DON'T SKIP THIS

"Debby" Gas Job

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HERE'S ANOTHER SMOOTH LITTLE GAS BUGGY FROM NICK LIMBER DRAWING BOARD. ALL YOU LADS WHO HAVE BUILT NICK'S SLEEK SHIPS KNOW THEY'RE TOP-NOTCH, AND WON'T WANT TO PASS THIS ONE UP! YEP, "DEBBY'S" LIMBER'S NEWEST CONCOCTION, SO WE GAVE HER THIS SNAPPY LITTLE NAME BECAUSE SHE'S NOW "COMING OUT" FOR YOU GAS MODELERS TO PRAISE!

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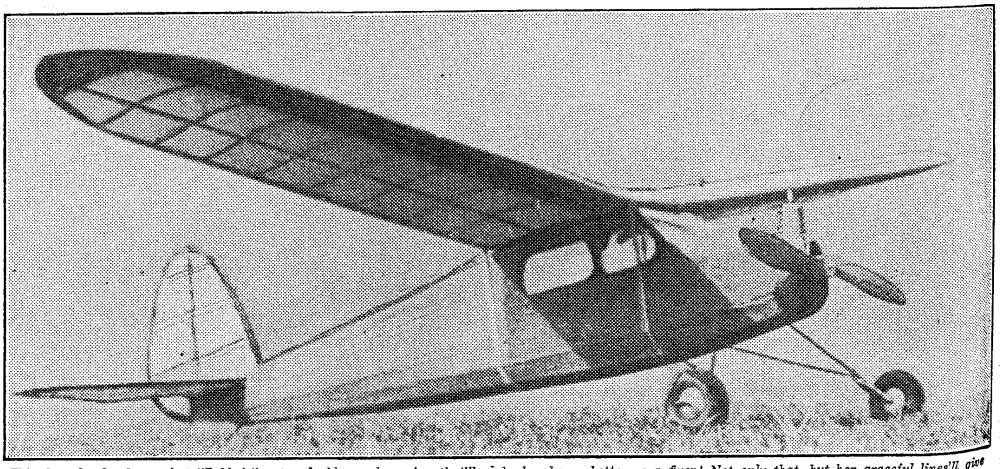
By Nick Limber



This shot clearly shows that "Debby's" got a double camber wing that'll make her heaps better as a flyer! Not only that, but her graceful lines'll give anyone with an "eye for beauty" plenty of proof that she'll fly like a humming bird with "geared up" wings! Well, that's the story of "Debby," boys. So get to work before those swell thermals die down!

STOP fretting, fellows, because here she is! And Debby's just the model you want if you haven't made your debut in the gas world!

Designed primarily for the "fledgling," Debby proved so successful on her trial flights that even seasoned builders claimed her to be the "apple of their eye." Her long, slim fuselage and graceful tail assembly meet the most rigid aerodynamic requirements and present a pleasing appearance that appeals to all who see her.

Well balanced and extremely stable, the craft is an exceptional performer that may well be expected to "set the pace" at any model air meet, too! What's more, Debby was designed to be powered with any motor up to 1/5 horsepower, using a 14-inch propeller with about an 8-inch pitch!

Now, boys, gather around the old round table of modeling and we'll give you the low-down on this high flyer—

FUSELAGE CONSTRUCTION

IN constructing the body first assemble the two side panels, using square balsa of medium hardness. (Incidentally, beginners are advised to have photostatic enlargements of the plans made in order that their model may be constructed on the large sheets without having to worry about "blowing-up" the plans from the magazine page). The sides may be assembled on a jig made of nails placed alternately at the points of the panel where most bending occurs. When these have been completed, cut the firewall from a piece of ¼" plywood and cement it to the panels in its proper position.

The body formers are shaped and cemented in place, as indicated on the plans, and the solid portions of the rear of the fuselage are constructed. These sections are indicated on the side and top-view layouts in solid black. Full size drawings of the sections appear on the last plate. Medium soft balsa, 2 5/8" by 5 1/8 by 1", is used for the upper portion, while a 2 5/8" by 5 1/8 by ¾" block is used for the lower. Shape as indicated in the drawing and finish off with smooth sandpaper.

A slot, into which we fit the rudder, is cut in the upper section before it is cemented to the fuselage. A smaller slot, into which the balsa fillet of the tail skid is cemented, is cut in the lower portion. Before cementing this to the structure, however, the wire skid is bent and a section inserted axially into the balsa. Cement and a generous supply of plastic wood will hold the wire fast and prevent it from breaking loose from the balsa section and the fillet. The latter is made of 1/8" hard sheet balsa.

Before attaching the stringers to the fuselage, it is advised that the landing gear be constructed and assembled to the body structure. Made of 3/32" wire, the landing gear is bent as indicated in the three-view layouts of the model. When soldered, the unit is fastened to the fuselage crosspieces with thread. This is coated with cement and finally with a generous supply of plastic wood. The latter, when hardened, makes a foolproof connection and is very dependable.

The stringers are cemented to the formers, and from the same strips, 1/8" by ¼", the battery box platform is made. Design and construction of the motor mount is the builder's next problem. This, however, will vary with the engine selected.

