



By Laddie Mikulasko

From the designer of the Force 1, comes this neat canard. It flies just as well.

CONSTRUCTION

Study the plan. All parts are numbered, and in this article will be referred to by number.

Cut out all of the parts. Drill all holes where shown.

To speed up construction, I use cyanoacrylate glue on everything except the firewall and landing gear mounts.

Stabilator, Elevators, Fin, Rudder:

Trace the outlines of these parts on medium-hard 1/4" balsa and cut them out. Round the leading edges and, in the case of the elevators and rudder, taper them from leading edge to trailing edge as shown on the drawing. Make the slots for the hinges. Bend and silver solder the horn and torque rod for joining the elevators, or purchase a suitable commercially available unit (40).

Sand all the surfaces to a satisfactory finish; it is easier now than after the model has been assembled.

Fuselage:

Trace the outlines of the fuselage sides (25) on 1/4" medium balsa, and

mark the locations of all the bulkheads (26, 27, 28 and 29), and the slot for the stabilator (34).

Cut out half-bulkhead (28) from 1/4" ply, and mount a steerable nose gear bracket on it.

Cut out stiffeners (30 and 31) from 1/8" ply, as well as the bulkhead (29). In this bulkhead, pre-drill the holes for the NyRods for the ailerons, rudder and throttle.

Next, take the two lengths of 1/2" triangle stock (24) and approximately every 1/2" make a cut about 3/4 way through. This is done, as shown on the plan, to make it easier to form to the contour of the fuselage side. When this is done, glue them in place on both fuselage sides. Make sure you do one left and one right. If you use cyanoacrylate glue, you can hold down the triangle stock and shape it around the curves with one hand and, with your other hand, glue it as you go.

Glue on stiffeners (30 and 31) to the fuselage sides. Because the bottom of the fuselage is flat, you can build it right on top of the drawings from here on.

Position the left and right fuselage sides upright on the plan, and glue in the bulkheads (26, 27, 28 and 29). When they are glued in place, take a flat sanding block and go over the top of the fuselage lightly to level the triangular stock. Now, with the grain cross-wise, glue on the top sheeting (23) from the nose right to the extreme end of the fuselage.

Turn the fuselage upside-down and glue on the bottom sheeting (23) from

Over the years, I have seen several models of canards in magazines and always wanted to design and build one of my own.

The one thing which prevented me from doing it was that I didn't know how the Center of Gravity was calculated.

Finally, in one of the modeling magazines, there was an article on canards, with a set of figures for the calculations of C.G. I immediately made some sketches of models for .40 size engines, picked the one I liked best, and made a set of working drawings.

The model was built in a short time, and the day came to fly my first canard. I was a little worried about locating the C.G. as calculated, but all I could do was give it a try. So, I taxied the model onto the runway and gave it full power.

The take-off was nice, and the model appeared to be stable, so I made a turn showing the model's unusual shape in full view.

I explored the canard's capabilities, doing loops, rolls, split S's, and so on. I was pleased with how easy it was to fly. Though different in its handling in some ways, it has no bad habits or hang-ups.

I built three versions of this model, making some minor modifications to improve the looks and speed up construction. The model is fast and easy to build.

So, if you think that this is a model that you would like to fly, read on.

the nose to half-bulkhead (28), and from bulkhead (29) to the extreme end.

Make the hatch cover (36) out of 1/8" balsa, with its 1/4" inside frames (37, 38 and 39) and, when done, insert it in its place on the fuselage.

Now, I suggest that you round the fuselage corners as shown on the plan, and then sand the whole fuselage to a smooth, fine finish.

In the top sheeting (23), at the rear of the fuselage, cut out the slot for inserting the fin (27). Glue the fin into the slot in such a way that it extends 1/4" below the top sheeting (27).

On the inside of the fuselage, glue the two fin supports (22). See section A-A on the plan for detail.

Next, insert the elevator control horn assembly into the stabilator slot, and then the stab (34) itself. With the fuselage sitting upright on the building board, make sure that the stab is level with the board as well. Now glue it in.

At the tail end, make a 1/2" hole in the side of the fuselage where the antenna will pass through into the wing (if you decide to locate it internally, as I did).

Glue in the 1/4" plywood block (33) for the hatch hold-down.

Leave the installation of the servo rails (32) until the aircraft is completed, as you will probably need to move your equipment around to adjust the C.G.

The broken lines from the servo rails to the control surfaces are only suggested routes; you may want to change them to suit your equipment.

At Page 28

From Page 28

ailerons. Cut them out and, on the wing, glue in 1/4" balsa sub-spar (11), and on the aileron, 1/4" leading edge (12). Cap the ends of the ailerons with 1/8" balsa at the tip and 1/2" at the root.

