MW9B NOTES

1 All dimensions in mm unless the component is a standard imperial size, where dim is in inches.

2 Aluminium tubes to be free from radial cracks formed during extrusion, polish out any light scratches with fine wet and dry emery paper.

3 Degrease all metal parts and paint prior to assembly. Aluminium parts with etch primer to DTD5555 or equivalent, steel parts with zinc chromate primer inside and out.

the joint.

5 To keep costs down commercial materials have been used in the design. Bolts must have a uts of 50 T/sq in. suitable commercial HT bolts have 8.8 stamped on the head. Pop rivets Aluminium DIN 7337 See table for grip lengths.

6 All nuts to be plated stiffnuts unless shown otherwise

7 all sheet bending to be 3x thickness, inspect for cracks afterwards.

8 Remove all sharp edges and de burr holes.

9 Wood joints to be glued with Aerolite 306 or equivalent

10 Where dimensions are not shown, scale size and location from drawing.

11 Alternative material specifications.

Aluminium alloy

6082T6, 6061T6

Steel

S514, T45, 4130

MS mild steel. FG Fiber glass. Resin polyester A. FG cloth

Adhesive JB Marine Weld.

12 Paint all wood surfaces with two coats of red oxide dope.

13 fabric Ceconite 101 or equivalent. Fix with 3 coats of Super seam fabric adhesive thinned with red dope. Pull fabric tight and activate cement with acetone applied all-round the outside edge. Do not activate the ribs yet, otherwise they could be pulled over when the fabric is shrunk. When shrunk activate all the contact areas. When dry give the surfaces a coat of thinned low taught red dope. If drips occur suck them out with a vacuum cleaner. Apply a second coat of red dope, then a coat of silver dope to protect from UV light. It is recommended that the first coat is nitrate dope as it adheres better followed by a coat on butyrate dope. Apply colouring. I used water-based paint applied with a roller with some spraying on plank 1.

14 Wood

Wood used should be straight grained and knot free. B&Q hardware stores stock good quality smooth spruce in the sizes used on the MW9, be selective. Douglas fir would be the next choice to spruce

Birch ply WBP (Weather and boil proof) and the lighter okoume marine ply to BS1008 is used. Robins wood yard in Bristol

15 Foam

25mm 1 in polyurethane insulation foam is usedPIR35C5. Comes in 1200x600mm sheets. Density 35 Kg/cu M.

If it has paper on the face peel it off. 8 sheets required.

16 Resin

2 5KG cans Polyester resin A and catalyst

17 Fiberglass

25, 50,100mm wide rolls of FG tape, 10 M 50mm Kevlar tape. 7 M 50mm Carbon fibre tape.

20M 135 g/SQ M and 10M 300 g/SQ M woven roving FG. 2M 600g Sheet chopped strand. Tin of loose chopped strands.

1 Kg Fillite microballoon powder.

18 Dimensions

Check drawing dimensions against the interface it is to mate to and adjust to fit if necessary.

19 Centre of gravity location

**The CG location on Plank aircraft is fairly critical and the allowable range is small.**

The ideal C of G is 20% of the wing chord aft of the wing LE. So far, the prototype has been flown by 4 pilots weighing 86 to 70 Kg giving a CG range from 19.8% C to 21.5% C without any noticeable difference in handling. Other planks have been tested from 18% C to 22%C.

A simple way to set the CG as shown on drawing MW9-3.

20 Wing assembly notes.

Slide the wing into the fuselage centre tube. Locate the rear spar in the support cross tube and insert the attachment pin. lift the wing at the tip until the greased main spar pin slides through the spar tube. Do not forcibly hammer the pin, you could damage the bush.

Insert the elevon drive bushes through inboard drive plate holes, insert the bolts, tighten the castellated nuts and fit the spring locking clip.

Fit the tip fins and tighten the attachment nuts, secure with spring clips, insert the cable attachment cotter pin through the rudder horn and secure with a spring clip. Latch the door shut. Connect the rudder cables at the wing root and tighten the fitting.

Hook the lower root fairing plate over the wing TE and feed over the LE. Pull round and hook the bungee springs through their corresponding attachment plates from front to back. Fix the fairings together with 3 bolts at the rear. Fit a self-tapping screw at the cusp location.

Material list main items

Aluminium alloy 6082T6 or 6061T6

Tube

4” diax16SWG (100x1,6mm) 3 off 4M lengths

1.5” dia x 16SWG (38x1,6mm) 3 off 3M lengths

1” dia x 16SWG (25x1,6mm) 3off 3M lengths

5/8” dia x 16SWG (16x1,6m) 2 off 3M lengths

4.5” dia x 1/8 wall thickness length 1,1 M

Plate

SQ Ft 10SWG

SQ Ft 16 SWG

SQ Ft ¼”

Angle 1”x1” x 1/8” 2 Ft

Channel 2”x1”x 1/8”x 2 FT



Steel tube t45 4130

1 ¼ dia x 16 SWG x 1.5 Ft

12 various small bore bushing tube

1”x1” x 1/16” Square tube 3Ft mild steel

Plate S514 4130

SQ Ft 16 SWG, 10 SWG

Polyurethane Foam

10 sheets 8 x 4 Ft x 1” 32g/cu M

Wood

4 shts 8x4 Ft x 1/16” Okumi marine bly BS 1088

1 sht 8x4 WBP Birch ply

18 10x10mm x 2M slotted spruce (douglas fir) cap strips

4”x16 SWG 6082T6 tube can be obtained from Aluminium Warehouse, 08005200729

They advise self-collection to avoid damage.

A limited supply of 4” dia tubing is available at low cost from John Barker Protech Engineering 01953 453666