NOTHING FLIES LIKE A MEISTER

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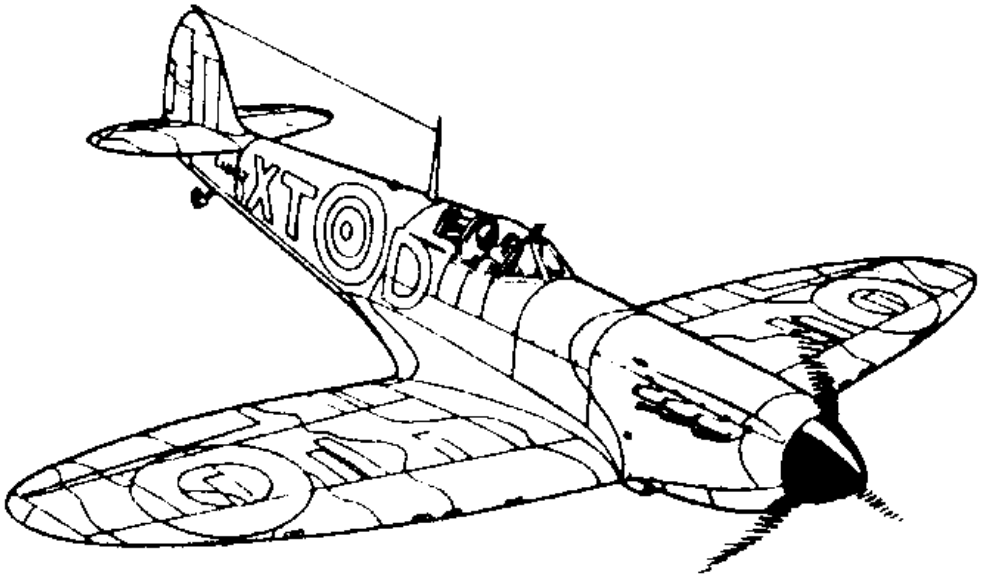
96” WING SPAN

SPITFIRE



THIS IS A VERY EASY PLANE TO BUILD

GENERAL INSTRUCTIONS

Should you elect to use the recommended "Door Skin," which is 1/8" mahogany plywood measuring 36" x 88". Have it cut into 12" strips 44" long for ease of handling.

You can make all of the bulkheads and half of the wing ribs (W-1 thru W-6) from this material at a small increase in weight and a substantial savings in balsa costs. The parts in the plans specifying "Door Skin" or "D.S." are so designated with weight in mind. If you plan on using a fairly heavy engine, consider using the heaver D.S. material aft of the C.G. to help the balance of the model.

The model with retracts and a S.T. 2000-3000 engine should weigh about 14-15 lbs.

1. Use aircraft type lock nuts with 1" x 8/32" bolts. Install bolts (with washers) upside down so the nuts on the top of the engine lugs. You will have to hog out some of the maple beam to clear engine bolts.

2. The model balances on the spar location. Do not attempt radio installation until model is completed in its entirely.

3. If you choose a Saito 120 or 150. Be prepared to add lead.

4. Use a 10" x 32" oval head counter sunk bolt to secure the spinner. Adapter nuts for most engines are available from your hobby shop or Tru-Turn. Ask for C.B. Associates adapter nuts.

   Note: If you are using a large engine requiring a large prop resulting in a large cutout in the spinner, please do the following:

   A. Install a maple block or a metal "L" bracket to the spinner plate on each side of the prop area.

   B. Screw thru spinner to these parts. This will keep the spinner from spreading over the spinner plate.

FUSELAGE

1. If you do not have power saws, we recommend the use of a "Stanley" Utility Knife. It really cuts through easily.

2. Cut the fuselage templates from the sheet and tape or paste to the appropriate wood. Glue the wood sheet s for FS-2 and FS-3 together before cutting to shape.

