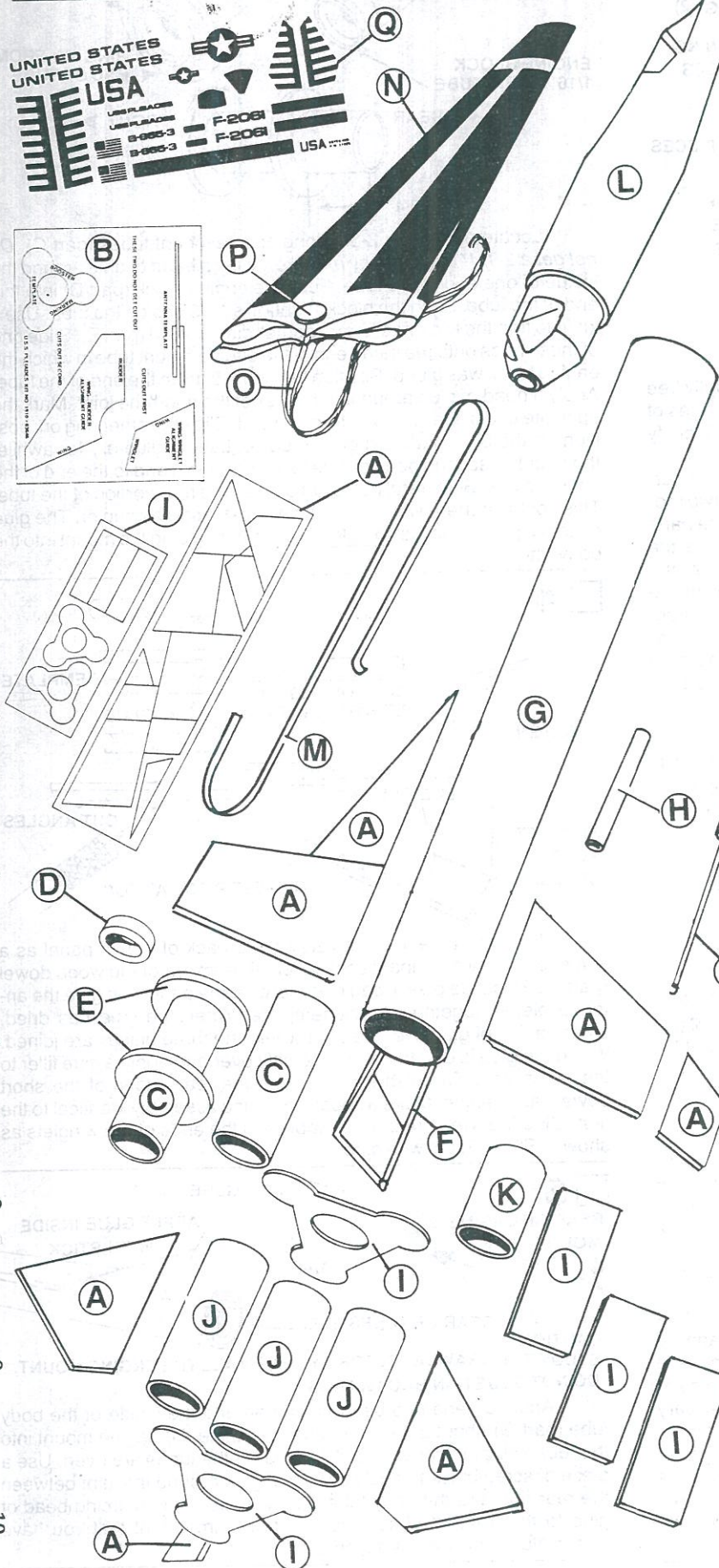


USS PLEIADES

SKILL LEVEL 3 - Recommended For Experienced 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 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. 1910

A	1	Balsa Die-Cut Sheet (type BF-1910)	32610
B	1	Pattern Sheet (back of kit panel)	83646
C	2	Body Tube (type BT-20J) 2-3/4" long	30326
D	1	Engine Block (type AR-520)	30162
E	1	Die-Cut Card (type PL-2055)	30127
F	1	Wood Dowel	32058
G	1	Body Tube (type BT-55KA)	30387
H	1	Launch Lug (type LL-2B)	38178
I	1	Die-Cut Card (type RA-1910)	32460
J	3	Body Tube (type BT-20M) 2-1/4" long	30334
K	1	Stage Coupler (type JT-20D)	30255
L	1	Nose Cone (type PNC-55B)	72056
M	1	Shock Cord (type SC-1)	85730
N	1	Parachute (type PK-18A)	85566
O	1	Shroud Line (type SLT-108)	38239
P	1	Tape Discs-6 (type TD-3F)	38406
Q	1	Decal (type KD-1910)	37225

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

RECOMMENDED ENGINES:

For 2 stage launches A8-0, A8-5, B6-0, B4-6, B6-6, C6-0, C6-7.

For single stage launches A8-3, B4-4, B6-4, B8-5, C6-5.

Use an A8-0 and A8-5 for the first flight.

