





MARS SNOOPER



FASCINATING DESIGN

IDEAL FOR DEMONSTRATION FLIGHTS

MARS SNOOPER

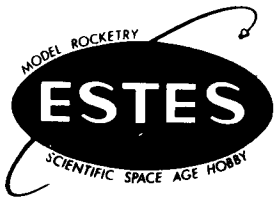
KIT NO. R-20

\$3.99

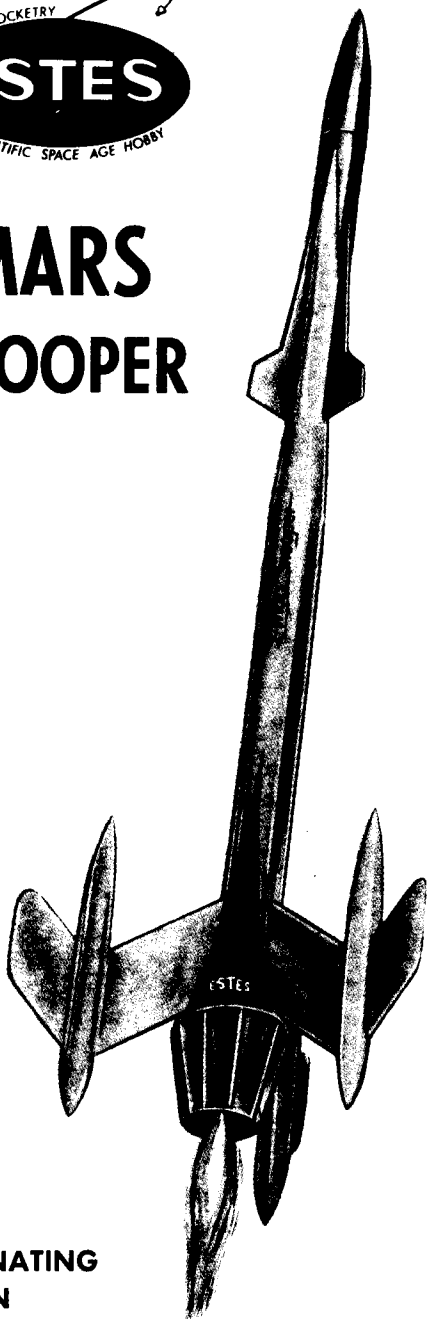
DESCRIPTION
 Length 21.7"
 Nose Dia. 0.80"
 Weight 2.7 oz.

REQUIREMENTS
 HPS 200 200 100
 One HPS engine
 or two HPS's

PARACHUTE RECOVERY



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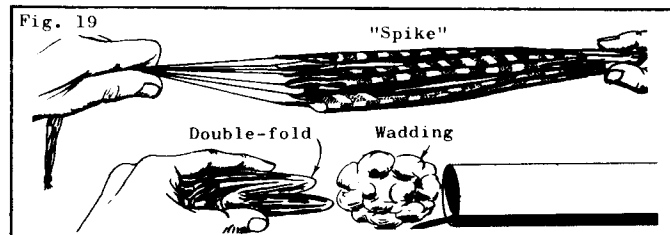
KIT NO. K-20 \$3.00

SPECIFICATIONS Length 21.7" Body Dia. 3.0" Weight 2.3 oz.	RECOMMENDED ENGINES A8-3 B6-4 C6-9 (Use B6-4 engine for first flights.)
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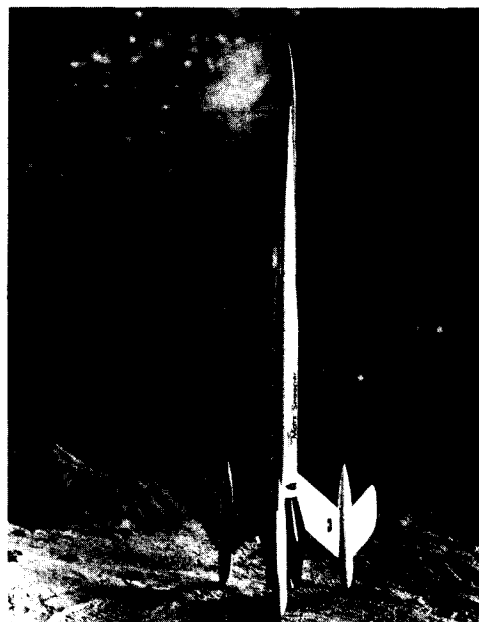
PARACHUTE RECOVERY

COUNTDOWN CHECKLIST

- 13- Pack flameproof recovery wadding into the body tube from the top. The wadding should fill the tube for a distance of 2" and seal along the sides of the tube (4 or 5 squares of RP-1A are recommended). Hold the parachute between two fingers at its center and pass the other hand down it to form a "spike" as shown. Fold the spike in two sections and push the parachute down into the tube on top of the wadding. Pack the shroud lines and shock cord in on top of the parachute. Slide the adapter into place.