The next step is to join the two wing halves.

First, cut out the engine mount (1), from 1/4" plywood, along with the firewall (19). Glue the firewall to the engine mount.

Place the two wing halves on top of the plan, with the tips supported at the same height, and glue in the engine mount assembly to the ribs as shown. Glue in the top and bottom balsa blocks (2), to give the engine mount more support. At the same time, glue in the top and bottom braces (6) to hold the spars together at the wing joint.

Now, glue the webbing (4) between the ribs (w1), and fill in the center section sheeting (7) on the top and bottom.

Glue on the capstrips and wing tip sheeting on the bottom.

Glue in the plywood landing gear block supports (15) between ribs (w3) and (w4), followed by the blocks (14) themselves. The blocks should be slotted beforehand for the piano wire gear.

Sand the whole wing, as if it were ready to cover. Now you can glue the wing to the fuselage, making sure that it is aligned properly.

Insert the NyRod for rudder, ailerons and throttle.

The model is now ready for finishing, using your favorite covering and finishing method.

Final Assembly:

Using 5/32" piano wire, make up the main and nose gear legs, according to the drawing, and install them.

Install the control surfaces and glue in the hinges.

Mount the engine and use the batteries and servos to balance the model. Glue in the servo tray (32). The receiver should be located close to the fuel tank so that the antenna can go straight into the wing.

To fly this model, you need a pusher propeller, unless you have an engine with a removable front housing (O.S. .40 FSR, etc.). In this case, you can rotate the front housing 90 degrees counter-clockwise. This will enable the engine to run backwards so that you can use normal tractor props. This was suggested to me by a modeler from Singapore who built a Delta model, Force 1 that I designed previously (see RCM March 1982).

I did try it on the other model and it works fine.

The fuel tank is setting further from the motor than normal, but no problems have been encountered. The clunk should be located in the middle

of the tank, using tubing as flexible as you can get.

Flying:

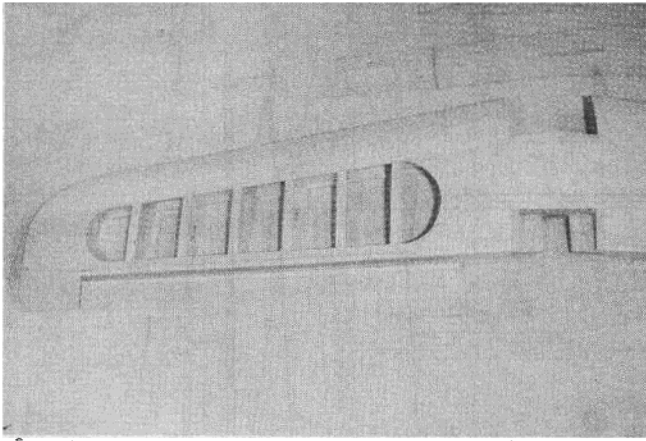
This model is no pattern airplane. It was designed as something "different" to fly. If you can fly a trainer, you can fly this ship with no problems. It is good for flying the majority of maneuvers. You may find the aileron roll rate a bit slow.

The aircraft will not spin unless you move the Center of Gravity back by 1/2" or more; then, watch out! If you have never seen a flat spin, just try flying the model with the C.G. at its aft position; then you will get one, but you had better have a lot of height, because the only way that I could get out was to hold down elevator for a long, long time. The nose dropped slowly and the model went into a spiral from which it could be brought into level flight.

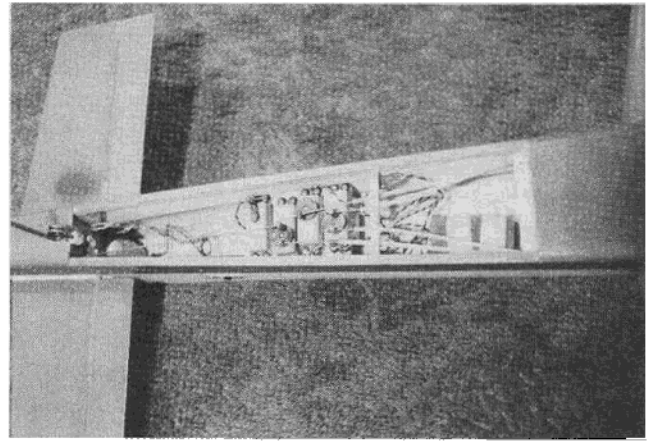
Good luck with your Gannet, and happy flying.

□

From RCModeler Sep. 1983



Completed wing, ready for gluing on to fuselage.



Bottom view, showing the radio compartment. Note that the servos are offset, so that the rods clear the other servo arms. The cross brace to the rear of the servos was added to anchor the NyRods, to prevent flexing.

