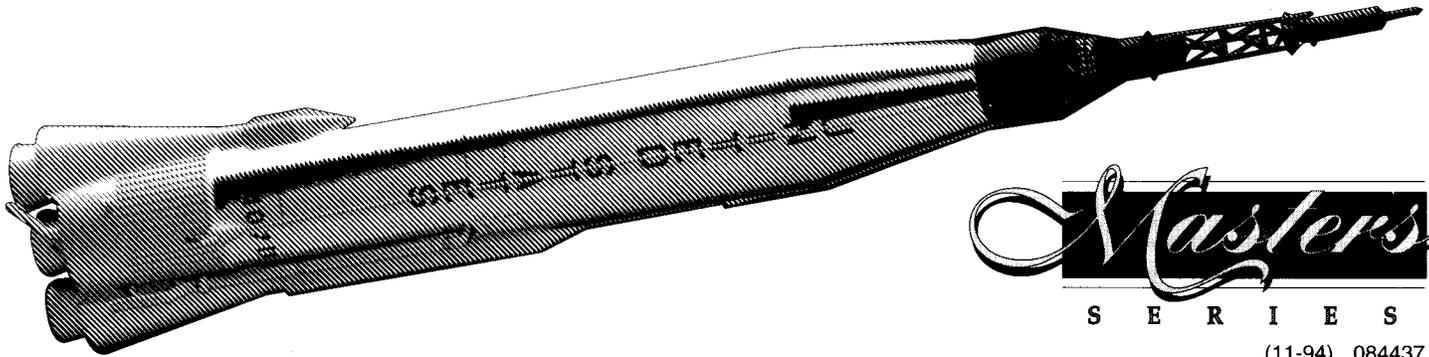




ESTES INDUSTRIES
1295 H STREET
PENROSE, CO 81240 USA

MERCURY ATLAS™

FLYING MODEL ROCKET KIT EST 2111

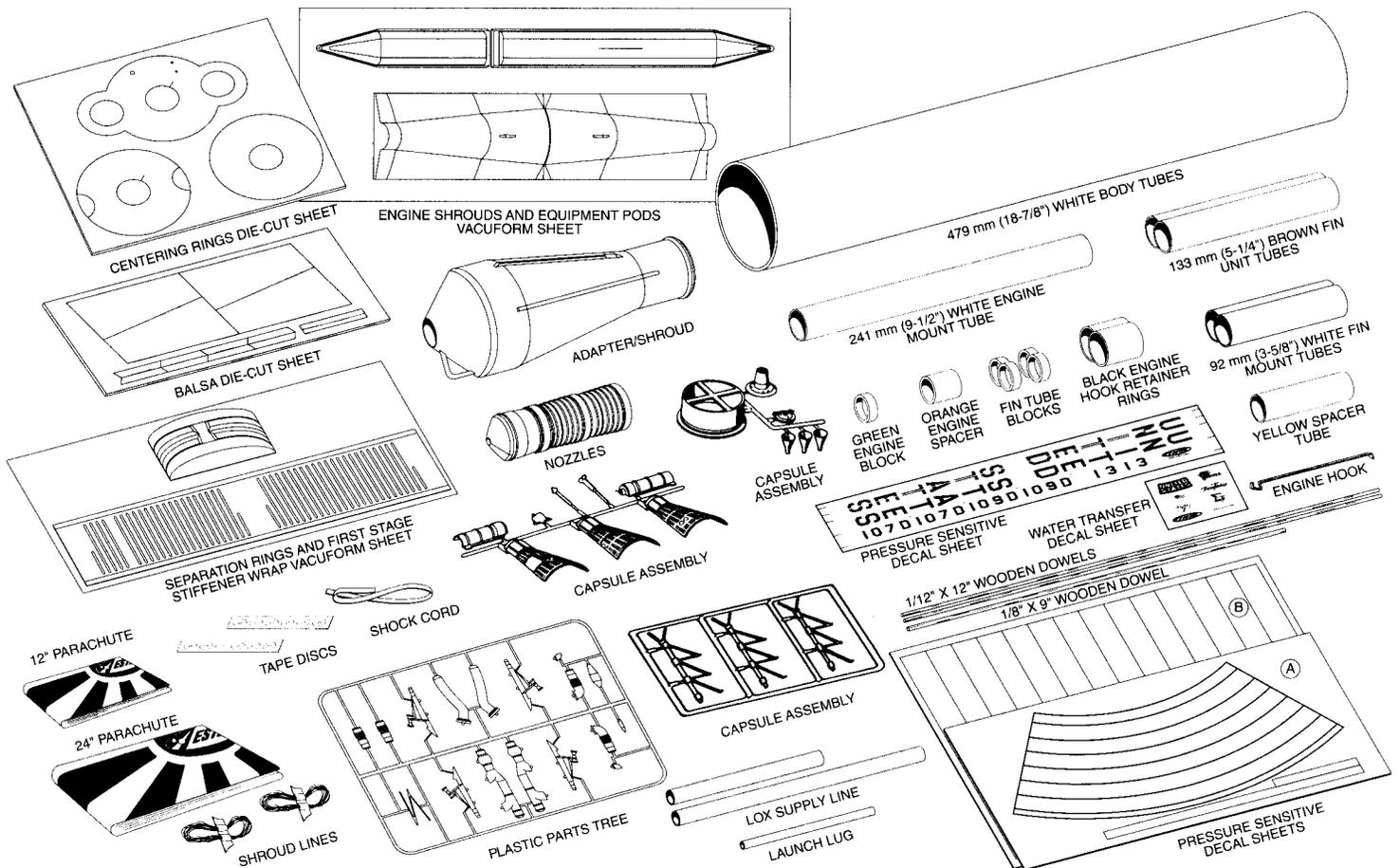


(11-94) 084437

HOW TO USE THESE INSTRUCTIONS: READ ALL INSTRUCTIONS BEFORE STARTING WORK ON THIS MODEL.

- A. Read each step first and visualize the procedure thoroughly in your mind before starting construction.
- B. Lay the parts out on the table in front of you. (Check inside tubes for any small parts.)
- C. Use the parts layout to match all parts contained in kit.
- D. Collect all construction supplies that are not included in this kit.
- E. Test fit parts before applying any glue.
- F. The construction supplies required for each step are listed at the beginning of each step.
- G. Check off each step as you complete it.

PARTS LAYOUT – SEE PATTERN SHEET FOR PARTS LIST AND NUMBERS



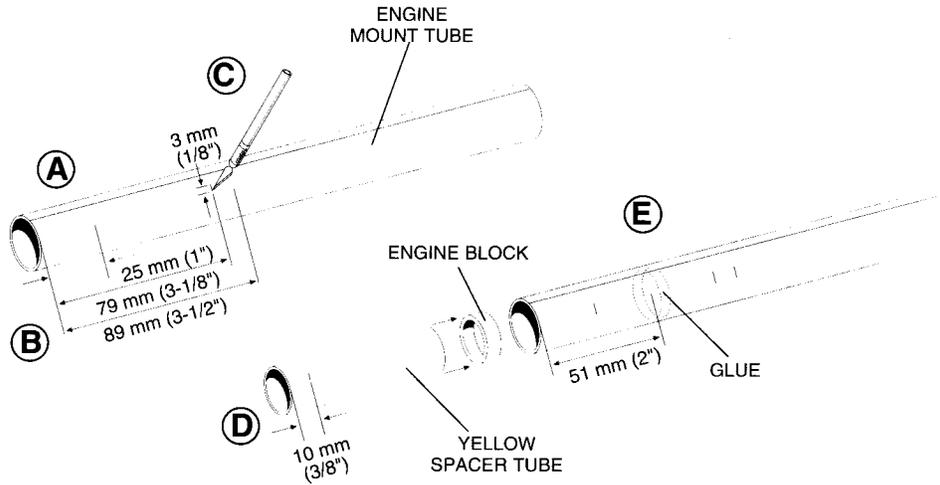
CONSTRUCTION SUPPLIES: In addition to the parts included in your kit, you will need these construction supplies. Each step shows which supplies will be required.

- | | | | | | | | | | | | | | | |
|--------|----------|---------------------------|----------------|-------|-------------|--------------|----------------|---------------|----------------|-----------|-----|---|--|--|
| | | | | | | | | | | | | | | |
| PENCIL | SCISSORS | GLUE
(white or yellow) | CONTACT CEMENT | RULER | HOBBY KNIFE | MASKING TAPE | PLASTIC CEMENT | LIQUID CEMENT | SANDING SEALER | SANDPAPER | SAW | BOTTLE PAINT
(silver, black and red) | SPRAY PAINT
(silver, black and red) | ROCKET BUILDER'S MARKING GUIDE - EST 2227 (optional) |

ENGINE MOUNT ASSEMBLY

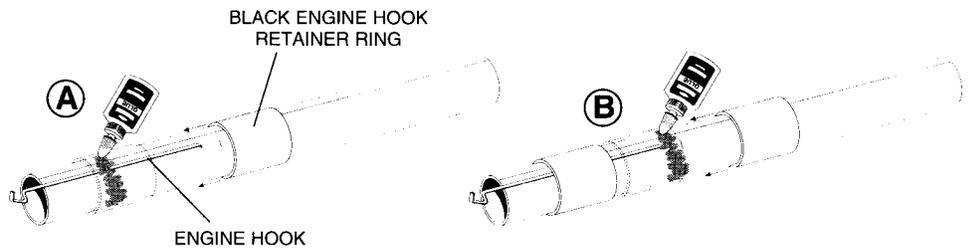
1.

- A. Draw a line along the length of the 241 mm (9-1/2") engine mount tube.
- B. Mark the tube at 25 mm (1"), 79 mm (3-1/8"), 89 mm (3-1/2") from one end of the tube.
- C. Cut a 3 mm (1/8") wide slit at the 79 mm (3-1/8") mark.
- D. Mark the yellow spacer tube 10 mm (3/8") from one end.
- E. Apply glue around inside engine mount tube about 51 mm (2") from rear of the tube, the same end with the marks.
- F. Push one engine block into tube with yellow spacer tube until mark is even with end of tube. Remove spacer tube immediately.



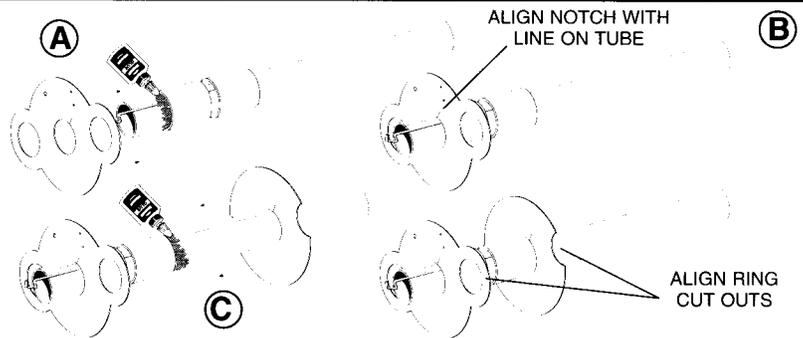
2.

- A. Push engine hook into slit. Apply glue around the tube above the 25 mm (1") mark.
- B. Slide one black engine hook retainer ring onto tube and over engine hook, down to the 25 mm (1") mark. Apply glue around the tube below 89 mm (3-1/2") mark and slide remaining hook retainer ring onto tube, over hook and below the 89 mm (3-1/2") mark.



