Fouga Magister 90mm edf

Thank you for purchasing Fouga Magister from www.rbckits.com

For the first time, R/C enthusiasts we have a choice in scale and fun flyer aircraft designs.

Our goal, through computer technology and state-of-the-art production techniques, is to offer aircraft which in the past have not been modelled simply because they weren't popular enough to justify mass production. Our production techniques allow us to produce aircraft which, though not as popular and well known as P-51s and P-47s, still offer historical significance (good or bad!), Good looks and flying characteristics, and a uniqueness that is sure to turn heads wherever you take your airplane!

Your airplane has many unique features in its design:

CAD Design

CAD design allows strength to be built into the airplane without sacrificing weight. Accurate parts design and placement ensures a perfect fit.

CAD Drawn Plans

The plans in this kit are not copied from a master set! They are originals drawn directly from the CAD program where the airplane was designed. We do this because it allows us to use colour, which helps you better visualize the various components of the airplane, and we can use better quality paper, which greatly reduces the possibility of shrinkage.

Since you're going to build directly on the plans, they ought to be the proper size! Also, parts placement is guaranteed to be accurate, so you can build a better, straighter model.

Small and hard-to-produce parts are simply a computer file away, so you get a more accurate airplane.

Lightening Holes

Lightening holes are cut into all ribs and formers where possible and justified. This allows us to keep the weight on each plane to a minimum without sacrificing strength.

The same program that generates the design and plans also drives the cnc cutter, so every part is reproduced exactly as it was designed. Cnc cutting also allows us to fit more parts on each sheet of wood, reducing the waste, and lowering the cost to you.

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Plastics

Several parts are accurately reproduced high quality Polystyrene, the canopy is made from PETG or Lexan

General Building Information

The Fouga Magister can be built by a person with experienced building skills. It is not designed for someone who has built a trainer or low wing sport plane. No unusual building techniques are required, although more difficult areas are explained in detail where necessary. Certain steps in the building process must be followed as depicted, or you might find yourself digging back into the structure to redo something. These areas are outlined when necessary.
Occasionally hints will be included at certain building steps. These are not required for completion, rather they are tips intended to ease a particular process. The cnc router does cut through the wood, as a result of this, occasionally there will be fraying on the surface of the wood. This is normal, and is only a surface problem and does not affect the wood in any other way. Similarly, the cnc settings are optimized for wood thickness averages, so occasionally, due to variations even in individual sheets, some areas might not cut through completely. Simply use care in cutting the parts from the sheets; most of the time, the parts will break out of the sheets!
Note that due the differences in wood thickness per sheet it is advisable to sand the tabs a bit so they slide in easy , also sand the openings so parts slide in easy , hard pushing parts have a high risk of breaking, it is not necessary the rework the corners of the cut-outs , this is done by the cnc machining

Hardware and an edf unit are not included in the kit. There are so many choices for quality hardware that these choices are left to the individual preferences of the builder, rather than include something in the kit that you'll probably throw away anyway.

This aircraft is not a toy. It must be flown in a responsible manner according to the rules set forth by Law. The builder assumes the responsibility for the proper assembly and operation of this product. Rbckits shall have no liability whatsoever, implied or expressed, arising out of the intentional or unintentional neglect, misuse, abuse, or abnormal usage of this product. Rbckits shall have no liability whatsoever arising from the improper or wrongful assembly of the product nor shall it have any liability due to the improper or wrongful use of the assembled product. Rbckits shall have no liability for any and all additions, alterations, and modifications of this product.

Having said that, turn the page and start building the best airplane kits on the market!

Material you might need:

Balsa knife, Stanley knife, straightedge, building board 1700x750mm,
ca glue medium, thin, thick you need approx. for wing and vertical stabilizer sheeting 4 bottles thick and 2 bottles medium for rib gluing,, fuselage 1 medium for formers ... thick for sheeting building nails, tape
Also use white glue, and canopy glue, epoxy for the canopy and cowls
Some drilling and bending tools, wire cutter, safety goggles etc. etc.

