

The author, his ship, and some youthful enthusiasts.

# BUILD AND FLY A "DRAFTEE" GAS JOB

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Here's a good looking consistent performer—  
one you cannot afford to pass up this month!

**T**HE "DRAFTEE" is designed for the fellow who likes a good-looking ship that will give a good account of itself in competition with "Freaks" built for high time and super-super stability. During the time I had it in my possession (two models of the same design flew out of sight after more than 90 flights each) no trouble of any kind was experienced. We did, however, have to limit the motor run as the "Draftee" was always chasing after those nice big cumulus clouds. On a 12-second motor run it consistently did over two and half minutes flight time. A sister ship took first place for beauty and design at the 1940 New York World's Fair. It has also won first prize for the highest flight time on two flights, the second flight time being 7 minutes 49 seconds out of sight. The reason for this performance lies in the tight left spiral climb and flat left glide without any dip, after which she starts thumbing her way cross country. But enough said, let's get down to work and build it.

#### FUSELAGE AND LANDING GEAR

**F**IRST THING to do is to draw up the fuselage plans full size. This can be done on ordinary brown wrapping paper. After that is done, lay out the 1/4-inch square longerons for the fuselage. It is advisable to build the two sides at the same time so that both of them will be identical. After the sides are glued and dried cut them apart and go over all the joints with plenty of glue.

Assemble in the conventional manner, so that we now have a rectangular frame. While this is drying cut out the side, top and bottom formers and the plywood firewall. The formers are glued on, and while they are drying proceed to bend the landing gear.

The landing gear is fastened with linen thread to the fuselage cross members and backed up with gussets and plenty of glue. The motor mounts are next to be installed. They are made of 3/8" by 5/8" bass. The motor is mounted with small wood screws.

There is a small amount of right thrust, enough to offset the torque.

Be very careful when wiring the ship as it is mostly the cause of all the motor trouble. Make all the wires as short as possible and all joints should be cleaned and soldered in order to get the most out of your batteries.

The next job is to put the stringers on. The stringers should be fairly hard because after the paper is doped they will have a tendency to pull in and cause ridges, but not so hard that they will cause difficulty to work with. The stringers are 1/8" by 1/4" and then extend 1/8" above the formers so that there is a smooth contour across the fuselage adding much to its streamlining and good looks.

#### WING AND TAIL SURFACES

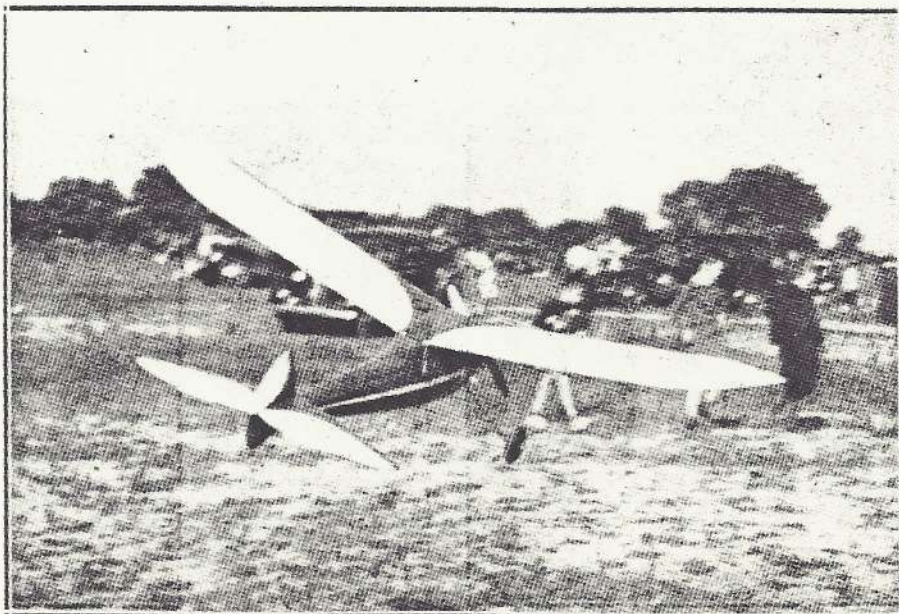
**I**T IS BEST before starting to make the wing ribs to first make a master rib template out of heavy cardboard or wood so that you can

duplicate all the ribs needed. The ribs are made out of 3/32" soft sheet. After we have all the ribs cut and sanded to uniformity, lay the main spar down on the wing plan. Then slide the ribs on and line them up, and put a drop of glue on all the ribs to hold them in place. Add the smaller spars and glue them making sure that all the ribs are in line. Next add the leading edge and the trailing edge. Do not sand the trailing edge until the cap strip is glued on.

Now put on the wing tip. Lay some carbon paper over 3/16" sheet and trace the shape, then cut it out and glue it together, and when dry glue it to the wing. This applies to one half of the wing. The other half is made exactly the same.

The center section with the center section spars is made separately and the two halves of the wing are joined to it. Each tip is raised 6 1/2" at each tip and then glued and left to dry thoroughly. However, before further

Clean cut design makes this craft outstanding. Here, she glides in to land.



work with the wing, add several more coats of glue to the center section joints so that the center section will not crack.

The leading edge and center section are covered both on top and bottom with soft 1/16" sheet. Glue on the cap strip and give the complete wing a sanding.