- 12- Select an engine. The A8-3 is suggested for the first flight. Install an electrical igniter in the engine as directed in the instructions which came with the engine.
- 11- Wrap the engine with masking tape until it makes a tight fit in the engine holder tube. This fit must be tight so the engine will not blow out when the ejection charge is activated. Insert the engine into the tube until its forward end rests against the engine block.



- 10- Remove the safety interlock or key from the launch control panel. (If a simple spring switch is used, install the protector on the switch to separate the contacts.) Carry the key or interlock to the person of the launch control officer.
- 9- Place the rocket on the launcher. Check to be sure the panel is disarmed. Clean the micro-clips and attach them to the igniter.
- 8- Clear the launch area, alert the recovery crew and trackers.
- 7- Check for low flying aircraft and unauthorized persons in the recovery area.
- 6- Arm the launch panel.
- 5- -4- -3- -2- -1- LAUNCH!

MARS SNOOPER

PARTS LIST

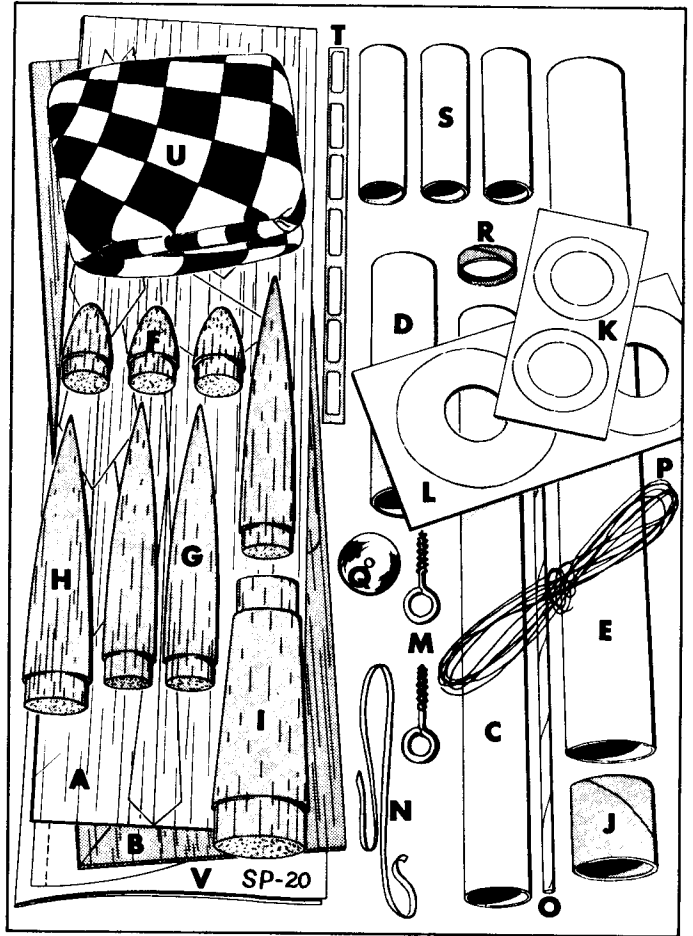
Your Mars Snooper model rocket kit consists of the following parts as illustrated in the drawing at right:

- (A) 1 balsa fin sheet--Part #BF-20A
- (B) 1 balsa fin sheet--Part #BF-20B
- (C) 1 body tube--Part #BT-20D
- (D) 1 engine holder tube--Part #BT-20J
- (E) 1 body tube--Part #BT-50H
- (F) 3 small balsa nose cones--Part #BNC-5V
- (G) 3 long balsa nose cones--Part #BNC-5W
- (H) 1 large balsa nose cone--Part #BNC-20N
- (I) 1 balsa adapter--Part #TA-2050
- (J) 1 stage coupler--Part #JT-50C
- (K) 1 small adapter set--Part #RA-2050
- (L) 1 large adapter set--Part #RA-2060
- (M) 2 screw eyes--Part #SE-2
- (N) 1 shock cord--Part #SC-1
- (O) 1 launching lug--Part #LL-2C
- (P) 108" shroud line cord--Part #SLT-1C
- (Q) 1 nose cone weight--Part #NCW-1
- (R) 1 engine block--Part #EB-20A
- (S) 3 pod tubes--Part #BT-5T
- (T) 7 tape strips--Part #TD-2G
- (U) 1 parachute--Part #PK-18A
- (V) 1 pattern and shroud sheet--Part #SP-20

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

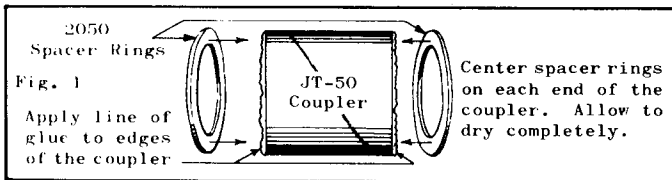
- 1) Modeling knife or single edge razor blade
- 2) Scissors
- 3) Extra strong white glue
- 4) Ball point pen or pencil
- 5) Fine and extra fine grit sandpaper
- 6) Paint or dope

Read the entire assembly instructions carefully before beginning work on your rocket. Then start construction, following each step in order, checking off each step as it is completed.