For finishing you need:
Glass 25 gram 3mtr and filler dope or PS100 or epoxy 1 litre, brushes sanding paper 60,120,180, paint of your choice
Wheels as on the drawing, controls, motor, battery etc.
All vacuumformings should be roughened up before gluing and primed before painting

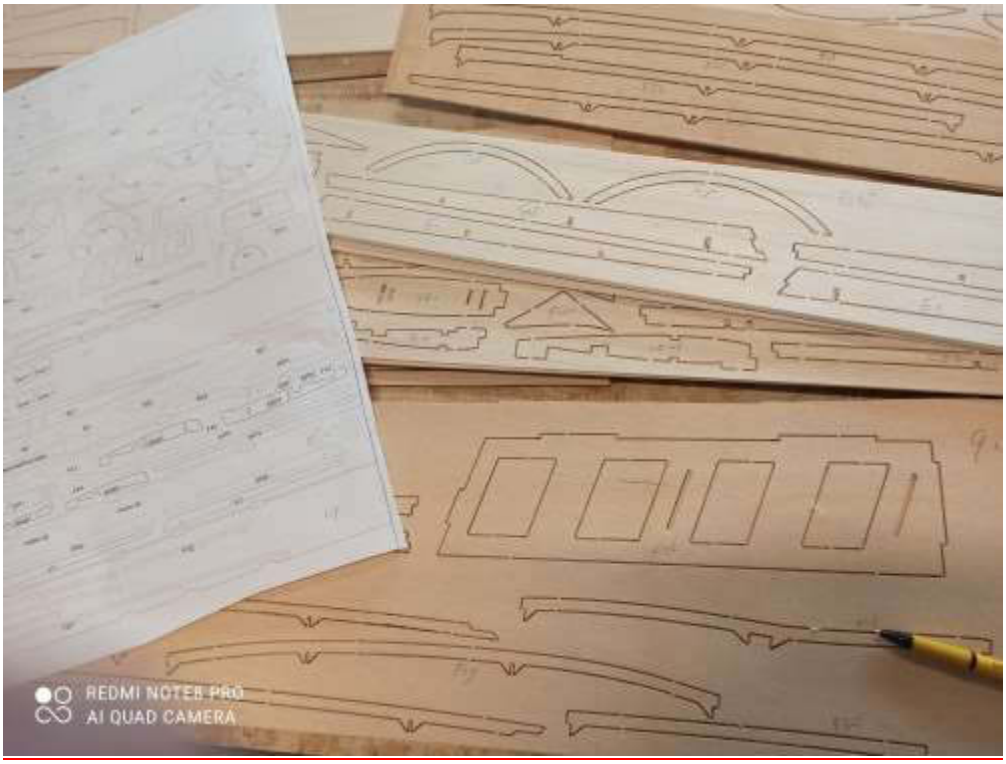
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Check the pictures for additional information; a picture says more as a 1000 words so do look at the pictures on the cd

STUDY THE DRAWING AND PICTURES TO UNDERSTAND HOW THE kit is BUILD

IMPORTANT! DO MARK ALL PARTS ON THE CNC SHEETS AS PER DRAWING THERE ARE A LOT OF PARTS THAT ARE LOOKING SIMILAR, SO MARK THEM CLEAR AS TO THE DRAWING



Stabilizers:

Join the sheet as per drawing, place ribs and formers





Sheet top, Place fills for hinges and steering arms, carefully take of assembly and sand down the feet of the ribs

Sheet the top carefully and place tips



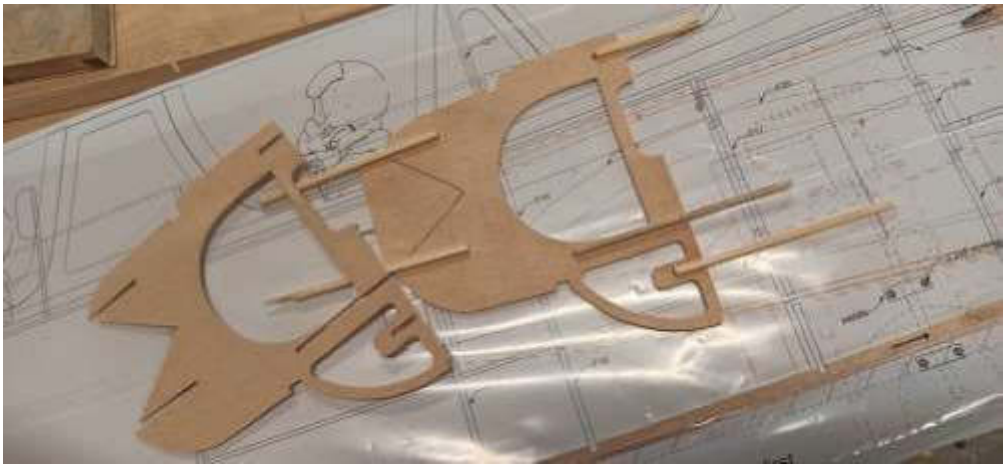

Cut out Elevators/rudders and sand to shape



Fuselage

Take out all formers and clean up the edges from the little holding tabs.
Place doublers F19 to F18 and join F16 and F17 use the 3x6 spruce as help for good positioning