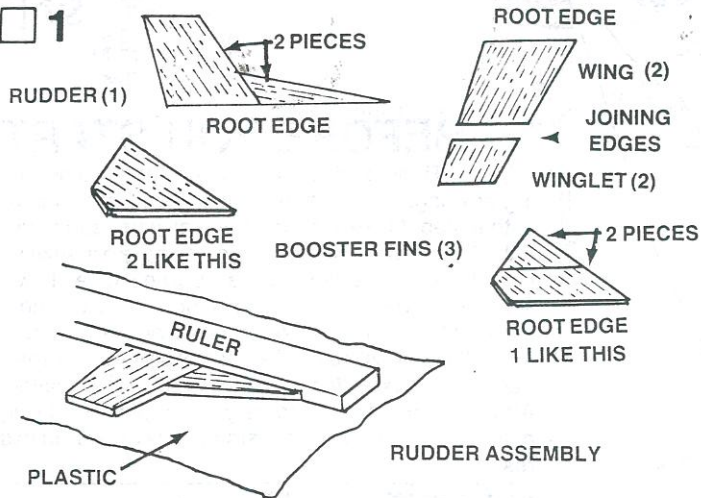


A DAMON COMPANY

ESTES INDUSTRIES
PENROSE, CO 81240 USA

ASSEMBLY INSTRUCTIONS

1

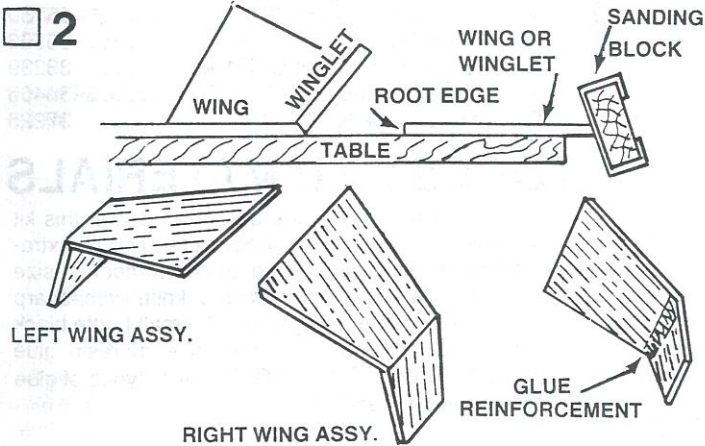


Lightly sand both sides of the balsa sheet (part A). Carefully free the parts by running a knife along the die-cut lines. Sand the edges of the parts, but make sure the edges remain square. Lay out and identify the parts according to the drawing.

Cut a section from the plastic kit bag to use as a gluing surface. Using a ruler as a straightedge; butt the root edges of the two rudder pieces against it. If necessary, sand the mating edges of the parts to obtain a perfect fit. Smear a film of glue on the mating edges. Let the glue dry for a few minutes and apply a second thin film of glue. Join the parts together, making sure the root edges are butted against the ruler. Smear a thin film of glue over the joint. After the glue has dried, turn the rudder over and smear a film of glue over the joint on that side.

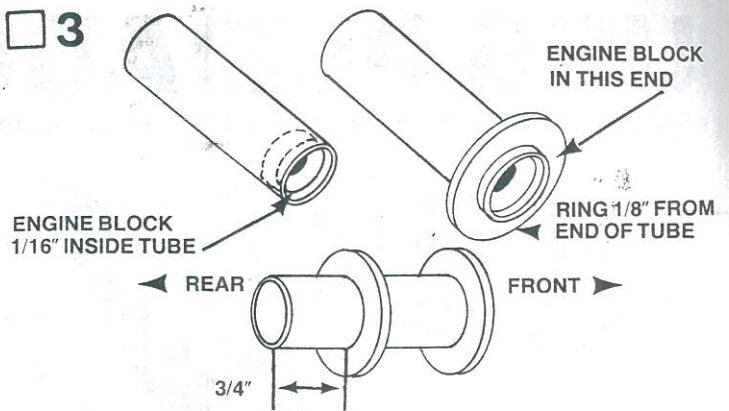
One of the booster fins consists of two pieces. Glue them together in the same manner. Before gluing these pieces, make sure they are laid out in a manner that, when assembled, they will be the same shape as the other two booster fins.

2



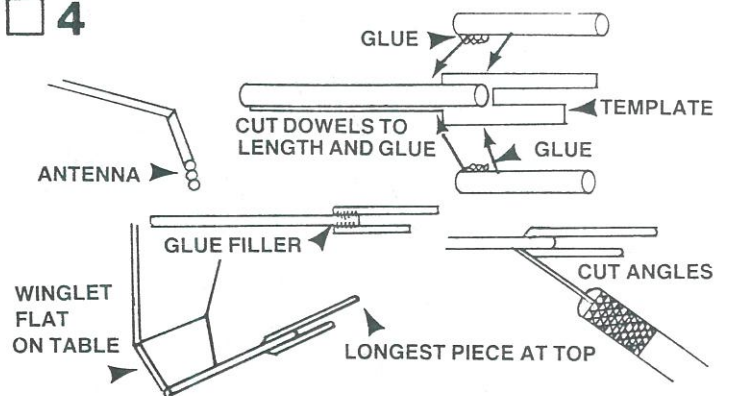
Cut out the wing-winglet alignment guide from the back of the kit panel (part B). The joining edges of a wing and winglet must be sanded at a slight angle in order to fit together correctly. Make a sanding block by wrapping a piece of sandpaper around a block of wood. Lay a wing on a table as shown and sand the joining edge at an angle. Sand a matching angle on the joining edge of a winglet. Fit the wing and winglet together and set the alignment guide in place as shown. Check the fit of the angled edges. Sand and check until a correct fit is obtained. Smear a film of glue on the joining edges, let dry and apply a second film of glue. Join the parts together and set the guide in place to check the angle. Hold the parts in position until the glue begins to set. Recheck the angle before the glue is dry and make any necessary adjustments. After the glue has dried, apply a bead of glue to the inside of the joint. Smooth the glue with your finger. Turn the wing over and smear a thin film of glue over the outside of the joint. Repeat this procedure with the other wing and winglet. Note that there is a right wing and a left wing. Make sure that the second wing assembly is the opposite of the first one.