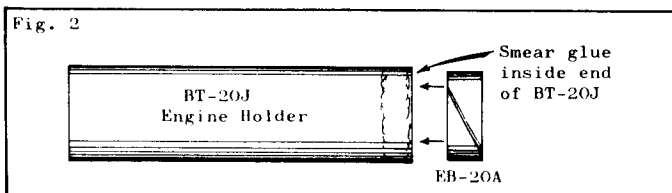


ASSEMBLY

- (1) Glue one of the small adapter rings to each end of the stage coupler as shown in fig. 1. The rings should be centered perfectly on the coupler. Apply enough glue to make a permanent, strong joint, but do not leave any excess glue on the outside of the unit. Set the assembly aside to dry thoroughly.

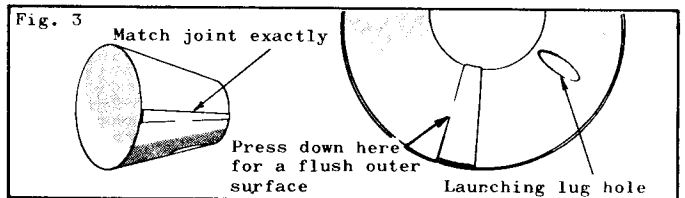


- (2) Glue the engine block in one end of the 2-3/4" long engine holder tube. To do this, apply glue to the last 1/4" of the inside of the tube, then slide the engine block into the tube until the end of the block is even with the end of the tube (see fig. 2).

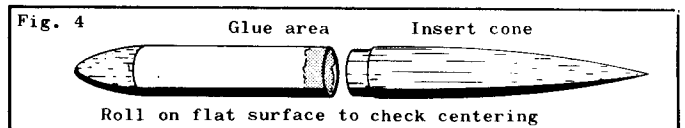


- (3) Cut out the three shrouds. Cut out the launching lug holes in the shrouds. Form the first shroud into a cone as in fig. 3. Apply glue to the overlap tab and hold it in place with the joint exactly covering the tab area. Repeat this procedure with the other shrouds. The markings on the shrouds should be on the outside.

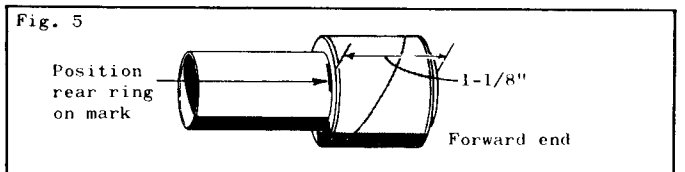
INSTRUCTIONS



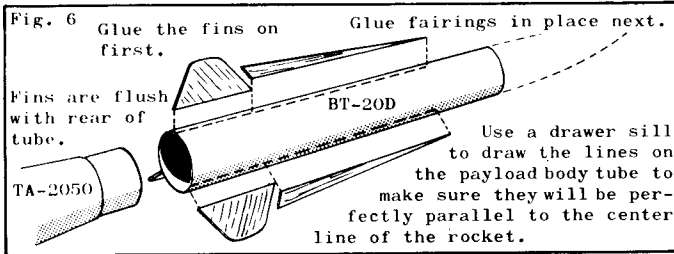
- (4) Apply glue to the inside of one of the pod tubes (BT-5T) to cover an area 1/4" from the end. Slide one of the small nose cones into this end of the tube. In the same manner, glue one of the long cones in the other end of the tube. Glue the cones in the other two tubes to complete the pod assemblies.



- (5) Mark the engine holder tube 1-1/8" from the forward end (the end with the engine block). Slide the ring-coupler assembly onto the tube so the rear ring is on the mark. Apply a heavy glue fillet all the way around each ring-tube joint as shown. Set aside to dry.

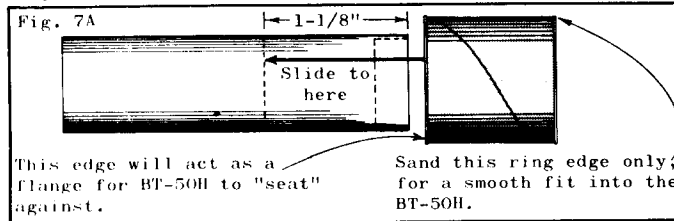


□ (6) Cut out the forward tube marking guide. Wrap it around the BT-20D body tube and mark the tube at each of the arrows. Draw a straight connecting line between each matching pair of marks. Glue the fins in place on the lines as shown, aligning

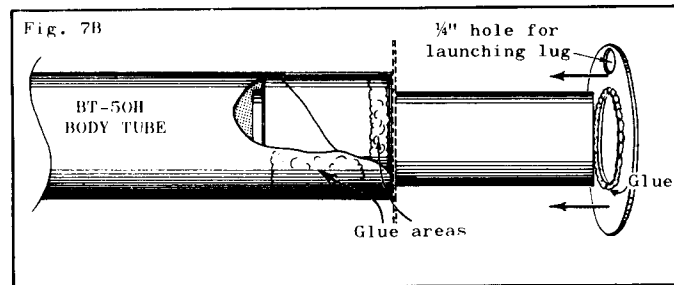


them with extra care so they run perfectly parallel to the body. Glue the fairings in place, aligning them perfectly also. When the glue has set, round the edges of the fins and fairings with extra fine sandpaper.

