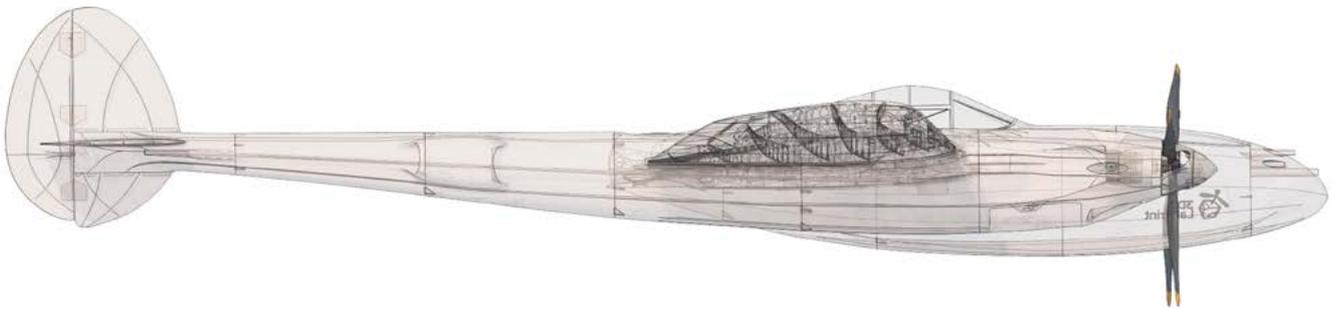# User Guide rev. 2016/11



Fully 3d printable

# Lockheed P-38 Lightning belly conversion

scale 1:12, wingspan **1410mm (55.5in)**

# Lockheed P-38 Lightning — fully printable R/C plane for your desktop 3Dprinter

**Future of flying - Print your own plane**

We still trying move things further, so this project is again full of other improvements for better durability , easier assembly , better geometry solution and so on..., we hope you enjoy it, although this print may test your competencies to and quality of your printer (welcome to the thin wall printing)

## The first fully printable airplanes with suitable files prepared for your 3Dprinter.
Flight charecteristics are comparable or even better than classic build model airplane.
Simply download and then print it anytime you need only for $18 (filament cost).
This is not a dream, now you can print this HI-TECH .... at home, print spar parts, and so on...

## Extensive hi-tech 3d structural reinforcement which makes the
model very rigid while still maintaining lightweight airframe and exact airfoil even when it is made only from plastic. This perfect and exact 3d structure is possible only due to aditive 3dprinting technology. So welcome to the 21th century of model flying. Be The first at your airfield.

## Easy to assembly, you do not need any extra tool or hardware, you only need to
glue printed parts together and make pushrods for control. The rest of the assembly is very easy.Simply add brushless motor, ESC, servos and radio system. Don´t worry, detailed step by step PDF/VIDEO is included.
You will get superb performance airplane with High efficient powerplant which let you fly 7+ minutes at full throtle with the speed exceeding 110 kph (HP setup). On the other hand low stall speed is achived for easy landing.
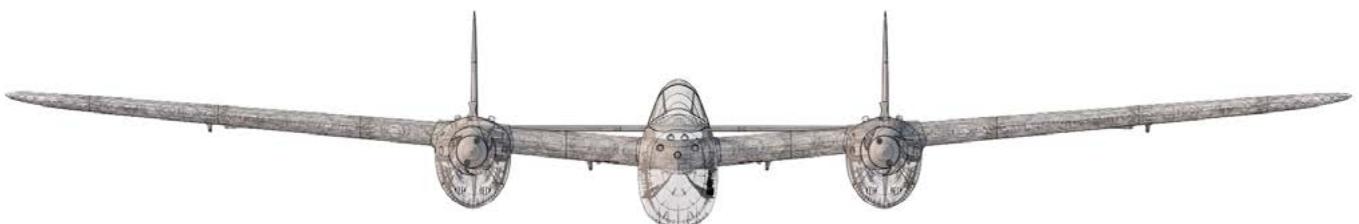
# Included: only parts you need for beely landing conversion !!!