3



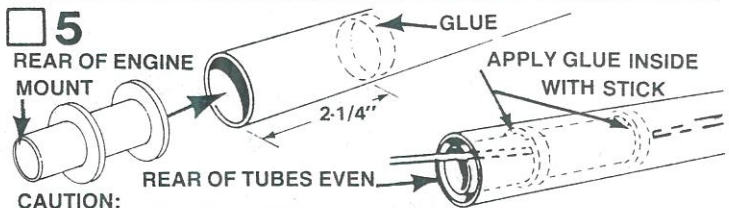
Locate one of the 2-3/4" long engine mount tubes (part C). Do not get a 2-1/4" long tube by mistake. Apply a bead of glue around the inside of one end of the tube. Push the engine block (part D) into this end of the tube. Push the block in until it is 1/16" inside the tube. Use a knife to free the two rings from the small die-cut card (part E). Slide one of these rings onto the same end of the engine mount tube in which the engine block was glued. Position the ring 1/8" from the end of the tube. Apply a bead of glue around both sides of the ring-tube joint. Mark the opposite end of the tube 3/4" from the end. Slide the other ring on, position on the 3/4" mark and glue in place. Let the glue dry for awhile, then apply a second bead of glue to the ring joints and to the end of the engine block. Be careful not to get glue on the rear portion of the tube. This could interfere with the fit of the booster stage coupler. The glue on these joints must be completely dry before gluing the mount into the body (step 5).

4



Using the antenna template on the back of the kit panel as a guide, cut three antenna pieces to length from 1/2 of the wood dowel (part F). Place the plastic bag material over the panel and glue the antenna pieces together on the template. When the glue has dried, smear a film of glue over the area where the three pieces are joined. When the glue is dry, turn the assembly over and apply a glue filler to the other side. To finish the part, trim the rear edges of the short dowels at an angle. Make a second antenna assembly identical to the first. Glue the two antenna assemblies to the ends of the winglets as shown. Fill the joints with glue.

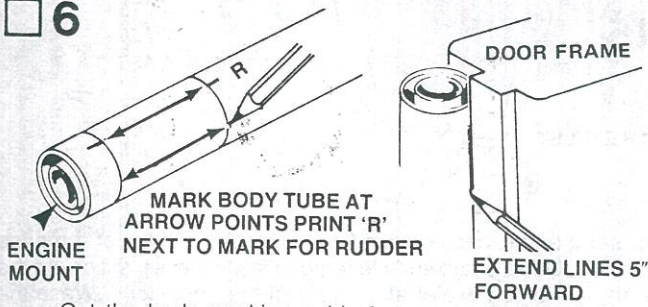
5



CAUTION:
STUDY THE DRAWING BEFORE YOU INSTALL THE ENGINE MOUNT.
DO NOT GLUE IT IN BACKWARDS.

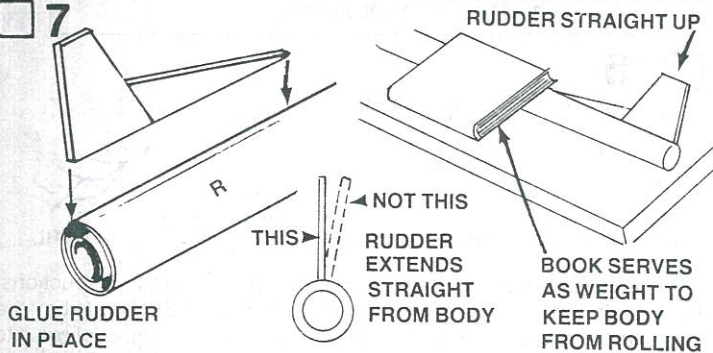
Apply a generous bead of glue around the inside of the body tube (part G) about 2-1/4" from one end. Slide the engine mount into the tube and push forward until the rear of the tubes are even. Use a piece of scrap balsa to apply a bead of glue around the joint between the rear ring and the body tube. Apply a second reinforcing bead of glue to the front ring-body tube joint. It is important that you have strong glue joints on this assembly.

