



Designer Bob Wright with the prototype at a gusty Old Warden aerodrome in the year. 53. 1.2m span. 1.25h scale model requires .25 power units.

HM-18 Flying Flea

**Your free 'Superplan'!
Build Bob Wright's
delightful HM-18
'Flying Flea'**

When Henri Mignet's book *The Flying Flea*, was first published in England, I was a schoolboy and the Flea craze was at its height. Mignet wrote in a style of such infectious enthusiasm that many would-be aviators were encouraged to go into their backyards and start cutting timber! A large number of Fleas were thus started, but only a small percentage ever flew.

Sadly the Flea craze came to a tragic end in this country with the deaths of several pilots when their Fleas dived inexplicably into the ground. As a result of these deaths the Air League asked the Royal Aircraft Establishment to test a Flea in the wind tunnel at Farnborough. It was found that, at angles of incidence in excess of -15°, there was insufficient pitching moment to raise the nose. The Air Ministry thereafter banned all Flea flying, a ban which is still in force today.

In the last four years I have rebuilt and have been successfully flying John Derbyshire's 1/4 scale Flea. However, this is now twenty years old and a bit loose in the



A slight degree of scale sacrifice in the interests of silence...

joints. So, with 1993 marking the fiftieth anniversary of the first flight of the Flea and also the centenary of Henri Mignet's birth, I set about designing a new model. The scale I have chosen is 1/25th as it is also a fully rigged Flea may be fitted into an average sized car. The HM 18 benefits from the modifications incorporated by Abbott-Barrow Aircraft of Farnham, Surrey. A 10hp Ford

engine adapted for aircraft use, a larger span wing and pushrod operation of the wing are the main differences.

Those familiar with this particular version of the Flea will notice that I have made one or two minor departures from scale. For example, the radiator is operated by a stuble inside the fuselage, the external cable to the rear wheels being a continuous tree-creeping



Twin 1in dia. ballbeats pivot with rubber cable is a dandy.



Plenty of space inside! Note how strut anchorages.

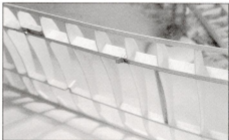
closed-loop. Perhaps the most significant departure from scale is the provision of two wing pivot points instead of one. These are out of sight and do not detract from the scale appearance.

Construction

Why not start with the rudder? The drawing is self-explanatory. Use light wood because the twin tail wheels add weight just where you don't want it. Next you may as well tackle the wings. These cannot be built over the plan as normal. The Flea is different - *Flea de D'Glowen!* The curved spars are landmark as shown. The wood must be well steamed to the curve, planed down over the plan and left a few days to settle permanently to shape. The spars are then mounted upright on the bench with the rib positions marked on them. Assemble the ribs to the spars and glue well.

Next fit the leading and trailing edges. These you will probably be able to do without steaming, depending on your choice of wood. The tips are cut from sheet balsa and should present no problem. Now add the compression struts and the hard points for the ailerons, pushrods, bracing wires and rear wing securing bolts. It is essential for the front wing to be wire braced but the rear wing does not need working rigging.

Now cut out all the fuselage formers and bend up the upper wing wire supports. Attach these to F1 and F2. Glue F1 to F2 making sure that they are absolutely square. The next bit is rather tricky. What you have to do is glue the thin ply doublers to F1 and F2 and at the same time glue F3 in position.



Rigging and strut points, plus rigging plate, are visible in this shot of the uncovered wing.



Tip construction close-up: wing rocks for push-overs!

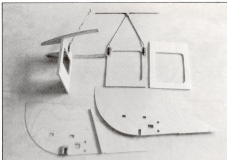


The Flea ticks past in convincing style: model can be trimmed easily to fly hands-off!

- and of course it must be all fair and square. If you get this bit right then the rest of the model will be right so... take care.

At this stage it is a good idea to make up the wing incidence cross-shaft and levers. You can then carry out a trial fit of the mechanisms together with the servos to see that it all lines up properly. If all is well, cut the sheet balsa: sides, noting that there are two pieces each side, but joined where the grain changes. Glue the sides to the ply assembly, insert F4 and draw in the top and bottom to complete the fuselage.

Rather than go to great lengths describing the way the a/c, engine, tank and so on are fitted, I have made, I hope, sufficient notes on the drawing to enable the



Main ply fuselage components: two ply doublers (foreground) and 1/8 horn.

average modeller to complete these items satisfactorily.

There is only one colour scheme for this Flea and that is silver with black lettering!

