

ms. peach

Invented by the Flying Aces Club—the people who gave us Peanut—Embryo Endurance was flown unofficially as a fun event at the Last Nats. Bill Warner won and here is his model. ■ Bill Warner

JUST BEFORE the Nats last Summer, I received a top-secret communique from the Flying Aces GHQ in Connecticut containing the message that the famous (what, you haven't heard of it?) Embryo Endurance event would be flown for the first time at the National meet. I spent many restless hours wondering what I should build to fly in this revered class, invented by the intrepid birdmen of the FAC. The spirit of the event is Fun, liberally sprinkled with nostalgia for the old Jimmy Allen Thunderbolt, Flying Aces Moth, Triangle Sportster, or Comet C-1 Pursuit. Then, like a Thunderbolt (Jimmy Allen) it came to me in a vision at 1 a.m. I leaped from the bed, startling my wife and neighbors with a lusty "Eureka!" and grabbed pencil and paper. In less than an hour, the design was on paper, with the name inspired by my lovely wife: "Ms. Peach."

With the optimism of a 12-year-old kid about to fly his first Guillows' kit, I sallied forth to do battle. My heart sank, however, when Bob Clemens put up his first calm-air flight of almost two minutes ROG with a gorgeous polyhedral ship. Bill Stroman's little antique ozone-gobbler flew like a home-sick angel, and John Leuken's hot-

rod (piloted by R2D2) made even a seasoned veteran blanch. Ms. Peach was designed to fly for fun, not compete with the like of these! But then a nifty little funnel of spinning dust came straight toward the card-table aerodrome, and five minutes later I was relieved when it released the model! The next flight was well over the two-minute max also, with my third one at about 38 seconds, I ending up in first place miraculously. The moral of the story is Hung, the thermal god, is a great prankster, but occasionally he rewards one crazy enough to keep at this sport.

Before talking about Ms. Peach, we should refresh your memory on the Embryo rules. Not over 50 sq. in. of useful wing area (I considered the area over the fuselage useful, and so included it!). Biplanes get 70 squares but no one wing can be larger than 45. Lifting stabs are O.K. but the area can't go over 50% of the wing area. The wing and tail must be tissue covered (no new-fangled condenser paper or microfilm). The fuselage has to be built so as to enclose a theoretical box 1½ × 1¼ × 3 inches. No folding props. The model must ROG from a 3-point rest *unassisted* from a card table top. The landing gear

must consist of two main wheels of at least ¾" in diameter. Four attempts will be allowed to make three official flights, with any flight rising above the level of the table top becoming "official."

Highest total time wins, with a fly-off in case of ties. To stress the spirit of the event, bonus points will be given in seconds at the following rate: 5 for a raised cabin or cockpit which features a real hole, windshield, and headrest; 3 for 3-D wheel pants; 1 for 3-D exhaust pipes. If your club isn't having an Embryo Endurance event at your contests, they're definitely missing a bet!

Well! Off to build an Embryo. Ms. Peach is constructed of balsa from the scrap box. No great expense here! Keep in mind that with a fairly long tail moment, she's apt to come out a bit tail-heavy, though stable with the application of necessary nose-weight. I had to epoxy a steel nut to the back of the nose-plug to get mine to balance properly. Those of you who are design freaks probably notice more that the usual angle of incidence in the wing/stab; this was for extra stability in those great California thermals. All-up weight, includ-

ing the nut, is about one ounce, which could easily be cut in half by judiciously selecting wood and decreasing the angle of attack.

Wing: I built it by putting in all the ribs as rectangles and sanding the lot down with a long sanding block. How's that grab those of you who like to drop airfoil names like NACA 2042 or RAF 32? The plan shows about what I came up with.

Start by laying down the bottom 1/16 sq. spars and sand the ends of long ribs to make the L.E. and T.E. match up. Being lazy, I laminated the T.E. from 1/16-sq. strips, two to be exact. The 1/32 tip plates were added after covering. Use the root-rib dihedral gage when gluing on the root ribs (wing is made in halves, covered, then joined up.) If the dihedral doesn't come out exactly 7/8, so what?

