Assembly Instructions

Your Astron Farside rocket kit consists of the following parts as illustrated in the drawing at right:

(A) 4 sheets balsa fin stock--Part #BFS-20
(B) 5 stage couplers--Part #JT-50C
(C) 6 adapter rings--Part #RA-2050
(D) 1 engine block--Part #EB-20A
(E) 1 engine holder tube (2-3/4" long)--Part #BT-20J
(F) 2 engine holder tubes (2-1/4" long)--Part #BT-20M
(G) 1 body tube (7-1/2" long)--Part #BT-50H
(H) 2 booster body tubes (2-3/4" long)--Part #BT-50J
(I) 1 payload section tube (5" long)--Part #BT-60R
(J) 1 nose cone--Part #BNC-60L
(K) 1 balsa adapter--Part #TA-5060
(L) 1 screw eye--Part #SE-2
(M) 1 parachute--Part #PK-12A
(N) 72" shroud line cord--Part #SLT-12
(O) 1 shock cord--Part #SC-2B
(P) 6 tape strips--Part #TD-2
(Q) 1 pattern sheet--Part #SP-3
(R) 1 launching lug--Part #LL-1B
(S) 1 technical report--Part #TR-2
(T) 1 launching lug stand-off--Part #BFS-30E

In addition to the materials included with your kit you will need the following tools and supplies:

1. Modeling knife or single edge razor blade
2. Scissors
3. Extra strong white glue
4. Ball point pen or pencil
5. Fine and extra fine grit sandpaper
6. Paint or dope

Check to be sure your kit is complete. Then read the entire instructions before beginning to assemble your rocket.

(1) Glue one adapter ring to each end of three of the stage couplers. (Do not glue anything to the other two couplers yet.) Apply glue to the very end of the stage coupler as in fig. 1, then press the ring in place so it is exactly centered. Wipe off excess glue. Do this with all the rings to make 3 ring-coupler units. Let these dry completely before step (3).

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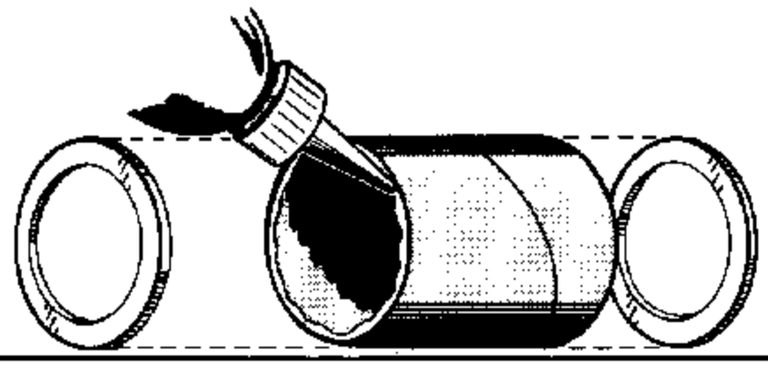
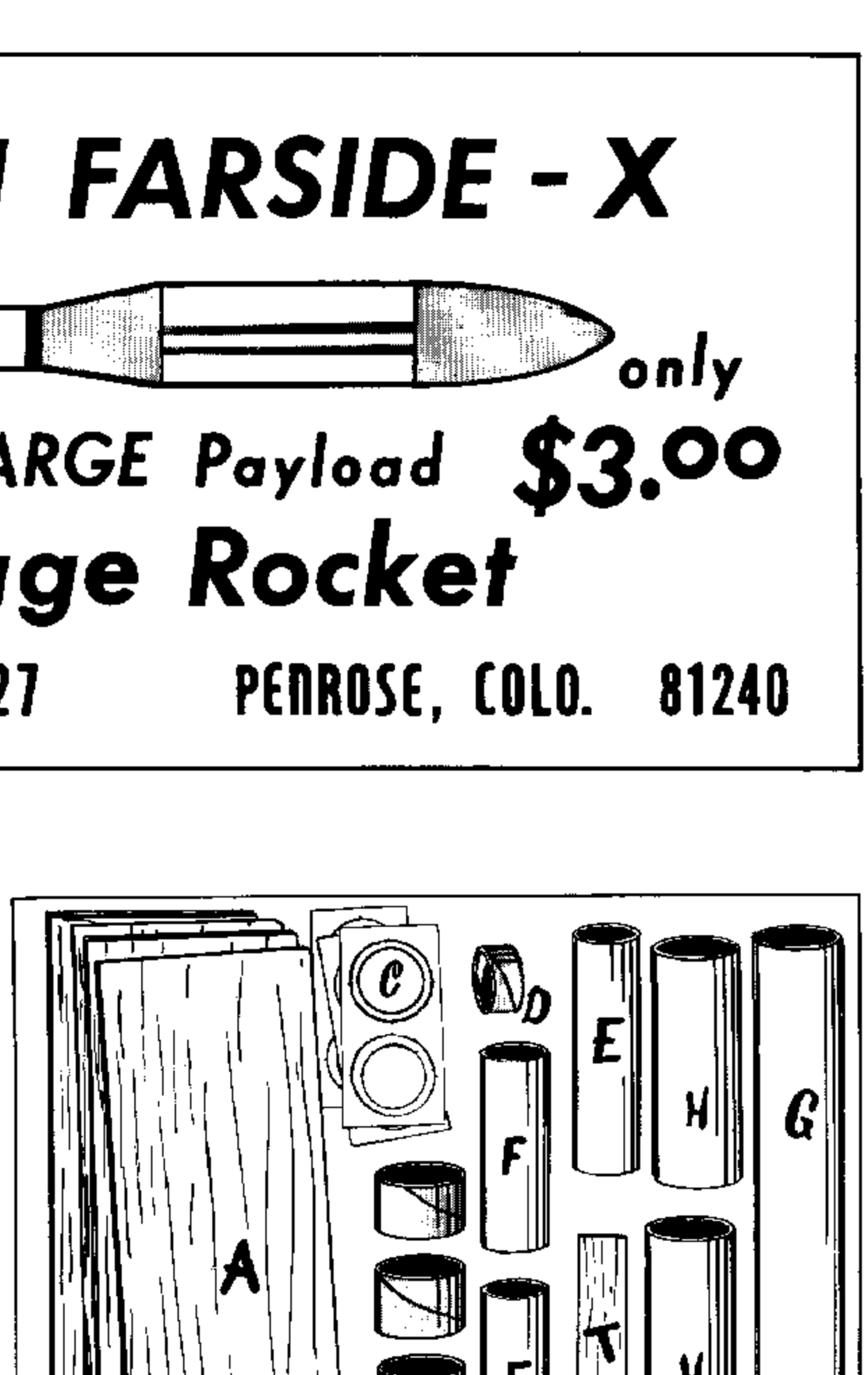
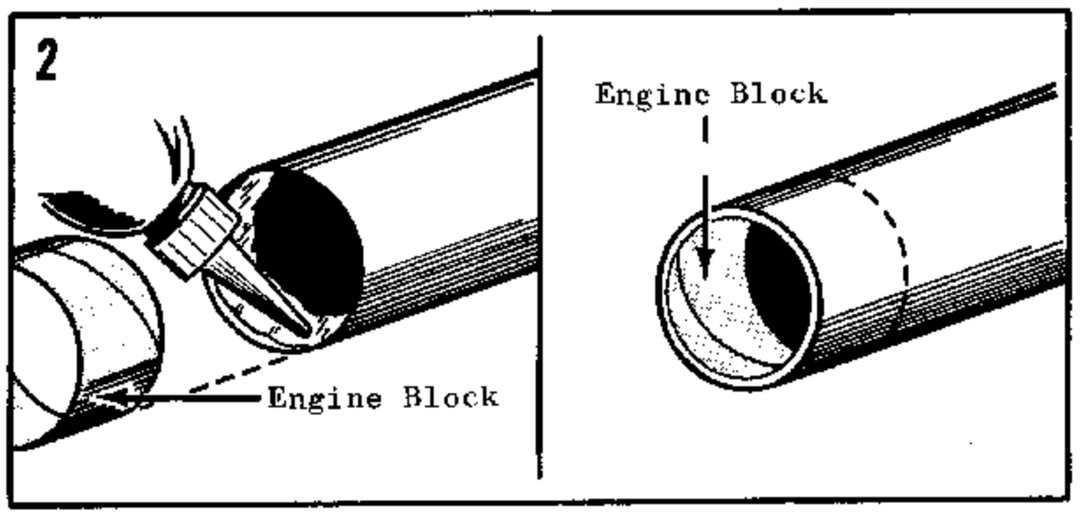
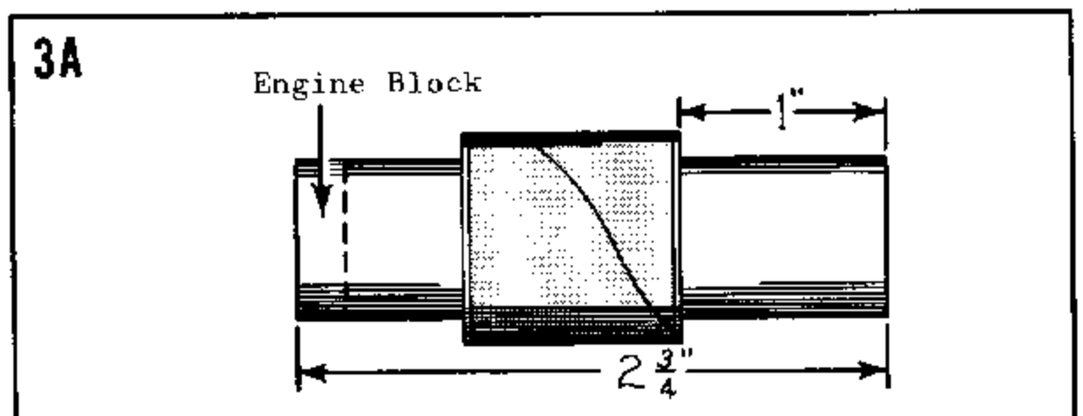