Join Formers F23 with F41 and F42 and F24 with F43 and F44



Join Formers F2 and F3 with glass and epoxy or white glue

Place Drawing on your building board cover with plastic



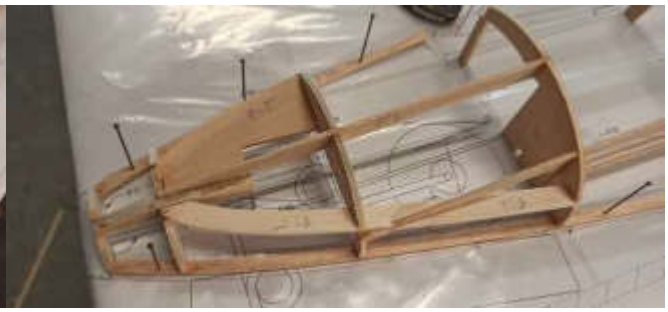
Place Former F30, F48, F49 F47 to the board as close to the drawing as possible, start placing formers, do not use glue yet




It is a bit of puzzling for the front part place formers 1 by one





When the front part is joined move on to the next formers. Carefully fitting, just a drop of glue here and there to hold, when satisfied glue formers to main stringers



Place stringers 3x6; check all pictures do not forget formers. Note that WF1 is not glued yet, only for holding position.

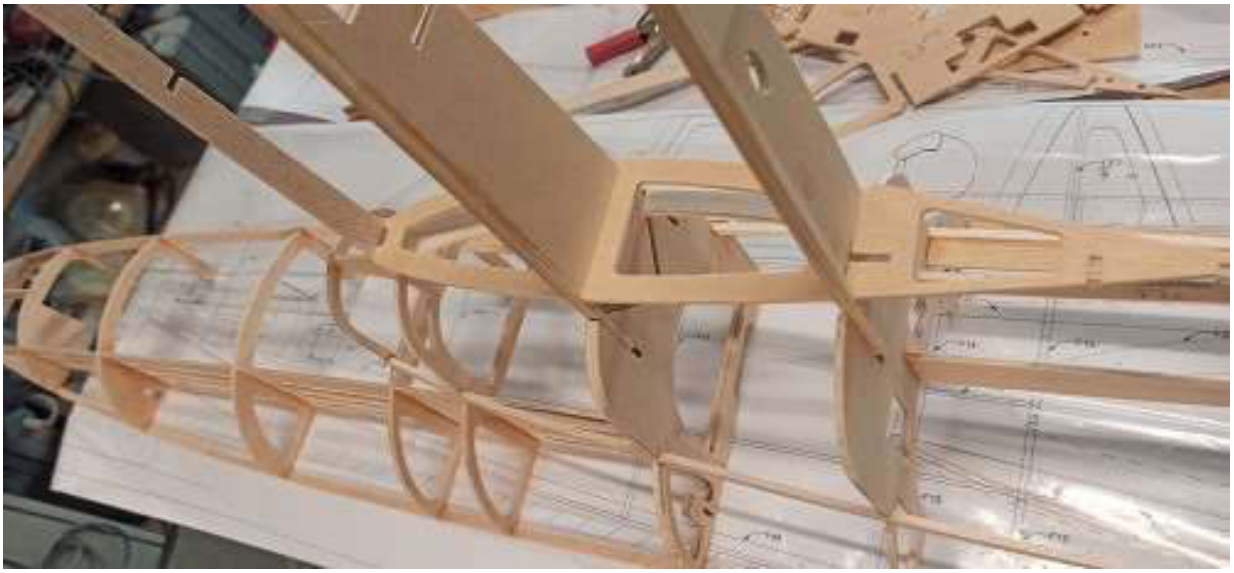


Now the mid wing parts, they are built to the main formers WF6 and WF7

Join them with the 3x6 spruce and the doublers try fit them.