Plans and suggestions for the mount are included with the drawings and data sheets, therefore no trouble should be encountered. Designs for the mounting of the coil and condenser are also furnished with the engine.

A balsa cowling should be made after the engine has been mounted. Shaped as indicated in the layouts, its length will depend upon the mounting unit. Its height and width will correspond to that of the firewall, for the cowl is fastened to it Note that for convenience, the cowl is made in two sections and cemented together after being shaped. A sharp knife, a chisel, and varied grades of sandpaper are the only implements required for its construction.

The battery box commands careful attention during construction. Built entirely of 1/8" hard balsa, the box is held together with cement and a coat of plastic wood. Thin pieces of tin are fastened to the end pieces to act as contact points. A

spring, bent from music wire, is soldered to one of the contacts. When complete, the box is cemented to the platform within the fuselage—*but not until the entire ship has been completed and balanced!*

TAIL ASSEMBLY

AS BOTH the rubber and elevators are constructed in the same manner, a general description for the building of the units will be given rather than separate instruction for the individual pieces.

The framework for the assembly is made of ¼" square balsa, while the edges are formed of bamboo strips. The stabilizer unit is constructed in one piece rather than in halves as is the usual practise. Note that the bamboo for the edges must be steamed into shape; holding it over a candle flame will usually heat it sufficiently to make it pliable.

It is advisable that a flat, heavy object be placed on the units until the cement hardens —this will prevent warping.

The stabilizer is glued to the balsa turtleback before the rudder is attached. The elevators are cemented at a minus 3 degrees incidence. Sheet balsa 1/32" in thickness is used for covering the lower portion of the rudder.

MAKING THE WING

CUT the ribs out as a whole after pinning them together. Sandpaper them in the same manner so that they will match when finished. All ribs and the strut support, "S-S," are shown full -size on the plans and are constructed of 1/16" sheet balsa. The leading edge and spars are made of ¼" square balsa. The trailing edge of ¾" by ¼" strip balsa. And the center panel, wing tips, and leading edges are covered with 1/32" sheet balsa as indicated in the plan view of the wing. The trailing edge is now slotted to accommodate the ribs.

Prepare the spars by cutting them and bending to the proper dihedral angle. Six inches of dihedral is required at each tip. Cement spar supports, "S-S," to the spars as shown in the plans, and glue the ribs in their respective positions. The wing tips are carved from a sheet of ¼" balsa. When shaped, cement the tips in place and cover the wing with 1/32" sheet balsa as shown in the plans. But be *doubly* certain to work all wrinkles out of the tissue so that a smooth, eye-pleasing covering will be assured.

COVERING THE MODEL

YOU may use either bamboo paper or silk to cover our *Debby*. But the original job was covered with bamboo paper to make it lighter.

Apply dope to the framework and attach the covering. Mix your dope, incidentally, with an equal amount of heavy cement and be sure that it is smeared evenly over all portions of the frame to which the bamboo paper will be attached. Make doubly certain of this when the under surface of the wing is being covered.

Clear dope may be sprayed or brushed on the covering to tighten the paper. However, if the builder desires, he may paint the model directly with colored dope.

Coloring of the ship depends entirely upon the builder. In selecting the color scheme, however, consider its power to be visible at great distances and altitudes. Thus, in selecting the color, the builder must consider on a scientific basis and not artistic as had been the case in the past.

TESTS PRIOR TO FLIGHT

DO NOT under any conditions attempt to fly the model unless it is balanced after the motor and ignition unit have been installed. First, glide the craft from about five foot altitude. If it tends to stall, adjust the center of gravity by shifting the battery box forward. To overcome too-steep dives, move it aft.

FLYING THE MODEL

WHEN balanced, set your fuel supply or timer at about 20 seconds, and, after allowing your motor to warm, give 'er the gun and let 'er take-off— into the wind, of course!

After each landing, inspect the ship, making certain all is intact. Naturally, the rubber strands which hold the wing to the fuselage must be changed every few weeks as a matter of safety. A general inspection of the model after nights is a good habit, too, for not only will it add to the life span of your model, but will add to the hours of flying enjoyment and reduce "up-keep" costs.

Well, fellows, you're all set to go, so let's not gab any longer. Copy that list of supplies and get the materials required for *Debby*, because this is *one* model you'll never regret building.

BILL OF MATERIALS

Fifteen strips ¼" by ¼" by 4' medium balsa for longerons, spars, etc.;

Twelve strips 1/8" by ¼" by 4' medium balsa for stringers;

Six sheets 1/32" soft balsa for wing covering;

Four sheets 1/16" hard balsa for ribs;

Four strips ¼" by ¾" by 36" hard balsa for trailing edges;

Two pieces soft balsa for nose cowl (size will depend upon engine used);

Two sheets 1/8" hard balsa for wing tips and formers;

One piece ¼" by 5¼" by 3¾" plywood for firewall;

One piece 5/8" by 5 1/8" by ¾" medium balsa;

One piece 2 5/8" by 5 1/8" by ¾" medium balsa;

Aluminum angle for motor mount, 3/32" wire for landing gear, bamboo paper, celluloid, dope, cement, one pair 4½" wheels, pins, and sandpaper.