6



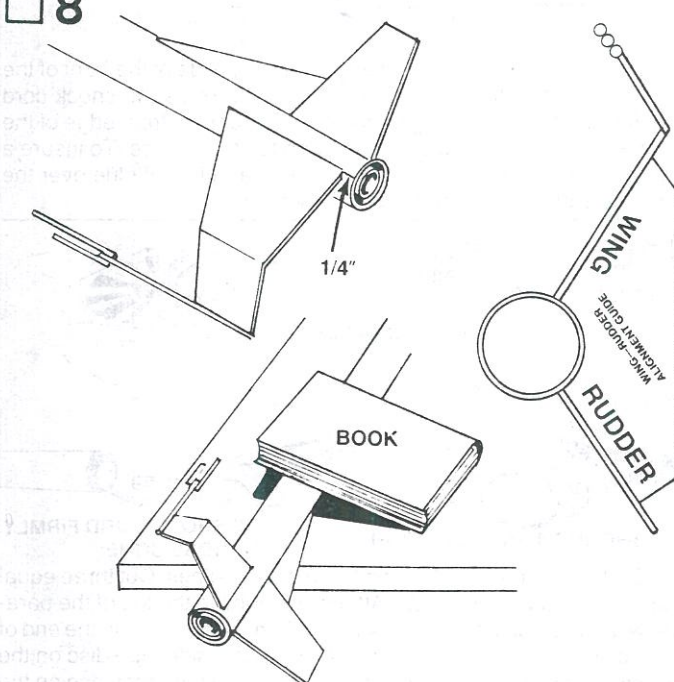
Cut the body marking guide from page 7 of the instructions. Wrap the guide around the end of the body tube in which the engine mount was glued and tape the ends of the guide together. Mark the body tube at each of the arrow points. Mark an 'R' on the tube next to the point for the rudder line. Remove the guide. Use the inside edge of a door frame as a guide to draw lines connecting the marks. Extend the lines about 5" forward along the body tube.

7



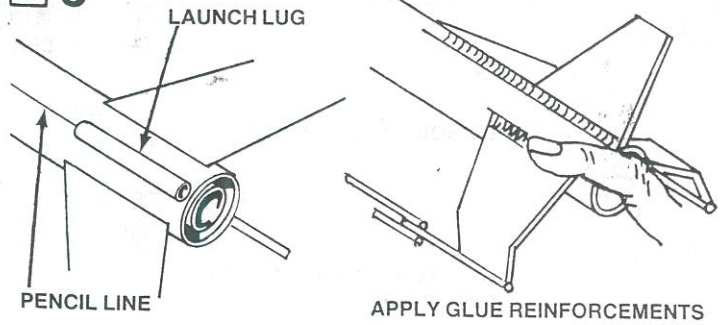
The rudder is glued to the body, centered on the rudder line. The rear of the rudder and body are even. Apply a bead of glue to the root edge of the rudder. Hold it for a minute to allow glue to become tacky, then attach the rudder to the body. Make sure the rudder extends straight from the body. Support the assembly as shown and allow glue to dry completely.

8



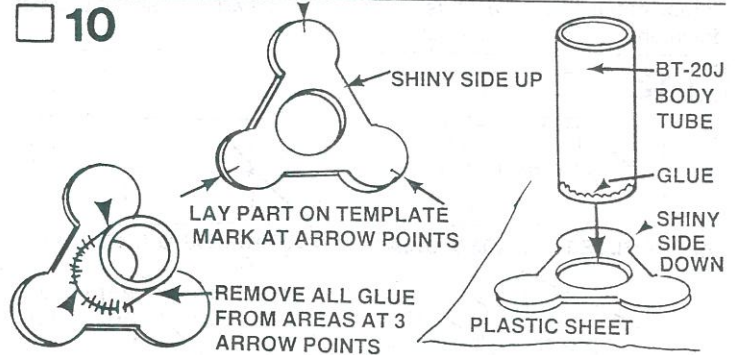
Place marks on the wing lines 1/4" from the rear of the body. Cut the wing-rudder alignment guide from the back of the kit panel. Glue one wing to the body centered on a wing line with the rear edge on the 1/4" mark. Use the guide to align the wing and hold until the glue begins to set. Support the assembly as shown with the wing pointing up. Check the assembly periodically with the guide to make sure the wing is still in alignment. Let the glue dry thoroughly, then attach the other wing in the same manner.

9



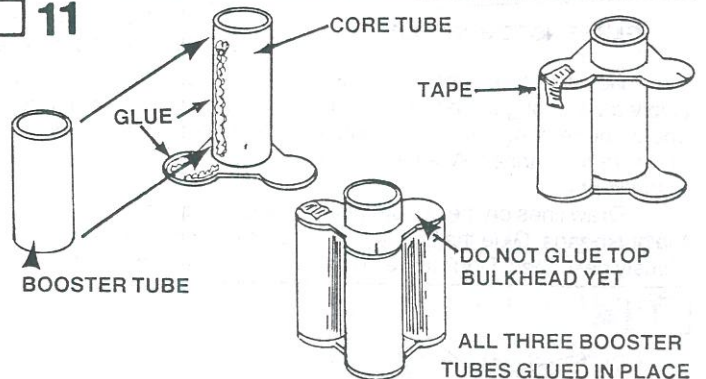
Glue the launch lug (part H) to the bottom of the body in the position shown. Make sure the launch lug runs straight along the body tube. Apply a bead of glue to both sides of the rudder-body tube joint. Pull your finger along the joint to smooth the glue and to remove any excess glue. Apply glue reinforcements to both wings and the launch lug in the same manner. Place the model in a horizontal position until the glue dries.

