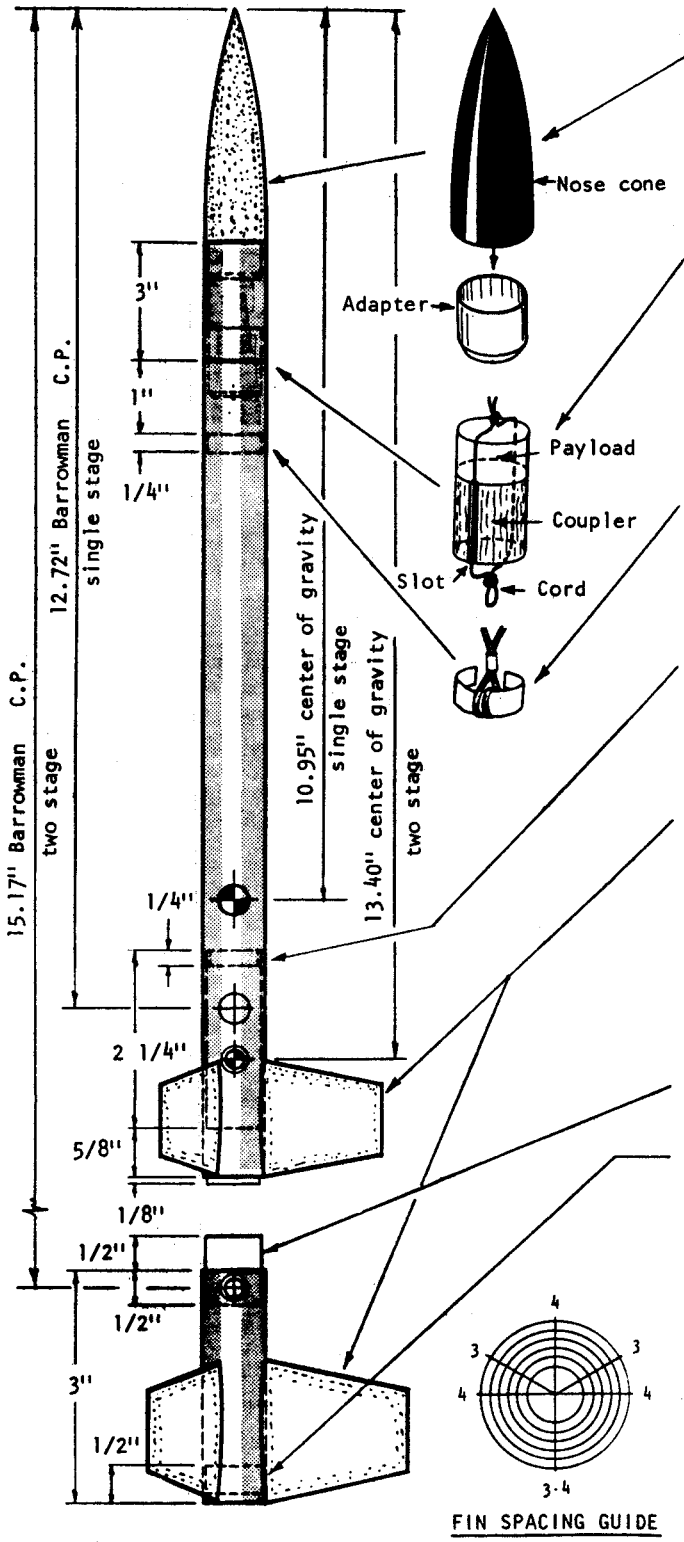
HYPER

ASSEMBLY INSTRUCTIONS



Put a thin coat of plastic (styrene) cement around the inside of nose cone. Rub cement with the end of your finger to smooth it out and remove excess. Use cement sparingly as it will melt nose cone. Insert adapter into nose cone then slip nose cone into body tube to insure alignment. With a twisting motion, carefully remove nose cone from body tube and allow to dry.

Cut two slits opposite each other on side of balsa coupler to receive cord. Tie piece of special cord into two loops as shown on drawing. Put payload on top of balsa coupler and place loop around payload and in slots in coupler. Payload and coupler can now be inserted into payload section. When flown without a payload, just loop the cord around the coupler and insert into payload section.

Wrap shock cord around anchor twice and make ends equal. Tie with a 1/2" piece of narrow paper tape. Put both ends of shock cord through cord loop in payload compartment and tie each end separately with 1/2" pieces of narrow paper tape. This doubles shock cord to handle payload. Glue securely to body tube 1" from end.

Glue engine stop flush with front edge of 2 1/4" liner. Insert an engine into liner, put glue in body tube about 1 1/2" from bottom, push engine with liner into body until 1/8" of engine protrudes. Remove engine.

