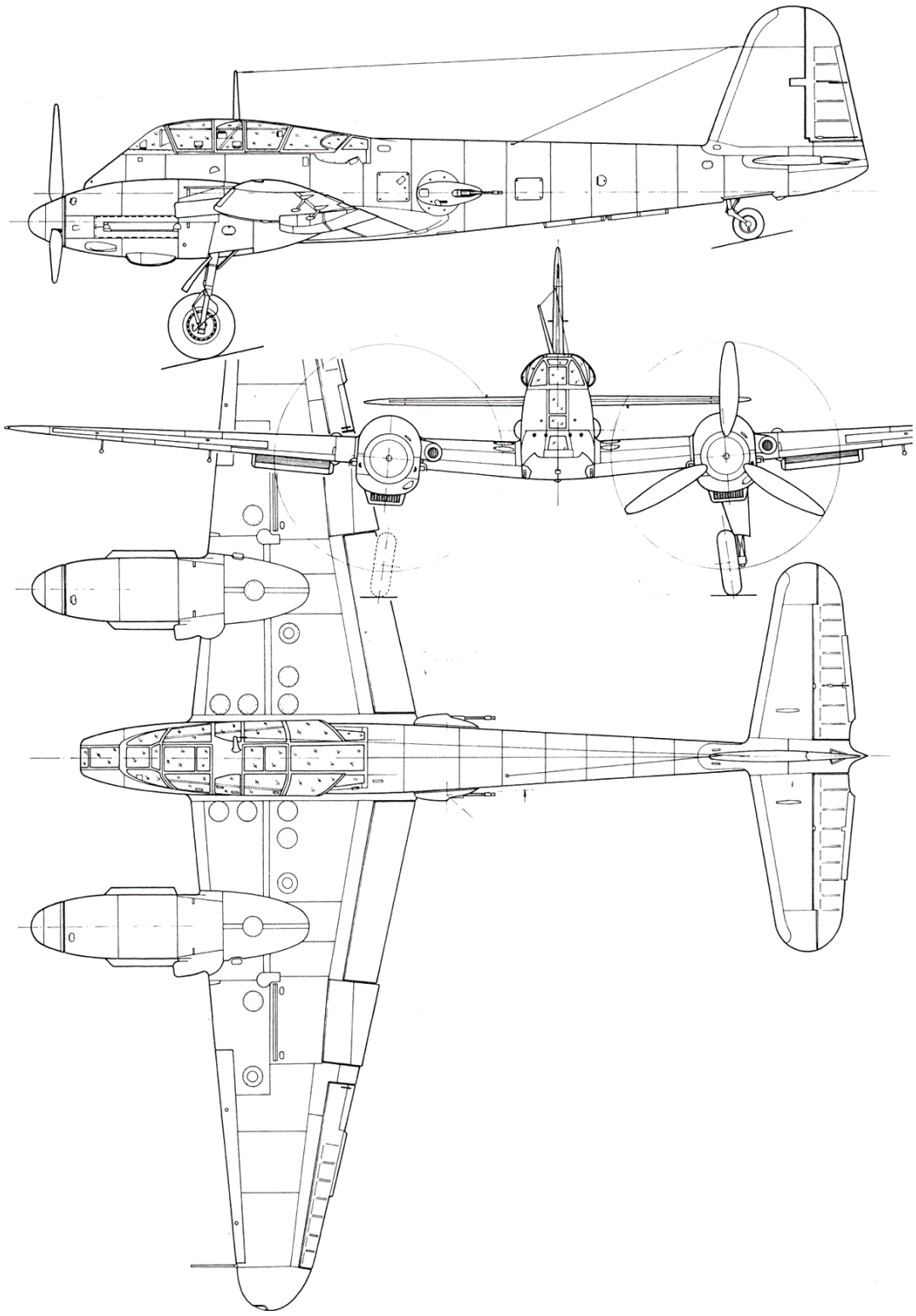
Messerschmitt Me-410

Construction Guide

By: Tony Lewis



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A note from the designer.

Though I try to keep my designs true in outline and proportions, I also try to make my planes simple to build and very flyable. They are not intended to be museum scale or competition level planes, but rather sport scale planes that can be detailed as little or as much as the builder chooses. They are not entry level projects, but should not be too difficult for any experienced builder. This guide is to help aid you in understanding how I intended this plane to go together. This does not mean that it is the only way it can be done, just that this is how I would do it for myself. It does not cover every detail of building this plane, just how to build the basic airframe. All mechanics and finishing is up the builder. Thank you for your interest in my design and I hope you enjoy the plane.