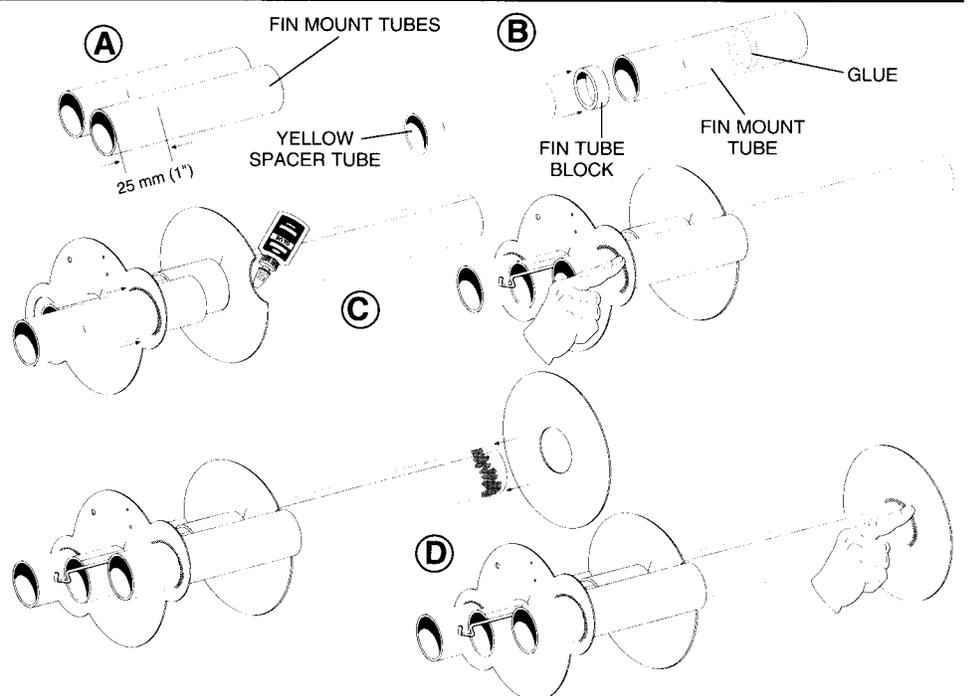
3.

- A. Remove centering rings from the die cut sheet. Apply glue at rear of engine hook retainer ring as shown.
- B. Slide rear centering ring onto end of engine mount tube, push ring up to retainer ring. Align notch in ring with line on tube.
- C. Apply glue at front of front retainer ring. Slide middle centering ring onto front of tube down to ring. Align notch with line on tube as shown. Align ring cut outs.



4.

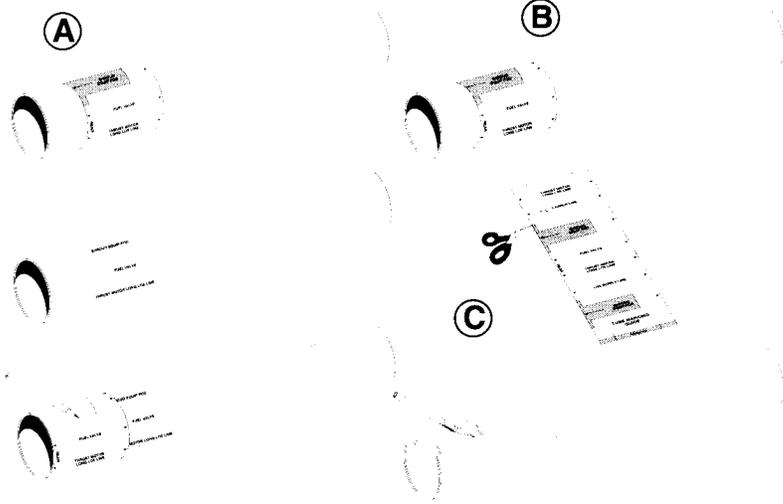
- A. Mark two 92 mm (3-5/8") long fin mount tubes 25 mm (1") from one end of tubes.
- B. Apply glue to inside of tubes opposite the end with the marks. Push one fin tube block into each tube with the yellow spacer tube until 10 mm (3/8") mark on spacer is even with end of tube. Immediately remove spacer.
- C. Apply glue to centering rings as shown. Position one fin mount tube into centering rings with 25 mm (1") mark even with rear centering ring. Let glue set, then add glue fillets to ring/tube joints. Repeat steps for other fin mount tube.
- D. Apply glue to front of engine mount tube and slide front centering ring onto tube over glue. Let glue set, then apply glue fillets to both sides of ring/tube joint. Let assembly dry completely.



ROCKET ASSEMBLY



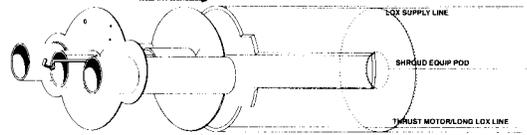
1. Cut out the main body tube marking guide from pattern sheet. Wrap guide around body tube and secure with a piece of tape.
2. Mark main body tube at arrows and label each line. Remove guide and draw lines, by connecting marks, the length of the tube. Label each line.
3. Cut cut-out areas on guide. Re-position guide on body tube. Align lines on tube with guide and slide guide down to end of tube. Mark tube at cut out areas. Remove guide and cut out areas of tube with sharp hobby knife.



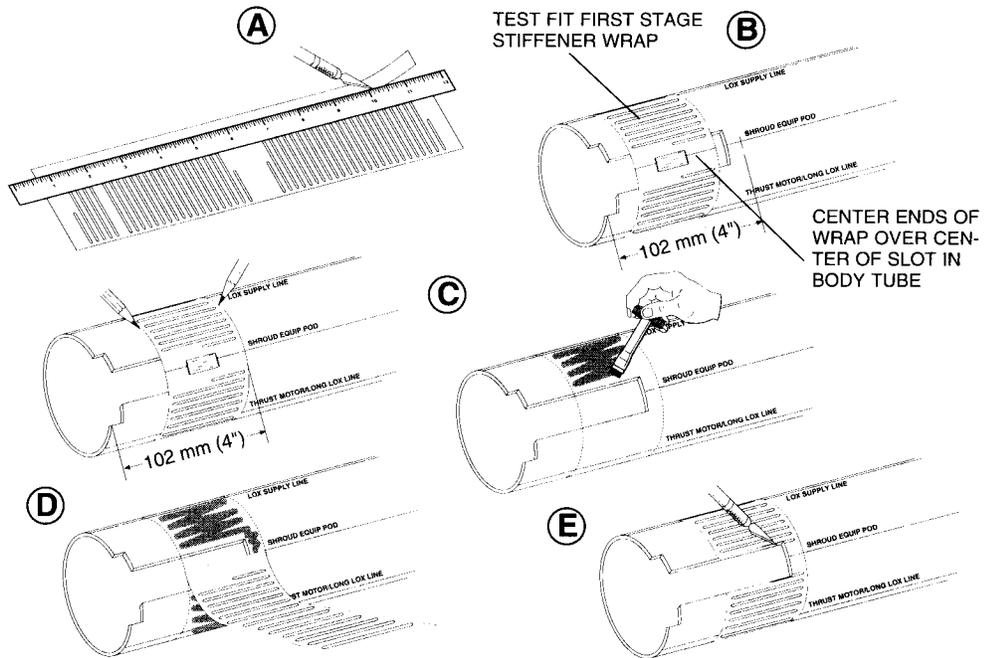
2.

1. Check fit of engine mount assembly in body tube slots. Adjust if needed. **DO NOT GLUE ASSEMBLY INTO TUBE AT THIS TIME.** Remove mount and set aside.

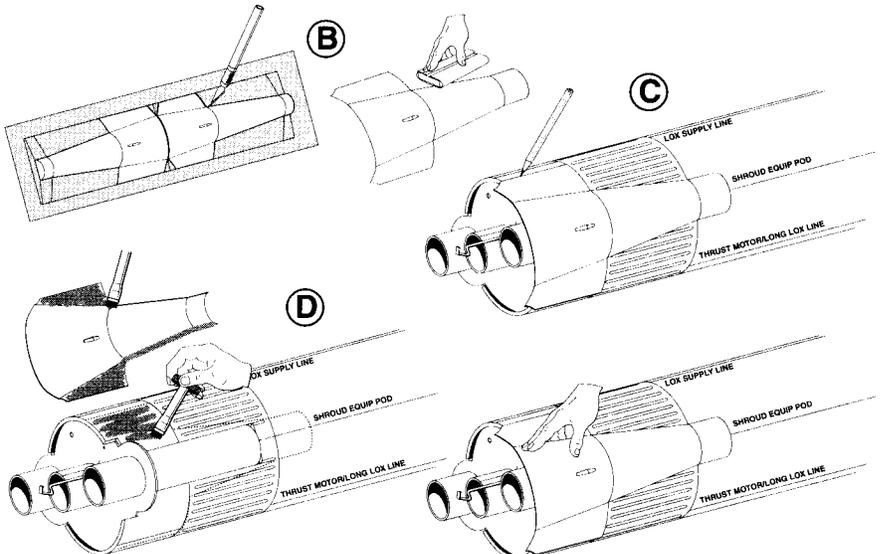
TEST FIT ENGINE MOUNT ASSEMBLY
DO NOT GLUE AT THIS TIME



1. Cut first stage stiffener wrap out of vacuum form sheet. Lightly sand edges smooth.
2. Test fit wrap around tube and trim ends if needed so wrap has no overlap. Secure wrap with masking tape.
3. Mark body tube 102 mm (4") from end of tube and slide wrap up to 102 mm (4") mark. Draw lines around body tube at wraps position top and bottom. Remove wrap and apply a **very thin** layer of contact cement to wrap area on tube and the back of wrap. **Allow contact cement to become dry to the touch.**
4. Carefully align end of wrap with the long shroud equipment pod line on tube. Position the wrap on the 102 mm (4") line. Slowly wrap onto tube pushing wrap into place. Ends of wrap must line up.
5. Trim wrap out of the slots with hobby knife.



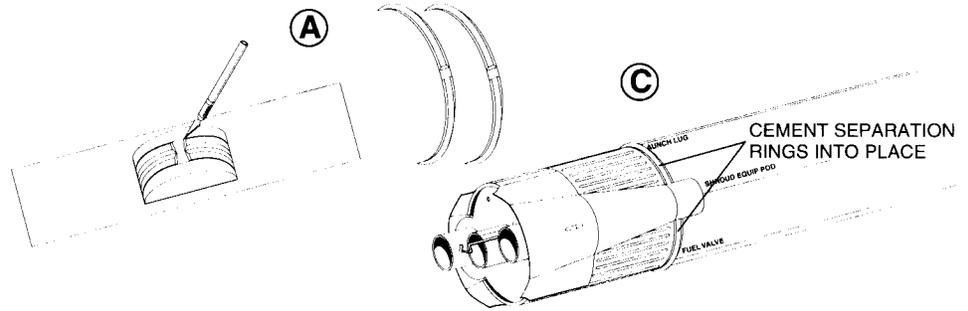
1. Slide engine mount assembly into place, do not glue assembly into tube yet.
2. Cut out the two engine shrouds and sand edges smooth as shown. **NOTE:** Score on inside of vacuum form sheet with modeling knife until parts are free.
3. Position one shroud onto tube as shown. Draw a line around shroud for position. Repeat steps for the other shroud position also.
4. Apply thin layer of contact cement to shroud areas and shrouds as shown. Allow contact cement to become dry to the touch and position shrouds into place. Press firmly around shrouds for a secure attachment.



ROCKET ASSEMBLY (CONTINUED)

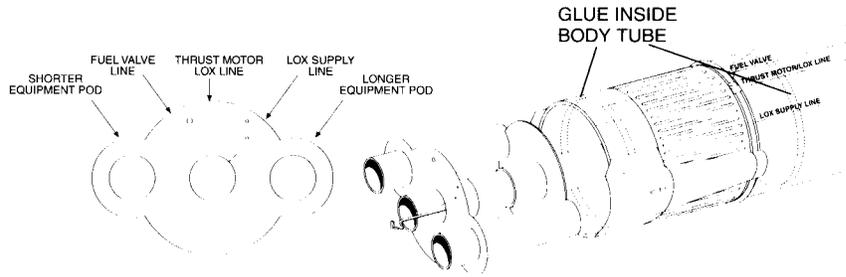
5.   