Rigging

The rear wing is hinged to the fuselage and should need no adjustment. Set the top wing so that the gap between its trailing edge and the top of the rear wing is 2/32". Movement of the wing should not exceed 1/8" up and down. Balance the model as shown on the plan. Rudder movement in the air is minimal but for best steering on the ground more will be required.

Flying

Experiment with short hops on a day with a light wind. Remember that, with such a vast moving surface, only tiny movements of the stick are necessary. It is best to use the throttle to ascend and descend, regarding the stick as a trim control. With patience the Flea can be trimmed to fly hands off.

The only other advice I can give is to read the history of Mignet and his Fleas because, if you build one, it will attract a great deal of interest from both modellers and the general public. In fact, you'll be talked.

How clever was I said!



Main and horn strut close-up; the 'Superplan' gives all the dimensions and rigging details.



WHATS AVAILABLE FROM SOLARFILM

At the Sandown show many modellers complained to us that (according to their model shops) some products were no longer being made (e.g. Solarspan, Fibrofilm, Glossite) or that some colours were no longer available. Below is a complete list of all products and their colours. All are in production now. No shop can stock every colour BUT can obtain them to order from the wholesalers. If you have difficulty in obtaining any of the colours or products please call us PHONE - 0257 267418 Fax - 0257 271283 for a mail order quote.

SUPERSHINK	SOLARSPAN	SOLARKOTE	GLOSSITE	FIBROFILM
White	White	White	White	White
Cub Yellow	Cub Yellow	Light Yellow	Yellow	Yellow
Light Red	International	Dark Yellow	Dark Yellow	Orange
Light Blue	Orange	Light Orange (F)	Orange	Red
Blue	Red	Red	Red	Blue
Fluorescent Red	Dark Red	Dark Red	Dark Red	Aluminium
Fluorescent	Light Blue	Light Green	Light Blue	
Yellow	Flag Blue	Pastel Blue	Green Blue	
Antique	Cream	Light Green (F)	Cream	
Dark Green PCB	Black	Taxi Blue	Dark Blue	
Olive Drab	Metalflake Red	Heather	Silver	
Antique	Metalflake Blue	Trident	Blue	
Natural	Metalflake Silver	Black	Dark Green	
Vintage Yellow	(all above in Solartint)	Clear	Antique (Cream)	
Vintage Red		Aluminium	Black	
Vintage Blue		Neon Yellow	Silver	
Silver		Neon Red		
		Neon Green		
		Neon Orange		
		Neon Pink		

SOLARFILM COLOUR	SOLARLAC PAINT	SOLARTRIM
White (S)	Yes	Yes
Yellow (S)	Yes	Yes
Dark Yellow (H48)	Yes	Yes
Light Orange (F)	td	Yes
Orange (S)	Yes	Yes
Red (S)	Yes	Yes
Dark Red (S)	Yes	Yes
Pastel Green (S)	td	Yes
Light Green (F)	td	Yes
Dark Green (H32)	Yes	Yes
Pastel Blue (S)	td	Yes
Tropic Blue (S)	Yes	Yes
Lux Blue (S)	Yes	Yes
Meridian Blue (R)	M	Yes
Ocean Blue (S)	-	Yes
Dark Blue (H24)	Yes	Yes
Silver (S)	Yes	Yes
Black (S)	Yes	Yes
Heather (S)	-	Yes
Blackberry	-	Yes
Clear	-	-
Transparent Yellow (S)	-	-
Transparent Red (S)	-	-
Transparent Blue (S)	-	-
Metallic Green (S)	-	Yes
Metallic Blue (S)	-	Yes
Metallic Gold (S)	-	Yes
Fluorescent Yellow (S)	-	Yes
Fluorescent Red (S)	-	Yes
Fluorescent Green (S)	-	Yes

(M - see Mixing Chart)

WHAT ARE THEY

- SOLARFILM** - The original British iron-on plastic film covering
- SOLARTRIM** - self-adhesive trim film - cut-out, peel off, press on
- SOLARLAC** - fast-drying paint, in Solarfilm & Solarspan colours
- LITSPAN** - super strong, iron-on covering to replace tissue & dope
- BALMISOL** - white emulsion that dries to a clear heat-seal adhesive
- SOLARKITE** - iron-on fabric covering for maximum strength and toughness
- SOLARSPAN** - stronger, tougher version of Solarfilm
- CLARICONT** - resin solution to fast-dry wood before covering or as a clear finish on Solarkite
- SOLARKOTE** - polyester iron-on film for extra strength and stiffness
- QUANTITE** - Solarite with a fast-drying high gloss paint finish - the ultimate iron-on fabric

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