-Tony Lewis

Wing Panel Construction

Please note that the wing panels build upside down over the plans.*

- Preassemble ribs W3 & W3A, W5 & W5A, W6 & W6A, and W11 & W11A. Make sure you make a right and a left of each assembly.
- Pin down plans and cover with waxed paper.
- Pin down the top 1/4" x ½" spruce spar
- Preassemble without glue, WS1, WS3, and ribs W3 through W7. Place this assembly over the top spruce spar and align with the plans. Once everything is aligned, glue all joints.
- Slide the aluminum wing tube sleeve into place and glue into the wing center section. Trim the tube flush with the outside face of rib W7.
- Slide the wing tube into the sleeve.
- Preassemble without glue, WS2, WS4, and ribs W7A through W12. Place this assembly over the top spruce spar, onto the aluminum wing tube, and align with the plans. Once everything is aligned, glue all joints.
- Glue the aluminum wing tube to rib W8 and W9. Wait to glue it to W7A to avoid gluing the outer panel to the center section and/or gluing the wing tube to the sleeve.
- Add the two anti-rotation dowels to rib W7A being careful not to glue W7 and W7A together.
- Add ribs W13, 14, and 15.
- Laminate WJ1 to the front and WJ2 to the back side of WS1 at the wing root.
- Add ribs W1, W2, and W2A.
- Add the 1/4" x 1/2" spruce front bottom spar and the 1/4" square spruce aft bottom spar
- Add the top and bottom 1/4" square balsa flaps spars.
- Add rib W2B.
- Apply the 1/8" balsa sub leading edge. Also apply the 1/8" trailing edge cap between ribs W1 & W2.
- Laminate LG1 to each side of WS1 between ribs W5A and W6A. Cut the bottom 1/4" x 1/2" spruce spar to allow them to fit tightly against WS1. Trim away WS1 from the middle of the gear opening in LG1.
- Glue LG2 in between ribs W5A and W6A.
- Glue the two 3/8" x 1/2" hardwood landing gear rails into the notches in LG1 & LG2. The outside rail should be tight against W6A.
- Mount your retract unit. I prefer to use sheet metal screws as they are strong enough to withstand abuse, but will tear out before tearing the wing apart.
- You landing gear leg should be perpendicular to the bench when in the extended position. The legs angle slightly outward when sitting on the ground.

- Frame to openings for the servo access hatches with 1/4” thick balsa sticks.
- Sand the bottom surface of the wing smooth.
- Sheet the bottom of the wing with 3/32” balsa.
- Remove the wing from the bench and turn over.
- Cut the outer panel free from the center section.
- Glue the aluminum wing tube to rib W7A.
- Add the wing panel retainer of your choice to hold the outer panel to the center section.
- Sheet the top of the outer panel with 3/32” balsa.
- Apply 1/4” balsa to the back face of the aileron bay.
- Add the 3/8” leading edge and balsa wing tip.
- Sand the outer panel to shape.
- Repeat the previous procedure to build the second wing half.
- Join the two center section panels. Make sure you slide the wing bolt plate into place when doing this. With the bottom of one panel flat on the bench, the bottom of W7 at the main spar should measure 4-13/16” from the bench.
- Add WJ3 to the front of the center section to reinforce the wing joint.
- Glue the wing bolt plate into place.
- Add balsa blocking to the top of the wing bolt plate to bring it flush with the top of the ribs.
- Sheet the top of the wing with 3/32” balsa.
- Cut the flaps free from the center section.
- Sand the sheeting and ribs flush with the backside of the aft spar/WS3 and the front side of the flap spars.
- Add 1/4” balsa to the back face of the flap bays.
- Add the 1/2” balsa leading edges to the flaps.
- Add the 3/8” leading edges to the center section.
- Add a balsa block to the trailing edge of the wing at the center section.
- Sand the center section to shape.

Aileron Construction

- Lay the 1/8” balsa aileron base down over the plans.
- Glue WS5 to the tops of the aileron bases.
- Add the 1/8” balsa top ribs.
- Add the ¼” balsa end ribs.
- Cut the two innermost ribs back and frame face off the ends with 1/8” balsa for the trim tab.
- Fill in the trim tab area with balsa. Leaving a small gap between the tab and 1/8” ribbing will help with the illusion of a functioning tab.
- Turn the ailerons over.
- Glue WS6 to the bottom of the aileron base.
- Add the ribs and trim tabs same as you did on the top side.
- Add the ½” balsa leading edge
- Sand the ailerons to shape.
- Add reinforcement where necessary for mounting a control horn. Horn selection and location to be determined by builder.

Stab/Elevator Construction

- Pin down plans and cover with waxed paper.
- Lay the bottom 1/8” x 1/4" spruce spars in place.