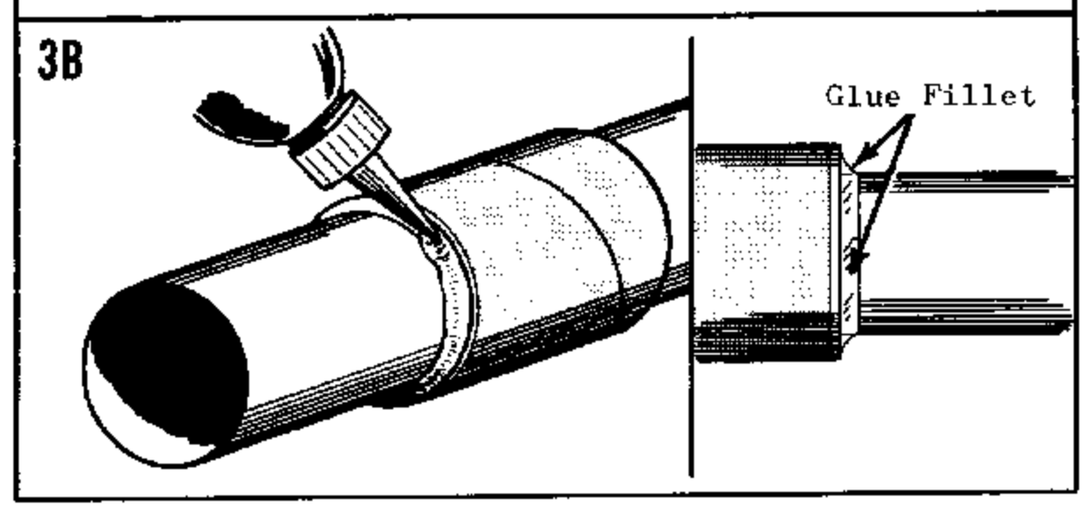


(2) Glue the engine block in one end of the 2-3/4" long engine holder tube (be sure you use the correct tube). To do this, apply glue to the last 1/4" of the inside of the tube, then slide the engine block into the tube until the end of the block is even with the end of the tube (see fig. 2).