Sand fins to an airfoil shape. The front (leading) edge should be rounded while the rear (trailing) edge should be sharp like a knife. The root edge (part that glues to the body) should be straight and square. Sand body tubes at fin locations. Using the fin spacing guide, center the end of the body tube in the circles and mark at the 3. Use a "V" notch of a drawer or door frame and draw a line at the mark parallel to the body. Glue the three fins on this line flush with the bottom of the body. When dry, apply a glue fillet on each side of all fins.

Glue 1" liner to lower stage body so that 1/2" is out of body tube.

Glue 1/2" liner to lower stage body flush with bottom.

Insert engine in upper stage, push lower stage in place on upper stage. Body tubes should fit flush and snugly. Wrap celophane tape around liner if necessary to get a snug fit. Insert engine in bottom of lower stage as far as it will go and glue the 1/8" split engine retainer in rear against engine. Remove lower stage and engine before glue dries. This sets exact engine location for two stage operation.

After rocket is completely assembled, sand body tube lightly to remove irregularities. Coat with sanding sealer or clear dope. Do not get sanding sealer, clear dope or lacquer type paints on nose cone

Construct pop launch lug and parachute. (see instructions.)

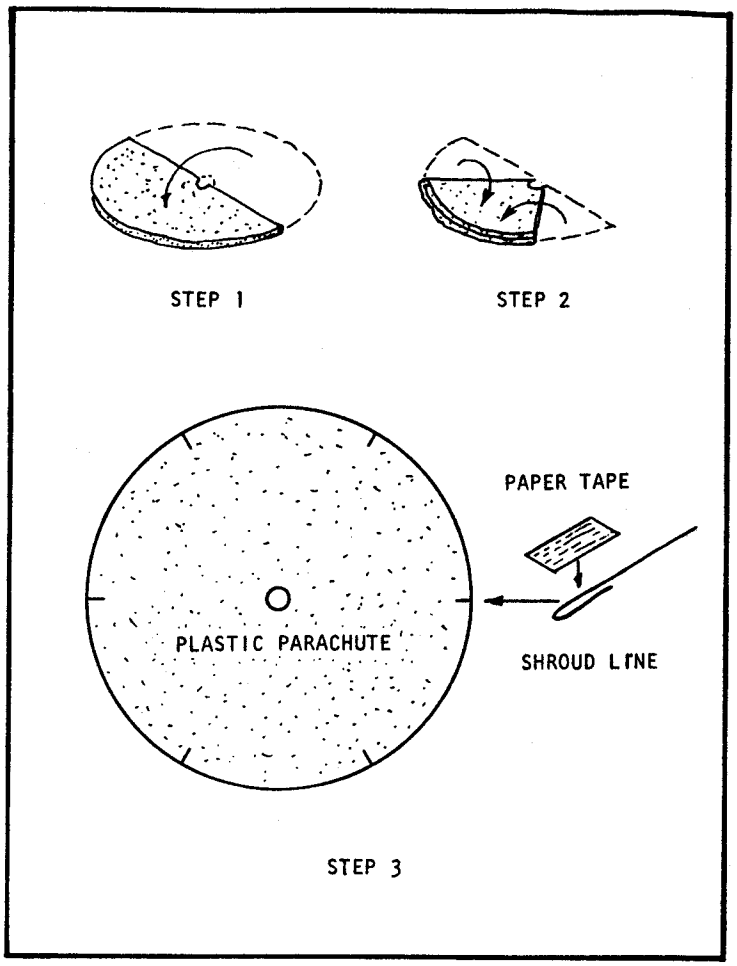
FIN SPACING GUIDE

FLYING INSTRUCTIONS:

The Hyper is designed to fly with or without a payload either as a single or two-stage rocket. It may be necessary to add a slight bit of clay on the nose cone as weight when flown without a payload. The center of gravity must be located where shown on plans, or forward of that position. This can be checked by balancing the fully loaded bird on a sharp edge.

Because of the interlocking staging system, normally taping the two engines together with cellophane tape is not necessary. However, if the engines are not taped together the lower stage must fit snugly into the upper stage. If the fit is too loose the stages will separate before ignition of the upper stage can be accomplished. The stages can be made to fit snugly by wrapping the coupler with cellophane tape.

Place payload under cord in coupler and insert into payload compartment. Wrap the engines with masking tape to fit snugly and load into upper and lower stages. Make sure that 0 delay engine is in lower stage and stage fits snugly. Place flameproof wadding into rocket, fold and insert parachute, replace payload compartment. Attach pop launch lug by inserting into slot in body tube and hook over rear of rocket. Put rocket on rod, then wrap about two or three turns of masking tape around top of rod. Hook up launcher clips to igniter and fire. The bird should leave the pad smoothly and leave the launch lug on the rod.