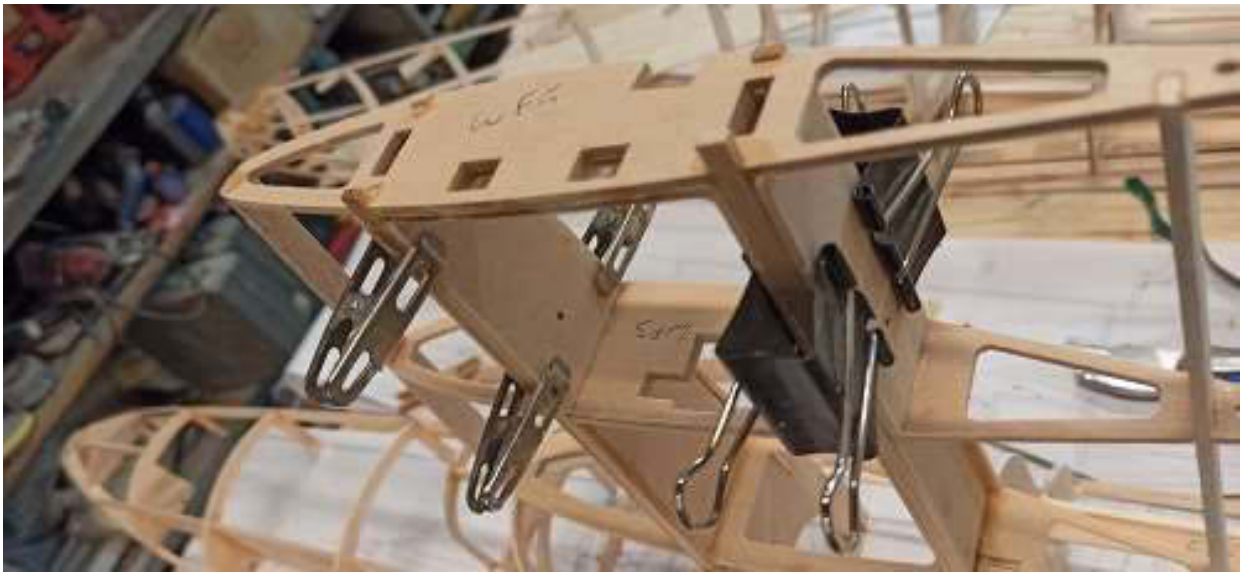
Now Place WF1 with the main formers to the fuselage



Place all mid wing formers carefully do only glue when certain of position.



Place doublers



Make up the 3x12 spruce strips with layers of glass between them for the landing gear, sand to size and place in

Mid wing formers with epoxy or white glue



Assemble the wing holders a layer of glass between R7, the M3 nut with epoxy do try fit



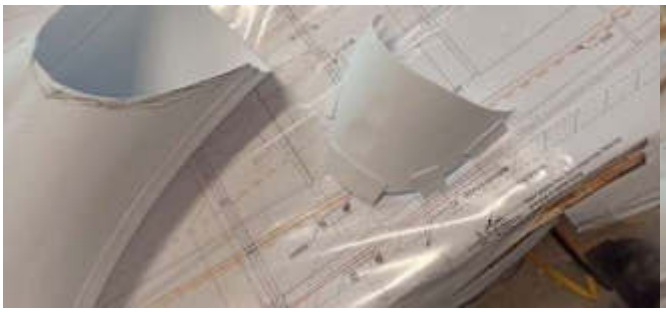
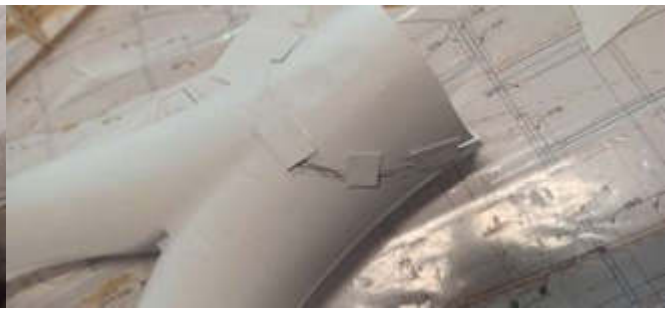
Do not forget to glue all formers of the fuselage. carefully take the assembly from the work plate and lay aside.

Make up the Outlet duct from the vacuum formed parts. Carefully cut them out.
Join them with help from the duct former M1 and your edf unit,
Tape the assembly with cello tape , note that there is a ledge on 1 of the ducts the other side goes into this duct.