10



Use a knife to free the two booster end bulkheads from the die-cut card (part I). Lay one bulkhead, shiny side up, over the booster marking template on the back of the panel. Line the part up exactly over the template and mark the part at the arrow points. Mark the second bulkhead in the same manner. Lay one of the bulkheads, shiny side down, on a piece of the plastic bag material. Locate the remaining BT-20J body tube (2-3/4" long). Apply a light bead of glue around one end of the tube. Place the glue end of the tube into the hole in the bulkhead. Make sure the bulkhead and the end of the tube are flat on the work surface. To facilitate gluing the booster tubes in place, remove all glue from the areas indicated. Let the glue dry.

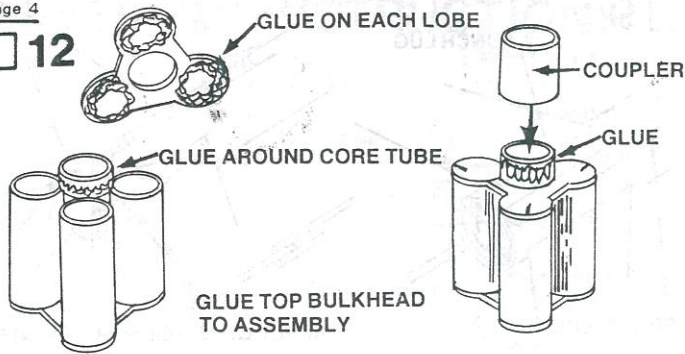
11



Apply glue to the body tube and one lobe of the bulkhead as shown. Attach one BT-20M body tube (part J) to the assembly. Align the tube on the lobe of the bulkhead and make sure it is parallel with the core tube. Slide the remaining bulkhead onto the top of the core tube. Line up one of the lobes over the short tube and fasten with a small piece of masking tape.

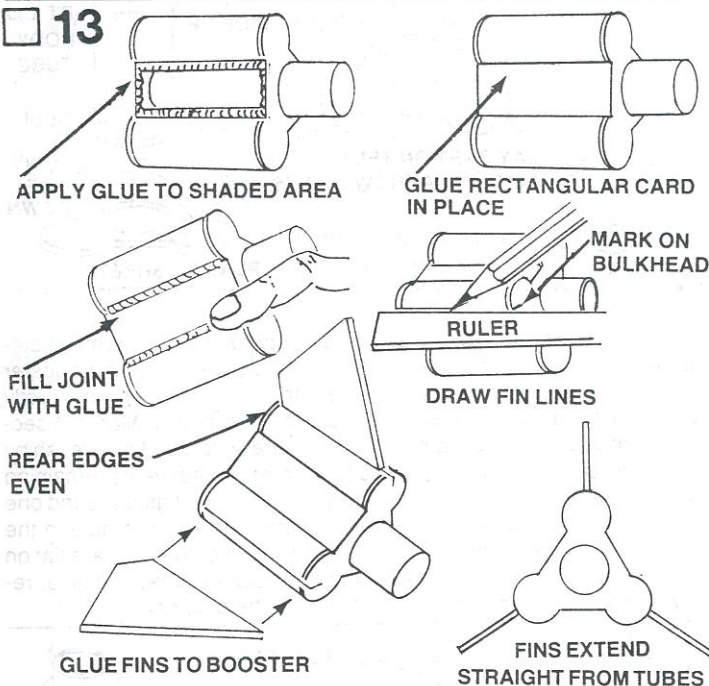
NOTE: This bulkhead is not glued in place yet. It is used in this step to insure good alignment when attaching the remaining booster tubes. Apply glue to another lobe of the bottom bulkhead and corresponding area of the core tube. Attach another BT-20M tube and align between the top and bottom bulkheads. Let the glue dry for a few minutes, then attach the last BT-20M tube in the same manner.

12



Remove the top bulkhead from the assembly. Apply a bead of glue around the core tube and to the back (dull) side of each lobe on the bulkhead. Slip the bulkhead into place and align it with the booster tubes. Press the bulkhead down against the tops of the tubes. Locate the stage coupler (part K). Sand away any flange from inside both ends of the coupler. Smear glue around the outside of the exposed portion of the core tube and slide the coupler over it. Push the coupler down until it is against the bulkhead.

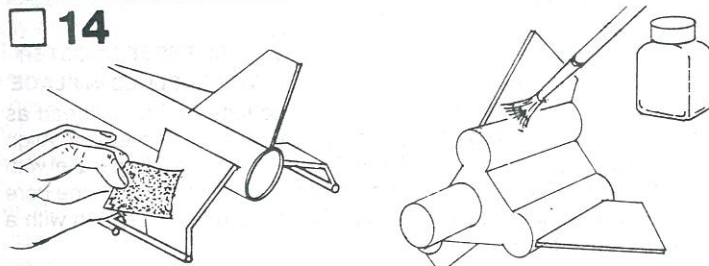
13



Remove the three rectangular pieces from the die-cut card. Apply a bead of glue to the portion of the booster unit shown and set one of the rectangular cards in place. Attach the two remaining cards in the same manner. When the glue is dry, apply glue reinforcements to the joints.

Draw lines on the booster tubes connecting the pencil marks on the bulkheads. Glue the booster fins in place using the procedure previously described. Don't forget to apply glue reinforcements to the fins.