Stab: The original stab was 1/16 thick, which worked fine except that I notice it is beginning to warp. I suggest going to 3/32 square, and *light* 3/32 sheet, to eliminate warping. The stab is glued in tight *after* the first test flights. Leave some space around to shove in a few wedges to change its angle if necessary. When final trim is arrived at, glue the stab solid, and then fill in space below with soft 1/16 sheet, or tissue, if you wish.

Rudder: As per stab, I think lighter wood and thicker sizes will help prevent warping. The dorsal fin could be light 1/32 sheet. It's mainly for looks.

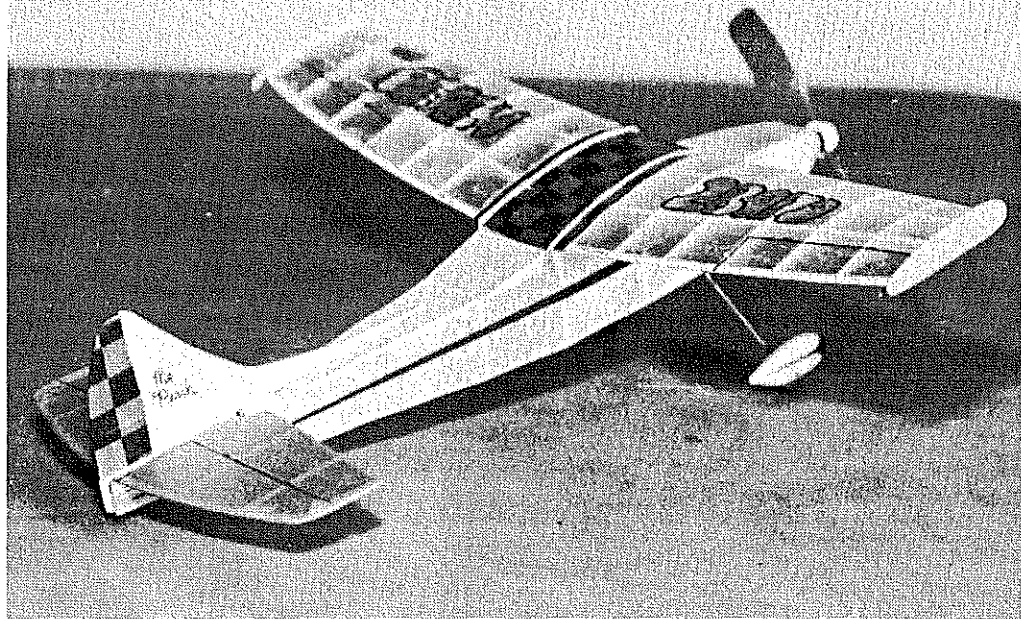
Fuselage: Starting with hard 1/16 or 3/32 sq. longerons is just the ticket, though if you use 3/32, be prepared to apply the sanding block to the rearward part of the structure to cut down on weight (tapering). Build one side, put down a layer of Saran Wrap, and build the other right on top of it. If you can't find light 3/32 for uprights, use harder 1/16 as I did.

Bend up the landing gear, making it just wide enough at the top to slip up between the longerons, then epoxy it to the uprights. A notched spreader strut between the legs at the bottom of the fuselage completes the job nicely.

The gussets shown are a good idea, though not absolutely essential if you think you can avoid a crash or two. Once the "box" of the fuselage is done, construct the cabin of light 1/32 or 1/16 sheet. The C1, 2, and 3 parts are the wing rest; try the wing on for size, making sure it snuggles nicely into these little v-shaped beds (the reason will be apparent once you try for consistent flights).

The wing is held on with Q-tip or birch dowels. Don't make them so long that the No. 16 rubberbands crossed over the wing to hold it on cannot pop off in the event of a crash.