## 1.STL 3d files

universal STL files designed for use with desktop FMD 3d printers and slicer software as Simplify3D (recommend) CURA or MatterControl (this STLs are not compatible with Slic3r).
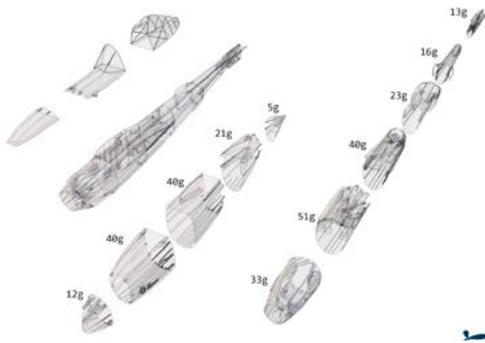


## 2.Factory files for Simplify3D slicer

with all our setting, this Factory files included all you need, note: we use PRUSA i3 ORIGINAL printers so you may need adjust the basic printing parameters to match your printer or use it as a start point for you, please give a look to Simplify3D
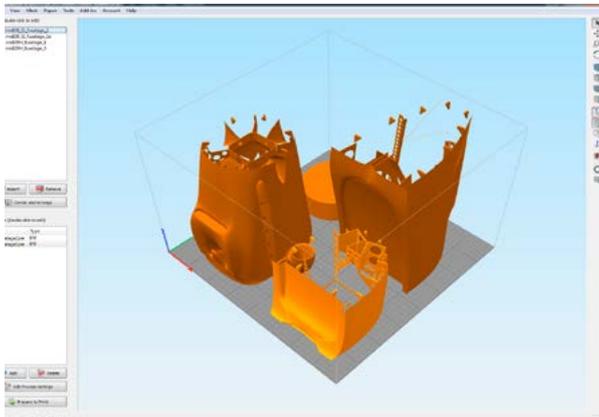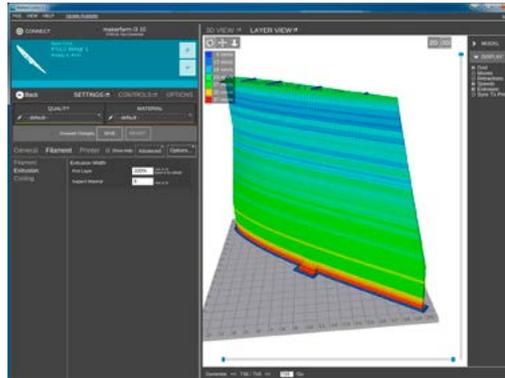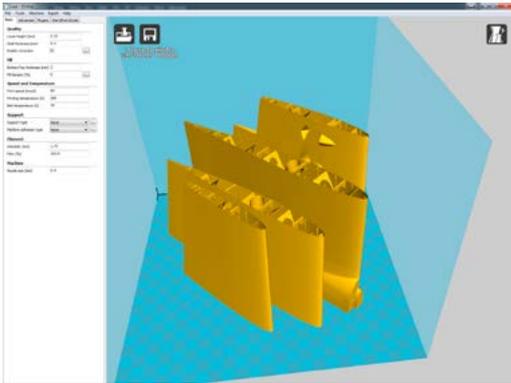


## 3.Step By Step PDF/VIDEO userguides

Apart from this userguide, please give a look to the Printing Guide with some Tips and Advices for airplane printing (Thin Wall Printing)

## 4.Gcodes

Basic Gcodes prepared for direct use, so universal as is possible. Should work with i3 style printers, you can try it out, but We can not guarantee that it will work with your printer. 100% works with PRUSA i3 ORIGINAL 3d printers...

