

SEMROC

APOLLO CAPSULE

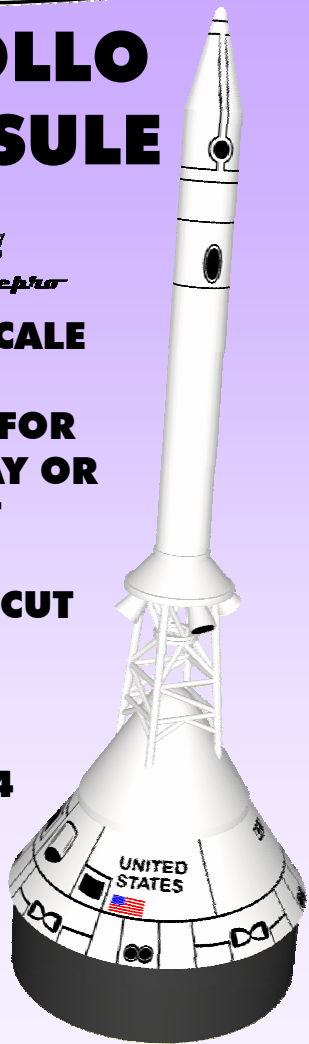


1/70 SCALE

BUILD FOR DISPLAY OR FLIGHT

LASER-CUT PARTS

SKILL LEVEL 4



Made in the U.S.A by Semroc Astronautics Corporation - Knightdale, N.C. 27545

APOLLO CAPSULE KS-2

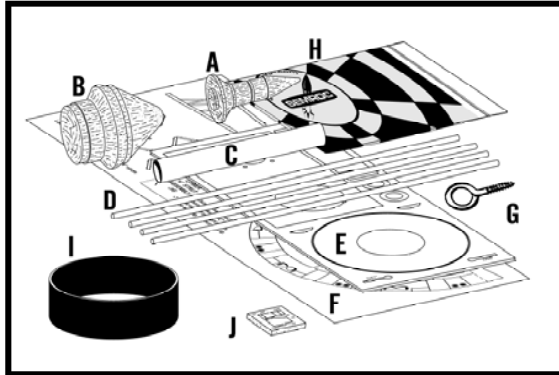
Specifications

Body Diameter	2.217" (6.63 cm) (BT-70)
Length	6.6" (16.8 cm)
Net Weight	.40oz. (11.3 g)

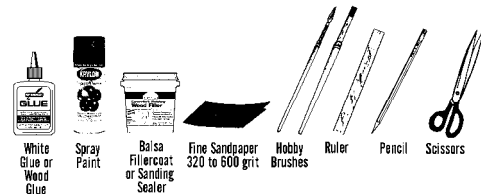
PARACHUTE RECOVERY

Parts List

- A 1 Nose Cone & Tail Cone BNC-3ET
- B 1 Nose Cone BNC-2
- C 1 Body Tube BT-3H
- D 4 Wood Dowels WD-106
- E 1 Ring, Jig, and Detail Set CR-KS-2
- F 1 Shroud and Pattern Sheet . IKS-2S
- G 1 Screw Eye..... SE-10
- H 1 Chute Pak..... CP-12
- I 1 Adapter Ring JT-70D
- J 1 Laser-cut Balsa Detail..... FS-2



TOOLS: In addition to the parts supplied, you will need the following tools to assemble and finish this kit. A small piece of ceiling tile, corkboard, or very soft wood about one foot square is also recommended. Straight pins and a small piece of wax paper will also be required.



March 1, 2006

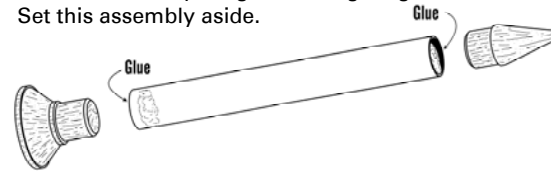
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Box 1271 Knightdale, NC 27545 (919) 266-1977

ASSEMBLY

❑ **1.** These instructions are presented in a logical order to help you put your Apollo Capsule together quickly and efficiently. Check off each step as you complete it and enjoy putting this kit together.