- A. Remove the two separation rings from vacuum form plastic sheet.
Note: Because the plastic sheet is thin, extra care must be taken. Score lightly until parts become free. Sand and trim edges.
- B. Position separation rings above top edge of wrap and between shrouds. Trim and sand for a uniform fit.
- C. Apply **very thin layer** of contact cement to rings and cement into place using the same method as in previous steps.



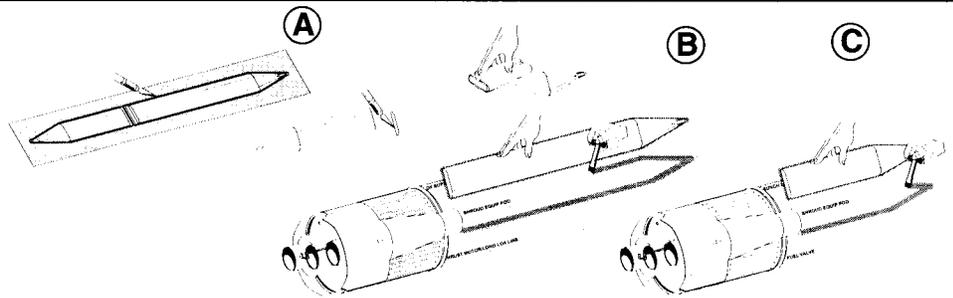
6. 

- A. Apply glue inside body tube. Align holes in rear centering ring with side of body tube with alignment lines labeled fuel valve and LOX supply line. Slide engine mount assembly into tube.
- B. Apply glue fillets to tube ring joints at front ring, from inside tube and at rear ring.



7.   

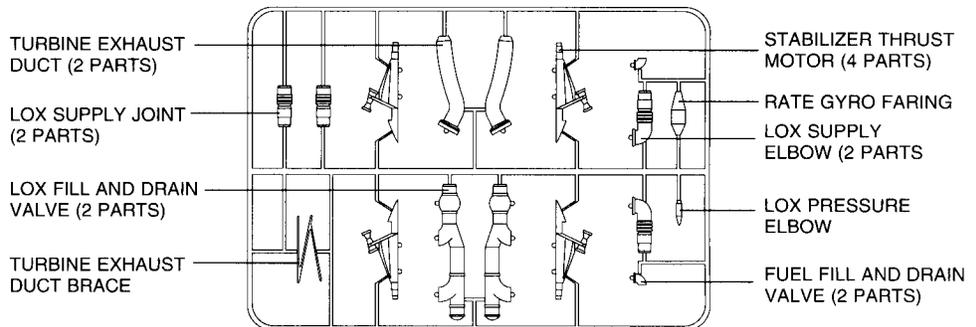
- A. Remove equipment pods from vacuum form sheet. Sand and trim around edges.
- B. Locate the long equipment pod center line on body tube and position of the longer pod as shown and mark its position. Remove, apply **thin layer** of contact cement and re-position in place. Firmly press pod into place.
- C. Repeat above steps to cement short pod into place.



PLASTIC DETAIL ASSEMBLY

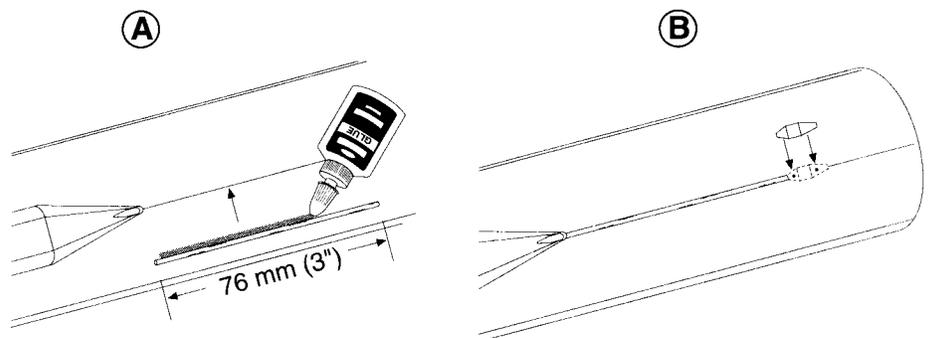
1.  

- A. Remove plastic parts from parts tree. Match up parts and cement them together with liquid plastic cement.
- B. When parts are assembled and dry, put them back into the plastic bag for safe keeping, they will be needed in the following steps.

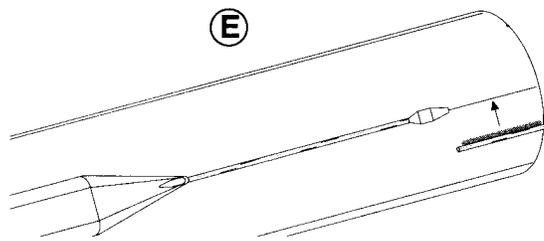


2.   

- A. Cut 3mm (1/8") wood dowel to 76mm (3") length. Apply glue to side of dowel, position on alignment line above long equipment pod.
- B. Find the rate gyro faring from the plastic parts. Align faring on alignment line above wood dowel from previous step. Press on faring to indent tube at locator pins.
- C. Remove faring and pierce tube at pin locations with a needle or small drill bit.

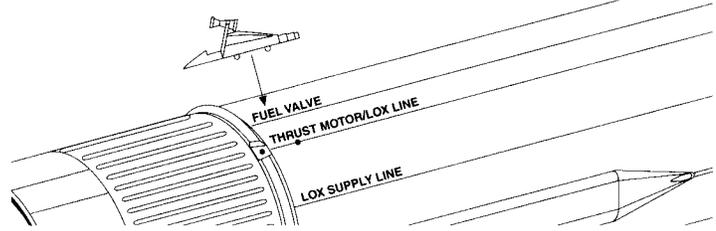


- D. Apply tube type cement to faring pins and back of faring. Use just enough cement to hold faring.
- E. Cut remaining 3mm (1/8") wood dowel to length and glue to alignment line above faring.



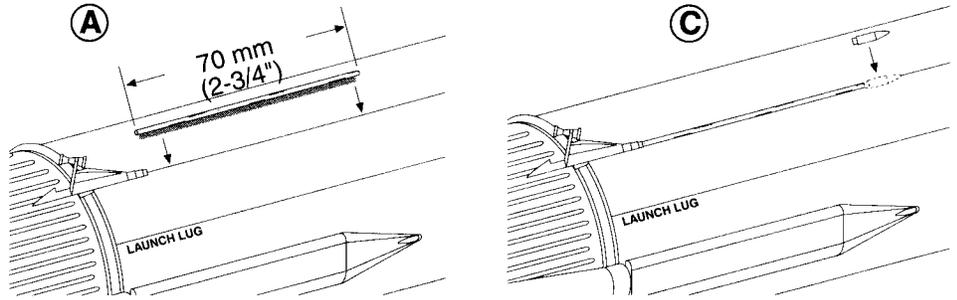
3.

- A. Locate the stabilizer thrust motors from plastic parts. Position as shown and press on motors to mark location.
- B. Make holes large enough to accept pins. Apply tube type cement to thrust motors. Cement into place.



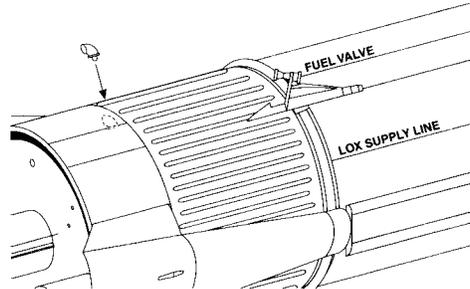
4.

- A. Find the small diameter 2 mm (1/12") wood dowels. Cut a piece of dowel 70 mm (2-3/4") long.
- B. Apply white glue to dowel and position on short LOX alignment line, allow glue to set.
- C. Find the LOX pressure elbow from plastic parts. Position elbow, mark tube, make holes and cement into place.



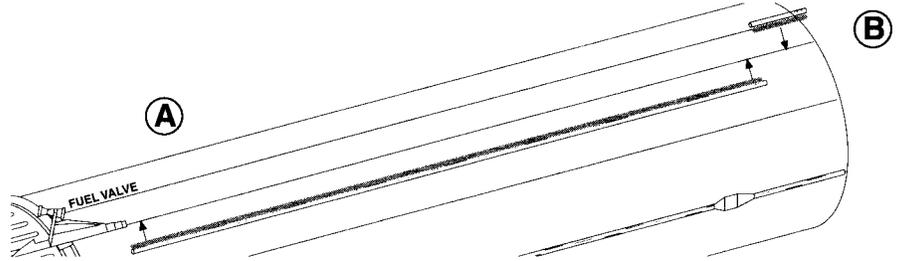
5.

- A. Locate the Fuel Fill and Drain Valve from plastic parts.
- B. Make a hole just large enough to accept pin, at 40 mm (1-9/16") from rear of body tube on the valve alignment line.
- C. Apply cement to valve and glue in place.



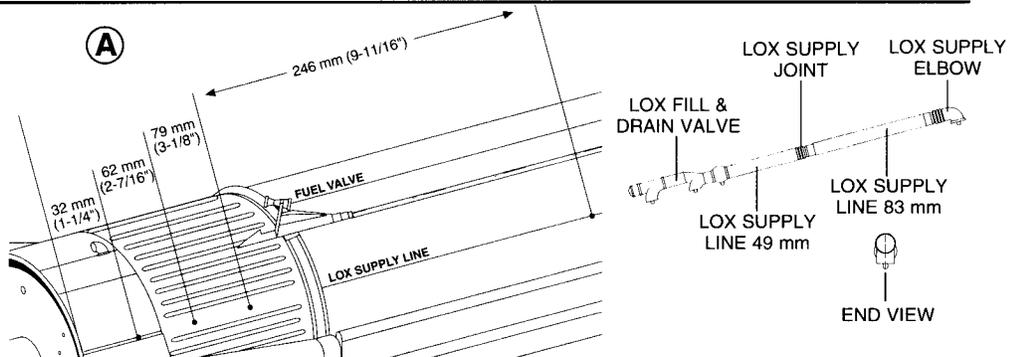
6.

- A. Glue the remaining 305 mm (12") small diameter wood dowel to the long LOX alignment line.
- B. Cut a piece of dowel from excess dowel from step 4 to make dowel extend to the end of the tube. Sand as necessary.



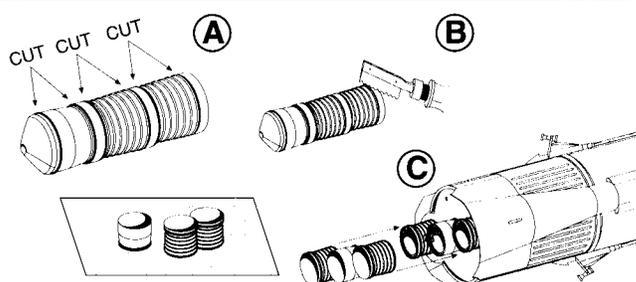
7.

- A. Mark the LOX supply alignment line at 32 mm (1-1/4"), 62 mm (2-7/16"), 79 mm (3-1/8"), and 246 mm (9-11/16") from the rear of the rocket body.
- B. Make holes just large enough to accept the plastic parts locator pins.
- C. Find the supply line parts as shown. Cement parts together, sight down length of assembly and align all the locator pins. Set parts aside to dry.



8.