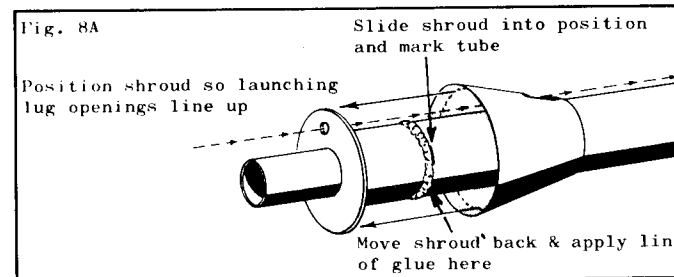
□ (7) Smear glue around the inside of the BT-50H body tube to cover a 1" area at one end. Slide the engine mount assembly into the body tube so the rear ring is flush with the end of the body tube as shown in fig. 7A. Cut a 1/4" hole in one of the



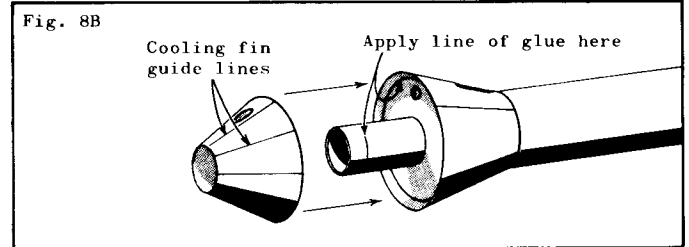
RA-2060 spacer rings in the position shown in fig. 7B. Apply glue to the end of the engine mount ring and slide the 2060 ring into place. Make a fillet of any excess glue that squeezes out where the ring seats against the body tube.



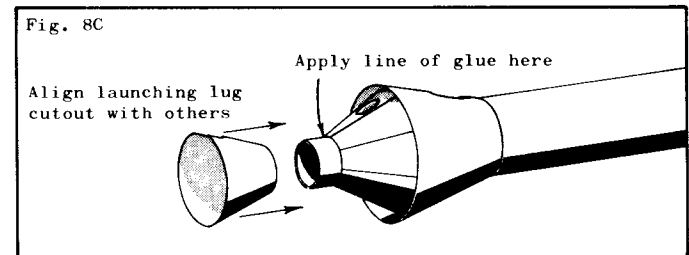
□ (8A) After the glue on the 2060 spacer ring has set slide the #1 shroud into place on the body tube. It should fit snugly around the ring and extend about 9/16" beyond to the rear. Mark the body tube at the forward end of the shroud and remove it, sliding it far enough up the body tube to expose the mark just made. Apply a line of glue around the body at the mark and around the edge of the 2060 ring. Turn the shroud so the opening for the launching lug is in line with the hole in the ring and slide the shroud into place, seating it solidly against the 2060 ring all around.



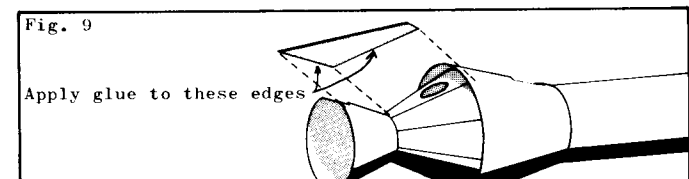
□ (8B) Fit shroud #2 into place on the engine holder tube and mark the position of its rear on the tube. Slide it back and apply a line of glue around the tube at the mark and around the joint between the 2060 ring and shroud #1. Align the launching lug hole in the shroud with the other two holes and slide the shroud into place.



□ (8C) The #3 shroud makes a butt-joint with the #2 shroud. Apply a ring of glue around the engine holder tube at the joint between it and the #2 shroud. Align the launching lug hole with the other holes and slide the shroud into place. Set the assembly aside to dry.



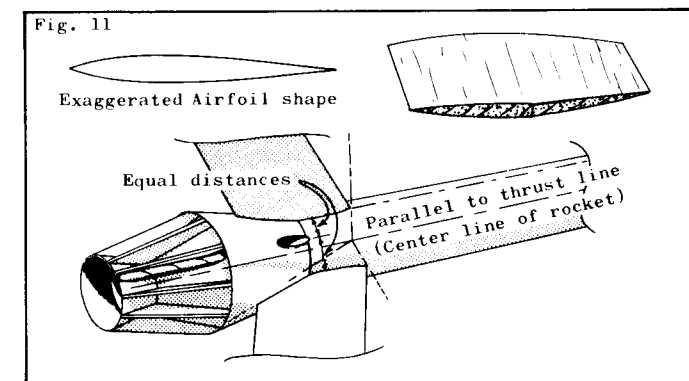
□ (9) Lightly sand the 8 cooling fins with extra fine sandpaper, but leave the edges square. Glue the fins in place, aligning them with the marks on the #2 shroud as shown in fig. 9.