- Add ribs S1 through S8 in place over the plans.
- Add the top 1/8" x ¼" spruce spars and pull the lower spruce spars up into their notches.
- Once everything is aligned, glue all joints.
- Add the 1/8" balsa sub-leading and sub-trailing edges and sand to top edges flush with the ribs.
- Sheet the top of the stab with 3/32" balsa
- Remove the stab from the bench and turn over.
- Remove the alignment tabs and sand the bottom surfaces flush with the ribs.
- Sheet the bottom of the stab with 3/32" balsa.
- Add the 3/8" leading and trailing edges.
- Add 1/4" balsa to the back face of the elevator bays.
- Add the ½' balsa block to the outer portion of the elevator bays.
- Add the balsa stab tips.
- Sand the stab to shape.
- Place the elevator bases over the plans.
- Add SS1's to the top sides of the bases.
- Add the 1/2" balsa leading edge blocking to the top sides of the elevators.
- Add the balsa elevator tips to the top sides of the bases.
- Add the 1/8" balsa ribs and 1/4" balsa root rib to the inside edges of the bases. All ribs are perpendicular to SS1.
- Cut the ribs back and face off the ends with 1/8" balsa for the trim tab.
- Fill in the trim tab area with balsa. Leaving a small gap between the tab and 1/8" ribbing will help with the illusion of a functioning tab.
- Turn the elevators over and repeat the assembling procedure for the bottom sides.
- Add the 1/4"x1/2"x1" balsa hinge blocks to both sides of the base.
- Sand the elevators to shape.
- Locate the hinge locations on the stab using the elevators as a guide.
- Drill a 3/16" hole (if using Robart Super Hinge-Points) in both the rudder and fin at each hinge location.
- Add reinforcement where necessary for mounting a control horn. Horn selection and location to be determined by builder.

Fin/Rudder Construction

- Pin down plans and cover with waxed paper.
- Assemble VS1 and ribs V1 through V7 over plans. There are tabs on each part to help maintain alignment. Once everything is aligned with the plans, glue each rib to VS1.
- Add the right side 1/8"x1/4" spruce spar.
- Add the two sections of ¼" thick balsa trailing edge.
- Add the 1/8" balsa sub leading edge.
- Glue the 1/2"x1/2"x1" balsa hinge blocks to the front side of the 1/4" balsa trailing edge.
- Add the 1/2"x3/8" balsa block at the bottom corner of the rudder opening.
- Sand the trailing edge, sub-LE, and 1/2"x3/8" balsa block flush with the ribs.
- Sheet the right side of the fin with 3/32" balsa.
- Remove the fin from the bench and turn over.
- Remove the alignment tabs and sand flush with the ribs.
- Add the left side 1/8"x1/4" spruce spar.
- Sand the trailing edge, sub-LE, and 1/2"x3/8" balsa block flush with the ribs.
- Sheet the left side of the fin with 3/32" balsa.

- Add the 3/8” balsa leading edge and the balsa rudder tip.
- Sand the LE and tip to shape.
- Place the rudder base over the plans.
- Add V8, V9, and VS2 to the right side of the base.
- Build-up the balance tab with balsa to match the thickness of V8 & V9
- Add the balsa rudder tip to the right side of the base.
- Add the 1/8” balsa ribs and ¼” balsa bottom rib to the right side of the base. There are tick marks on the plans extending past the trailing edge of the rudder to help locate these ribs. All ribs are perpendicular to VS2.
- Cut the ribs back and face off the ends with 1/8” balsa for the trim tab.
- Fill in the trim tab area with balsa. Leaving a small gap between the tab and 1/8” ribbing will help with the illusion of a functioning tab.
- Turn the rudder over and repeat the assembling procedure for the second side.
- Add the 1/4"x1/2”x1” balsa hinge blocks to both sides of the base.
- Sand the rudder to shape.
- Locate the hinge locations on the fin using the rudder as a guide.
- Drill a 3/16” hole (if using Robart Super Hinge-Points) in both the rudder and fin at each hinge location.
- Add reinforcement where necessary for mounting a control horn. Horn selection and location to be determined by builder.