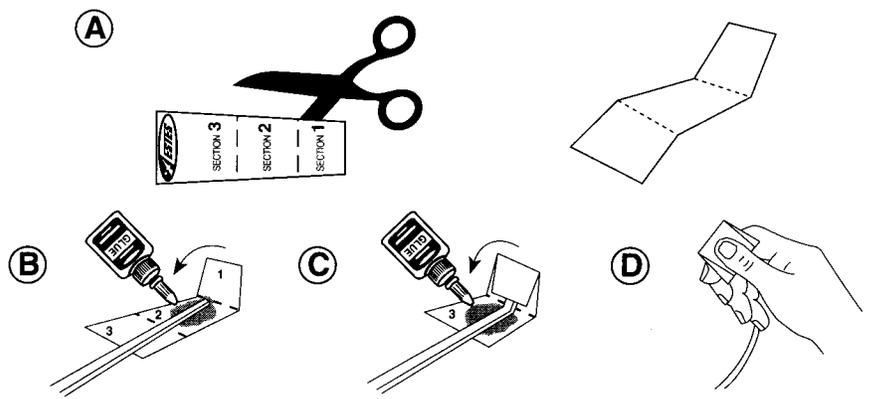
- A. Cut the nozzle parts apart as shown. Sand nozzle ends flat and smooth.
- B. Trim away excess plastic from inside of openings.
- C. Using tube type cement, glue nozzles to rear centering ring in order shown. Apply a thin cement fillet around nozzles and allow to dry.



ROCKET ASSEMBLY (CONTINUED)

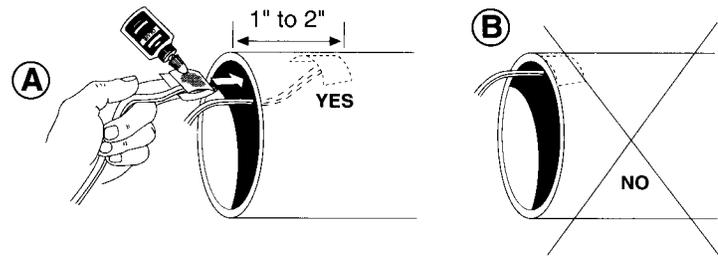
9.

- A. Cut out shock cord mount from instructions. Fold on dotted lines.
- B. Spread glue on section 2 and lay end of shock cord into glue.
- C. Fold over and apply glue to section 3.
- D. Lay shock cord as shown and fold mount over again. Clamp unit together with fingers until glue sets.



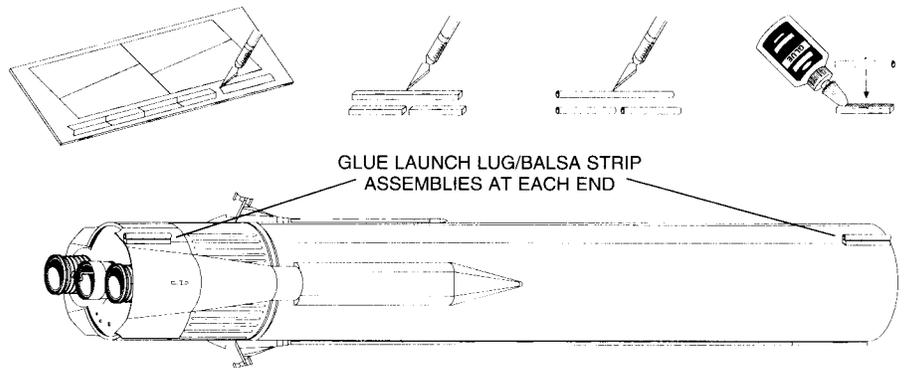
10.

- A. Apply glue to shock cord mount as shown. Insert into body tube no less than 25 mm (1") to 51 mm (2") from end of tube.
- B. Press the shock cord mount firmly into side of the body tube. Hold until glue sets.



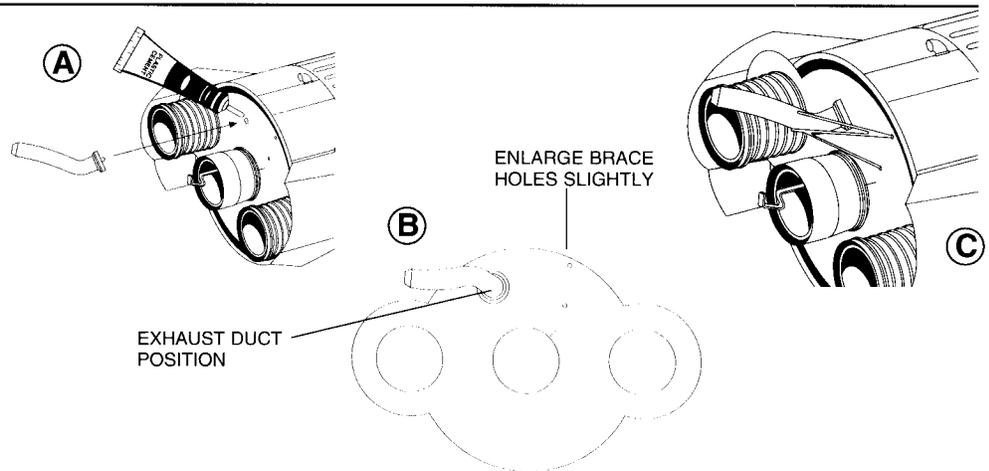
11.

- A. Remove one balsa strip from the die-cut sheet and cut it into two equal lengths.
- B. Cut launch lug into two equal lengths.
- C. Glue each launch lug half to each balsa strip half. Glue the launch lug/balsa strip assemblies to lug alignment line with ends even with ends of tube as shown.
- D. Sight down the tube and check alignment of launch lugs.



12.

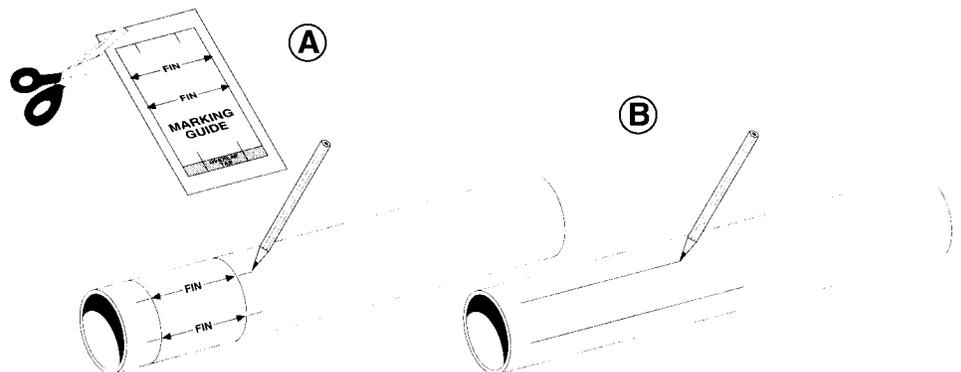
- A. Apply tube type cement to end of turbine exhaust duct and place on rear centering ring. Position as shown and allow glue to set.
- B. Slightly enlarge turbine exhaust duct brace holes on rear centering ring.
- C. Push the brace locator pins into the holes and align with the duct.
- D. Apply a drop of liquid plastic cement to each end of brace and hold if necessary until cement sets. Apply a drop of cement to each brace hole and pin. Allow parts to dry.



FIN UNIT ASSEMBLY

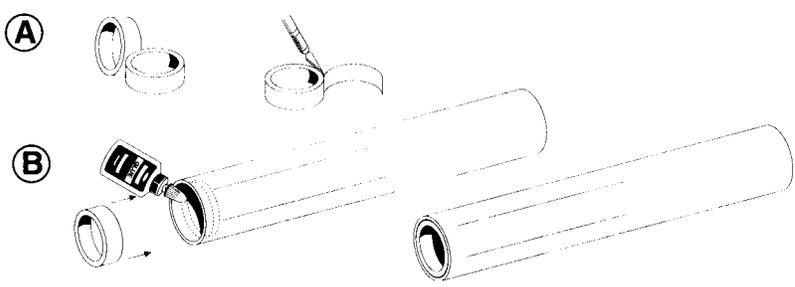
1.

- A. Cut out fin unit marking guide from pattern sheet. Wrap guide around each fin unit tube and tape. Mark tubes at arrows.
- B. Remove guide and draw straight lines connecting each pair of marks. Extend lines half way up tubes.



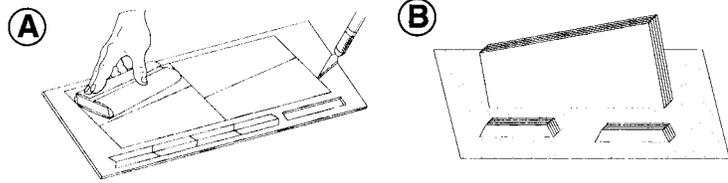
2.  

- A. Locate the two remaining rings. Remove a layer or two of paper from the outside edge of each ring until ring fits into the tubes.
- B. Apply glue to inside of marked end of each tube and push rings into tubes even with edge of tube as shown.



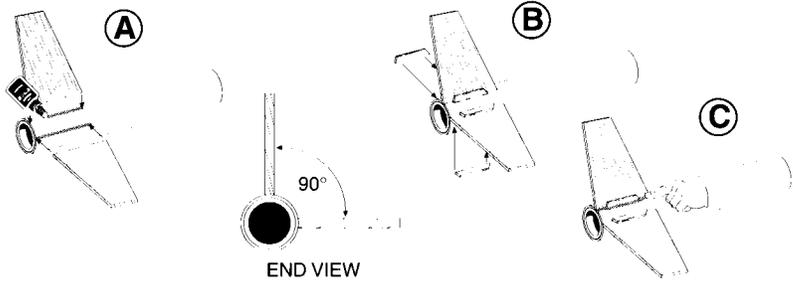
3.  

- A. Fine sand balsa sheet and carefully remove balsa fins and reinforcement strips with a sharp knife if needed.
- B. Stack like parts together and sand all edges smooth.



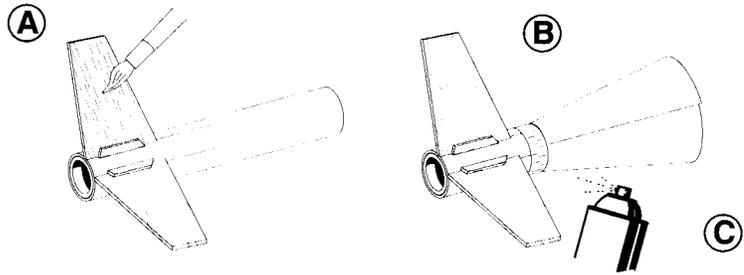
4. 

- A. Glue fins on alignment lines. Let each dry for several minutes before gluing the next fin in place.
- B. Allow glue to set then apply glue to each fin reinforcement part and glue to each side of each fin.
- C. Apply a glue fillet to each fin/tube joint. Support fin assemblies horizontally until glue dries.



5.   

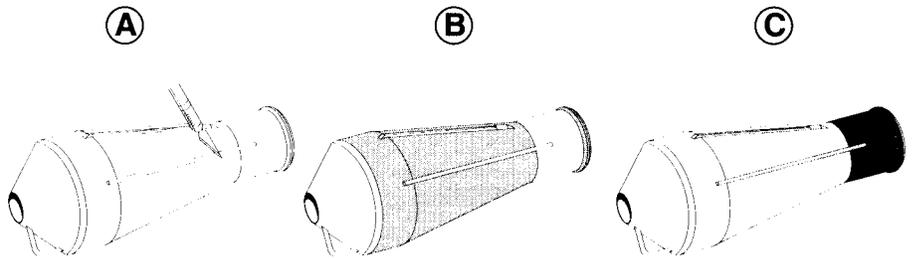
- A. When glue is totally dry apply sanding sealer or primer paint to all wood parts. Lightly sand and repeat steps until balsa grain is filled and smooth.
- B. When all glue and primer is dry, mask off upper part of tubes that fit into the fin mount tubes on rocket.
- C. Paint only the lower part of fin assemblies with the color of your choice. We recommend flat black.