The rudder and stabilizer are very simple. The rudder has a symmetrical section 1/2" thick at the center. The stabilizer is built as shown and covered with 1/32" sheet at the center. Nothing more need be said except that they are strongly glued on to the fuselage after the surfaces have been adjusted. All adjustments on the vertical fin can be made with an aluminum tab or built in rudder.

#### NOSE COWLING

**C**ONSTRUCTION IS very simple. It is built of balsa blocks 1" by 2" by 4 1/8" glued together. Before cementing the blocks rub some glue into the surfaces that are to hold, and allow to dry, so that there will be a strong bond. After the blocks have dried thoroughly, cut and work it to the shape of the outline on the plans. (I used a rasp to shape the cowling and it worked out nicely.) After all this is done, sand it with rough sandpaper and then with medium sandpaper.

Rub several coats of glue over the whole outside of the cowling, and when it is dry sand with fine sandpaper. Now shape the inside. Gouge out the walls until they are 1/4" thick all around, and rub in glue on the inner walls. Drill 1/4" holes for the needle valve extension and gas line and put in the louvres. The louvres are made of celluloid and glued on. Don't be afraid to make the louvres large because it is essential that we have a good cooling and an escape for the air inside the cowling.

When applying the finish keep brushing on heavy dope and sanding until the grain of the balsa doesn't show any more, than rub down the cowling with wet and dry sandpaper or steel wool. Paint the cowl with whatever color you wish and rub it down with "Simonize Kleener" which is a mild rubbing compound, and you will be amazed at the luster and gloss possible. All this effort will be repaid many times when your friends and spectators ask, "Is that cowling made of metal?"

#### COVERING AND FINISHING

**N**OW COMES a very important phase in the completion of your model. For the covering and the finish can either ruin a model or increase its beauty. The covering material we used was silkspan, although you can use bamboo paper or silk, the latter being quite expensive. Silkspan can be applied damp, and this is a great help, because you can stretch the wrinkles out on the wing tips and the fuselage. Take your time while covering, and don't cover too much of an area at one time.



Marty Shames with his trophy winning "Draftee." It won a Beauty and Best-Finish event.

After the whole model is covered spray it with water to tighten the paper and when it is dry dope it clear. If you wish you can dope it with any color. The original color scheme we used was green and white, the fuselage being green with a white stripe and the wing white with a green leading edge.

If you want a high gloss you can rub the entire ship with "Simonize Kleener," but only if it has been thoroughly doped, as the "Simonize Kleener" is a mild rubbing compound and it would raise the fuzz in the paper. Be careful that you do not go through when you rub over the stringers and ribs. You can then wax the ship with "Simonize Wax" and polish it to a high gloss.

All this extra trouble will be well worth the results and it will gather points in any "Beauty Contest."

#### FLYING INSTRUCTIONS

**N**OW THAT you have put so much time into your ship you don't want to crack it up the first flight. It would therefore be well to follow a few simple rules which will greatly help prolong the life of your ship. When you take your ship out for the first time be sure it is calm, otherwise you are taking a chance and correct adjustment cannot be made. The calmest weather is just before early evening, and it is during this time that you should test fly your ship. After you have test glided your ship over and over again and you are satisfied with the glide, start your engine.

See that the motor does not sputter as this causes constant torque variation and makes adjustments difficult. When your motor is running smoothly at low speed, give the rudder tab a little left turn, set your timer for about twelve seconds and hand launch it. The ship will climb in a wide left circle and when the motor cuts it will glide to the left. During the next few

flights give the tab more left until she climbs in a tight left corkscrew. You need not be afraid of it spiraling in with torque, for if the ship is built properly this need not be feared.

When you have completely adjusted the "Draftee," revved the motor up, then it's time to get after it because this "baby" sure can travel.

#### BILL OF MATERIALS

Thirty strips 1/8" by 1/4" medium balsa for stringers  
 Twelve strips 1/16" by 3/16" soft balsa for cap strip  
 Six strips 1/4" by 1/4" hard balsa for fuselage longerons  
 Four strips 3/16" by 3/16" medium balsa for wing spars  
 Three sheets 1/16" by 3" medium balsa for wing ribs  
 Two sheets 1/16" by 2" medium balsa for fuselage formers  
 Two strips 3/8" by 3/8" medium balsa for leading edge  
 Two pieces 3/8" by 5/8" by 9" bass for motor mounts  
 Two strips 3/16" by 1 3/8" medium balsa for trailing edge  
 Two strips 3/16" by 3/4" hard balsa for main wing spar  
 One sheet 3/16" medium balsa for wing tips and stabilizer  
 One piece 1/4" by 3/4" hard balsa for center section spars  
 One sheet 1/32" medium balsa for stabilizer center section  
 One piece 7" by 4 1/2" birch plywood for fire wall  
 One strip 1/4" by 1/2" medium balsa for leading edge of stabilizer and rudder  
 One piece 1 1/4" by 3" .047 aluminum for motor mount gussets  
 One plank 1" by 2" by 36" medium balsa for cowling  
 One 5-foot length of 1/8" steel wire for landing gear  
 Silkspan for covering, glue, pins, scrap balsa, sandpaper, colored dopes, and other minor model building incidentals. THE END