3. Join the FS-1 to the FS-2-3 assembly using the D.S. doubler (see side view). Use straight edge to the top of these parts to insure a straight edge. Note: Place the

side parts as shown in the perspective view to insure you make a left and right side. (Do this before installing the D.S. doubler.)

4. Install the 1/8" x 1/4" balsa to the top of fuse sides with the 1/16" above the sides as noted. Install the 3/8" triangle to the lower area. Install the 1/8" doubler behind F-9. Install the tail post.

5. Install the 1/2" x 1-1/16" x 6-1/4" blocks to the nose area. Be sure to have the 1/8" clearance at the front. Install the 1/2" x 4" x 19-7/8" wing saddle doubler. It meets the bottom of the notches for bulkheads F-4 & F-5. See plans. Cut to the wing curve and remove excess.

6. Install bulkheads F-2 thru F-5 at 90° to side. Use temporary balsa 90° braces to hold F-2 and F-5 square. (Don't forget the fuel tank floor.)

7. Install the right side on to the left side. Use a 90° square against the sides to check proper location. Do this all around the assembly. When satisfied, glue the bulkheads.

8. Wrap a rubber band around the fuselage ends. Loosely install the bulkheads F-6 thru F-9.

9. If you don't have a fuselage jig, try this:

    A. Draw a straight line on your bench 48" long.

    B. Put a center mark on the bottom area of F-3 and F-6. Set the fuselage over the 48" line. Screw, glue or clamp blocks on each side of F-3 – F-6 against the sides.

    C. Be sure the center marks on F-3 & F-6 are right on the line. Use a 90° square at the fuselage ends and position on the line. Move the ends until alignment is secured. Use additional rubber bands if needed.

    D. When satisfied, glue the ends and bulkheads.

10. Install the F-1 to the 1/4" ply engine mount plate per illustration. Glue the 3/8" x 3/4" x 5-3/4" maple pieces to the bottom of the engine mount plate flush to the engine clearance edge. This block receives the #8 x 1" sheet metal screws that secure the 3/8" x 3/4" x 3" engine mount blocks.

11. The assembly now installs to the bottom of the 1/2" x 1-1/16" x 6-1/4" nose blocks. Clamp the fuselage sides against F-1. Important: A piece of triangle or 1/2" block should be glued to the bottom of the engine mount plate and the fuselage side to help secure the assembly.

12. The balance of assembly is pretty obvious. Therefore, only helpful hints will be listed.

    A. Install your control system now before the bottom is installed.

    B. Make up your scale tail wheel assembly and install.

    C. Construct the removable nose cowl in place to insure a good fit.

    D. Note that there isn't much area of the fuselage for the horizontal stab to glue to. Consider filing the area between the sides with balsa, add 3/8" triangle to the outside of sides, or all of the above, and underneath strut braces if you are using a large engine and like to perform full throttle Snap rolls. Take heed.

    E. Don't forget the lower nose block shaping template when sanding these blocks.

    F. The nose cowl is held in place with screws through hard wood blocks at F-1 and F-4.

BUILD RIGHT WING FIRST

1. A wing separation feature for ease of storage and transport is incorporated in the design. You must decide now if you want to use this feature. Procedure for separation will follow later.

2. Fabricate the "Spar Brace" from Douglas Fir or 1/2" plywood. Wing separation feature requires the width to be reduced by about 1/64" to allow ease of removal and installing to the wing. Put rib angle marks on the center area.

3. Make up the front sheets Part A and Part B. Four required. See left wing plan for specifics as all directions are on this plan.

4. Make up T.E. (Trailing Edge) sheets Part C and Part D. Four required. Decide which side of the sheets you want to face outward. Mark appropriately and be sure the tape referred to on plans is on the outside.

5. Epoxy the W-1A and 3/8" dowel to the W-1's. Lay the W-1's opposed to each other to insure a right and left W-1. If wing is not to separate join the W-1s on a flat surface now.