CAPSULE ADAPTER SKIRT/SHROUD

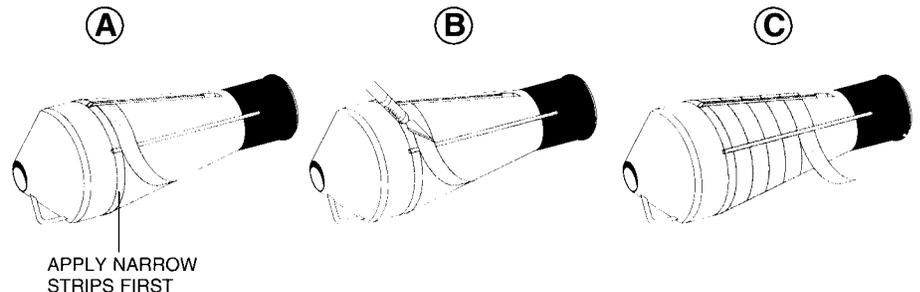
1.    

- A. Trim off excess plastic from around adapter/shroud. Sand all part lines smooth.
- B. Wipe shroud with damp cloth to remove oil and dirt. Mask off areas shown.
- C. Paint upper adapter skirt gloss black and shroud details with silver. DO NOT APPLY PAINT IN CAPSULE MOUNT AREA.



2. 

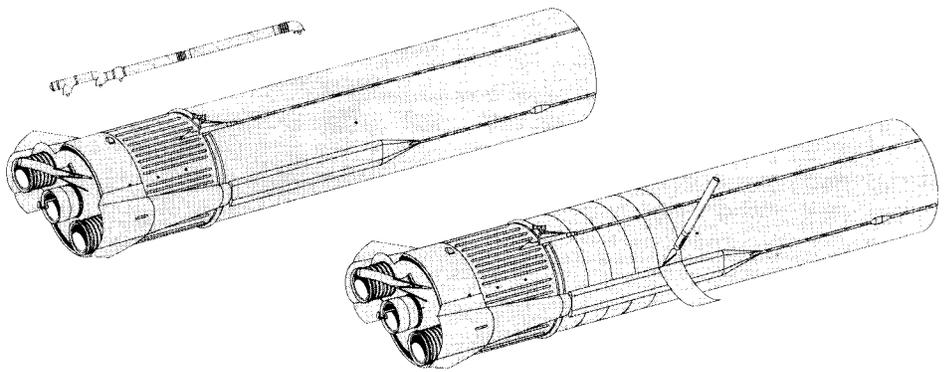
- A. When paint is thoroughly dry apply chrome strips to adapter as shown. Free chrome strips with new sharp hobby knife. Do not overlap strips.
- B. Trim strips around detail with a new sharp hobby knife blade. Be very careful not to cut plastic of shroud/adapter, only cut through the chrome strip. Remove excess chrome strip and press end of strip into seam of detail.



PAINING AND APPLYING CHROME STRIPS

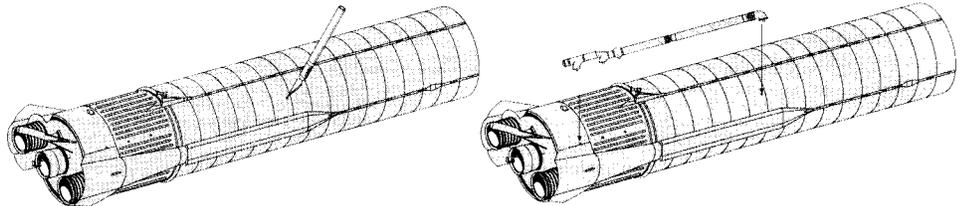
1.

- A. Paint lower half of model, all detail and the LOX supply line assembly with silver paint.
- B. When paint is thoroughly dry, apply chrome strips to body beginning at separation ring. Begin with narrow center cut strips first. Apply strips in same method used with shroud/adapter.



2.

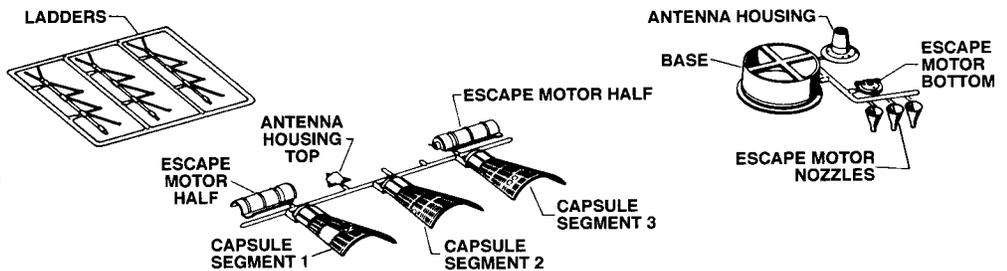
- A. Re-open the LOX supply line hole covered up by strips.
- B. Glue LOX supply line assembly into position. Immediately wipe away excess glue.



MERCURY CAPSULE ASSEMBLY

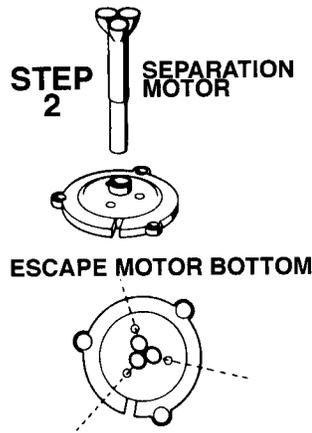
1.

- A. Carefully cut all parts from the plastic runners. Trim any excess plastic from around parts.
- B. Test-fit the parts together before gluing.



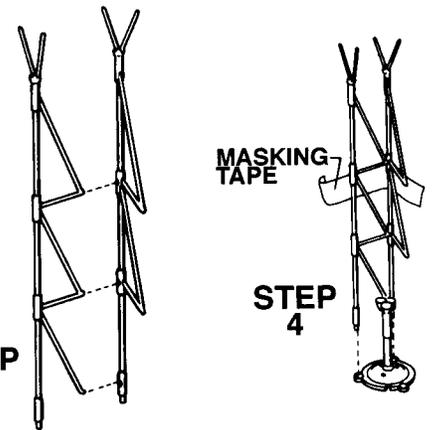
2.

- A. Cement the separation motor to the escape motor bottom, using liquid plastic cement.
- B. Note the positioning of the separation motor nozzles relative to the bottom.



3.

- A. Apply cement to the ladder tips on one ladder.
- B. Carefully fit these tips into another ladders appropriate holes.

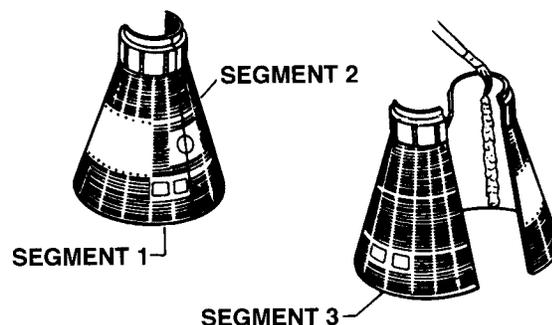


4.

- A. Fit the tips of the partial tower assembly into the appropriate holes in the escape motor bottom. DO NOT CEMENT. This is merely for alignment of the ladder.
- B. Gently wrap a piece of masking tape around the ladder assembly to hold parts in place while the cement dries.

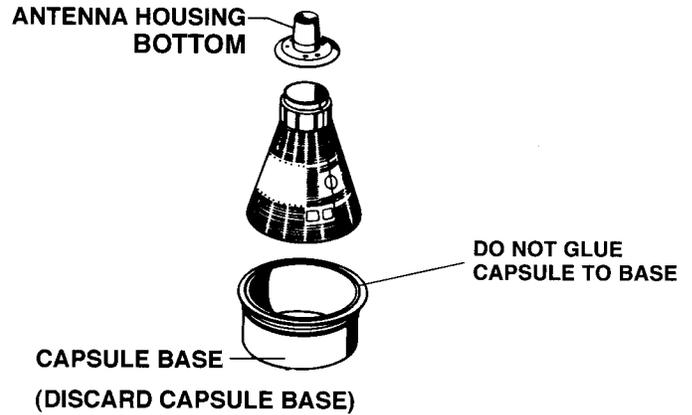
5.

- A. Refer to the illustration to determine which capsule parts are segments 1, 2, and 3.
- B. Lightly sand the edges of each segment to remove any molding imperfections.
- C. Join segments 1 and 2, standing them upright upon a flat surface. Apply cement only on the inside joint.
- D. Carefully cement the remaining segment in place, aligning all edges.



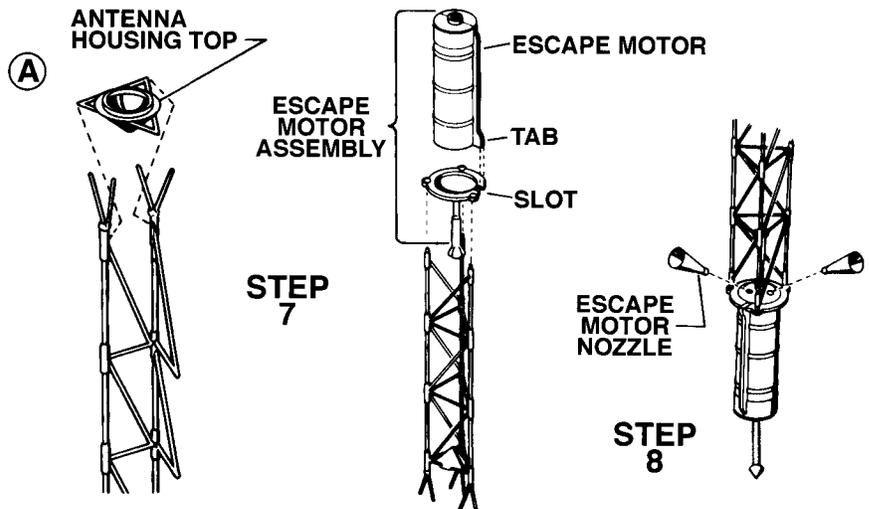
6. 

- A. Liquid plastic cement the antenna housing bottom in place on top of the capsule. It will form a joint that helps hold the segments together.
- B. Run a very small amount of additional cement along the inside seams of segments for extra strength.
- C. Place assembly into the groove around the capsule base to hold segments together while they dry. **DO NOT CEMENT BASE TO SEGMENTS.** The base will be discarded in a future step.



7.  

- A. Apply a small amount of liquid plastic cement on any two points of the antenna housing top and place in the lower ladder section.
- B. Lightly sand the edges of the escape motor halves and cement together. Glue on the escape motor bottom, aligning the slot and tab.
- C. Cement the remaining ladder part into place in the tower. Now cement the escape motor assembly on top to the tower, aligning the parts.

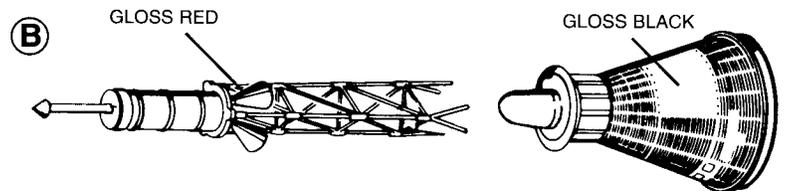


8. 

- A. Apply a drop of cement to each of the escape motor nozzles and attach to the escape motor bottom in the proper positions.
- B. Also apply a drop of cement to each nozzle where it touches the ladder.
- C. Apply cement to the aerodynamic spike and position it into the top of the escape motor.