The area behind bulkhead (29) should be fuelproofed at this time.

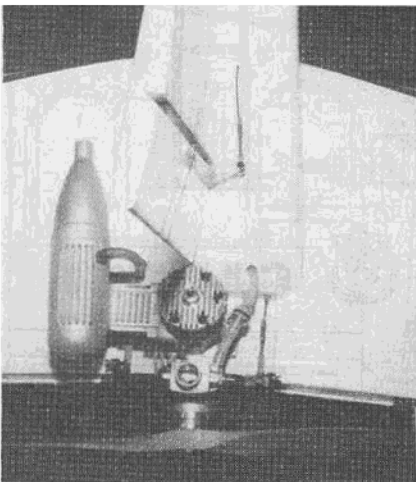
Wing:

First, build the spars right on top of the plan. The spar is made out of two 1/4" x 1/8" spruce strips (5) and vertical grained webbing (4). Start by pinning the spruce strips to the building board and joining them together with the webbing, making sure that the spacing between the webbing is exactly as shown in the drawing.

Trace all of the ribs, with their centerlines marked, on 3/32" balsa sheet and cut them out. If you decide to run the antenna inside the wing, as I did in one of the models, make holes in one set of ribs, as shown in the drawing, to accommodate a length of outer NyRod tubing.

From 1/16" ply, cut out rib doublers (16 and 17), and glue them onto ribs (w3) and (w4).

To build the wing true, I made a cradle out of the scrap balsa to block the root and tip ribs up square. The



Engine installation and aileron hook-up are shown. As stated in the article, engine rotation can be reversed by rotating the front housing 90 degrees to the left. This enables the use of 'normal' propellers.

cradle should be placed on top of the drawing and secured so that it will not move while the wing is being built on it.

Cut out the sub leading edges and draw centerlines on them. Position the sub leading edges (9) on top of the cradle's front edge. Insert all of the ribs into the spar and place the spar in its proper location on the cradle. Now, all the ribs should be lined up with the ribs on the bottom view of the plan.

The rib trailing edges must sit on the rear edge of the cradle.

Now, you can glue all of the ribs to the spar and sub leading edge, making sure that the centerline of the ribs meets the centerline of the sub leading edge.

Glue on the trailing edge sheeting (13). Note that this sheeting is in one piece; ailerons will be separated later.

Glue in the NyRod for your antenna, if desired.

Sand the sub leading edge to the contour of the ribs and glue on the leading edge sheeting (10), and wing tip sheeting (7). Note that the sheeting at the wing tip on the top surface extends beyond rib (9), but on the bottom stops on rib (9).

Remove this half of the wing from the cradle and build the other half in its place. When the second half of the wing is finished to the same building stage, trim the cradle by the thickness of the wing sheeting.

Place one half of the wing on the cradle with the existing sheeting on the bottom and, after sanding the sub leading edge to the contour of the ribs, glue on the leading edge sheeting (10), and trailing edge sheeting (13). Trim the trailing edge sheeting flush with (w1). Do the same thing with the other half of the wing. Glue on the leading edge strip (8) to both wing halves.

Next, the ailerons will be separated from the wings.

First, draw the lines on the trailing edge sheeting (13), outlining the

GANNET

Designed By:
Laddie Mikulasko
TYPE AIRCRAFT

Canard

WINGSPAN

55 1/2 Inches

WING CHORD

9 1/4 In. (Avg.)

TOTAL WING AREA

486 Sq. In.

WING LOCATION

Rear of Fuselage

AIRFOIL

Symmetrical

WING PLANFORM

Swept Back

DIHEDRAL EACH TIP

None

O.A. FUSELAGE LENGTH

34 3/4 Inches

RADIO COMPARTMENT SIZE

(L) 15" X (W) 2 1/2" X (H) 3"

STABILIZER SPAN

19 1/2 Inches

STABILIZER CHORD (inc. elev.)

5 1/4 Inches (Avg.)

STABILIZER AREA

94 Sq. In.

STAB AIRFOIL SECTION

Flat

STABILIZER LOCATION

Front of Fuselage

VERTICAL FIN HEIGHT

10 3/4 Inches

VERTICAL FIN WIDTH (inc. rud.)

5 3/4 Inches (Avg.)

REC. ENGINE SIZE

.40 Cu. In.

FUEL TANK SIZE

10 Ounce

LANDING GEAR

Tricycle

REC. NO. CHANNELS

4

CONTROL FUNCTIONS

Rud., Elev., Ail., Throt.

BASIC MATERIALS USED

Fuselage	Balsa, Ply, Spruce
Wing	Balsa, Ply, Spruce
Empennage	Balsa
Wt. Ready To Fly	80 Oz.
Wing Loading	23 Oz./Sq. Ft.