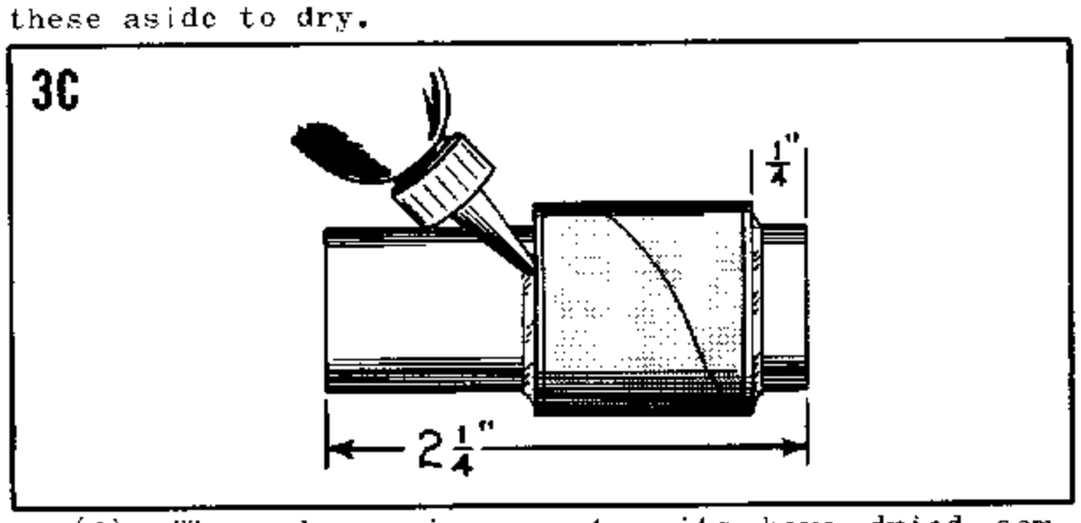


(3) Mark the 2-3/4" long engine holder tube 1" from the end that does not have the engine block. Position one of the coupler-ring units on the engine holder tube as shown in fig. 3A. The rear ring should be exactly on the mark. Spread glue around both ring-tube joints as in fig. 3B. Make sure the entire joint is well covered, wipe off any excess glue with your finger, and

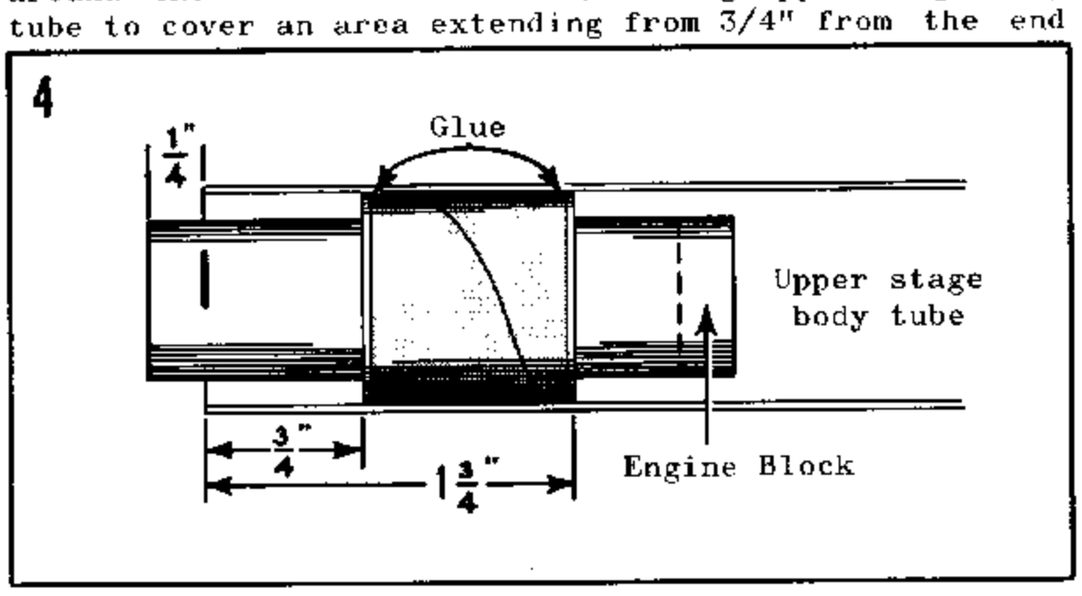




set the unit aside to dry. Next mark the 2-1/4" long engine holder tubes 1/4" from one end and glue in place the remaining two adapters as shown in fig. 3C. Set these aside to dry.

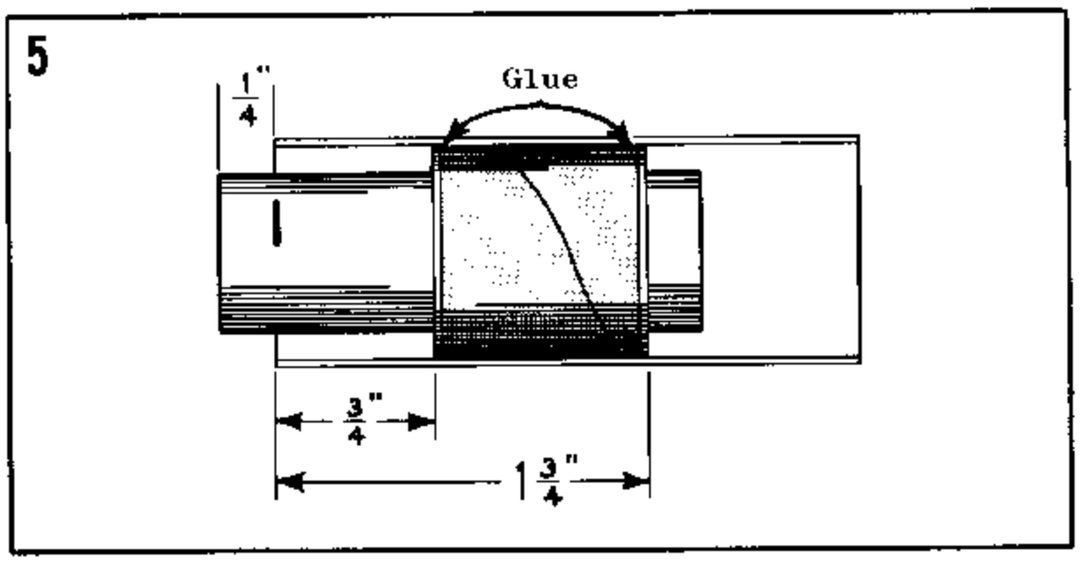


(4) When the engine mount units have dried completely, mark the end of the top stage mount 1/4" from the end that does not have the engine block. Smear glue around the inside of the 7-1/2" long upper stage body tube to cover an area extending from 3/4" from the end