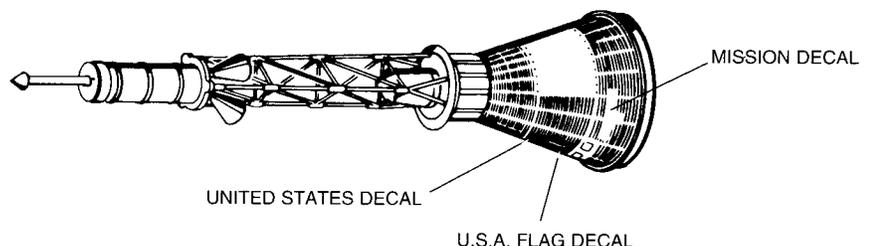
9.  

- A. When the cement on both the tower assembly and capsule are completely dry, they may be painted.
- B. Paint the tower assembly gloss red, and paint the capsule gloss black.
- C. When all paint is dry the decals can be applied to the capsule. Choose which Mercury Atlas you wish to build. There are decals for four Mercury Atlas Missions. To make the capsule decals adhere better you may wish to use Solve-set or some other decal setting solution.
- D. After the decals are completely dry apply a coat of Testor's Dull-Cote over the entire capsule and allow to dry.
- E. When all paint is dry the tower assembly and capsule can be assembled. Place drops of cement in the small holes in the antenna housing and mount the tower assembly. Align as necessary and allow to dry.



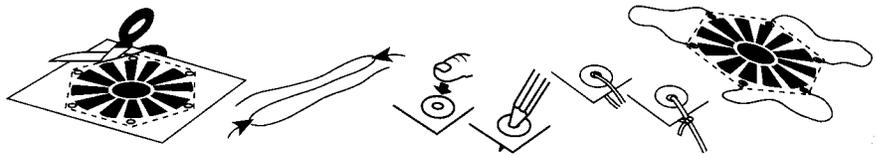
C

CHOOSE WHICH MERCURY ATLAS MISSION YOU WISH TO BUILD FROM THE SUPPLIED DECAL SETS.



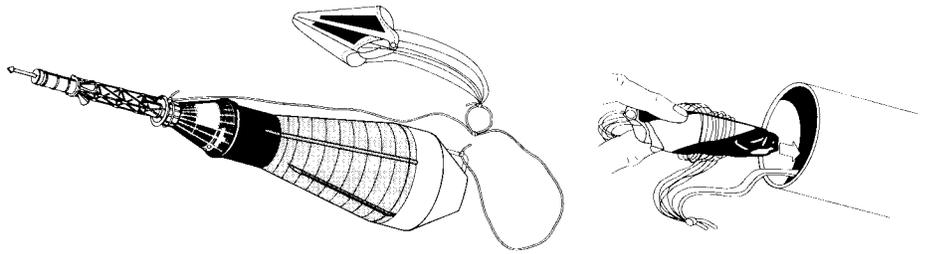
3.  

- A. Assemble the 30 cm (12") parachute in the same sequence of steps as the 60 cm (24") parachute.



4.

- A. Attach the 30 cm (12") parachute to the capsule sling at the loop.
 B. Attach the 60 cm (24") parachute to the end of the shock cord on the rocket booster.
 C. Pack parachutes into rocket booster and slide capsule adapter into place. Align the LOX lines.



5.

- A. Fin units can be slid into place or taken out for display. **DO NOT GLUE FIN UNITS INTO TUBES.**

LAUNCH SUPPLIES NEEDED TO FLY YOUR ROCKET

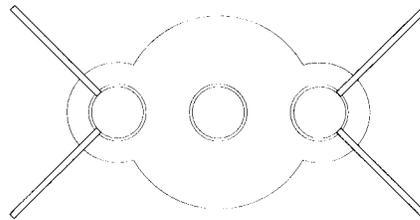
To launch your rocket you will need the following items:

- Estes electrical launch controller and launch pad with 3/16" launch rod #2244
- Estes recovery wadding #2274
- Estes engines D12-3 or E15-4

Use an Estes D12-3 engine for your first flight to become familiar with your rocket's flight path.

FLYING THE MERCURY ATLAS

Slide the fin unit assemblies into place and position as shown.

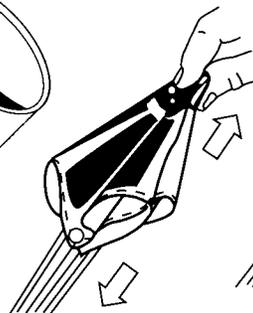
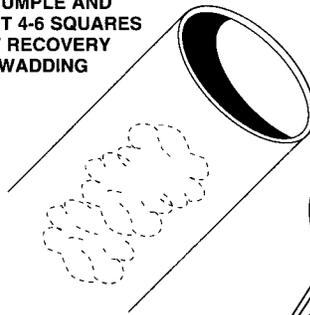


ORIENT FINS FOR FLIGHT

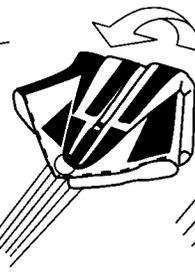
ROCKET PREFLIGHT

- A. Crumple and insert 4 to 6 squares of recovery wadding.
 B. Prepare parachutes. Wrap lines loosely around 'chutes.
 C. Insert the 60 cm (24") parachute attached to the shock cord first then the 30 cm (12") parachute attached to the capsule and adapter. Holding the capsule sling tight against body, slide the capsule adapter into place in the booster body tube, this will cause some slack in the string. This is OK. Twist the upper section back and forth slightly to make sure the string is not causing a bind. Align the LOX lines of the booster and the adapter.

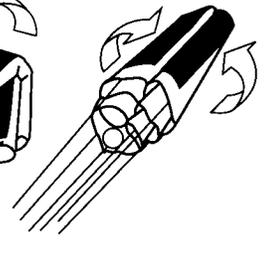
CRUMPLE AND INSERT 4-6 SQUARES OF RECOVERY WADDING



SPIKE



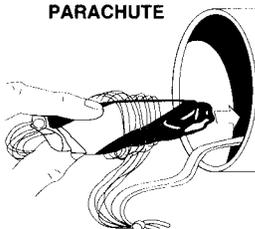
FOLD



ROLL

FOLD PARACHUTE

WRAP SHROUD LINES AROUND PARACHUTE

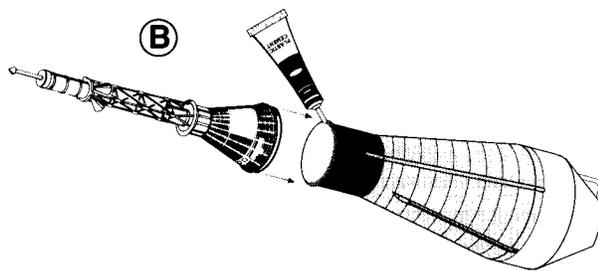


INSERT PARACHUTE AND SHOCK CORD INTO ROCKET BODY

Recovery device should slide easily into body tube. If too tight, unfold and repack.

10.  

- A. Remove capsule base from capsule and discard.
- B. Apply cement to the adapter and position capsule into place. Allow parts to dry.
- C. Touch up the adapter/capsule joint with black paint if needed.



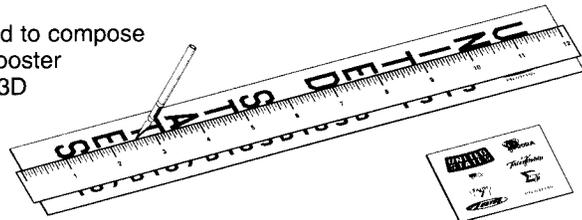
PAINTING AND DETAILING THE BOOSTER

1.  

- A. Your decal sheet comes with four Mercury Atlas mission decals. Match up which mission you are building with the capsule you have completed.
- B. Cut decals out with hobby knife or scissors. Trim clear film of decal as close to decal image as possible.
- C. Refer to package for decal positions.

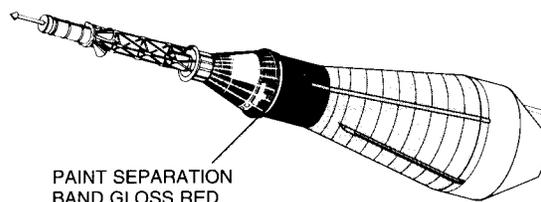
M. Scott Carpenter	Aurora 7	107D Booster
John H. Glenn	Friendship 7	109D Booster
Walter M. Schirra, Jr.	Sigma 7	113D Booster
L. Gordon Cooper, Jr.	Faith 7	130D Booster

You will need to compose decals for booster numbers 113D and 130D.



2. 

- A. Paint inside of nozzles, fuel fill and drain valve, end of turbine exhaust duct, and ends of stabilizer motors flat black.



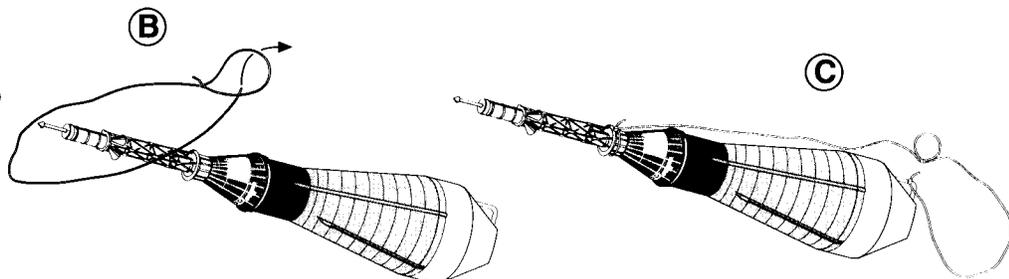
3. 

- A. Paint the separation band on the shroud and capsule adapter gloss red.

PARACHUTE ASSEMBLY

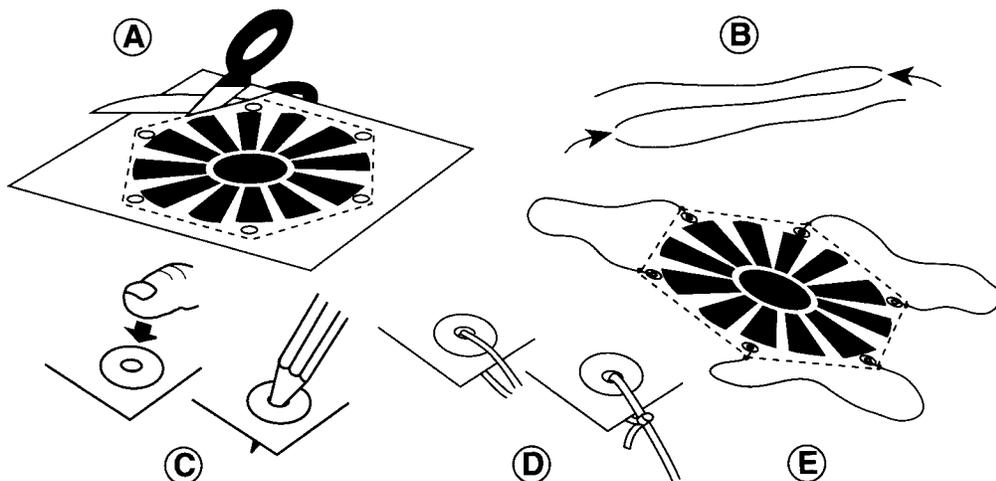
1. 

- A. Cut a 914 mm (36") length of shroud line from the large shroud line pack to make the capsule sling.
- B. Tie a loop in one end of line. Pass line through loop and pass end of capsule through loop as shown. Pull line tight around capsule.
- C. Tie free end of line to eyelet of shroud/adapter. Pull line down the side of shroud/adapter and tie loop in line below eyelet as shown.