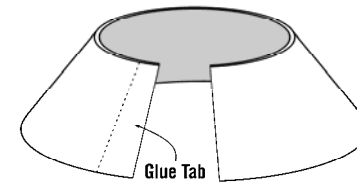
ESCAPE TOWER MOTOR UNIT

❑ **2.** Glue the escape tower nose cone and tail cone to the body tube. If you are building the Little Joe II kit, insert the clay weight before gluing the nose cone. Set this assembly aside.

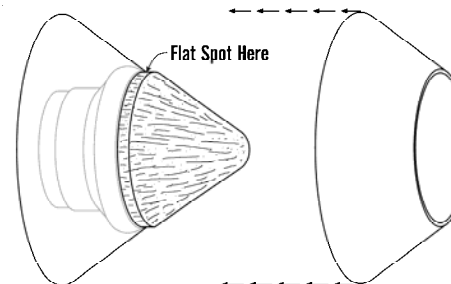


COMMAND MODULE

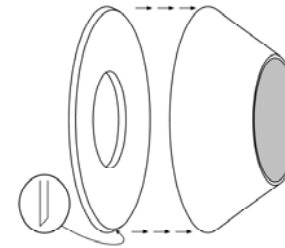
❑ **3.** Cut out the command module shroud from the pattern sheet. Form it into a cone with the printed side to the outside for the display version and the printed side to the inside for the flight version. The printed version is not scale, but does look better if this is built as a display model. Apply glue to the tab, align the edge of the shroud over the glue and hold in place until the glue sets.



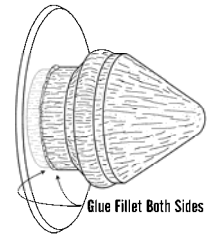
❑ **4.** Slide the completed shroud over the top of the nose cone. Make sure it slides over the flat area and seats against the shoulder exposing about 1/16" of the flat spot shown in the drawing. If it does not fit, sand the balsa gently until it will slip snugly into position. Do not glue yet.



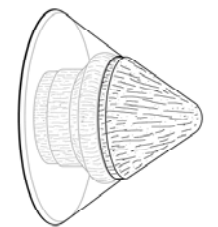
❑ **5.** Punch out the large ring from the laser-cut sheet. The outside edge is cut partially through on one side with two laser cuts. Use your thumb to peel the rings off the edge. Sand a bevel on the edge to match the inside wall of the shroud. Remove the center circle and fit the ring over the bottom of the nose cone. Make sure the bevel side matches the inside of the shroud.



❑ **6.** Without disturbing the large ring, slowly remove the shroud, leaving the ring in its final glue position. Apply a fillet of glue around both sides where the ring contacts the balsa nose cone shoulder. Allow the glue to set before moving the assembly.



❑ **7.** Apply a bead of glue around the beveled edge of the ring and the shoulder of the nose cone that will contact the upper edge of the shroud. Seat the shroud over the nose cone with the beveled edge even with the bottom of the shroud. Set the assembly aside to dry.



PREPARE TOWER MATERIAL

❑ **8.** There are four 1/12" wood dowels supplied to form the escape tower. These must be sized properly. Two of the dowels should be sanded to .058" and two must be sanded to .041" in diameter. This requires much patience to get the best results. The best way to sand the dowels is to use a sanding block with medium grit sandpaper. Hold one end of the dowel on a flat surface and sand away from you. Turn the dowel slightly and repeat. Use the "feeler gauges" on the laser-cut sheet to get the proper diameters.

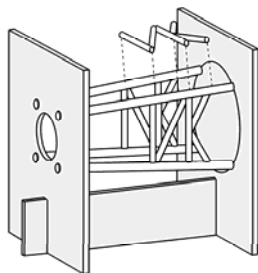
❑ **9.** Cut out the tower patterns from the printed sheet. Place them on a ceiling tile or cork board and cover with wax paper. Use straight pins in the dots to support the structure as it is built. All four main vertical sides use the .058" dowels and all the rest use the .041" dowels.