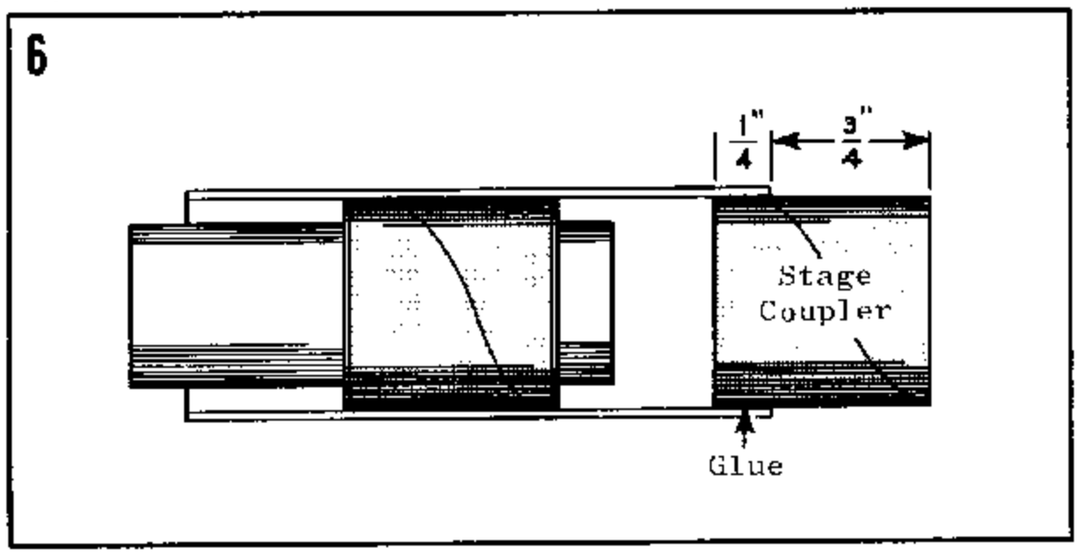


to 1-3/4" from the end. Insert the engine mount unit, engine block end first, until the mark on the engine holder tube is exactly even with the end of the body tube. The completed assembly must be positioned as shown in fig. 4.

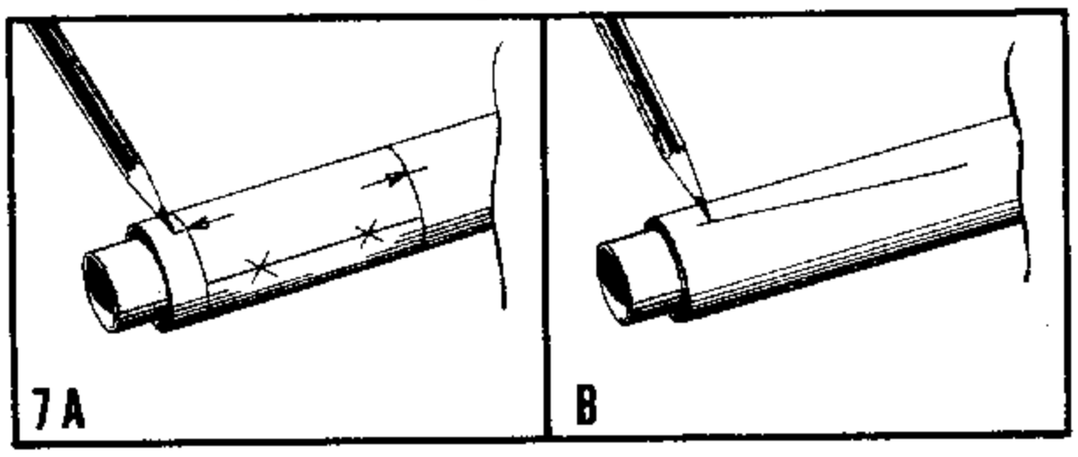
(5) Mark the remaining two engine mounts 1/4" from the end on the side that projects farthest from the adapter. Apply glue to the inside of one of the 2-3/4" long booster body tubes over an area 3/4" to 1-3/4" from one end. Slide an engine mount into the tube and position it as shown in fig. 5. Repeat with the remaining engine mount and booster body tube. (Be especially careful to make these assemblies as shown in the illustration, as the rocket will not function properly if there are any errors in positioning.)



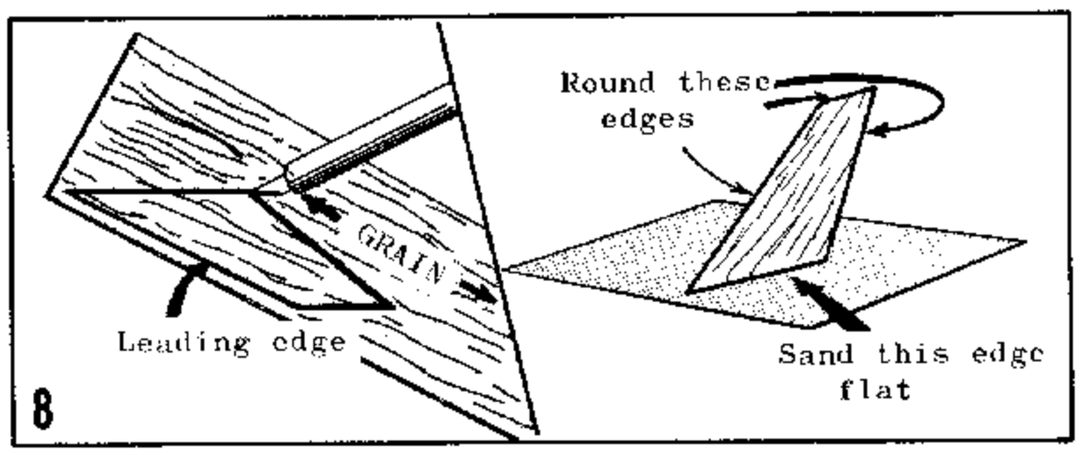
(6) Glue a stage coupler to one of the booster stage assemblies, positioning it exactly as shown in fig. 6. Repeat with the other booster stage.