6. Put wax paper over right wing plan. Pine the bottom sheets and cap strips to the right wing plan. Don't forget the 3/32" balsa aileron servo frame part. (See right wing notes.) Install the 1/4" x 1/2" bottom spar.

7. If wing separation is desired, weigh the "Spar Brace" in place on top of the bottom spar. Install the wing bolt doubler to the Part D.

8. Pin ribs W-1 thru W-6 in place. Place optional gear blocks into W-3 and W-4.

9. Cut the 1/4" x 1/2" "Mid Spar" pieces between the ribs and pin to Spar Brace (or tape in place).

10. Cut the 1/4" x 1/2" x 1-1/2" pieces that install to the top of the "Mid Spars." (See "Spar Brace Detail" on plans.) Glue these pieces to the ribs and "Mid Spar." This method secures the "Mid Spars" while avoiding getting glue on the "Spar Brace" which would not allow removal of the "Spar Brace." If going for one-piece wing, glue all parts as you assemble them.

11. Remove the "Spar Brace." Glue the "Mid Spar" parts to the ribs.

12. Locate the T.E.-1 and T.E.-1A parts. Study the cross section shown on the left wing plan. Glue the T.E.-1 and T.E.-1A to the 1/4" x 1/2" x 20-1/4" T.E.-2's. Note: The crown of the T.E.-1 and T.E.-1A is to the top.

13. Decide the amount of space you will need for your hinges between the aileron and the wing. Glue the T.E.-1 assembly right on the cut line of T.E. Part "C" and "D."

14. Place a piece of wood the thickness of your required hinge gap against the T.E.-1 assembly.

15. Place T.E.-1A assembly next to hinge gap spacer and glue to aileron part of Part "C."

16. Install Ribs W-6 thru W-12 and aileron ribs W-6A thru W-11A. Note: You will have to put notches into the top of the 1/4" x 1/2" T.E.-2 part for a few of the aileron ribs.

17. Install the top sheet part C-D. When set, remove tape from the aileron. It should fall free.

18. The bottom corner of the 3/8" sq. L.E. must be sanded before bottom sheet A-B is glued to the L.E. – wherever the bottom corner protrudes past the rib, this is the area.

19. Glue the top A-B sheet to the top spar. It must be placed on the center of the spar.

20. Here is a suggested method of gluing the top sheet to the L.E.

A. Put 4” strips of masking tape on the top sheet every 2”.

B. Place the wing on the bench with the L.E. near the edge of the bench.

C. Put weighs on to the wing to insure that it is laying flat on the bench.

D. Apply white glue to needed areas.

E. Pull sheet down and wrap tape around L.E. to bottom sheet.

F. Be sure wing stays flat at this operation.

21. Repeat all of the above for the left wing.

22. If you opted for the separating wing feature you will need a 1/16” x 1” x 4” piece of plywood with two 1/4” diameter holes 3” apart. This part installs under the 1/4” x 20” x 2” wing hold bolts and serves to keep the trailing edge of the wings together.

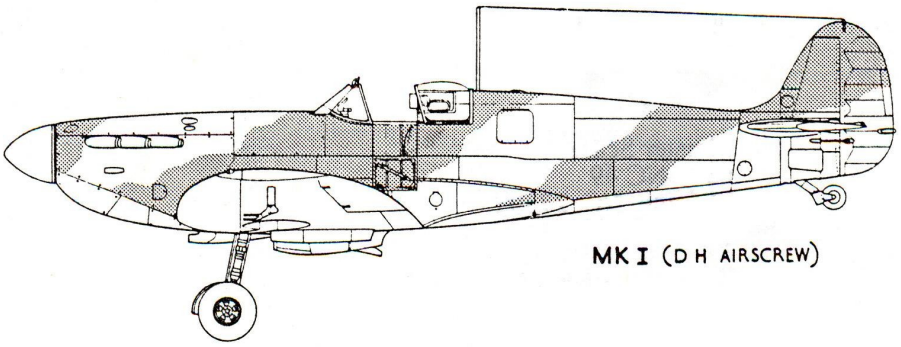
FLYING

1. The flat bottom wing and low weight of the “Spitfire” definitely put it into the “Fun Scale” category.

2. Set the ailerons and elevator at 3/4” thru each way. The rudder at 1-1/2” each way.

3. If you fly off of grass, be sure your gear is far enough forward to avoid tip over.

4. The take offs usually occur way before you expect them and the landings way after. Suggest partial throttle during take offs and a tail low landing until you are better acquainted with the characteristics of the Fun Scale concept.