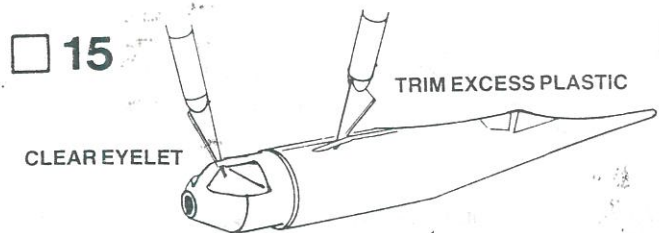
14



NOTE: Do not proceed with this step until the glue joints on the balsa parts are thoroughly dry.

Apply a coat of sanding sealer to the balsa parts. When the sealer is dry, lightly sand the sealed surface. Repeat the sealing and sanding process until the parts look and feel smooth.

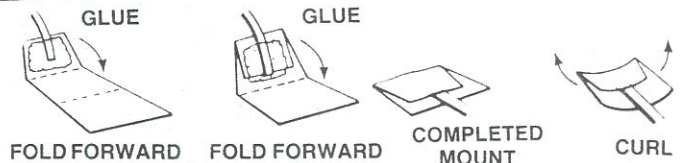
15



Trim or sand any excess plastic from around the sides of the nose cone (part L). Use a sharp knife to remove any excess plastic from the inside of the molded eyelet at the rear of the nose cone. Wash the nose cone with lukewarm soapy water, rinse well, and dry.

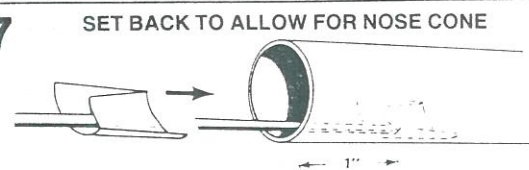
NOTE: Nose cone should separate easily from rocket body tube, but should not be extremely loose. If fit is too tight, sand inside of body tube and shoulder of nose cone with fine sandpaper. If fit is too loose, add a wrapping of transparent tape to the shoulder of the nose cone.

16



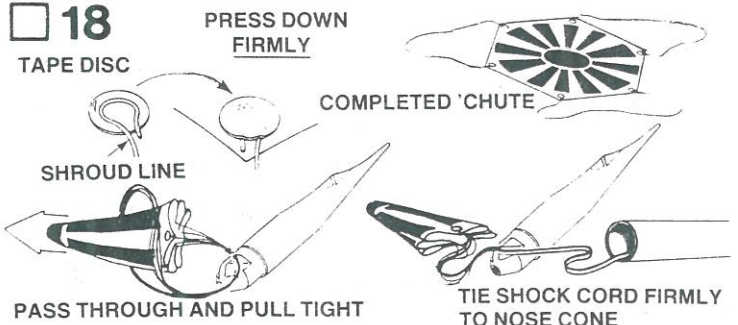
Cut out the shock cord mount from page 7 of the instructions. Fold on dotted lines, then unfold and apply glue to Section 1. Lay the end of the shock cord (part M) into the glue. Fold over and apply glue to the back of Section 1 and the exposed portion of Section 2. Fold again to complete mount. Curl 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.

17



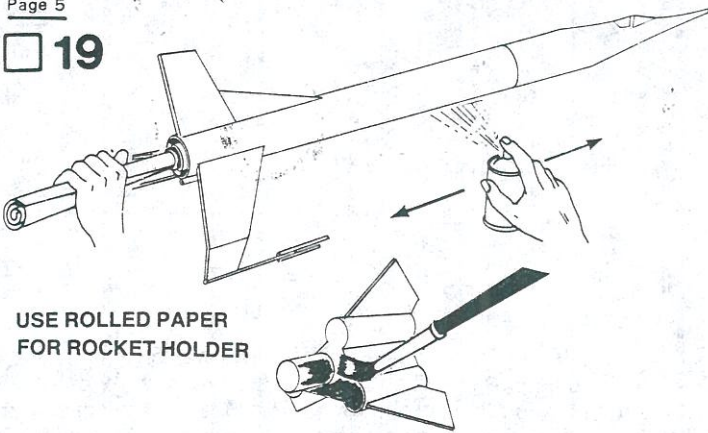
Use a finger or stick to apply glue to the inside of the front of the body tube, 1" to 2" from the front of the tube. Press the shock cord mount firmly into position in glue far enough from the front edge of the tube to allow clearance for the nose cone to fit into place. To insure a good bond use a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

18



Cut out the parachute (part N) on its edge lines. Cut three equal lengths of shroud line (part O). Attach line ends to the top of the parachute with tape discs (part P) 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. Pack chute and shock cord into body and socket nose cone in place.