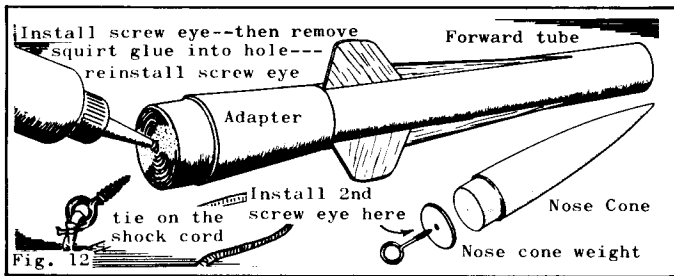
□ (10) Slide the launching lug through the holes so it projects from the shrouds on both ends. Apply glue to the joints between the lug and the shrouds. After the glue has set, trim the lug as shown.



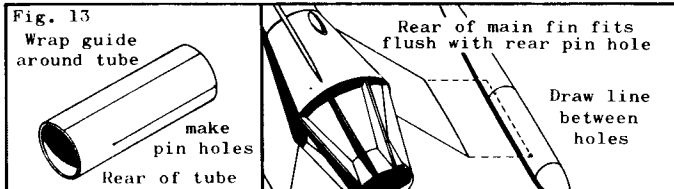
□ (11) Sand each main fin to a symmetrical airfoil, but do not round the outer edges where the fin pods will be glued. The root edge should be sanded perfectly flat on both surfaces. Glue the fins to the body tube and shroud as shown, aligning them so they are centered on the marks on the shroud and are perfectly parallel to the body tube. Set this assembly aside to dry.



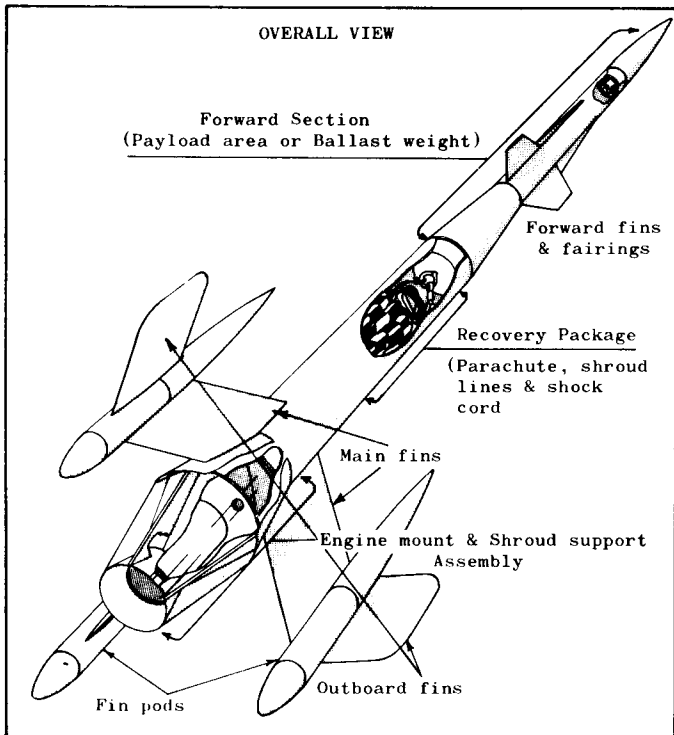
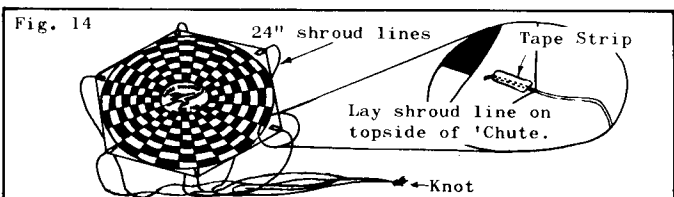
□ (12) Glue the forward end of the adapter into the rear of the forward tube. Insert a screw eye into the base of the adapter. Remove the eye, squirt glue into the hole and replace the screw eye. Center the nose cone weight on the rear of the BNC-20N nose cone. Insert the remaining screw eye through the hole in the weight into the base of the nose cone.



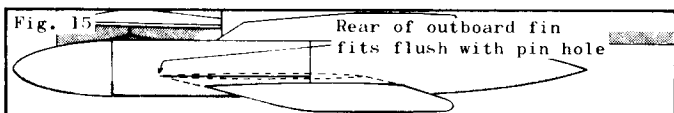
□ (13) Cut out the pod marking guide. Wrap the guide around one pod as shown and mark at each of the points indicated. Repeat the procedure with the other two pods. Glue the pods to the fins and set the assembly aside to dry. Set the rocket on the front end of the body tube and avoid disturbing it until the joints have set.