page 4

# 5.Prepared settings for CURA and MatterControl slicers

If you dont like Simplify3D for any reason, there is always possibility to use another free slicer you can use our basic setting (setting files) as a start point and edit it as you need.
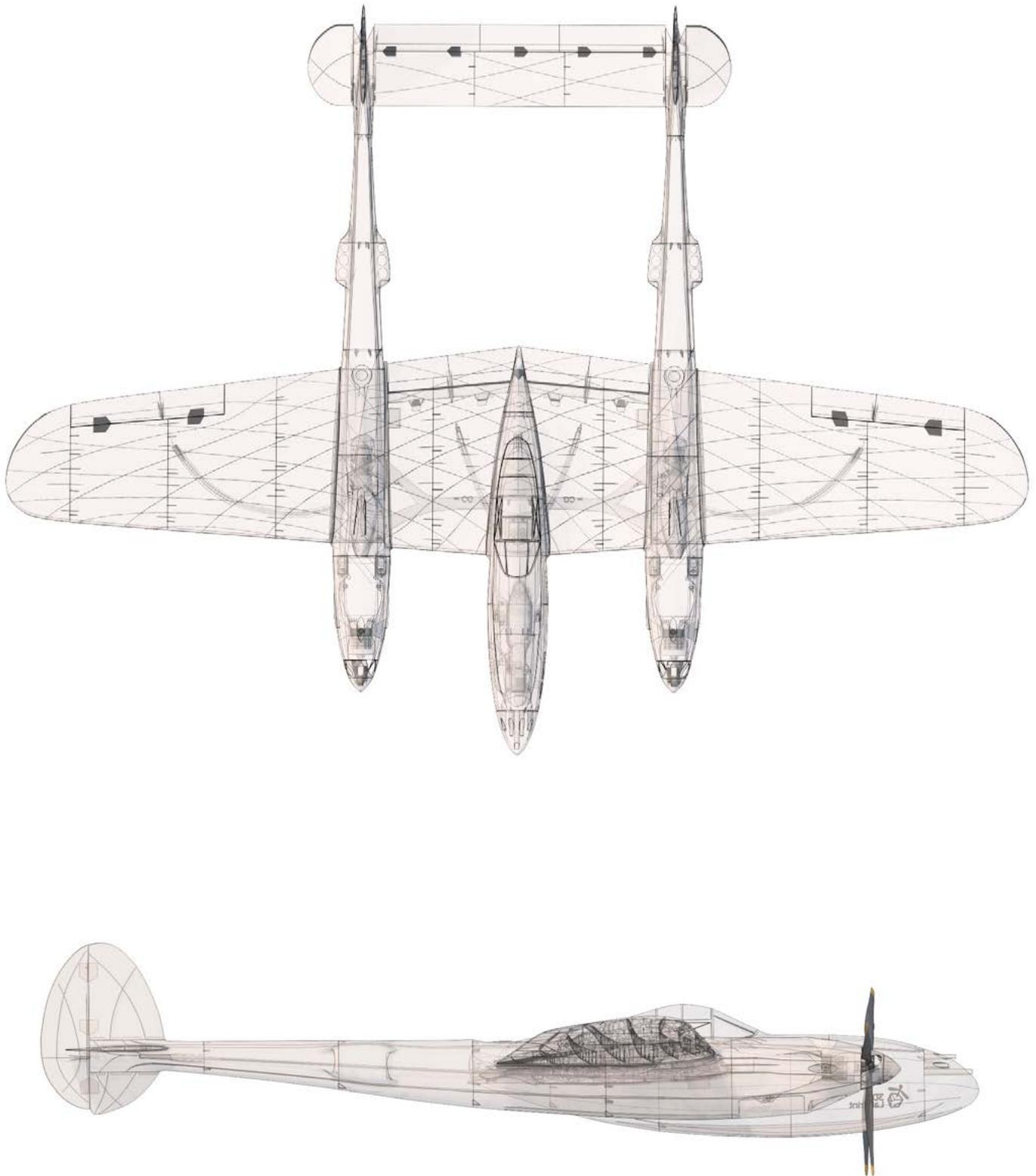
1042mm (41.0in)

1410mm (55.1in)

page 6

# Step By Step PDF/VIDEO userguide

## 1. Choose airplane at www.3Dlabprint.com, our Facebook for live information...

Basic requirments (P-38 Lightning):
min volume 195/195/150mm (250/120/150)
nozzle 0.4mm recommended (0.35 or 0.5mm alternatively)
Heated Bed recommended
PLA filament (or PETG, APLA, htPLA, PC-max....) not ABS
If you feel a little bit confused you can download wing test part from our websites or thingiverse, (the biggest part). Or contact support@3dlabprint.com