Build up the nose block from 1/8 laminations, or as you wish, solid hardwood. You will need nose weight anyway. The nose plug should be a *snug fit* into the hole in the front of the fuselage. Sand the NA and



If Ms. Peach looks a bit like a real airplane it is because the F.A.C. rules give bonus points for things like wheel pants, cabins or holed-cockpits, and exhaust stacks. Translucent appearance of the tissue-covered wing results from the use of banana oil—old timers take note!

NB part of the nose plug. Glue on shims if loose, because loose nose plugs make for unreliable thrust adjustments. Note that the nose plug has built-in right- and down-thrust. Bend up a 1/32 MW prop shaft, then add two brass washers, or a bead, or a ball-bearing washer between the Peck nose-button and the prop.

Landing gear: Make the wheel pants from soft balsa (L1, L2) and sand to streamlined shape. A couple of roundels cut from a sheet of 1/8 ply make good wheels, if you don't have any ready-mades. Make sure they *turn*, because ROG is part of the game. Epoxy the pants to the landing gear

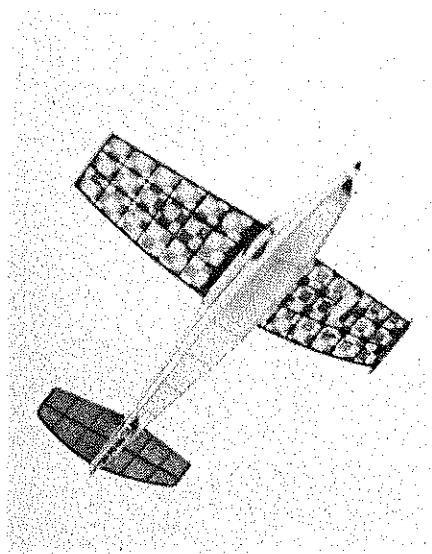
wire, making sure to keep the epoxy out of the part that turns! Add the fairings as shown on the plan (I had them on the original model prior to a tree disaster).

Covering and Decorating: I used lightweight Silkspan for the fuselage and Japanese tissue for the rest, covering all parts including the tip plates. Using several different colors makes the model interesting without resorting to the usual cop-out of "military" markings, such as phony roundels, stars, etc. Black tissue striping, lightning bolts, etc. give it pizzaz. Instead of 50/50 plasticised nitrate dope, I used Banana Liquid (available from Standard Brands Paint Stores) on the wing. It gives a lovely no-warp translucence to the tissue. Wish I's have used it on the entire plane.

Flying: One 17" loop of 1/4 vintage Pirelli (heh! heh!) worked very nicely for power. For fun-flying, I'm sure that any of the commercially-available rubber of various sizes will be O.K. (with the exception of the stuff on a reel with Chinese characters all over it, which goes dead after the first flight).

I added a bit of clay to the left wing tip which had been previously "washed in" (L.E. raised about 1/16 over a gas flame). A bit of left rudder was needed to help out the left power pattern. If your model wants to climb left, forget the left rudder. I have never had much luck with right power patterns, although all the experts seem to prefer right. The glide is a wide left circle, the wash-in on the left wing preventing spin-in in our powerful California thermals.