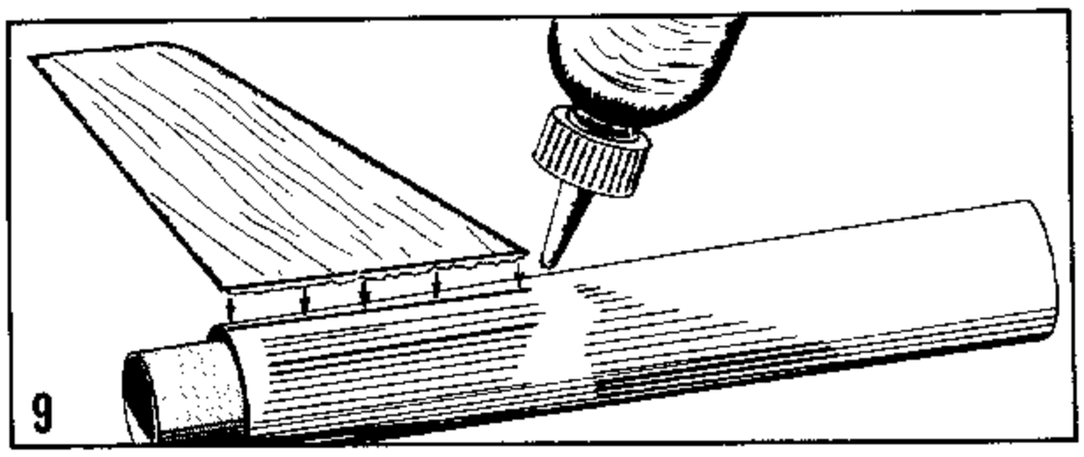
(7) Cut out the body tube marking guide from the pattern sheet. Wrap it around the end of the main body tube at the end with the engine mount as shown and mark the tube at all six points, top and bottom. Draw a straight connecting line between each pair of marks as in fig. 7B. Repeat this with the tubes for the booster sections of the body to get the proper fin positioning and spin angle for straighter flights.



(8) Cut out the upper stage fin pattern. Position it on one of the balsa sheets with the grain of the

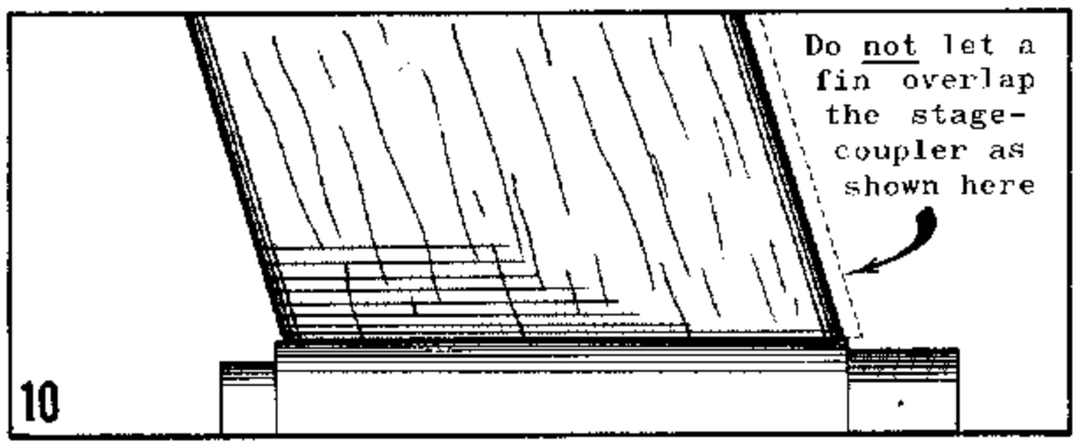


balsa matching the grain direction indicated on the pattern. Trace around it with a ball point pen, then repeat for two more upper stage fins. Cut out the fins with a sharp modeling knife or single edge razor blade. Sand the sides of the fins until smooth. Sand until smooth, and round all edges except the edge which is to be attached to the body. Sand the inside edge of the fin so it is square and flat. Glue the fins onto the body as shown in fig. 9, with the fin exactly on the line made in step (7). Do not set the rocket on its fins while the glue is wet.

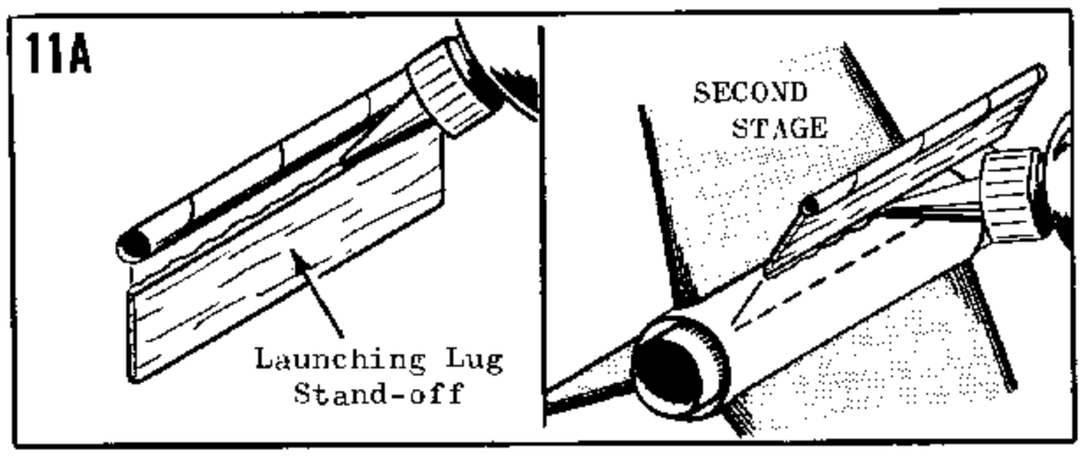


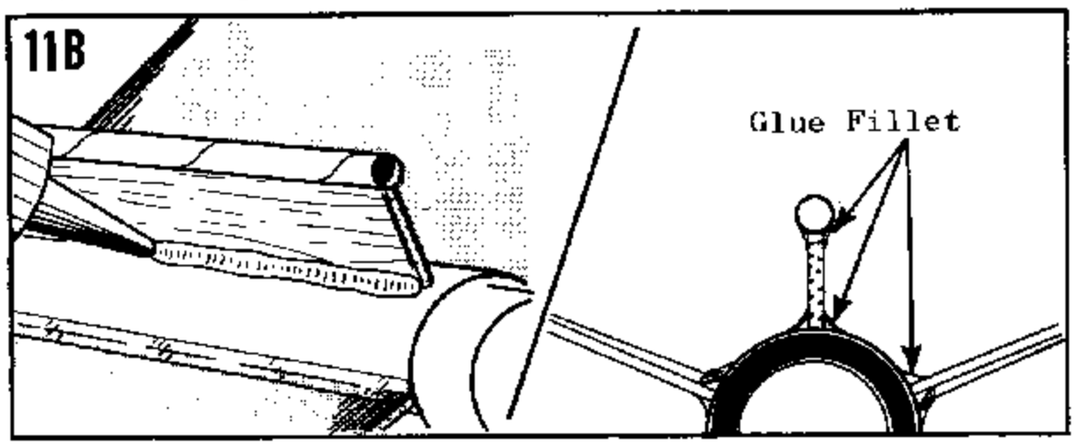
(9) Cut out the second stage fin pattern. Trace out three fins, being very careful to match the grain on the balsa with the grain direction indicated on the pattern. Cut out the fins and sand the sides and outer edges the same way the fins for the upper stage were sanded. Glue the fins onto one of the booster body units exactly over the lines made in step (7).