Glue them with ca and sand of all edges, note that there is a bottom and up side see the drawing.




Take out a small part of the top front for taking the edf unit keep the part as you will use it as a hatch for the fan assembly

You might have noticed that the connection between the two legs is not 100% clean , no problem it is not importand as the splitter is placed over this y joint

Make the splitter as shown on the drawing.



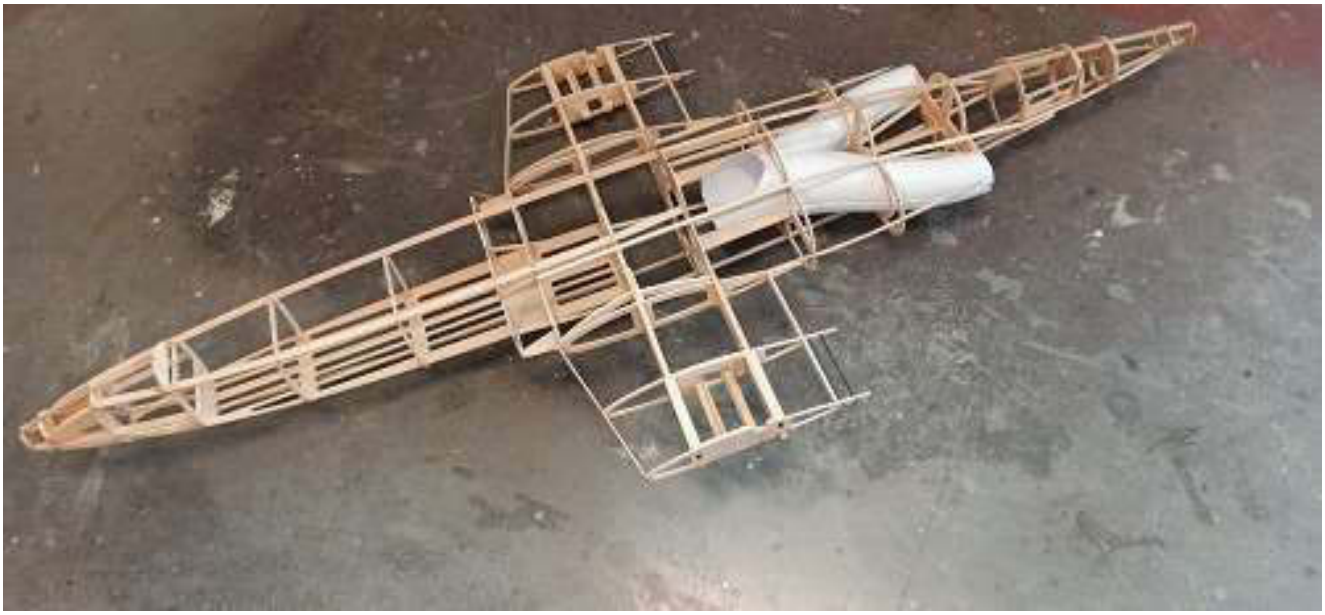

Sand front sharp and place into outlet duct glue with ca , do not omit the splitter it is needed for good performance



Now you can line up the fuselage sides, slide in the duct assembly in one side, and slide over the fuselage other side
note the 3x6 joiners cut from 3x6x240, make a good joining here cover with glass



Join the fuselage sides with a lot of clamps and slow glue , make sure for straightness, do not glue the exhaust duct to the fuselage yet, just keep it lose



Clean up your building board now, draw a straight line in the middle, fit your drawing over it the feet are marked on the drawing, just copy these positions to the building board, the drawing is not needed then, take out the Build Mould formers and place them to the fuselage, with help from the 6x15 spruce (make sure not to glue them)





Glue the build mould formers with some ca to the fuselage and to the build mould, now your assembly is straight and a bit solid to take the sheeting.