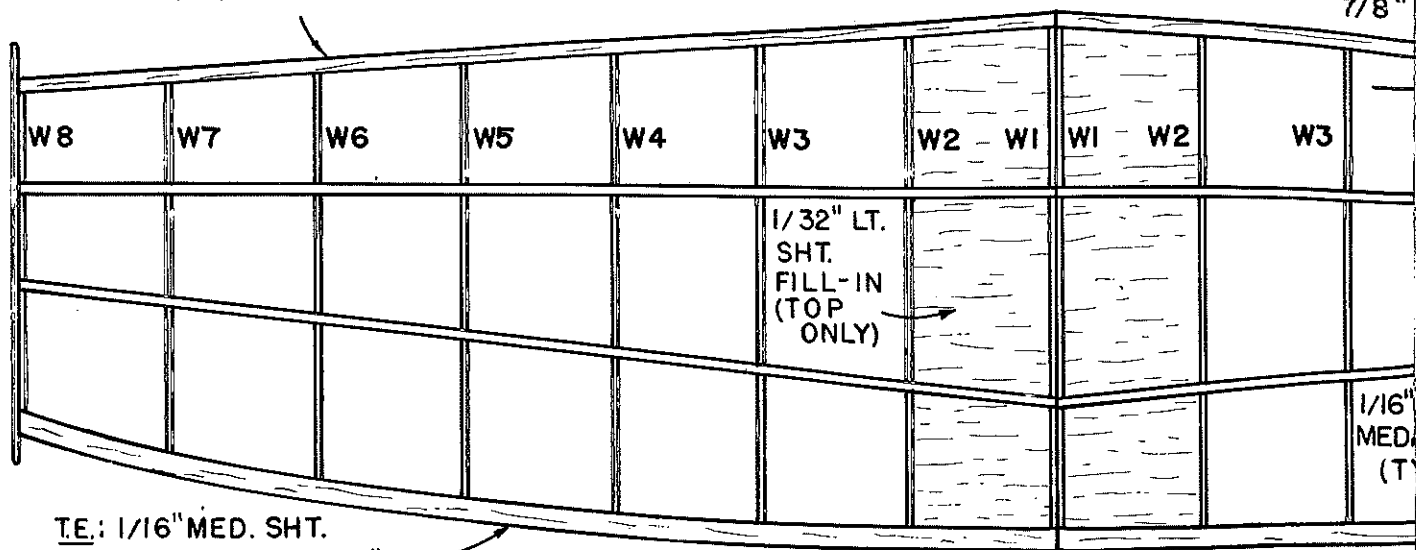
Another twist would be to install one of the new CO2 motors. The results should be astounding!



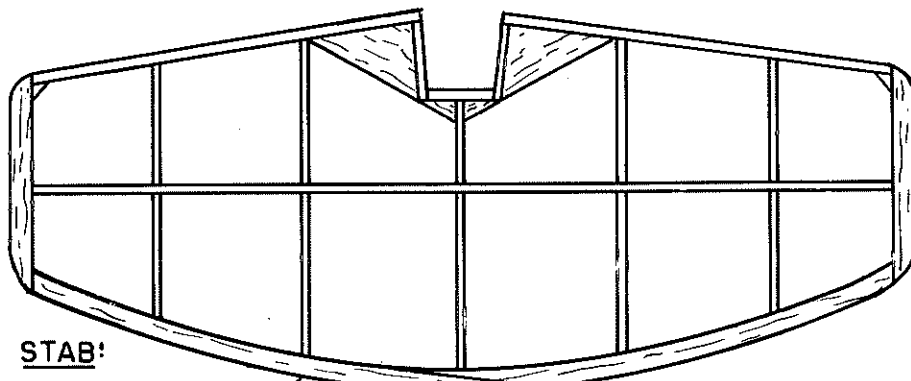
Buzzing overhead, Ms. Peach shows off her distinctive lines. Useful wing area is limited to a max of 50 sq. in. Fuselage must enclose a theoretical 1-1/2 x 1-1/4 x 3 inch box.