(10) Following the same steps as with the other two stages, make the three first stage fins and glue them to the remaining booster body unit. When gluing fins on, be sure that the forward edge of the fin is even with the front of the body, but does not overlap the stage coupler (see fig. 10).

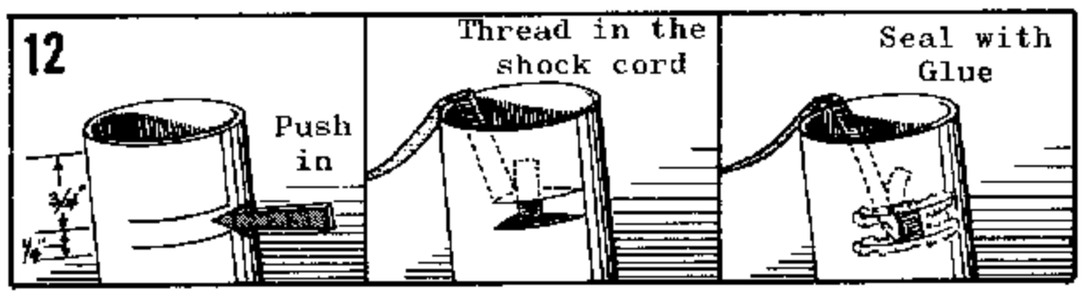


(11) Using the launching lug stand-off pattern, cut and sand to shape the BFS-30E balsa stock. Glue this to the launching lug and attach to the second stage midway between two fins as shown in fig. 11A. Align until perfectly straight. Apply a glue fillet to the launching lug , and the fin body joints on all stages as shown in fig. 11B. Wipe off all excess glue.

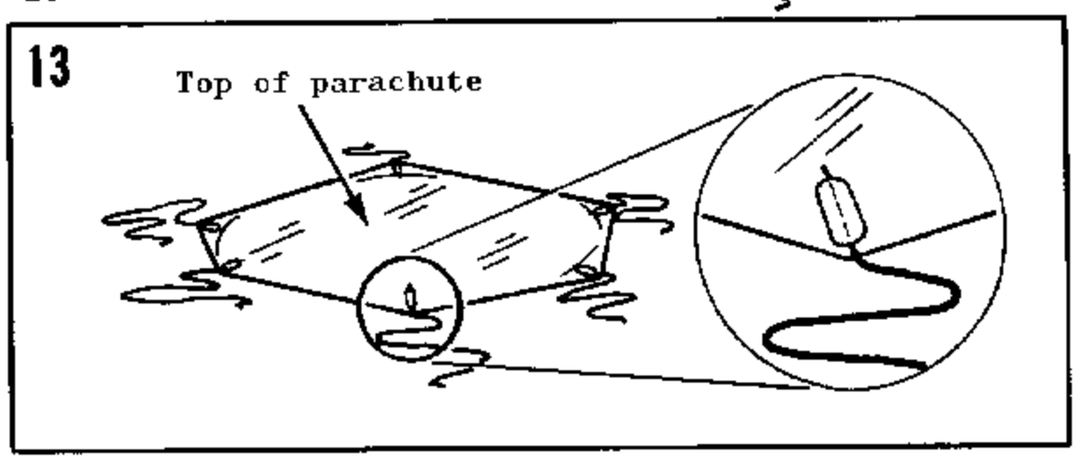




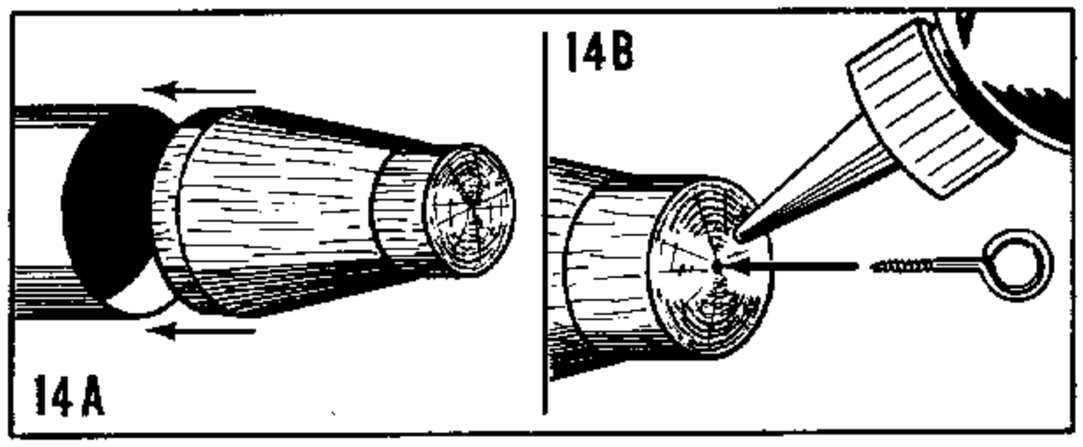
(12) Cut two slits in the forward end of the upper stage body as shown in fig. 12. Cave in the section between the slits and hook the shock cord through the slits as shown. Press the caved-in portion of the tube outward until it is round again and apply glue to the cut edges and to the shock cord to anchor it in place.



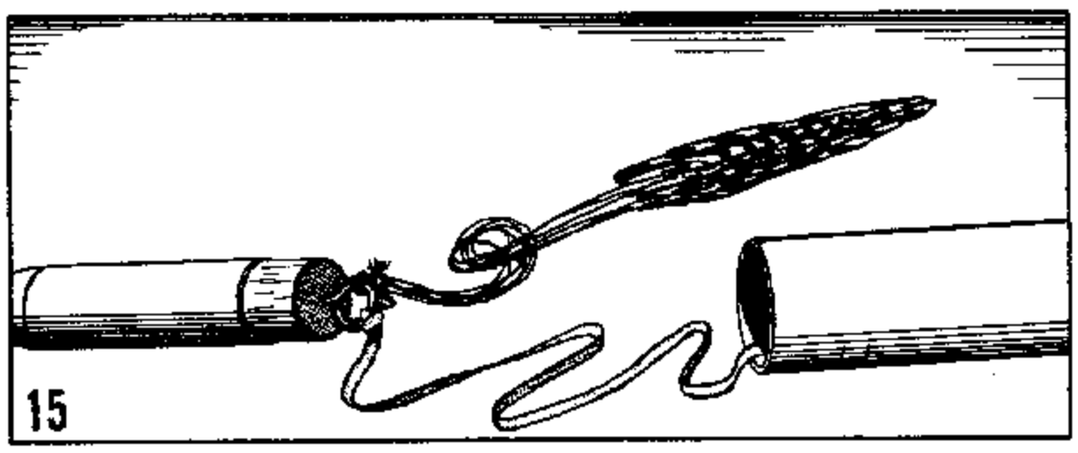
(13) Cut out the parachute on the lines indicated on the plastic. Cut six 12" lengths of shroud line cord and attach one shroud line to each point indicated on the 'chute with a tape strip as shown in fig. 13. Tie the free ends of the shroud lines together.