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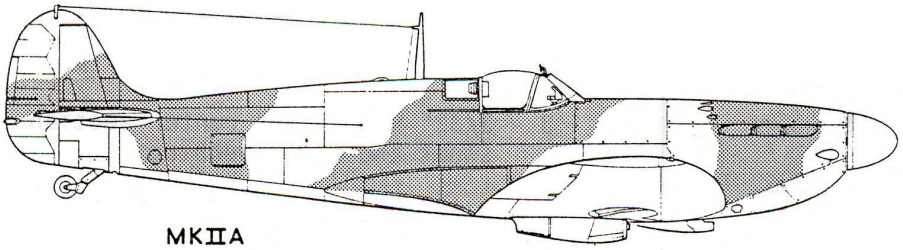

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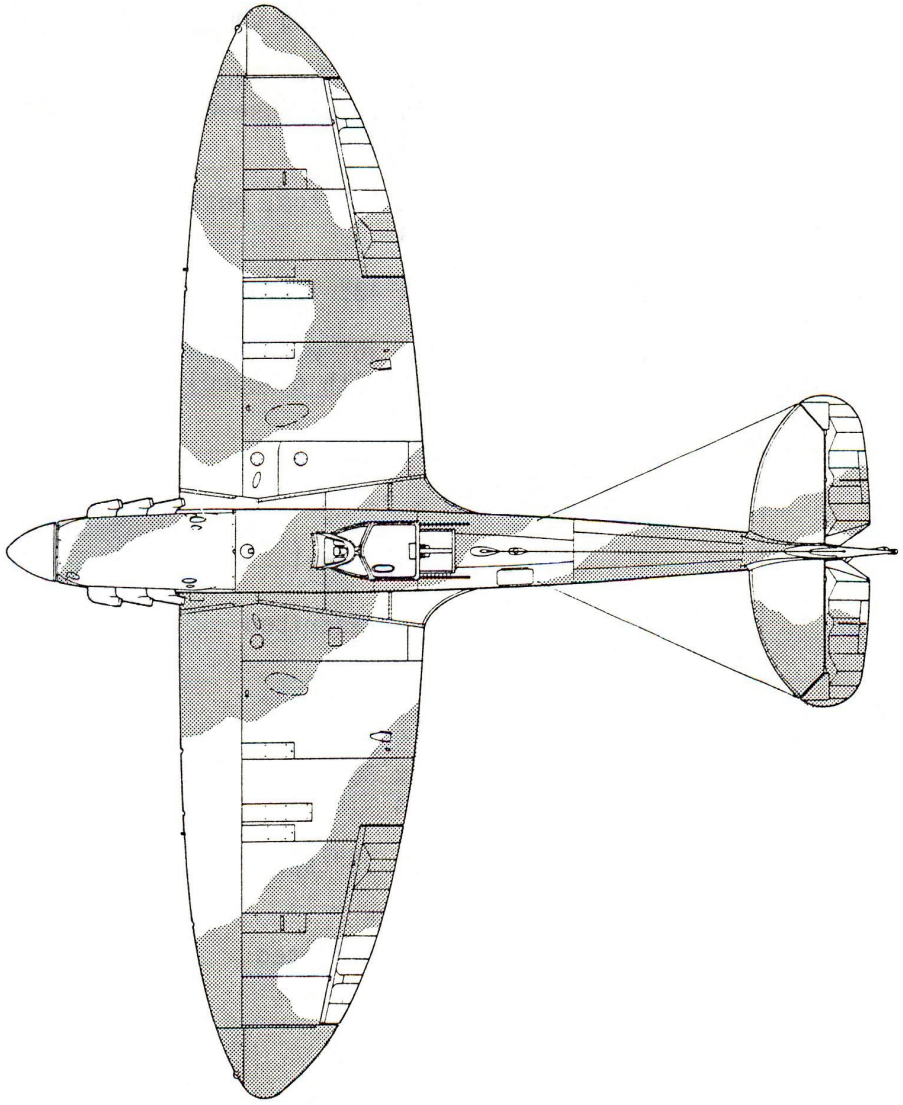

