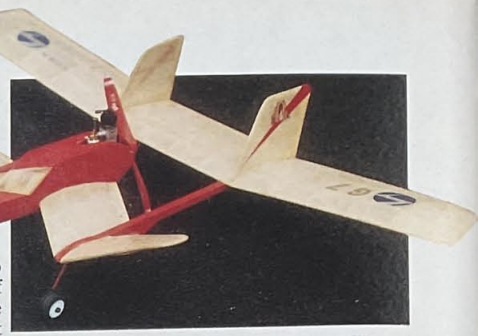
BONNACON

Build this delightful model designed by Peter Fisher



The first Bonnacon built in 1973 and fitted with a Swedish A.H 0.6cc diesel, a scaled down version of the Dyno. It was photographed on Jurby airfield in 1992. Note that this one did not need any trim tabs.

History and development

The Bonnacon is named after a fabulous beast which is also fitted with a four wheel undercarriage and tail assembly! Like this beast, our Bonnacon is very docile, providing that it is kindly treated.

The model has ben developed from the series of "Griffin" free flight canards and is, in fact, mark six. The mid-engined canard pusher layout has a number of distinct design advantages. As with all canards it is almost stall proof. The mid-engined mounting means that the engine centre line can be arranged to coincide with the line through the centre of gravity of the model, and so the weight of the engine has little bearing on the trim, except that it can vary the wing loading slightly. The prototype used a Mills .75 with a 7x4 prop and has many hundreds of successful flights to date. A side advantage of this configuration is that valuable vintage engines can be mounted with absolute safety. Should the builder wish to fit an .049 radially mounted glow engine it is simply a matter of omitting the bearers shown on the plan and fitting a suitably re-inforced firewall made from 1/8" ply. This should be arranged that the propeller drive plate is roughly in the position shown on the plan.

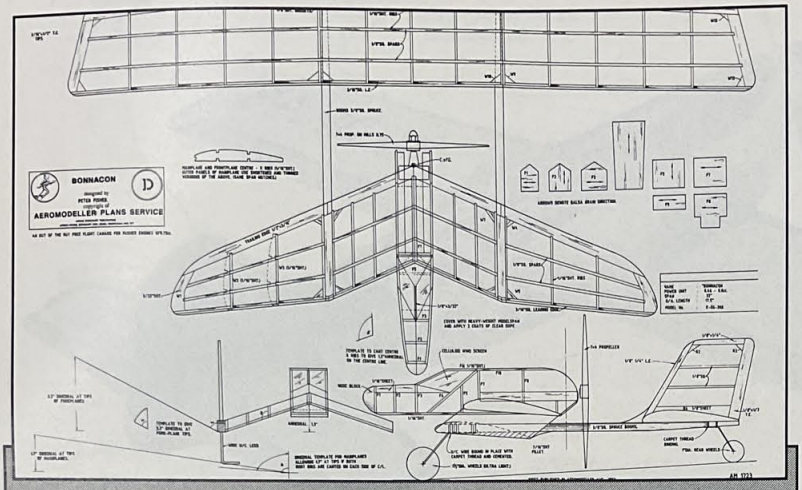
Construction

The Mainplane construction is quite straight forward. Pin the 1/8"x 1/8" lower main spars of the centre section to the plan, together with the 3/16"x 1/2" T.E. Fit the 1/16" ribs, taking care to cant the root ribs using the dihedral template indicated between the arrows on the bottom of the plan. Fit the 3/16"x 3/16" L.E. and the top main spars. The outer mainplane wing panels are built similarly to the centre section, except that the ribs are trimmed at the rear ends to fit the notches in the T.E. Once again care must be taken to allow for the canting of the root ribs as with the centre section, using the same template. Fit the gussets W8-W13 and assemble the mainplane taking care to check the dihedral is 1.7" at each tip.

The inverted gull-hedral foreplane is built in four sections. Construction of each section is similar to that of the mainplane given above, except that great care must be taken to ensure that all the ribs in the centre section are canted using the template enclosing the angle shown on the plan in such a way that the anhedral produced on the centre line of the assembled centre section is 1.3". (See front elevation drawing). The outer foreplane panels are built similarly, but using the template enclosing the angle alpha on the relevant root ribs to produce 3.3" dihedral at each foreplane tip.

At this point in the construction it is best to cover the complete units. The prototype used heavyweight tissue and was given two coats of clear dope. Cut the 3/8"x 3/8" spruce booms to shape and bind the U/C legs in position using nylon or carpet thread and cement securely. Make sure that the booms are laid out parallel on a suitable block of wood, which runs under the booms, with the legs pointing downwards. Now fit the mainplane in position together with the centre section of the foreplane. Very great care must be taken to ensure that the angle of

Two more Bonnacons fitted with Mills 75s at Old Warden. Remember that you either need an engine which will run backwards or a pusher prop. Be careful launching it too or it will bite – even if it is a Mills. At left, the man and the model – a be-piped Peter Fisher and prototype.



Full-size copies of the Bonnacon plan, illustrated here at greatly reduced scale, are available as AM1723, price £4.50 including postage and packing, from Aeromodeller Plans Service, Argus House, Boundary Way, Hemel Hempstead, Herts. HP2 7ST. Members of the Model Pilots' Association need only send £4.00 together with their membership number.

the foreplane, relative to the angle of the underside of the boom (rigging angle) as correctly set as per the plan. This can be done by first fitting the lower sheet fillets and then aligning the bottom of the outer foreplane centre section ribs with the lower surface of the fillet. When all the rigging angles have been re-checked, cement the units together. Finally fit the foreplane panels and check that the dihedral is 3.3" at the tips.

The fuselage sides are cut from 3/32" sheet balsa, as are the bulkheads F1-F5 and F7-F9. Mark the insides of the fuselage sides with the bulkhead location positions and assemble over the plan- view. Fit F6 and the 1/16"sheet fuselage top and bottom nose sections. The nose block is made from balsa, and the complete structure should be thoroughly sanded. After fitting the engine, windscreen pillar (1/8"x 3/32") and celluloid windscreen the fuselage should be given a coat of sanding sealer, two coats of clear dope and two coats of coloured dope, sanding lightly between each coat and fuel proof as necessary. surfaces.

Trimming and flying

It will be noted that mainplane tip elevons (W14) are shown on the plan. The prototype model originally flew very well without these and, if the model is built exactly as per the plan and is free of warps, they will not be necessary. After the prototype had one wingtip damaged due to a vintage model taxi-ing into it on the runway at the Nationals, a slight warp occurred and these elevons proved very useful in re-trimming the model. If both elevons are turned up it will cause the model to climb. If only one is raised relative to the other the model will turn in that direction when viewed from the rear. Some builders have found rudder trim tabs less critical to use for turn adjustment.

The Bonnacon has a relatively high flying speed and should be hand launched at about 30 miles an hour. To do this it has been found best to launch the model into wind with the index finger inserted under the centre section of the foreplane in the triangle formed where the lower fuselage sheeting terminates. As soon as the finger tip ceases to make contact at this point, lower the launching hand speedily while passing it through a forward arc. This will ensure that the prop tips do not impinge upon the launchers fingers.

The Bonnacon is extremely stable, even under severe and gusty wind conditions and, once it has been carefully trimmed, can be flown with absolute confidence on all occasions. Finally I should like to wish all Bonnacon builders many happy hours of sport flying with this unusual and distinctive machine.