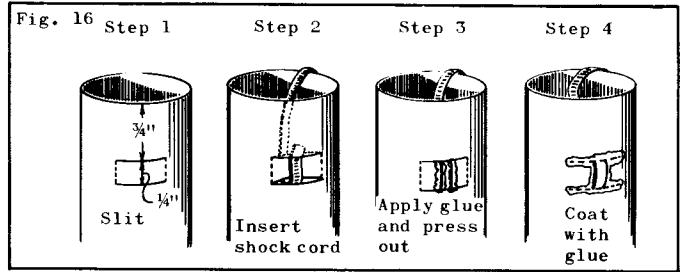
□ (14) Cut out the parachute on its edge lines as indicated on the plastic. Cut six 18" lengths of shroud line cord and attach one shroud line to each point of the parachute with a tape strip as shown in fig. 14. Tie the free ends of the lines together.



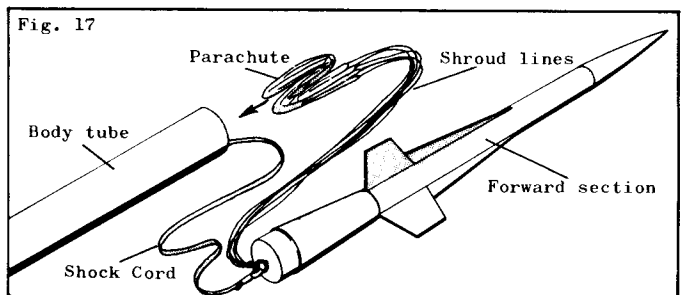
□ (15) Sand the outboard fins to the same symmetrical airfoil shape as the main fins. Glue the fins to the pods in the positions marked in step 13. Set the rocket on its nose while the glue sets.



□ (16) Cut two 1/2" wide slits in the forward end of the body as shown in fig. 16. Cave in the section between the slits and hook the shock cord through the slits. For an extra secure attachment, knot the inside end of the shock cord. 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.



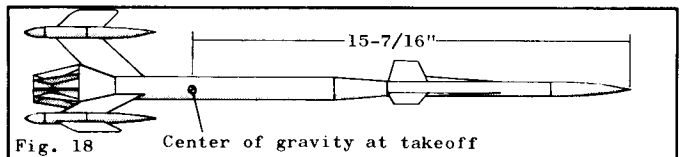
□ (17) Connect the shock cord, parachute and screw eye as shown in fig. 17. Push the parachute into the body tube, packing the shroud lines and shock cord over it. Push the base of the nose cone into the forward end of the body tube.



□ (18) Apply a heavy white glue fillet to all fin-body and fin-pod joints. Support the rocket on its side while the glue dries to prevent the glue from running.

Balancing

□ (19) Check the balance point of the rocket (its center of gravity) with the recovery system and a loaded engine in place. The rocket must balance at a point no more than 15-7/16" behind the tip of the nose cone.