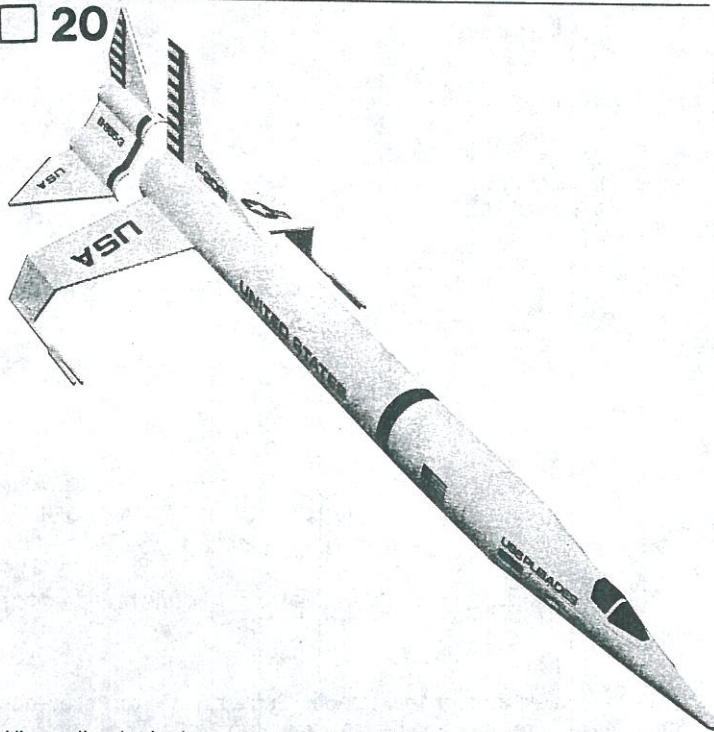
19



USE ROLLED PAPER FOR ROCKET HOLDER

Paint both stages with gloss white enamel spray paint (do not use laquer). Follow the directions on the spray can for best results. When the paint is dry, brush paint the booster stage bulkheads and coupler black. Allow the paint to dry thoroughly before proceeding.

20



When all paint is dry, apply the decals (part Q) 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. Refer to the photograph for decal positions.

LAUNCHING COMPONENTS

To launch your rocket you will need the following items:

- An Estes model rocket launching system
- Flame Resistant recovery wadding (Estes Cat. No. 2274)

Estes model rocket engines as follows:

For 2 stage launches A8-0, A8-5, B6-0, B4-6, B6-6, C6-0, C6-7.

For single stage launches A8-3, B4-4, B6-4, B8-5, C6-5.

Use an A8-0 and A8-5 for the first flight.

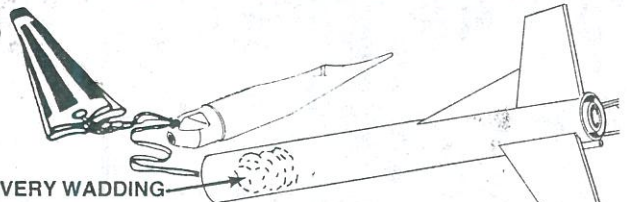
Be sure to follow the HIAA-NAR* Model Rocket Safety Code when carrying out your model rocket activities.