L.E.: 1/8" SQ. MED. Balsa

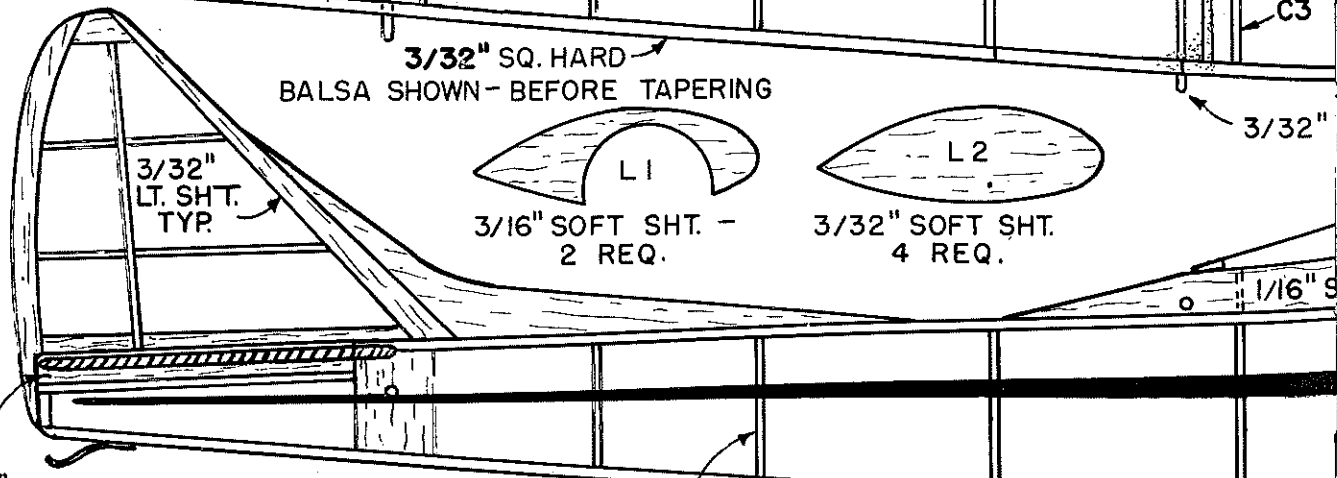
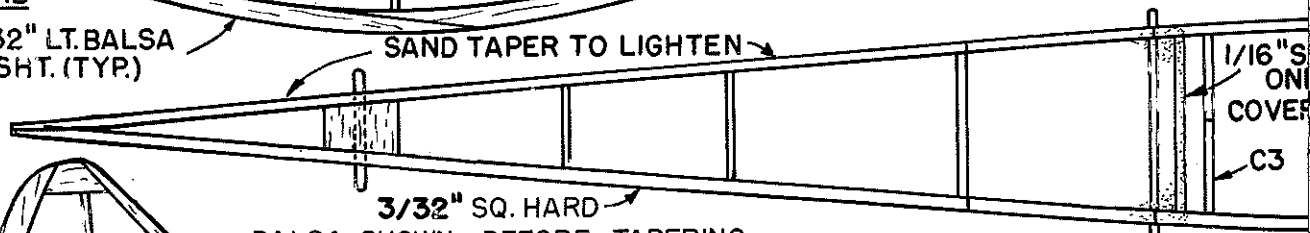
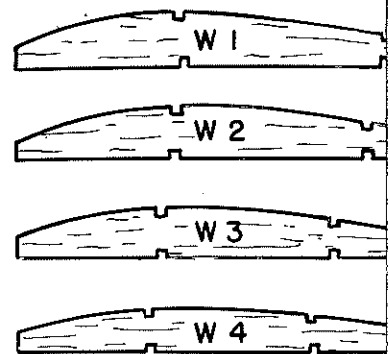
7/8"



T.E.: 1/16" MED. SHT.
OR 2 LAMS. 1/16" SQ.



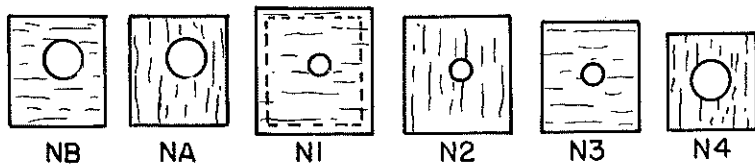
STAB:
3/32" LT. Balsa
SHT. (TYP.)