PARACHUTE INSTRUCTIONS:

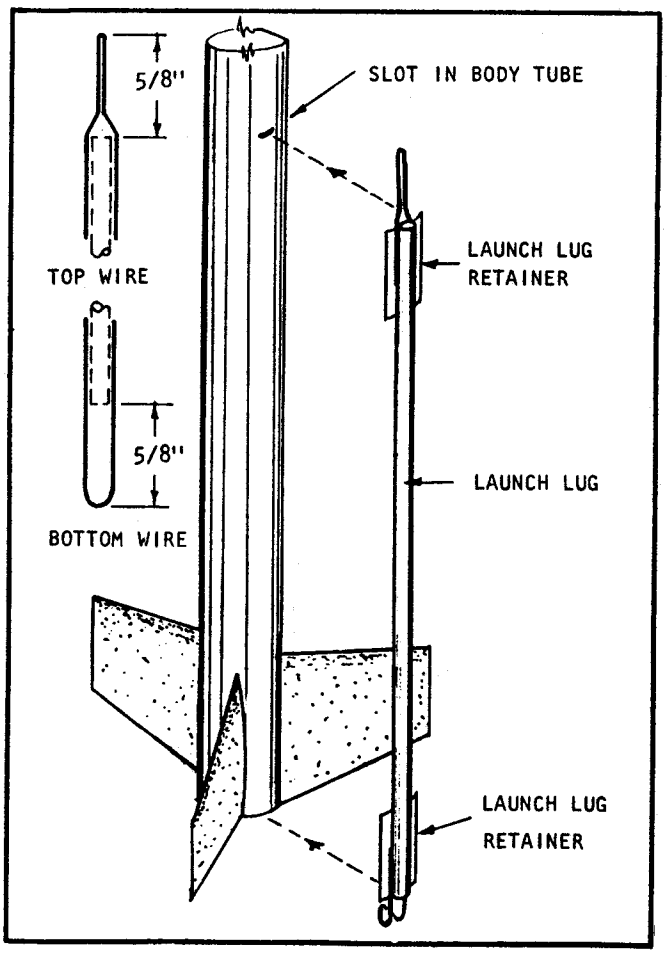
Parachute is precut to a circular shape. Fold in half, then fold in thirds to obtain the location of the shroud lines. Crease parachute at folds or mark with marking pencil. Cut off tip of parachute when folded to provide a vent hole to aid in parachute folding and opening after ejection. When reopened there should be 6 equally spaced places for shroud lines.

Cut 6 shroud lines, equal in length to the diameter of the parachute.

Cut 6 pieces of wide tape about 5/8" long. Peel off paper backing and attach by pressing tape over a loop of shroud line.

Gather free ends of shroud line together, insert through snap swivel and tie into a knot. Apply a drop of glue to knot so it will not loosen. Attach snap swivel to hook in nose cone or payload coupler.

There are many ways of folding a parachute for insertion into a body tube. Experience will dictate the best method for each individual. One way is to first dust the parachute with talcum powder to keep it from sticking to itself. Then form the parachute by holding the snap swivel with one hand and tip of canopy with the other and straighten the chute. Fold the canopy once or twice to fit the space in the body tube and insert it. Pack the shroud lines and shock cord in over the parachute and push the nose cone or payload section into place.



POP LAUNCH LUG INSTRUCTIONS:

Cut two pieces of wire 2 3/4" long. Bend one to fit top and one to fit bottom wire patterns shown at left. Glue two small 3/8" x 1" launch lug retainers to launch lug and lay on flat surface so that retainers are on bottom and launch lug is on top. Place wires into junction of launch lug retainers and launch lug so that 5/8" protrudes beyond edge of launch lug. Add more glue until a good fillet is formed. When dry, shape bottom wire to hook over bottom of rocket body tube.

Hook launch lug over bottom of rocket body tube, or lower stage, mark where bend of top wire intersects rocket body. Cut small slot to fit top wire. Bend slot out slightly to allow wire to be inserted. Two slots or two launch lugs of different lengths are equired if bird is to be flown single and two stage. Bend protruding portion of top wire inward slightly so that it fits into the slot more easily. Insert top wire slightly into body tube, then hook over bottom and push into place. Adjust so that launch lug is snug but will come off easily when pushed on top.

The pop launch lug is always attached after the rocket is prepared for launching complete with engine, recovery device and nose cone installed. To use "pop" launch lug, slide lug over rod, wrap top of rod with 2 or 3 turns of masking tape. Rod must be tight on launch pad. After rocket leaves pad the "pop" lug will remain on the rod. The rocket can be reattached to the lug without removing the lug from the rod.