*HIAA—Hobby Industry of America

*NAR—National Association of Rocketry

COUNTDOWN CHECKLIST

T-13



RECOVERY WADDING

Pack 3 or 4 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

SPIKE FORM



FOLD CANOPY



FOLD SHROUD LINES

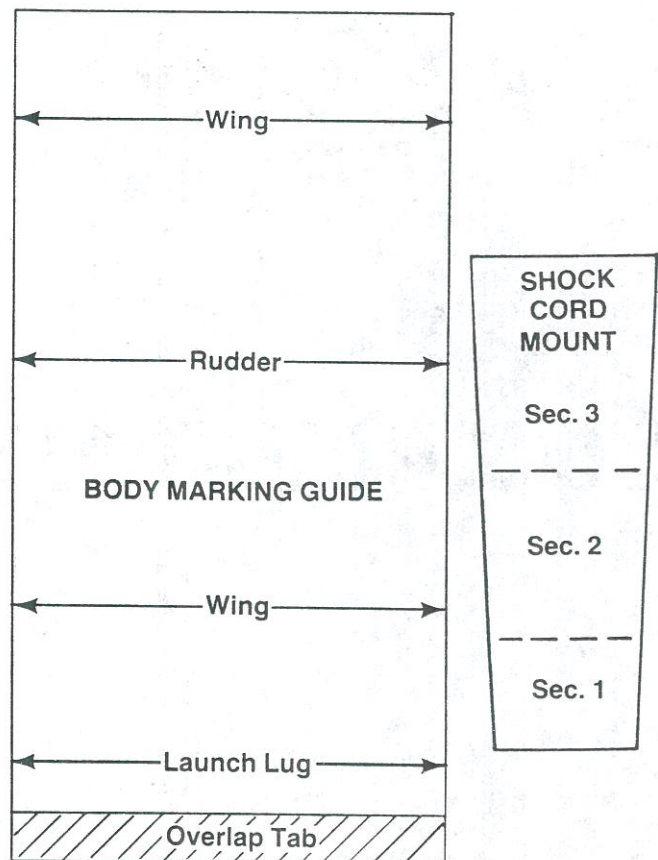


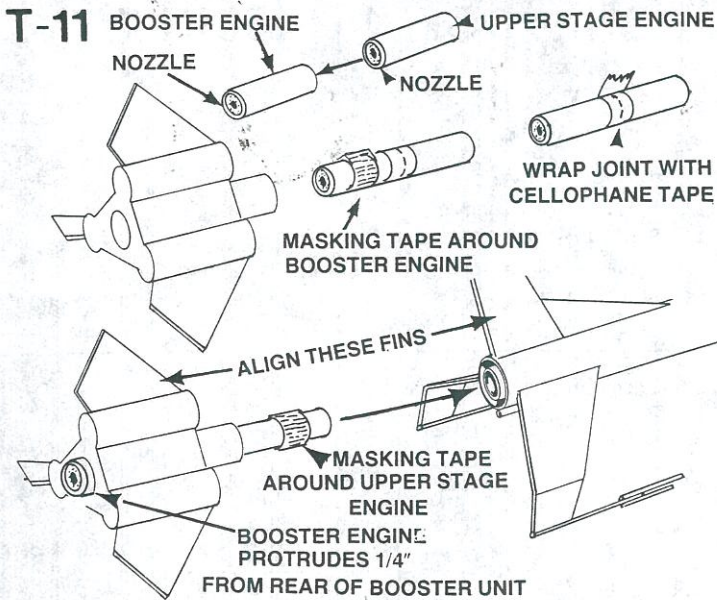
ROLL CANOPY



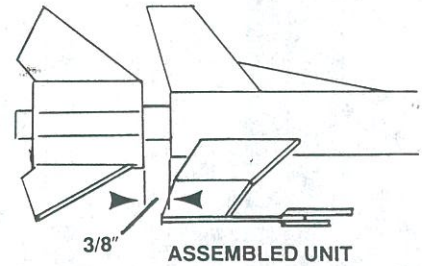
Hold the parachute at its center and pass the other hand down it to form a "spike" shape. Fold this spike in half. Fold shroud lines back along parachute and then back down to lower edge of parachute to reduce length of shroud line "left over". Roll parachute into tube shape to fit easily into body.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

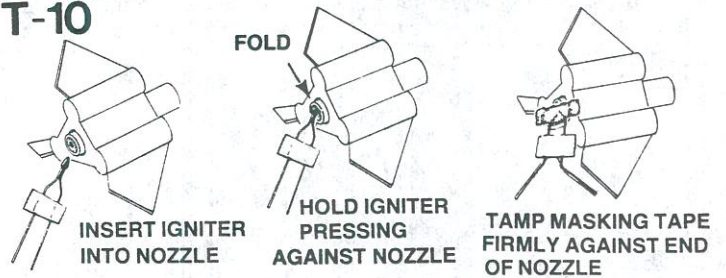


Once the proper fit is obtained, push the assembly into the upper stage as far as it will go. When doing this, make sure the booster unit is turned so the top fin is aligned with the rudder on the upper stage. When the stages are correctly assembled, there will be about a 3/8" gap between the booster body and the upper stage body.

IMPORTANT: Always double check to make sure the engines are oriented as shown in the drawing.

Position the nozzle end of the upper stage engine against the top of the booster engine. Wrap the joint tightly with cellophane tape (Do not substitute masking tape for this). For proper staging and parachute ejection, the engines must fit rather tightly into their respective engine mount tubes. Wrap a couple of layers of masking tape around the middle of the booster engine. Push the engine, nozzle end first, into the top of the booster unit. If the engine will not fit into the tube remove some of the masking tape. If the engine slides through the tube easily, add some tape. When a good friction fit is obtained, push the engine through the tube until the nozzle end protrudes 1/4" from the rear of the booster body. Wrap masking tape around the middle of the upper stage engine and test fit into the upper stage engine mount. Cont.

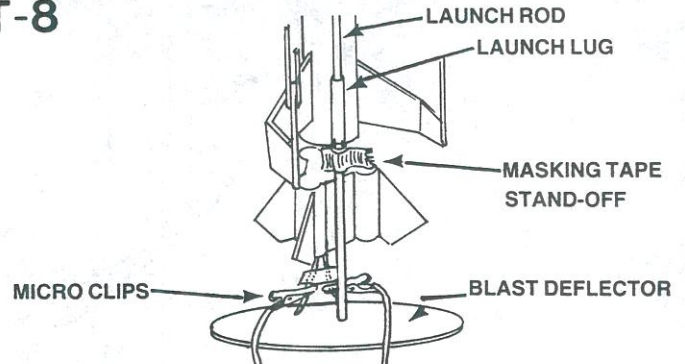
T-10



Install an igniter as directed in the engine instructions.

T-9 Disarm the launch panel—REMOVE THE 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. Wrap a piece of masking tape around the launch rod about 4" above the blast deflector. 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.



USS PLEIADES

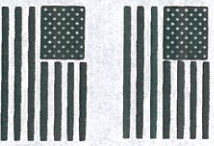
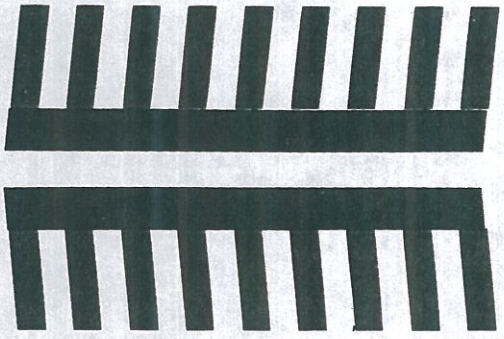
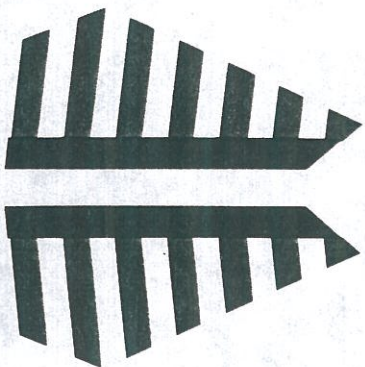
ESTES INDUSTRIES
PENROSE, CO 81240 USA

UNITED STATES
UNITED STATES

USA



USS PLEADES
USS PLEADES



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USA
ESTES INC.
P. N. 37225