TOWER ASSEMBLY

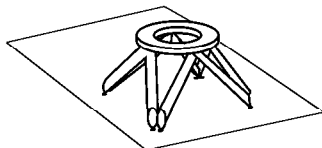
❑ **10.** Measure and cut two vertical supports from the larger dowel. Pin them in place over the pattern. Cut the bottom horizontal brace from the small diameter dowel. Trim it to fit in place. Use additional pins to hold it in position. Apply a small drop of glue to each end and drop it into place. Repeat for all the other small horizontal and diagonal braces as shown on the pattern. Allow this assembly to completely dry.

❑ **11.** Repeat for the opposite side using the second pattern. Allow this assembly to completely dry also.

❑ **12.** Assemble the tower jig to the two sides as shown. Make sure the diagonals are correct. Do not punch out the top and bottom holes in the jig at this time. Use the locking bar to get the proper spacing, then remove it. Cut additional horizontal and diagonal braces and glue to the sides as shown. Turn the jig upside down and repeat for the opposite side.

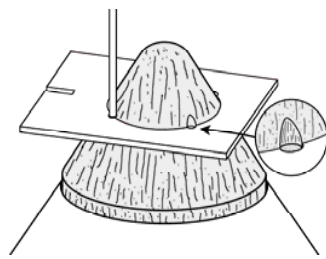


❑ **13.** Split one of the small rings into two thin rings using a hobby knife. Cut out and assemble four of the upper and four of the lower v-struts as shown using the two small rings and the pattern sheet to hold them in place.

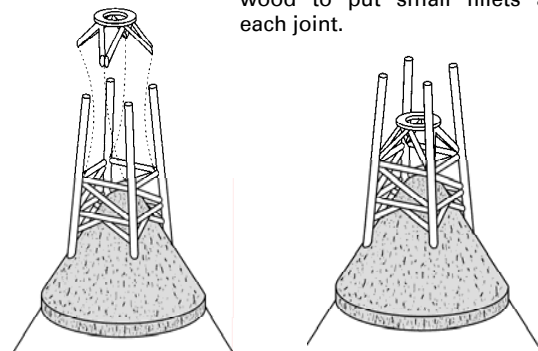


FINAL ASSEMBLY

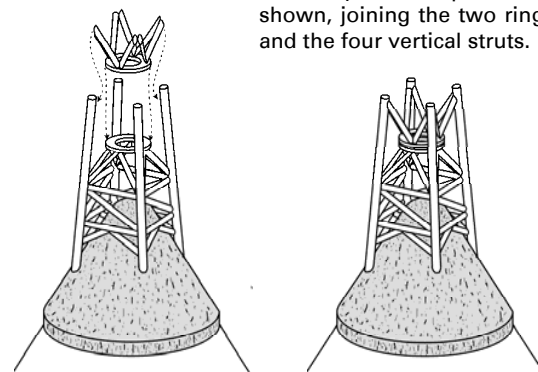
❑ **14.** Disassemble the jig and tower and set the tower aside. Punch out the two center holes in the base jig and top jig. Center the base jig over the nose cone. Using a scrap piece of dowel, punch a slight depression in the nose cone at each half-hole where it intersects with the nose cone. Apply a small drop of glue in each depression and align the tower over the nose cone seating each leg in one of the depressions.



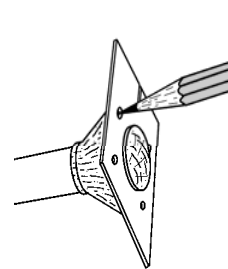
❑ **15.** Set the capsule and tower assembly vertically on a flat surface. Apply a drop of glue on the bottom joint of each leg of the lower V-strut. Slide the assembly into place using a slight turn to align the legs as shown. Use a small toothpick or sliver of wood to put small fillets at each joint.



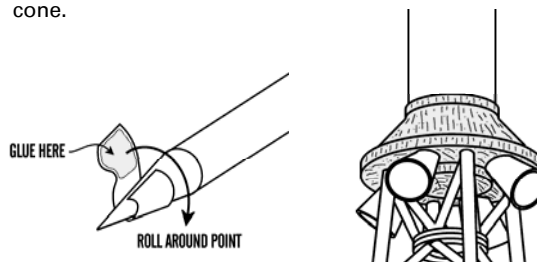
❑ **16.** Apply a thin ring of glue to the ring surface on the upper V-strut assembly. Also apply a small bead of glue to each of the upper joints. Slide the assembly into place as shown, joining the two rings and the four vertical struts.