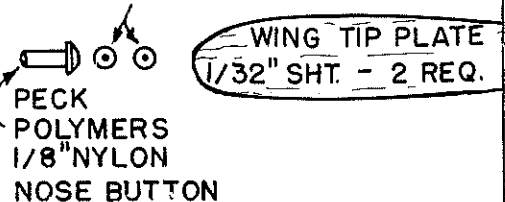
1/16" LT. SHT. FILL AFTER FINAL
STAB ANGLE DETERMINED BY
TEST FLYING

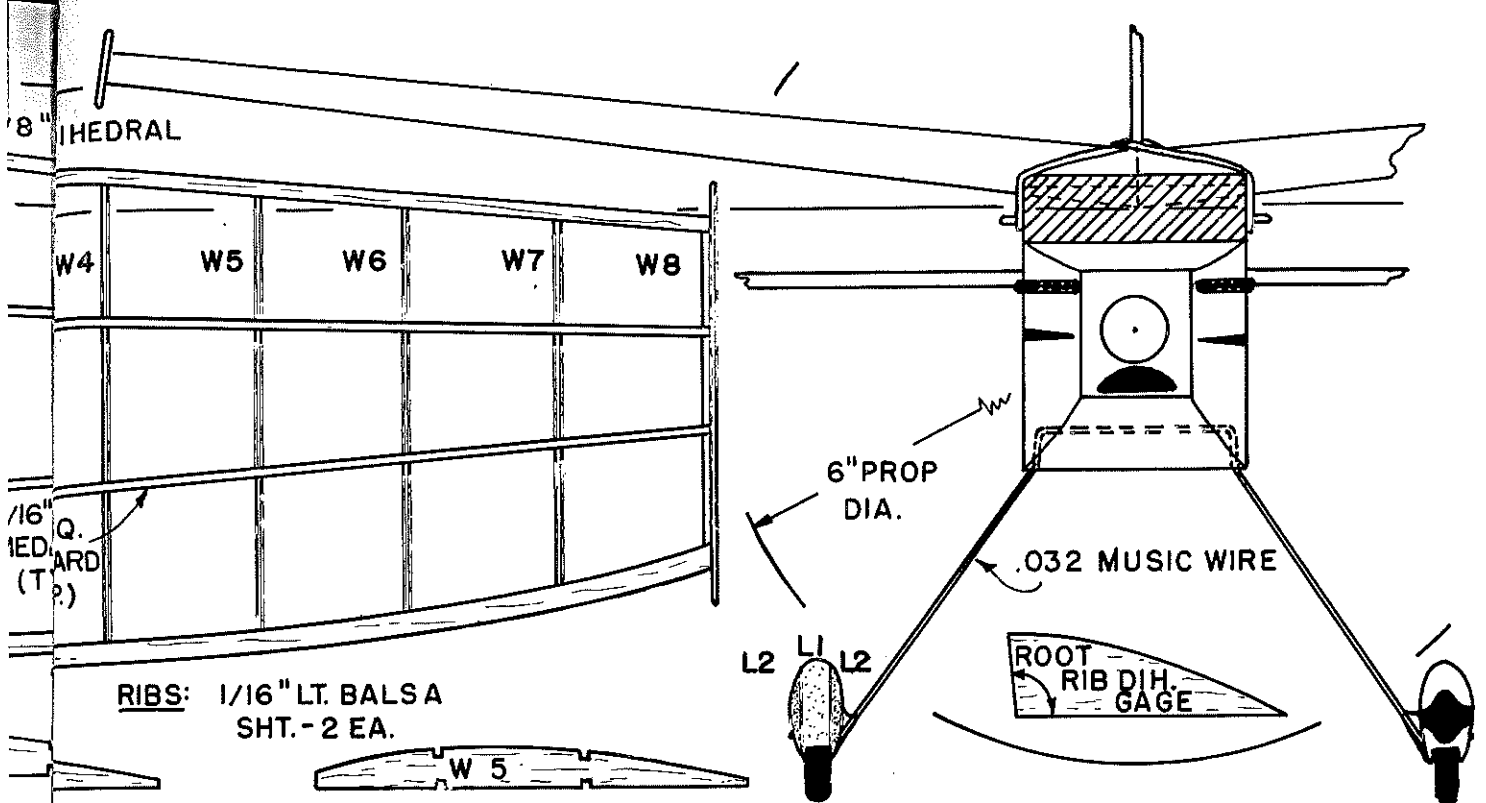
1/16" SQ. MED.
TYP.

