Instructions for Building and Flying

The MERCURY GALAHAD

Designed by
FRANK KNOWLES

REGISTERED
MERCURY MODELS
TRADE MARK

HENRY J. NICHOLLS LTD.
LONDON, N.7.
ENGLAND.

INTRODUCTION.

The Galahad has been specially designed for Radio/Control flying and it's qualities have been amply proved by the designer Mr. Frank Knowles who has flown several versions of this model in S.M.A.E. contests.

It is therefore, a thoroughly proved design whose performance is well established and when fitted with a suitable engine and Radio/Control equipment it's performance is right up to contest standard.

Recommended engines are from 1.5 c.c. to 2.5 c.c. and the Galahad can be fitted with either single or multi-controls.

Full details of a suggested installation for rudder only are included on the plan and the tailplane construction is such that the model can be readily adapted to rudder and elevator control. One of the most successful arrangements for beginners is the use of a compound escapement with single channel radio giving selective rudder control together with two speed engine control; but it must be pointed out that only an engine designed for two speed operation will give satisfactory results with this set-up.

Construction is straight forward throughout and the building of the model should present no difficulties as long as the plan is carefully followed. The following notes on the sequence of building are only given to assist proper use of the plan to be made.

FUSELAGE CONSTRUCTION.

1. Build two $\frac{1}{8}$" sq. side frames over the plan as outlined by the dotted lines on the side elevation of the fuselage. To ensure that these two frames are exactly the same size cut two sets of spacers before starting construction.

Note that the $\frac{1}{8}$" sq. frame extends from just behind former F.6 to the rear of the fuselage only. When dry remove these frames from the building board.

2. Stick the fuselage frames to the two rear 1/16" sheet sides and make sure that you have one left hand and one right hand side.

3. Join the front fuselage side and rear fuselage side together and complete the join by adding on the inside of each side the $\frac{1}{8}$" sheet doubler. Give this large cemented area plenty of time to set. It is best to leave them overnight with some weights on top of them on the building board to ensure a good joint.

Note that $\frac{1}{8}$" of the 1/16" side projects in front of the $\frac{1}{8}$" nose doubler so as to engage with former F.1.

4. Turn sides upside down over plan view of the fuselage and join with formers F.1, F.4 and F.6, with former F.1 overhanging the edge of the building board. Note that F.1, F.2 and F.4 have their upper edges flush with the tops of the fuselage sides and in the upside down position will therefore rest on the building board.

5. Join sides from F.6 to rear with $\frac{1}{8}$" x 3/16" spacers top and bottom. To make sure that your fuselage is symmetrical, cut your spacers in pairs to the correct length using the plan view of the fuselage as a guide before carrying out this part of the construction. The back end of the fuselage is joined by a scrap piece of quarter sheet tapered to fit.

6. Now build up the rear fuselage as follows. First cement F.7 and F.8 in place and add the two $\frac{1}{8}$" x $\frac{1}{2}$" spine members cementing firmly into the slots of these two formers. The rear ends are tapered 1/16" as shown on the plan. Cut your spacers for the rear upper fuselage from $\frac{1}{8}$" x $\frac{1}{2}$" strip making sure that the angles at the ends are correct and give you a clean neat join. Add all spacers pre-cementing every joint.

7. Complete fuselage construction by adding in tank floor and engine bearers at the front chamfering the engine bearers to take a plastic squeeze bottle tank, and finally add formers F.3 and F.5 and the shaped top fuselage sides. Complete planking to top of fuselage with $\frac{1}{8}$" precut sheet and lastly add $\frac{1}{2}$" sheet and $\frac{1}{4}$" sheet engine cowling sides.

Now add the 3/16" sheet bottom and F.9. Note that the bottom of the fuselage is left open at the wing position in order to give access to the radio batteries and receiver.

BUILDING THE WING.

8. This is quite straight forward as all the ribs are the same size, only the centre section ribs differing from the others in having extra clearance in the spar slots for the dihedral braces.

9. It is recommended that when the 1/16" sheet is cemented to the leading edges that you use a slow drying glue such as PVA as this gives a much better result than using Balsa cement which tends to dry off before all the joints can be completed.

10. Do not neglect to set the inner ribs at the correct dihedral angle by using a template cut to the pattern on the wing plan.

Cover with heavy weight model span and give at least three coats of clear dope.

COMPLETING THE TAILPLANE.

11. This is quite straight forward and the tailplane should be built directly over the plan. Note that the riblets are plain triangles cut from 1/16" sheet and cemented to the 3/16" sq. cross members.

12. If you do not intend to use the elevator controls the $\frac{1}{8}$" elevators should be stuck directly to the rear of the tailplane trailing edge.

13. Build up the fin and rudder over the plan and cement firmly to the centre of the tailplane.

14. Cover complete unit with heavyweight model span and give at least two coats of clear dope.

ASSEMBLING OF MODEL.

15. Complete assembling of model by covering fuselage with heavy weight model span on all surfaces including the sheeted sides and giving at least three coats of clear dope. Paint fuselage the colour of your choice and paint in dummy cabin windows of silver. Add wing retaining dowels through fuselage also the dowel for tail-plane fixing.

16. Join preformed wire undercarriage members together as indicated on plan and also make up and add the 18 SWG tail skid.

TRIMMING AND FLYING.

17. With model completely assembled and your engine and airscrew in place, check the position of the balance point which should be exactly on the main spar of the wing. The balance point position can now be adjusted by adding your batteries and receiver in the position in the fuselage which brings the C.G. to the desired position.

18. Test glide the model carefully before attempting any powered flights and make sure that wings and tail are free from warps and twists.

19. For your first powered flight with radio make certain that you have at least fifty feet of altitude before attempting any radio manoeuvres.

By carefully following the instructions on the plan and making certain that all your glued joints are properly precemented and therefore, sound, your Galahad should prove to be a tough and rugged model that will give you many hours of satisfactory flying time.

Finally, do not attempt to overpower your Galahad. We do not recommend that an engine of more than 2.5 c.c. should be used and as long as the weight of the completed model with radio does not exceed forty-five ounces it flies extremely well with an A.M. 15.

Good Luck and Happy Landings,

MERCURY.

RECOMMENDED ACCESSORIES FOR YOUR GALAHAD

Engine:	A.M. 15 or A.M. 25.
R/C equipment:	R.E.P. Unitone or Tritone. E.D. Black Arrow 1 or 4 channel.
Wheels:	R.M. 2" Sponge Wheels.
Cements:	Britfix Balsa cement. Lepage's P.V.A. or Britfix P.V.A.