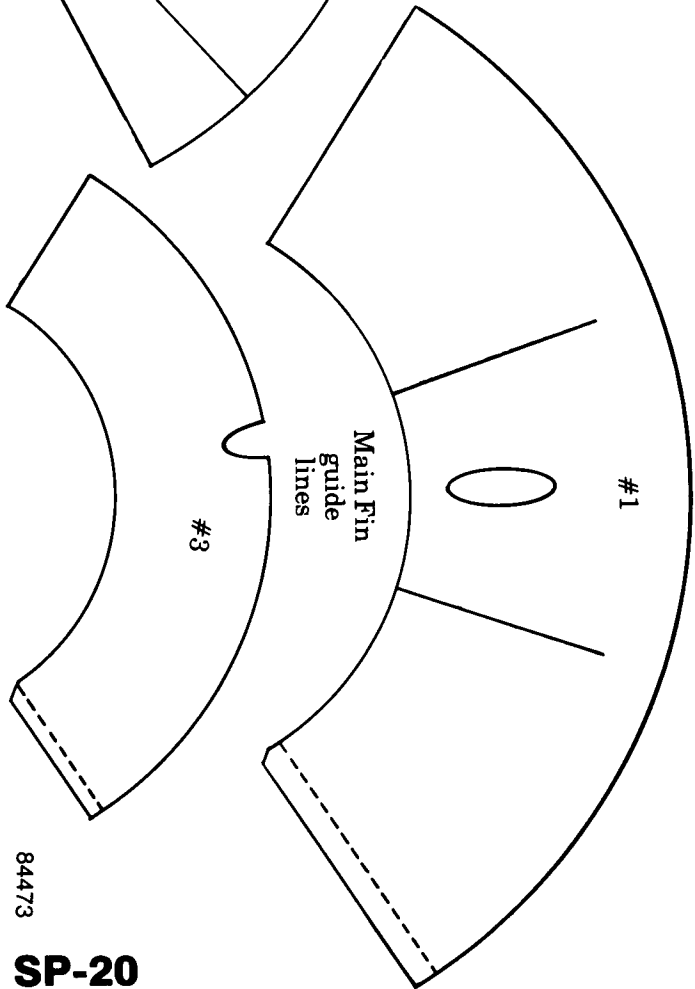
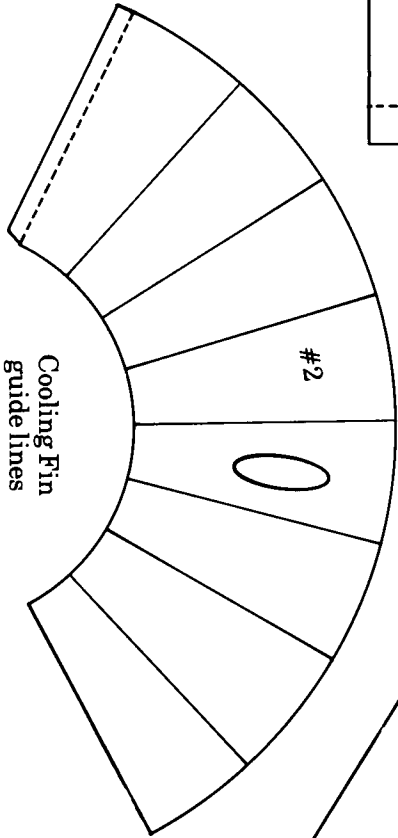
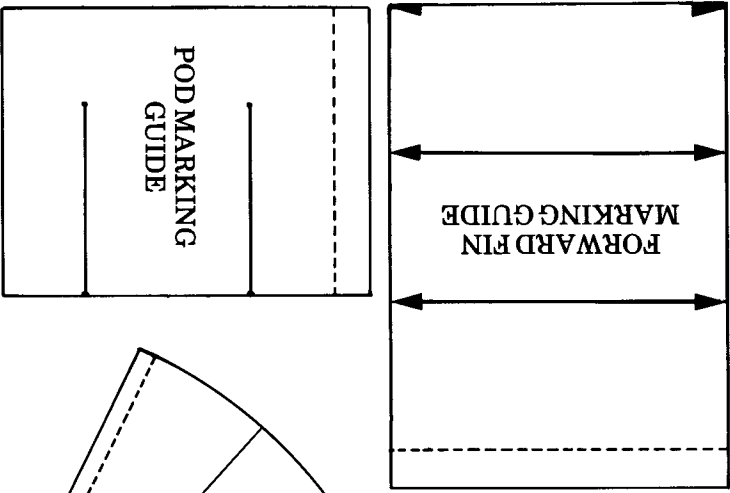
hind the tip of the nose cone. If the fins are crooked the rocket's balance point must be closer to the nose cone. If necessary, attach additional weights to the screw eye in the nose cone.

Finishing

□ (20) Apply a heavy coat of sanding sealer or Astroseal to all balsa surfaces, let dry and sand with extra fine (320 grit) sandpaper. Repeat the process as needed to close the pores in the balsa and fill the grain of the wood. Apply at least one clean base coat of white enamel or butyrate dope, let dry and follow with the final colors. NOTE: Enamel paint may be applied over completely dry butyrate dope, but dope applied over enamel will ruin the finish of the model.