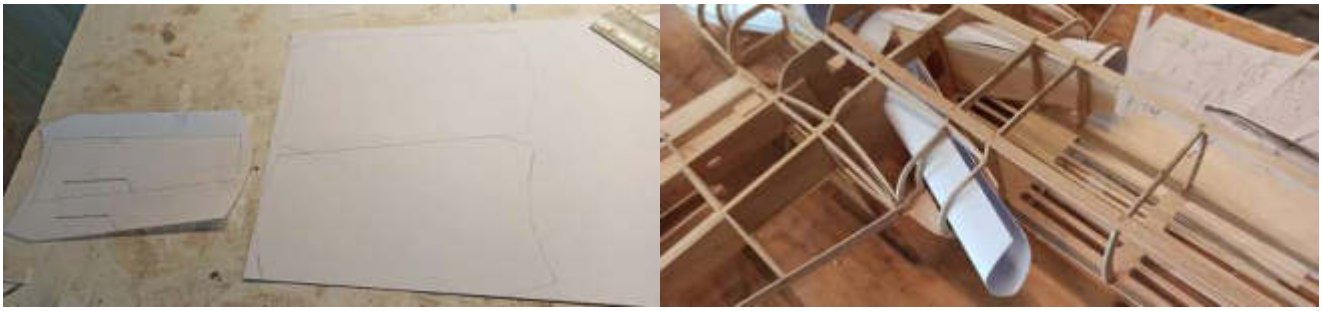
Place 1,5mm balsa sheet (sheet C) to the bottom of the mid wing, and the flap joiners in the mid wing section it are steering cables 3,2x2mm, place fill



Place Intake duct side from 1,5mm balsa sharpen end of sheet to join at the middle



Place intake duct cut from added paper as per plan



A bit of rolling up and releasing , fit the duct over the intake side sheet place top and bottoms duct closing from scrap balsa and place anti collapse stringer from 3x6



Now the fuselage gets much ridged, glue the outlet duct into position and start sheeting the fuselage with the 2x12x950mm strips, be careful at the tail for warping.




Sheet fuselage as far as you can., Make flap servo into mid wing and sheet mid wing top see pictures for more details




Sheet duct sides with the 2mm sheet as per plan top first and sheet as far as you can




Sheet top and nose .make the hatch for the edf unit




Do try fit the stabilizers now. They should go in easy, sand the spruce joiners to length so a good fit is possible, do not glue the stabs yet



Now take of fuselage from building board, and sheet the remains of the fuselage, note that there are many offcuts 2x12 use them and close fuselage.



Place the outlet duct flow piece from 1,5mm, maybe wetting the sheet makes it easier for this.





Place the tail parts And the intake lip and the mid wing leading edge, sand all to shape as per plan




Clean up fuselage as much as possible, use superlight filler and make it nice and round.

Wings:

Make the sheeting as per plan, do make a bit oversize. join R5 with 3x6 spruce , place doublers R6




Draw up the former lines to the sheeting and place ribs and formers and the 3x6, place fills for aileron and flap hinges, place flap joiners