BRASS THRUST
WASHERS

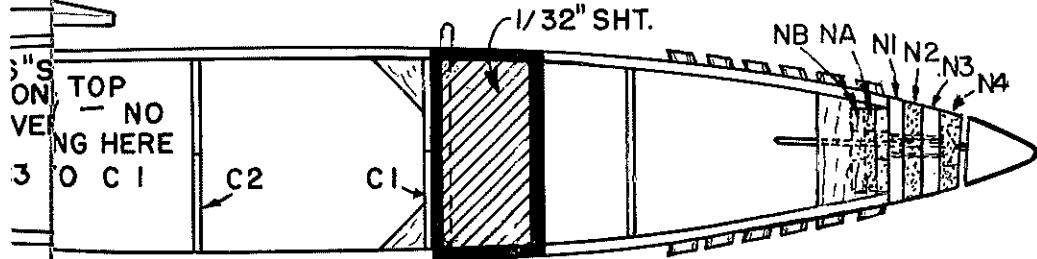
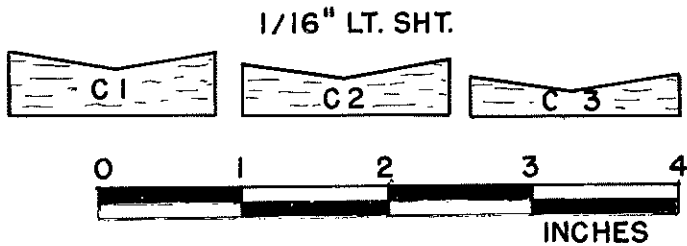
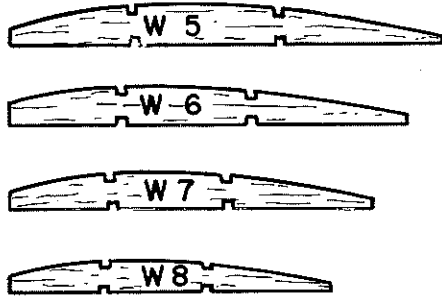


1/8" HARD Balsa NOSE PLUG LAMS.





RIBS: 1/16" LT. Balsa
SHT. - 2 EA.



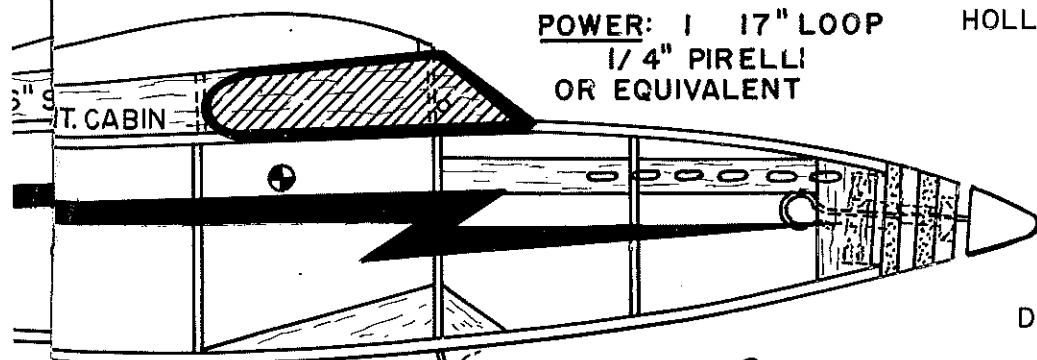
2" ARCH DOWEL

1/16" SQ. TOP ONLY

PROP: USE 7" NORTH PACIFIC PLASTIC CUT DOWN TO 6"

POWER: 1 17" LOOP
1/4" PIRELLI
OR EQUIVALENT

HOLLOWED Balsa SPINNER
OPTIONAL



TOTAL WEIGHT:
1 OZ.
ADD WT. TO NOSE
UNTIL MODEL
BALANCES AT

"Ms. Peach"

EMBRYO ENDURANCE WINNER-'77 NATS
BY BILL WARNER