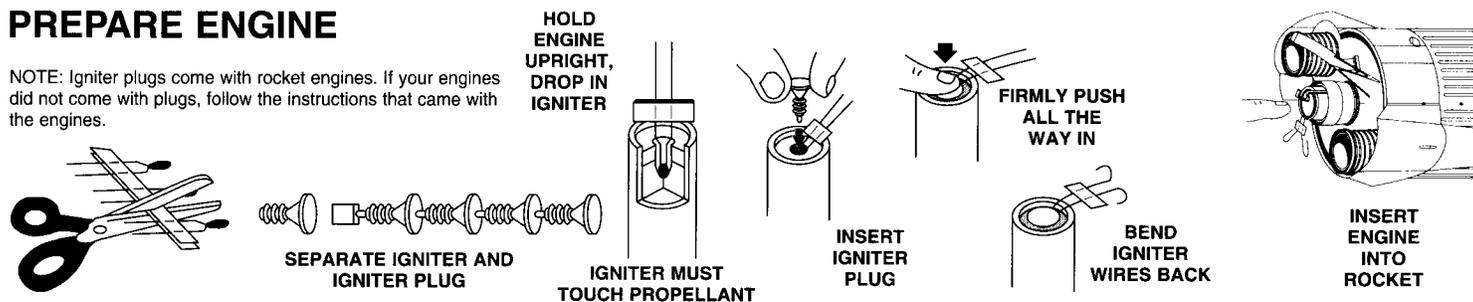
2.  

- A. Cut out the 60 cm (24") parachute on the edge lines.
- B. With the remaining shroud line from the larger shroud line pack, cut 3 equal lengths of line.
- C. Attach tape rings to top of parachute and press firmly into place. Punch holes through the parachute material with point of a sharp pencil.
- D. Pass shroud lines through holes in parachute and tape ring. Tie lines together with a double knot.
- E. Attach remaining lines to other corners to complete parachute.



PREPARE ENGINE

NOTE: Igniter plugs come with rocket engines. If your engines did not come with plugs, follow the instructions that came with the engines.



PREPARE ENGINE D12-3 OR E15-4

When flying your rocket with a D12-3 you will need to first slide the orange engine spacer into the engine tube, then the "D" engine. For E15-4 engine flights, the orange spacer is not needed.

LAUNCH SITE SELECTION

Always fly your model rockets from large open fields away from power lines, airports, buildings, and trees. The launch site chosen for launching your model rockets should be a minimum of 50 meters (500') square. The larger the launch area, the better your chances of recovery. The area must be free of dry weeds and grass. Launch only when wind is calm and visibility is good. Alert any people in the area before you launch. Don't leave parachutes packed more than a minute or so before launch during cold weather, [colder than 4° Celsius (40° Fahrenheit)]. Parachute may be dusted with talcum powder to avoid sticking.

FOR YOUR SAFETY AND ENJOYMENT

Always follow the National Association of Rocketry (NAR) MODEL ROCKETRY SAFETY CODE while participating in any model rocketry activities.

LAUNCH PROCEDURE

If the Estes Pro Series Command Control Launch Controller™ is to be used to launch your rocket, follow the instruction supplied with the Command Control Launch Controller™.

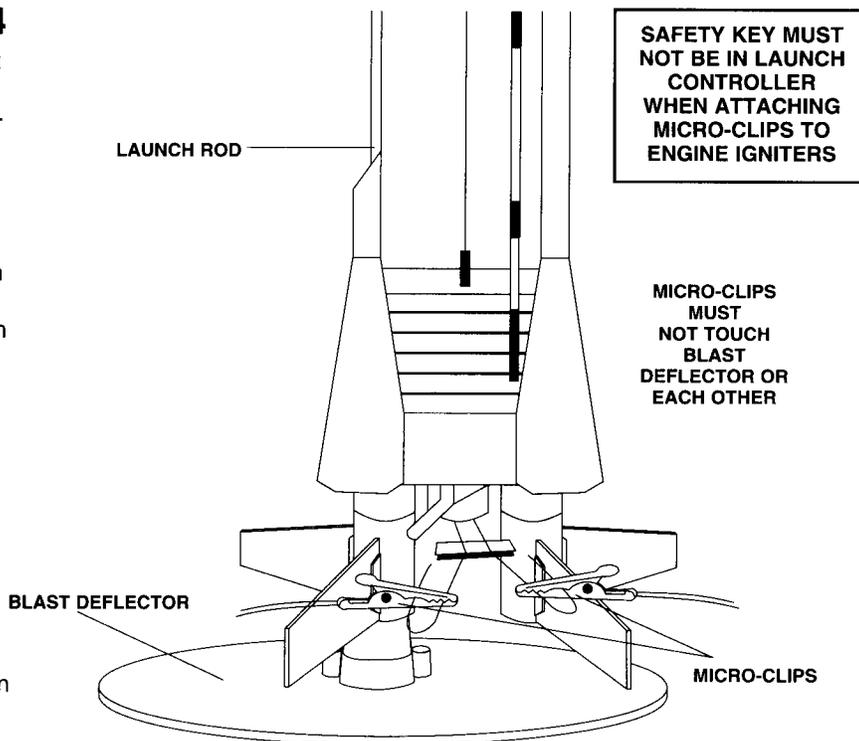
1. Remove the safety key and launch rod safety cap from the launch rod. **HOLD THE SAFETY KEY AND SAFETY CAP IN ONE HAND.** Carefully align the rocket launch lugs with the launch rod and slide the rocket down the launch rod and onto the blast deflector. Adjust the igniter leads as necessary so that they do not touch the metal blast deflector.
2. **MAKE CERTAIN THAT NO ONE IS HOLDING THE LAUNCH CONTROLLER AND SAFETY KEY IS NOT INSERTED IN THE LAUNCH CONTROLLER. KEEP SAFETY KEY AND SAFETY CAP IN ONE HAND.**
3. Attach the launch system micro clips to the igniter leads. (It is strongly recommended that the inside jaws of the micro clips be cleaned before each launch. This can be done quite easily by passing a folded piece of sand paper back and forth between the closed jaws a few times.)
4. Examine the connections carefully. Be certain that the micro clips do not touch one another or the metal blast deflector.
5. Check to be certain the launch controller is at its maximum distance from the launch pad. Move it as necessary so that the sun will be at your back at launch.
6. Give a verbal warning to others that you are ready to launch and that they need to move back a minimum of 9 meters (30') from the launch pad.
7. Insert the safety key into the launch controller. The continuity light should now glow indicating the launch circuit is complete.
8. **GIVE A SHORT AUDIBLE COUNTDOWN...5...4...3...2...LAUNCH!** Press the launch button and hold it down until ignition occurs and the rocket lifts off. Release the launch button as the rocket leaves the launch pad. Remove the safety key from the controller as you follow the rocket skyward.

REMOVE SAFETY KEY FROM LAUNCH CONTROLLER. KEEP SAFETY KEY WITH YOU OR REPLACE SAFETY KEY AND SAFETY CAP ON LAUNCH ROD.

MISFIRES

If the igniter functions properly but the propellant does not ignite, keep in mind the following: 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 reinstall the igniter plug as illustrated above. Repeat the countdown and launch procedure.



Estes Mercury Atlas Tips

by Manuel Mejia, Jr.



The Estes Mercury Atlas is one of the most complex kit rockets that has ever come on the market. I managed to pick one up for \$34 from a very friendly hobby shop and started work on it immediately. The first few steps detail the construction of the motor mount. This part of the building was straightforward.

The fun starts when one starts on the rocket body itself. Be sure to test the contact cement that you plan to use on all of the styrene parts. Apply the cement on a section of scrap styrene from the Engine Strouds & Equipment Pods vacuform Sheet and let it sit for 24 hours. If the plastic melts, **DO NOT USE THIS CEMENT!!!!** I basically ruined my Mercury Atlas by using a contact cement that softened and deformed a section of the first stage stiffener shroud. My model now has the appearance of having developed plastic cancer.

The rest of the plastic parts are now attached with RC-56 glue. Model airplane fliers use this glue to glue plastic windshields onto their airplane models. The adhesive resembles white glue in color and lack of smell. It also dries to a bond that is strong enough to hold the plastic components to the rocket.

When cutting the moldings, be sure to use a gentle hand and take plenty of time. If you rush the job, you will cut the parts improperly and will have to use aluminized mylar to cover up your mistakes. The mylar is a rudimentary fix.

The instructions also leave out one important detail. When mounting the two separation rings, the mounting instructions do not tell you which side is up or down. In the middle of the ring, there is an indentation that is narrower on one side vs. the other. I had to compare the plastic part that goes on top of the separation ring so that I could find out which side was up. The narrow side must be facing the top of the rocket.

The rest of the Atlas booster assembly was ok. I did add a motor mount on each of the fin units so that I could fly the rocket as a cluster. Given the amount of work one has to put in in order to build this rocket, it is not surprising that most people would avoid this extra step. After all, why risk a rocket as expensive as this to cluster work? Since this rocket already has plastic cancer, I guess that it is uniquely qualified for this experiment. Be sure to plug the ends of the fin unit motor mounts so that the exhaust from the engines do not char the plastic equipment pods.

To save time, I used black monokote to color the adaptor skirt. I then used the aluminized mylar to detail the rest of the rocket. I chose to delete the installation of the escape tower since that particular item always breaks off after the first or second launch of any scale rocket that carries such a device. In any event, this particular rocket will never be entered into a scale event.

The Mercury capsule itself seems to be recycled from the old Estes Mercury Redstone kit. Regrettably, the mold may be showing its age. The capsule sections were warped badly enough that they did not fit together. I glued the pieces together as best I could using the old Redstone booster shoulder as a jig to hold the three pieces together. The final product looks decent from a distance.

Since the plastic stiffener shroud was cancered to the point of being obnoxiously ugly, I decided to not

apply the aluminized mylar strips to the booster. Makeup will only go so far. The booster was just spray-painted with Dutch Boy Aluminum. I also used a Testor's aluminum paint pen to color the LOX supply line and the two fuel lines that are molded to the adaptor skirt.

For a recovery system, I dumped the Estes plastic chutes and used one 28" Loc/Precision nylon chute for the Atlas booster and one 12" Loc/Precision for the capsule. I consider this rocket, as cancered as it is, to be too expensive to risk with the standard plastic chutes that Estes sells with most of it line.

I have only flown the Mercury Atlas once on a single D12-3. The take-off is almost as slow and majestic as the real thing ! I got a good deal of applause from the spectators who watched the launch. I now need to see how this rocket works on a cluster. I will probably use Mini A10s as a start. One should add some 25 grams of clay to the Mercury capsule as a precaution if the rocketeer wants to fly the Mercury Atlas model on C motors.

Even with all of the wonders and warts, the Estes Mercury Atlas is fun to build and to fly.

A NOTE TO NEWSLETTER EDITORS:

If anyone wants to reprint this article in its entire form or in part, you are free to do so as long as proper credit is given. Please e-mail me that you are doing this before you publish the article. Also, I want a copy of the newsletter that carries the article.