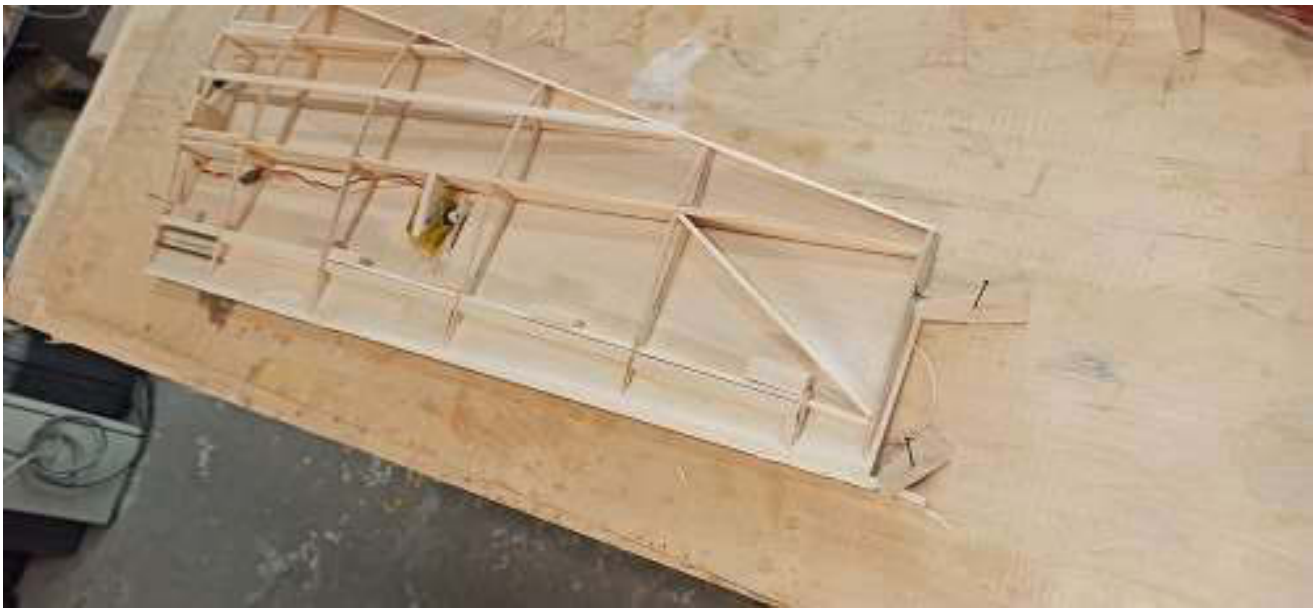



Place servo doubler from scrap and place servo shrinked in tube and glued to sheeting




Place helpformer as per plan. Pin down wing at the X marked positions



Tape sheeting trailing edge to bottom sheeting. Fold open ad thick ca, ad accelerator and fold from trailing edge to leading edge over ribs just with your hands, and ready.




Now take of wing and clean edges place leading edge and sand to shape, do try test fit the 6x15 joiners do not glue them in yet, make tip tanks from vacuum formed parts



Make the opening so it will fit over the wing tip , place R18, place scrap fill to the sides of R18 to take the outer tank form, sand to shape,



We have ad a clear vacuum formed nosecone for the tank you can split this in two and use it as a light in the tip tanks, just a small ad up



Take out flaps from mid-wing and take out flaps and ailerons from wing



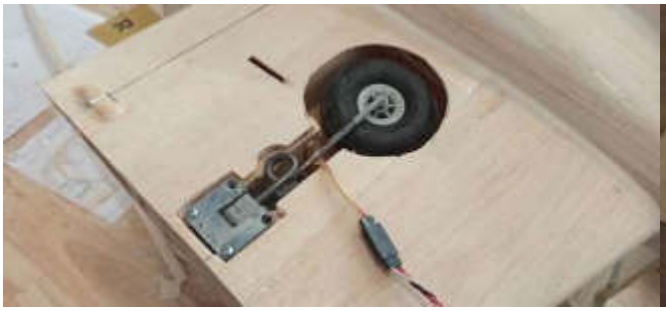
We did make the flap hinges from a cut hinge and we place them on the outside of the sheet, this is a lot easier we covered the hinge with a piece of scrap balsa






Test fit the wing to the fuselage, you might need to sand the joiners for an easy fit, and also a bit of talcum powder will help to make it easier sliding in.

Cut out the retract openings for your retracts in the mid-wing section, do test fit them with the aluminium retract doors, mount the retracts with a 2,9x13 fastener, ca the fastener openings and screw tight

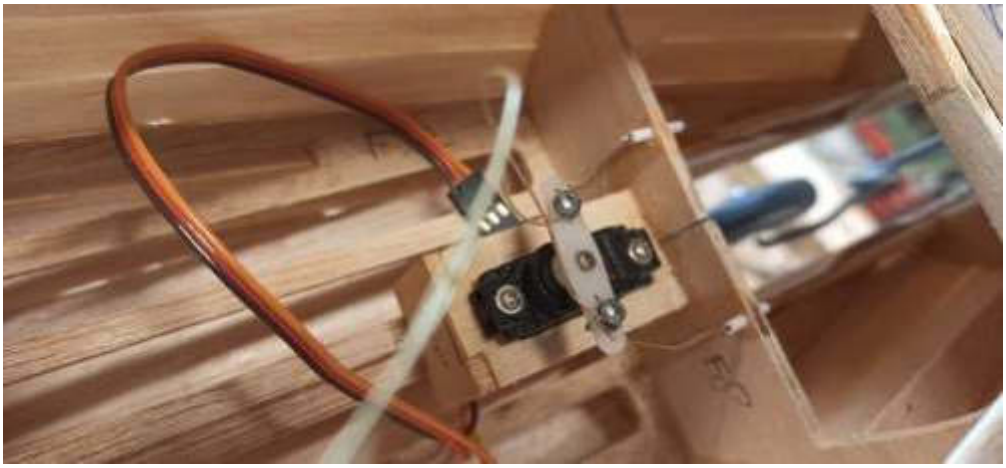



The front retract, take out the necessary opening and place retract with steering arm




Place steering servo and braided steel wire or a guitar string will also works, we did not use the former openings but the wires are loose

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Make wheel door from aluminium, hammer it to fit the fuselage we used a spring actuator and closing, hinges on the outside





Place edf unit and speed controller and close duct, we situated the receiver in the next forward compartment





Place stabilizers, make sure for a good fit we used polyurethane glue, that expands a bit, you also can use epoxy, be careful with white glue it might get stuck when placing and then it is too late to adjust.