Fuselage Construction

- Pin down plans and cover with waxed paper.
- Locate the fuse keel pieces (FK1-FK4), pin them to the bench in their proper locations
- Use 1/4”x1/2” balsa to complete the fuse keel.
- Position fuse bulkheads F1 through F12 in place and glue them to the fuse keels making sure they are 90° to the bench
- Glue the 1/4"x1/2” balsa fuse side keels to the bulkheads
- Remove the completed fuse half from the bench. Turn over and support it evenly on the fuse keels. I find quart sized paint cans work well.
- Add the second half of bulkheads F1 through F12.
- Add one piece bulkheads F3A and F11A.
- Glue the 1/4"x1/2” balsa fuse side keels to the second half of the fuse.
- Add the 1/4” square balsa stringers. I find that you can prevent twisting the fuselage by adding each side’s stringers together instead of doing one complete side before the other.
- At this point you can attach the stab and fin. I prefer to have these installed before installing my pushrods. You will need to locate your pushrods before sheeting the fuselage.
- Install the tail gear unit.
- Assemble and epoxy the wing bolt plate (F16) and two supports (F17) to bulkhead F5.
- With the fuse upside down, set the wing in place. Verify that the wing is at +3.5° incidence at the root and is centered and straight. Using F3A as a guide, drill holes in the wing for the wing dowels. Using the wing bolt plate in the wing as a guide, drill the two wing bolt holes into F16. Remove the wing and tap the holes in F16 to accept a 1/4-20 wing bolt.
- Once your pushrods, tail gear, wing, and any other mechanicals are installed, sheet the fuselage with 3/32” balsa.
- Add nose pieces F13 through F15.

- Fill in the nose with hollowed out balsa blocks. The space between the two F15's should be left open for a window. Carve to shape.

Nacelle Construction

- Locate the firewalls and drill them for your engine mount.
- Position the firewalls on the wing between ribs W5A & W6A. These two pieces are drawn long so they can be trimmed to fit you exact power plant.
- Epoxy the firewalls in place. You may reinforce this glue joint by adding ½" triangle stock around the back side.
- Close off the top and bottom of the engine box with 1/8" x 3-3/4" lite ply. These pieces should fit tight to the side walls (W5A & W6A), the backside of the firewalls, and the front side of LG2. The bottom piece may be made removable for access to the fuel tanks and/or throttle servos.
- Pin down the nacelle plans and cover with waxed paper.
- Locate the nacelle keel pieces NK1 & NK2, pin them to the bench in their proper locations
- Position nacelle bulkheads N1 through N4 in place and glue them to the nacelle keels making sure they are 90° to the bench. Skip N1A for now.
- Glue the nacelle side keels NK3 & NK4 to the bulkheads. Be careful not to glue the two side keels together.
- Remove the completed nacelle half from the bench. Turn over and support it evenly on the fuse keels.
- Add the second half of bulkheads N1 through N4.
- Glue the balsa nacelle side keels to the second half of the nacelle.
- Slide the completed nacelle frames over the engine boxes. Make sure the front of N1 lines up with backplate of the spinner.
- Glue only the top halves of the bulkheads to the engine box.
- Add the ¼" dowel alignment pins to N4 being careful not to glue N4 and N4A together.
- Add bulkheads N5, N6, and N7.
- Add the ¼" square balsa stringers.
- Carefully cut the bulkheads apart between NK3 & NK4. Also cut the keels and stringers between N4A and N4.
- Remove the lower front portion of the nacelle. This will become the cowling.
- Add N1A to the backside of the top half of N1. N1A should form two tabs hanging down from the top half of the nacelle.
- Replace the cowl onto the nacelle. Using the holes in N1 as a guide, drill through N1A.
- Remove the lower cowl. Add blind nuts to the backside of N1A. Countersink the holes on the front side of N1 on the cowl. These bolts will keep the lower cowl in place on the finished model.
- Sheet the finished nacelle with 3/32" balsa.
- Fill in the bottom rear portion of the nacelle with foam and carve to shape.
- Layup fiberglass and resin over the foam to create landing gear doors.
- Remove and cut the doors to shape. Remove the foam from the wing/nacelle.
- Remove areas of the bottom of the nacelle to create the remaining gear doors and make clearance for the landing gear leg.

Wing Radiators

- The basic frame for the radiators is made up of WR2 through WR5.
- Once assembled, sheet the bottom with 1/8" balsa.

- Add the two ends WR1 & WR6.
- Sand to shape
- Assemble WR7, 8 and 9 to create a frame for the radiator door.
- Sheet the bottom with 1/8” balsa
- Glue WR8 to WR4 to complete the radiator assembly.
  - WR8 may be hinged to WR4 if a functioning door is desired. WR7 and WR9 are marked where they should be split if this function is employed. It is the responsibility of the builder to engineer this detail.
- Glue the completed radiators to the bottom of the outer wing panels. The rear edge of WR1 will overhang W7A slightly when the outer panel is removed from the center section.

Cowl Scoops

- The basic frame for the scoops is made up of CS1 through CS3.
- Once assembled, sheet the bottom with 1/8” balsa.
- Sand the top edges to fit tight against the bottom of the cowl.
- Once a tight fit is achieved, glue the scoops in place on the cowls.