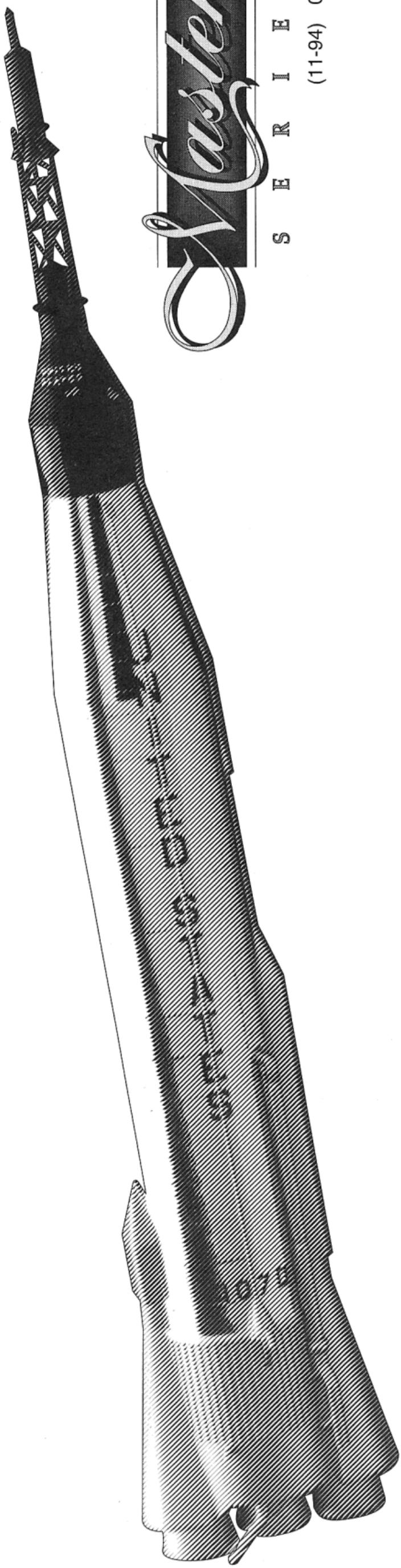
Happy Flying !
Manuel Mejia, Jr.
Tampa, FL-----5/17/95
manuel@luna.cas.usf.edu



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PENROSE, CO 81240 USA

MERCURY ATLAS™

FLYING MODEL ROCKET KIT EST 2111

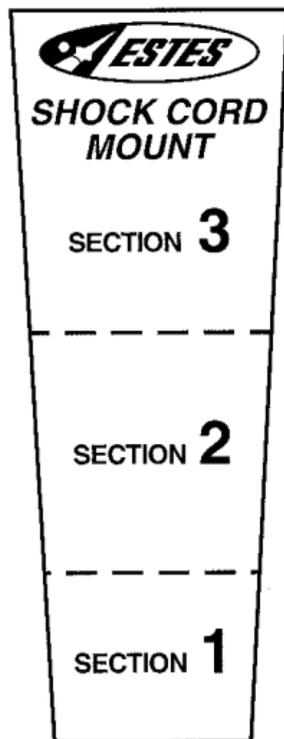
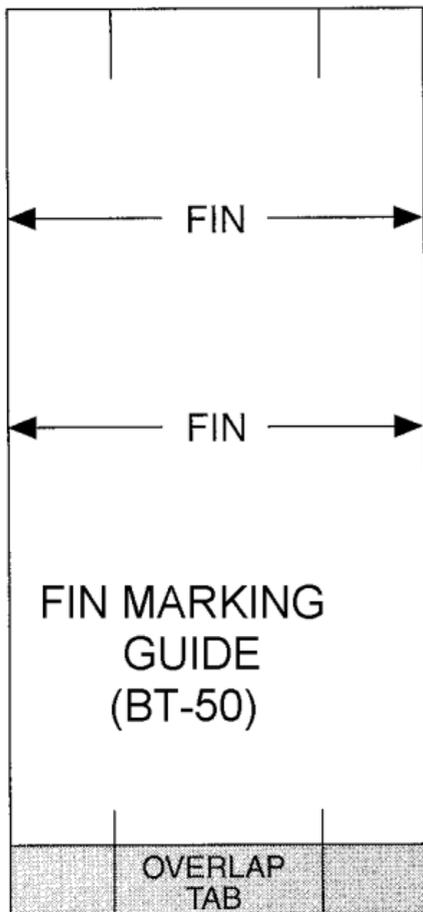


Castles™

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PARTS LIST

031525.....	WHITE BODY TUBE 479 mm 18-7/8"	1
032469.....	CENTERING RING D/C SHEET	1
034125.....	MERCURY CAPSULE SET & TOWER COMPONENTS	1
032400.....	PRESSURE SENSITIVE DECAL (A)	1
032401.....	PRESSURE SENSITIVE DECAL (B)	1
071048.....	ADAPTER/SHROUD	1
071049.....	NOZZLES	1
037927.....	PLASTIC PARTS SET	1
032847.....	ENGINE SHROUD & EQUIPMENT PODS VACU-FORM SHEET	1
032848.....	SEPARATION RINGS & FIRST STAGE WRAP VACU-FORM SHEET	1
084437.....	INSTRUCTION BOOK	1
084439.....	PATTERN SHEET	1
030160.....	BLACK ENGINE HOOK RETAINER RINGS	2
030164-2...	ENGINE BLOCK	1
030164-2...	FIN TUBE BLOCKS	4
031150.....	FIN UNIT TUBES 133 mm (5-1/4")	2
031223.....	FIN MOUNT TUBES 92 mm (3-5/8")	2
031224.....	ENGINE MOUNT TUBE 241 mm (9-1/2")	1
032054.....	3 mm (1/8") WOOD DOWEL 229 mm (9") LONG	1
032058.....	2 mm (1/12") WOOD DOWEL 305 mm (12") LONG	2
032810.....	BALSA DIE-CUT SHEET	1
034998.....	ORANGE ENGINE SPACER	1
034999.....	YELLOW ENGINE SPACER TUBE	1
035030.....	ENGINE HOOK	1
037149.....	WATER TRANSFER DECAL SHEET	1
037150.....	PRESSURE SENSITIVE DECAL SHEET	1
038166.....	LAUNCH LUG 51 mm (2")	1
038183.....	LOX SUPPLY LINE 49 mm (1.938")	1
038184.....	LOX SUPPLY LINE 83 mm (3.25")	1
038237.....	SHROUD LINE	1
038407.....	TAPE STRIP	1
085564.....	305 mm (12") PARACHUTE	1
035822.....	610 mm (24") PARACHUTE	1
038407.....	TAPE STRIP	1
038241.....	SHROUD LINE	1
038382.....	SHOCK CORD	1



THRUST MOTOR
SHORT LOX LINE

The diagram shows a vertical tube with various components and dimensions. At the top, there are two vertical tick marks. Below them, a horizontal double-headed arrow spans the width of the tube, labeled 'THRUST MOTOR SHORT LOX LINE'. Below this, another horizontal double-headed arrow is labeled 'LAUNCH LUG'. A shaded rectangular area is positioned in the middle of the tube, labeled 'SHORT SHROUD EQUIP. POD'. Below this, a horizontal double-headed arrow is labeled 'FUEL VALVE'. To the left of the tube, the word 'REAR' is written vertically. Below that, a horizontal double-headed arrow is labeled 'THRUST MOTOR LONG LOX LINE'. Below this, another horizontal double-headed arrow is labeled 'LOX SUPPLY LINE'. A second shaded rectangular area is positioned near the bottom of the tube, labeled 'LONG SHROUD EQUIP. POD'. At the very bottom, there is a shaded horizontal bar labeled 'OVERLAP TAB'. Two vertical tick marks are also present at the bottom of the tube, aligned with the top ones.

LAUNCH LUG

SHORT SHROUD
EQUIP. POD

FUEL VALVE

REAR

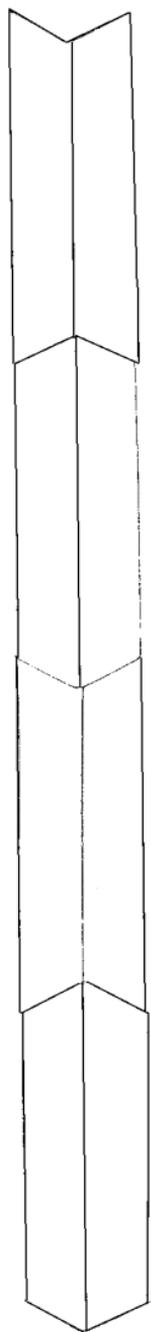
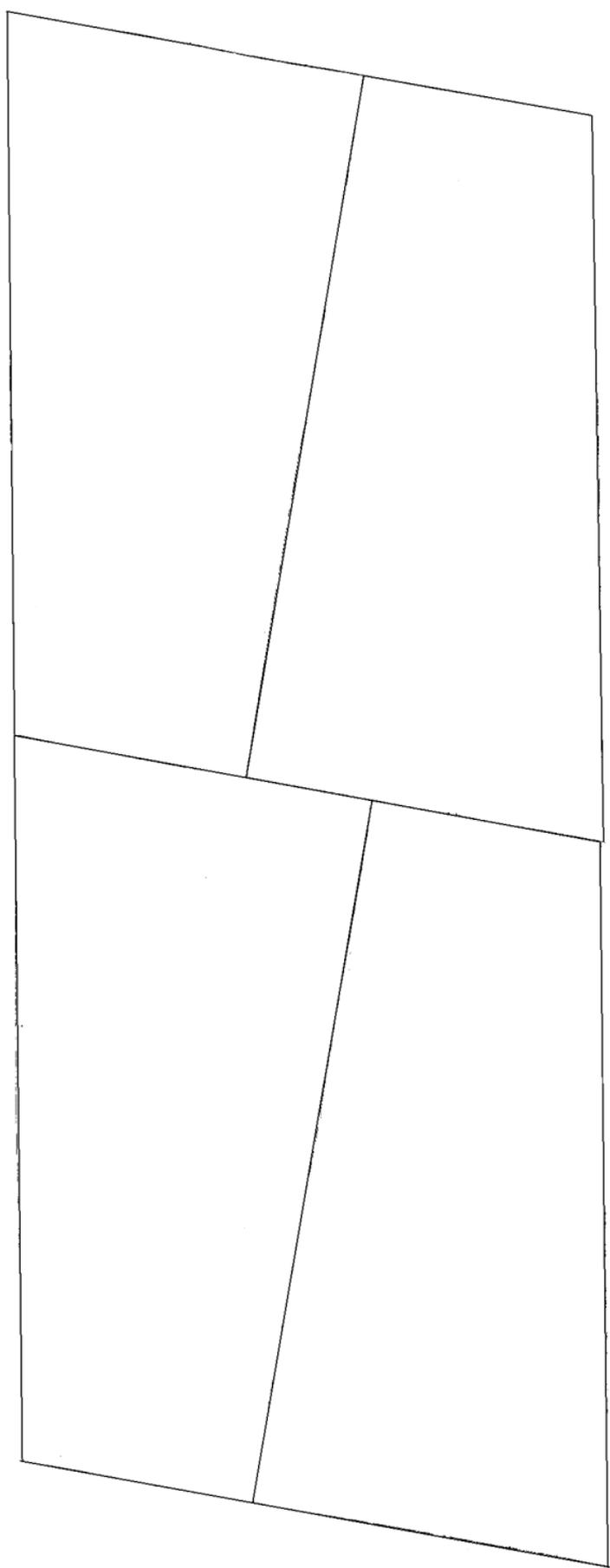
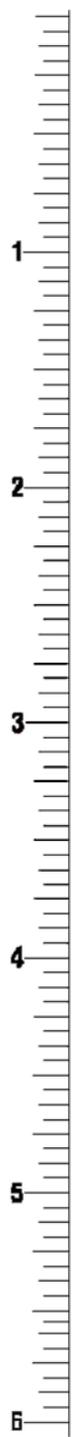
THRUST MOTOR
LONG LOX LINE

LOX SUPPLY LINE

LONG SHROUD
EQUIP. POD

TUBE MARKING GUIDE

OVERLAP TAB



SSFE T A T S D E T N U

SSFE T A T S D E T N U

107D 107D 109D 109D 1313 1313



PN 037150

UNITED
STATES



Friendship



PN 037149