(14) Glue the large end of the balsa adapter into the BT-60R payload section tube as in fig. 14A. Insert the screw eye into the base of the adapter, remove it, squirt glue into the hole as in fig. 14B, and replace the screw eye.



(15) Connect the shock cord, parachute, and screw eye as shown in fig. 15. Push the parachute into the body tube, packing the shroud lines and shock cord over it, and put the payload section onto the upper stage body. Place the nose cone on the forward end of the payload section.



(16) Sand all balsa surfaces with extra fine sandpaper. Apply a coat of sanding sealer to the balsa and sand again. Repeat until all surfaces look smooth and are smooth to the touch. Give the rocket at least one clean base coat of glossy white paint or dope, then give it at least one bright final coat of red, fluorescent orange, cerise, or other high-visibility color to aid tracking.

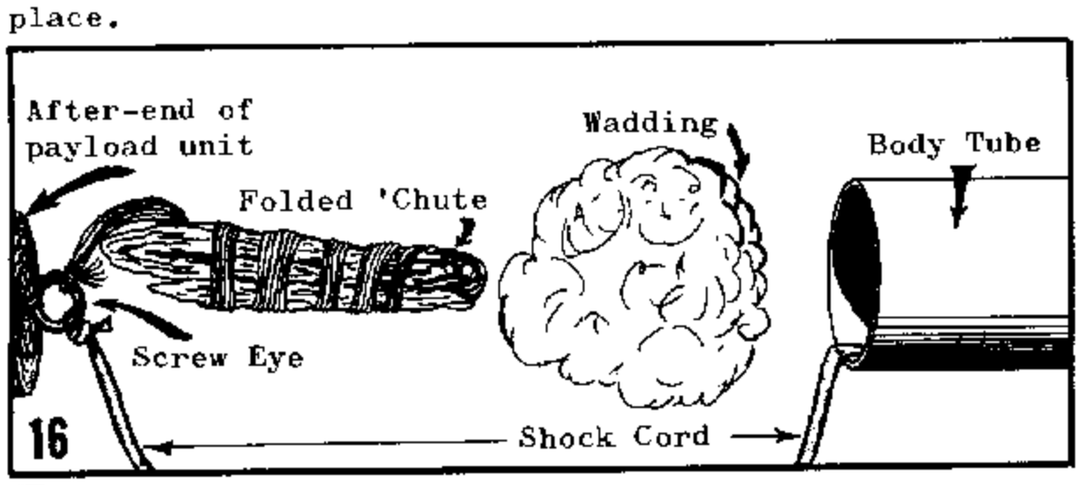
ENGINES: The Astron Farside is designed for high altitude performance. The proper engine combination for use in the Farside will depend on desired altitude, weather conditions and weight of payload. Always use an upper stage engine (one with a long delay such as the B.8-6, A.8-4, ¼A.8-4, etc.) in the upper stage. Any size booster engine (one with no delay such as the B.8-0, ½A.8-0, etc.) may be used in the second stage. Use either a ¼A.8-0, ½A.8-0, or B 3-0 engine in the

first stage unless there is no wind, in which case other booster engines may be used. Even a gentle breeze is enough to make the Farside weathercock, particularly when there is a payload aboard. This is especially so when engines other than those lisued are used in the first stage. For the first flights a combination of two ¼A.8-0 booster engines and a ¼A.8-4 upper stage engine is recommended to allow you to become familiar with the Farside's performance without running a risk of loosing it.

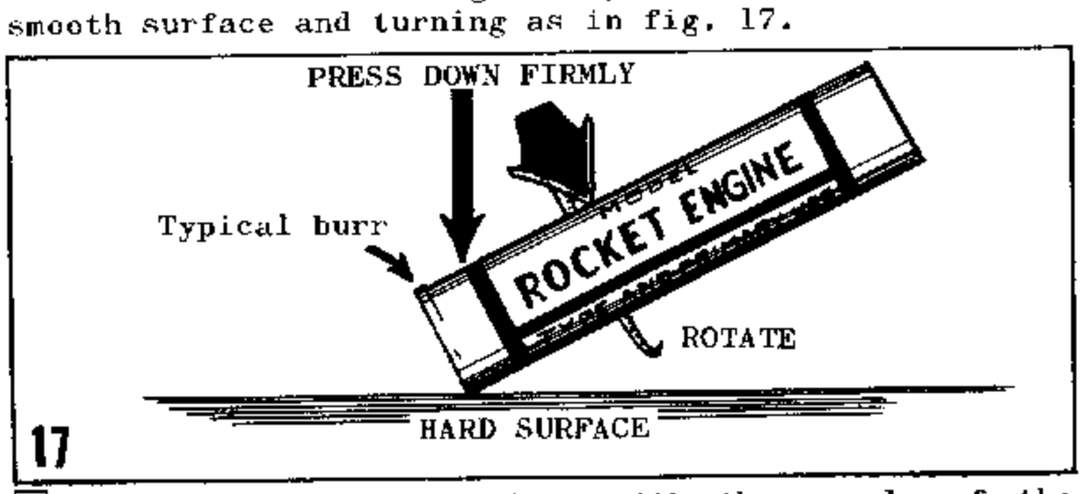
GENERAL INFORMATION: The maximum recommended payload weight for the Astron Farside is 1-1/2 oz. with Series I first stage engines, 3 oz. with Series II first stage engines. Read Technical Report TR-2 carefully before flying your Astron Farside. Follow the countdown procedure given below when flying the Farside to eliminate mistakes and obtain top performance.

☑ Countdown Checklist ☑

☐ -15- Pack flameproof recovery wadding into the body tube of the upper stage from the top. The wadding should rest against the engine holder, extend forward in the tube for 1-1/2" to 2", and seal tightly against the sides of the tube. Hold the parachute between two fingers at its center and pass the other hand down it to form it into a "spike" shape. Fold this spike in two sections as shown in the illustration. Push the folded parachute down into the tube on top of the wadding, and pack the shroud lines and shock cord in on top of the parachute. Slide the payload section into place.