❑ **17.** Punch out the center hole in the upper jig. Center the base of the escape motor tail cone in the hole. Press it into place until the jig surface is flat with the bottom of the tail cone. Using a sharp pencil, mark the tail cone through the four holes. Remove and discard the jig. Apply a small dab of glue to each pencil mark and fit the escape tower into place. Check the assembly for alignment and set it aside to dry completely.

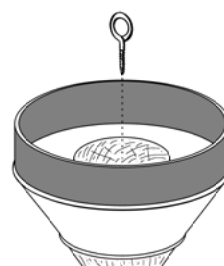


❑ **18.** While the escape tower is drying, assemble the four escape motor nozzles. Cut out the pieces from the shroud sheet. Form each nozzle around the tip of a pencil sharpened with a standard sharpener. When wrapped properly, each nozzle will form a cone with the top surface at an angle. When you have the correct shape, apply a thin bead of glue and press into place. Remove the nozzle and set aside to dry. Repeat for the other three nozzles. When the nozzles are dry, attach them to the flat underside of the tail cone.

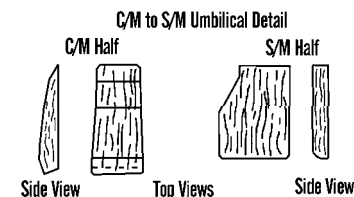


PREPARE FOR FLIGHT

❑ **19.** If your model is going to be flown, apply glue to one edge of the adapter collar and center it on the base ring of the command module. Make sure there is the same amount of space all around the ring. Insert the screw eye in the center of the nose cone and remove. Apply a drop of glue in the hole and reinsert the screw eye.



❑ **20.** Remove the two umbilical pieces from the balsa strip. Sand each to the shapes shown. Apply glue to the C/M half (smaller) and attach it to the command module. Refer to the painting figure for placement on the bottom edge of the capsule. The S/M half (larger) of the umbilical goes on the Service Module of the receiving kit. Place the Apollo Capsule on the kit and align the S/M half to the Service Module. The two pieces should touch, but not be glued together.



NOTE: The Apollo Capsule kit is included in the Saturn 1B kit. If used with it, the S/M half is attached 1/2" to the right of the RCS engines over POS III fin. Install the S/M half before finishing the Saturn 1B. The Little Joe II kit does not use either part.

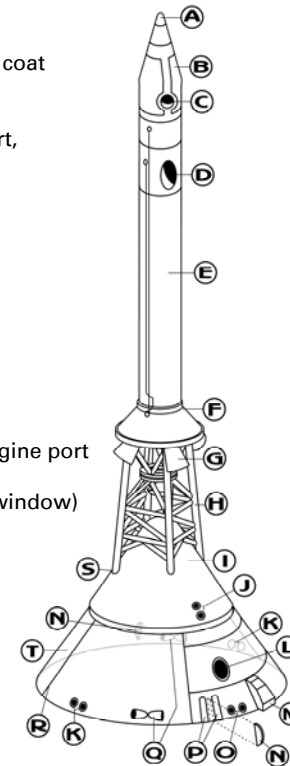
PAINTING AND FINISHING

❑ **21.** If you selected the launch configuration, the capsule may be painted/finished as shown below. The tower and escape motor assembly details are correct for either version.

WHITE
Paint all with white base coat

BLACK
All detail lines, ports, skirt, and nozzle throats

- A) Q-Ball
- B) Canards
- C) Pitch control motor
- D) Jettison motor
- E) Escape Motor
- F) Structural skirt
- G) Escape motor nozzles
- H) Tower structure
- I) Forward boost cover
- J) RCS negative pitch engine port
- K) RCS yaw engine port
- L) Crew entry hatch (8" window)
- M) C/M to S/M Umbilical
- N) Scimitar antenna
- O) RCS positive pitch engine port
- P) Vent
- Q) RCS roll engine port
- R) Cover split lines
- S) Tower attachment socket
- T) Aft boost cover



This completes the assembly of your

**APOLLO
CAPSULE**