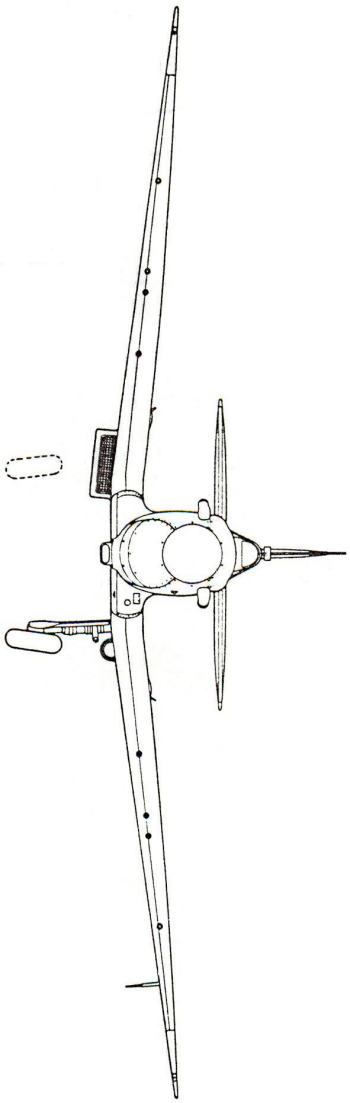

"SPITFIRE"

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Wood Bill of Materials

Fuselage Balsa

1 - 3/32" x 4" x 36" top nose plank

3 - 1/8" x 1/4" x 36" stiffeners

3 - 1/8" x 3" x 36" F.S. 4, F-6, 7, 8, 9, 10 and cockpit floor

2 - 1/8" x 4" x 36" F.S. - 2A and F.S. - 3

2 - 1/8" x 4" x 48" F.S. - 2

1 - 1/4" x 1/4" x 36"

2 - 3/8" triangle x 36"

2 - 1/2" x 4" x 36" wing saddle doubler, nose blocks, turtle deck blocks

1 - 1" x 3" x 36" upper and lower nose blocks

Fuselage Hardwood

1 - 1/8" x 36" x 88" door skin

1 - 1/4" x 6" x 12" aircraft ply for engine mount plate

2 - 3/8" x 3/4" x 12" maple engine mount

Wing Balsa

8 - 3/32" x 1/2" x 36" Cap Strips

3 - 3/32" x 3" x 36" center section sheet and shear webbing

2 - 3/32" x 3" x 48" wing sheet "B"

6 - 3/32" x 4" x 36" wing sheet "C"

4 - 3/32" x 4" x 48" wing sheet

12 - 1/8" x 3" x 36" ribs - Note: refigure this if you use D.S. for larger ribs

7 - 1/4" x 1/2" x 48" top, bottom and mid spars

2 - 3/8" x 3/8" x 48" leading edge

1 - 1-1/4" x 2" x 36" wing tips (not required with clipped)

Wing Hardwood

2 - 3/8" dowel x 3-1/4"

4 - Gear blocks optional

1 - spar brace as described

Tail Feathers

2 - 1/4" x 1/2" x 36" ribs, R-2, R-3 and E-2's

2 - 1/2" x 1/2" x 36" spars

1 - 1/2" x 3" x 36" all other as indicated