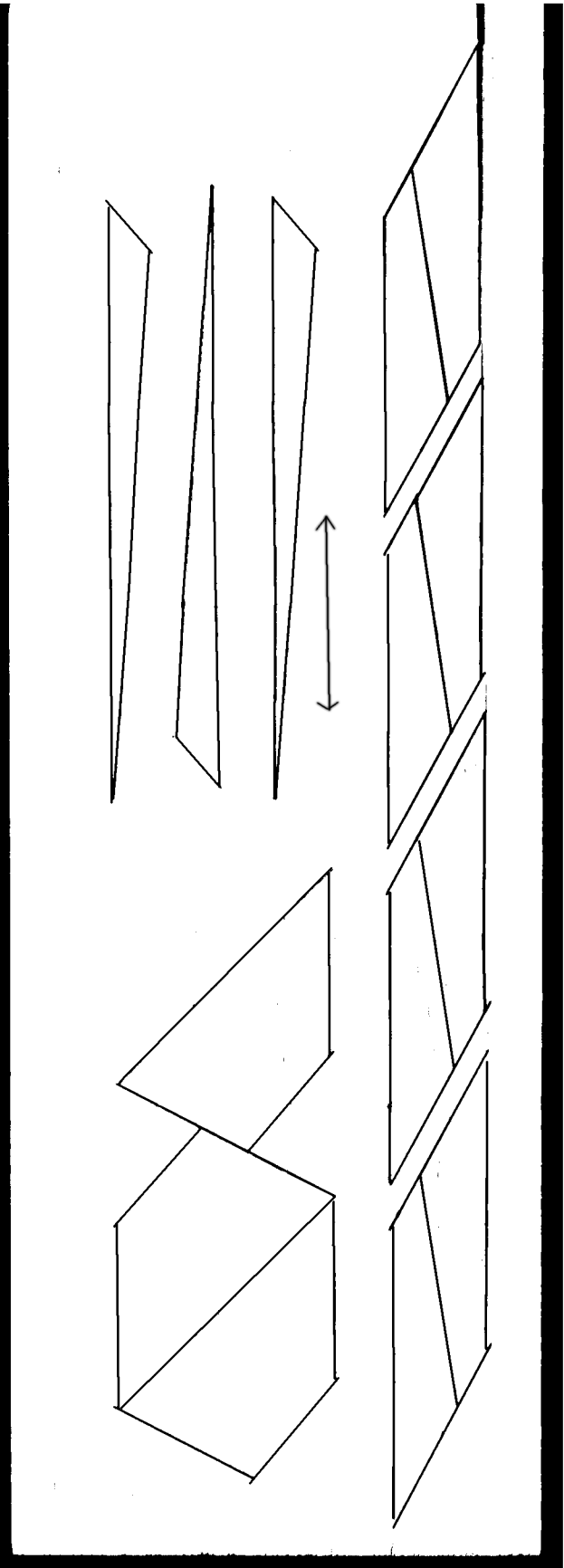
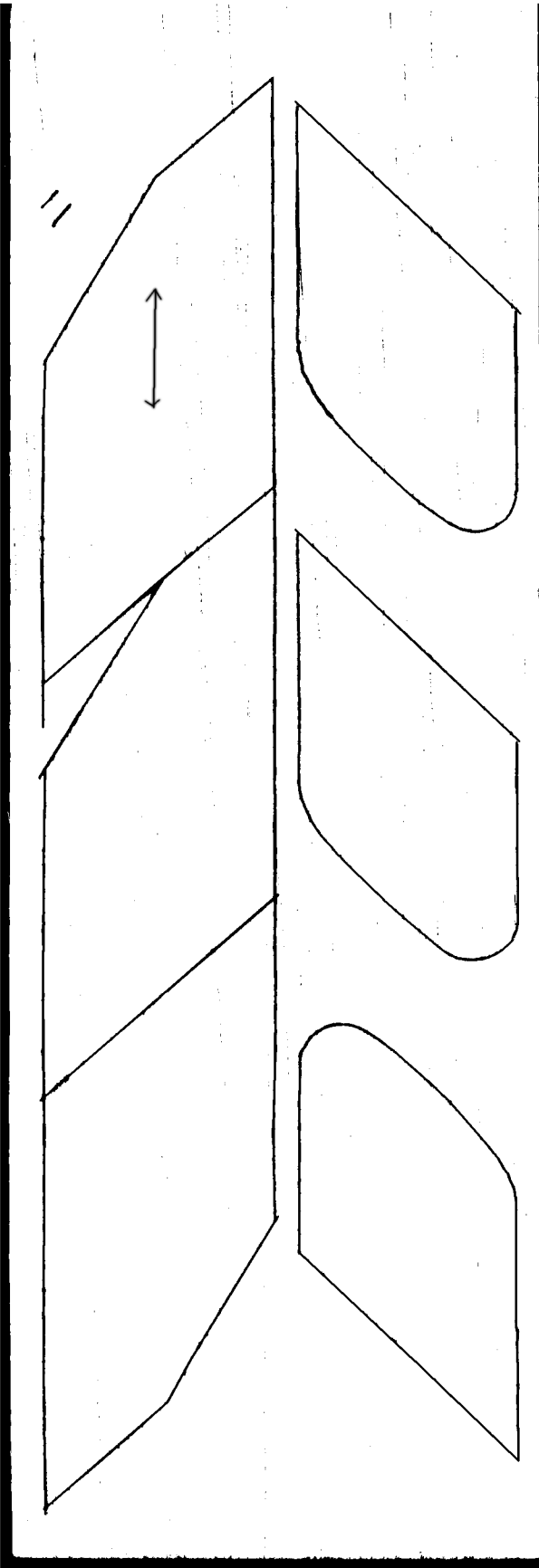
General Information

The engine types recommended for use in the Mars Snooper are the 1/2A.8-2, A.8-3 and B.8-4. For best results, the model should be launched on calm days. The maximum recommended payload weight is 1/2 ounce. Launch the Mars Snooper using a standard electrical launching system such as the Electro-Launch with a 1/8" diameter launch rod at least 36" long.

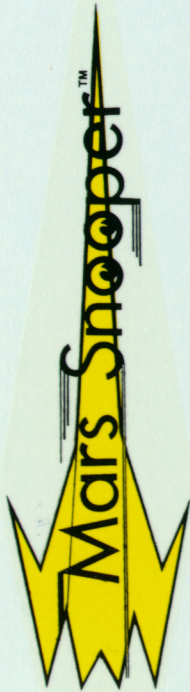


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