We made a nice fairing with lite filler




Place servos for stabilizers we used Z-bends for control



Canopy:

Make canopy inserts from the balsa and ply parts CF2, CF11, CF7, CF8 and CF3, 4, 5 and seats and the 6mm parts




Paint all black or the colour you want and place pilots, and dowels 4mm and canopy latch do test fit in fuselage




The canopy is in 2 parts that have to be joined carefully; the back part slides in the forward part by a few mm join with cello tape and use canopy glue



Now when you have let dry the cockpit with pilots, when used ca at least 24hours

Place canopy in fuselage and fit canopy glass




Glue canopy glass with canopy glue to the seats and inserts, after drying sand canopy flush with fuselage

Place batteries as seen here for the cg, with a different drive the location might differ.

We used 3lipo cells 1100 and bec for retract and we used a separate receiver pack 4xnimh 1500, no switches



Do make cooling openings



Assembly at the field:

Keep wheels out and place wings and fasten with M3x20/25 the flap connection should be easy

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Ground steering, as we had only 7 channels we missed a mix channel for the front wheel steering, remember we have a V-tail, so we coupled the steering servo to one of the ailerons, works also

The Fouga is a big bird it starts ok with a bit of flap and with the advised setup you need good cells , it does fly easy lands easy also , it is not a beginners jet , dues its size it is not as fast and nimble as for example a cougar or skyray

An 8S 5000 battery is powerful enough, Make Centre of gravity as on the drawing this worked out very well, in reversed flight it need a bit down elevator so you might want to get back a little , also you need to adjust your elevator throws with a more rearward CG

Finish:

Fill all dents with lightweight filler and sand

Finish wing and stabilizers with 25gr glass fuselage with 25gr glass and use Pu or epoxy or eze kote,

Now finish with... Vallejo, humbrol or we used cheap spray cans... take care for the vacuumformings as some paints will not hold as good, or worse will dissolve or make it brittle, use a primer for this

Throws of the rudders etc., we like them big, we steer just around the centre of the sticks but it might be too much for you so always, make them large and have a dual rate button in your fingers, to small throws is most of the time problems, to large... it is in your fingers.
If you need additional pictures, check the download

Have a good build and flight with the Fouga Magister

Have you read all? Check the drawing and read all again, make yourself familiar with the Fouga

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WWW.RBCKITS.COM

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Netherlands

We used :

Aileron,flap,stabilizer and rudder and steering servo Corona CS939
https://hobbyking.com/en_us/catalogsearch/result/?cat=&q=cs939
Alternative front leg possible , note modification
Alloy Trailing Link Undercarriage Strut with Wheel and Rubber Tire (125mm Long/5mm Pin)
https://hobbyking.com/en_us/alloy-trailing-link-undercarriage-strut-with-wheel-and-rubber-tire-125mm-long-5mm-pin.html

Servoless Retract with Metal Trunion 44mm x 41mm Mount (2pcs)
https://hobbyking.com/en_us/servoless-retract-with-metal-trunion-44mm-x-41mm-mount-2pcs.html

Servoless Steerable Nose Retract with Metal Trunion 44mm x 41mm Mount
https://hobbyking.com/en_us/servoless-steerable-nose-retract-with-metal-trunion-44mm-x-41mm-mount.html

We used a midi fan evo with hetrc edf 650-68-1500 and 8 cells 5000 for more power use the 1600kv version

You need to provide:

Materials you need to provide:
Building board 1700x750mm
Hinges for ailerons and stabilizers 12x ca type
Hinges for flaps 8x
hinges for wheel doors 6x
Steering wire 1,2mm steel 1mtr
Steering wire braided steel 500mm front wheel steering
Steering arms 6x
Steering outer cable 3,2/2mm 500mm
for flap couplers
Mild steel 2mm 500mm flap coupling
M3 nut 2x wing holding
M3x20 2x sunk head wing holding
4mm steel wire for landing gear bending yourself 1mtr

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Wheels 2x 75-80 mm main gear
Wheel 55-60mm front wheel
2,2x6 or 9 fasteners for wheel doors 16x
Canopy Latch 1x