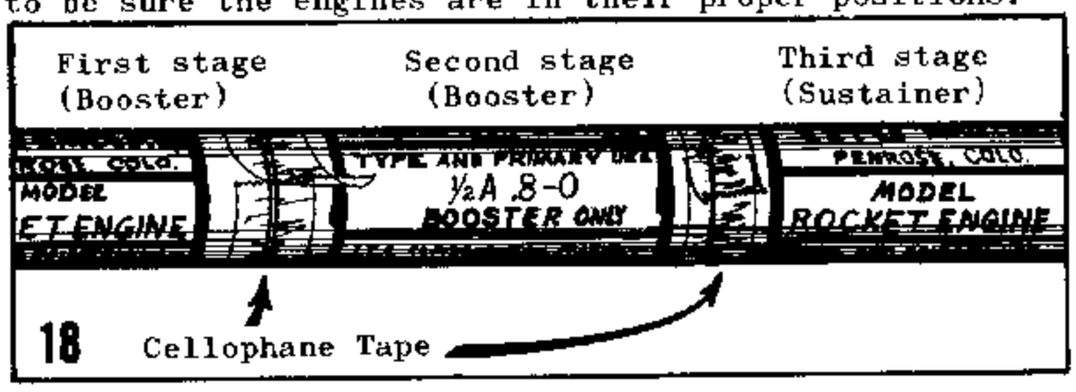


☐ -14- Select a first stage engine, a second stage engine, and an upper stage engine. Remove any burrs from the ends of the engines by holding them against a smooth surface and turning as in fig. 17.

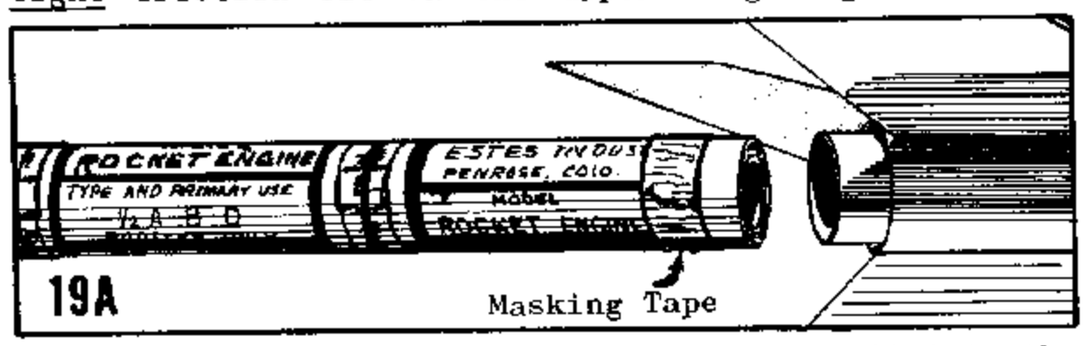


☐ -13- Position the engines with the nozzle of the upper stage engine against the top end of the second stage engine and wrap a layer of cellophane tape tightly around the joint as shown in fig. 18. Check to be sure the engines are in their proper relative positions.

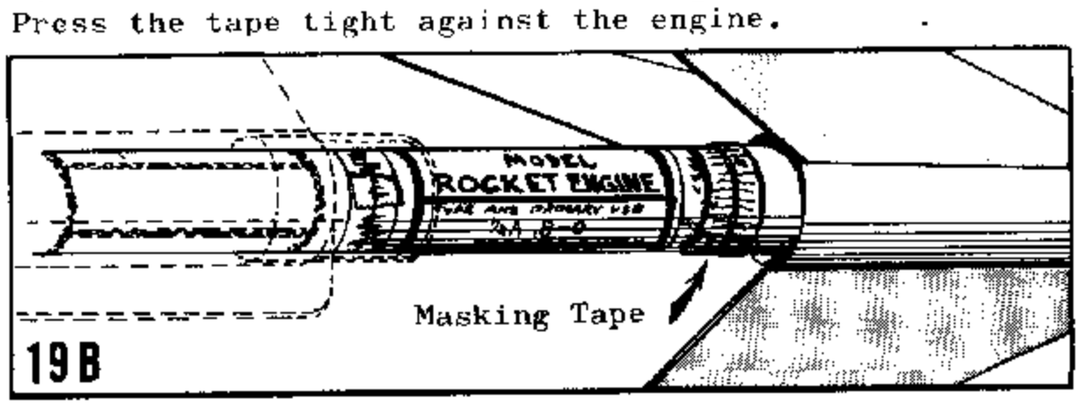
Place the top end of the first stage engine against the nozzle of the second stage engine and wrap a layer of cellophane tape tightly around this joint. Check again to be sure the engines are in their proper positions.



☐ -12- Wrap masking tape around the top of the upper stage engine as in fig. 19A. This engine should make a tight friction fit in the upper stage engine holder.



Insert the upper stage end of the engine unit into the upper stage and finish securing it in place by wrapping a layer of masking tape around the end of the engine holder tube and the end of the engine as in fig. 19B. Press the tape tight against the engine.



☐ -11- Slide the second stage into position on the engine unit from the bottom, positioning it so the stage coupler fits all the way into the upper stage and the launching lug fits into a clear area. Secure the second stage in place by wrapping a layer of masking tape around the end of the engine holder tube and the engine as in fig. 19B.

☐ -10- Slide the first stage into position on the engine unit from the bottom, positioning it so the stage coupler fits all the way into the second stage and the fins on the first stage do not interfere with the launching lug. Secure the first stage in place by wrapping a layer of masking tape around the end of the engine holder tube and the engine as in fig. 19B.

☐ -9- Form a nichrome igniter and insert it into the first stage engine nozzle as specified in the instructions which came with the engine.

☐ -8- Place the rocket on the launcher, clean and attach the micro-clips.

☐ -7- Clear the area, check for low flying aircraft, alert recovery crew and trackers.

☐ -6- Arm the launch panel.

☐ -5- ☐ -4- ☐ -3- ☐ -2- ☐ -1- LAUNCH!

(A) fin
(B) coupler-ring
(D) engine block
(E) engine holder tube
(F) engine holder tubes
(G) body tube
(I) payload section
(J) nose cone
(K) balsa adapter
(L) screw eye
(M) parachute
(O) shock cord
(R) launching lug