## 2. Create account, download

You will get download link for all files to your email (zipped)or you can log in to your account and download directly from our websites.
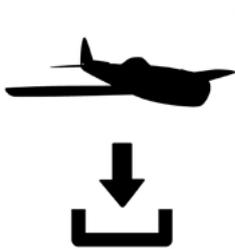
## 3. Gcodes preparing

options A Gcodes:
if your printer is i3 comptatible you can directly use prepared gcodes, simply save each to SD card and let 3d printer do his job, HE temperature is set to 230 for best layer bonding, you can edit speed and temperature on your printer LCD only. If Gcodes does not work please proceed to the next options.
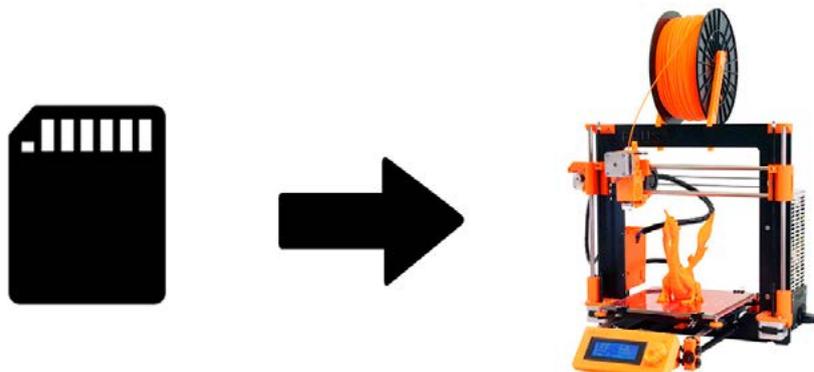
## options B Factory files Simplify3D (recommended)

We prepare all you need in this files (basic FFF, parts arranged and so on...)
You can use this our setting as a start point and edit it as you need (adapt it for your printer), print only parts you need and so on... On moust 3d printers it should work as it is, but please give a look to the setting and edit it if is different to your printer, we are not liable for damages resulting from the use of our settings. If this does not work please proceed to the next option.
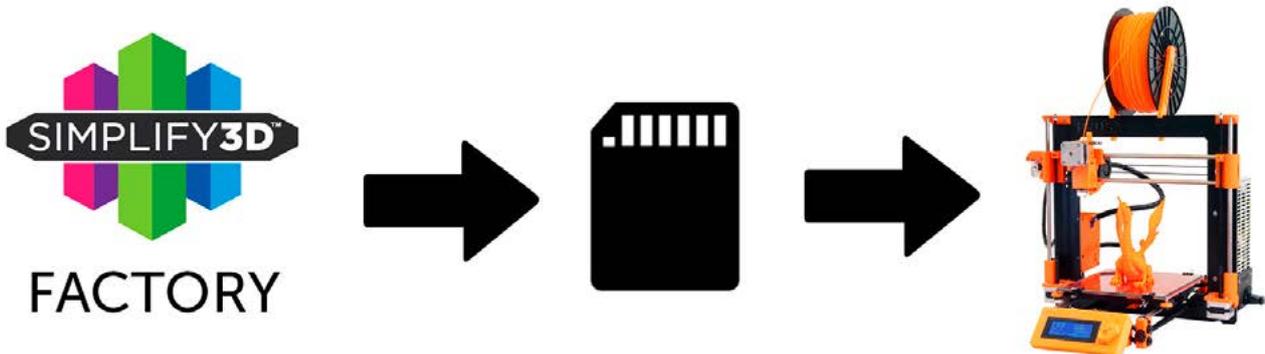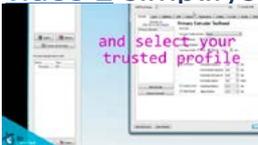


## options C Simplify3D manual setting (watch and learn)

Use our video guide 2 for proper setting... this is very good option and you will learn a lot about Simplify3D and become an 3d expert. Of course you spend a lot of time and youtube pause button will become your friend.
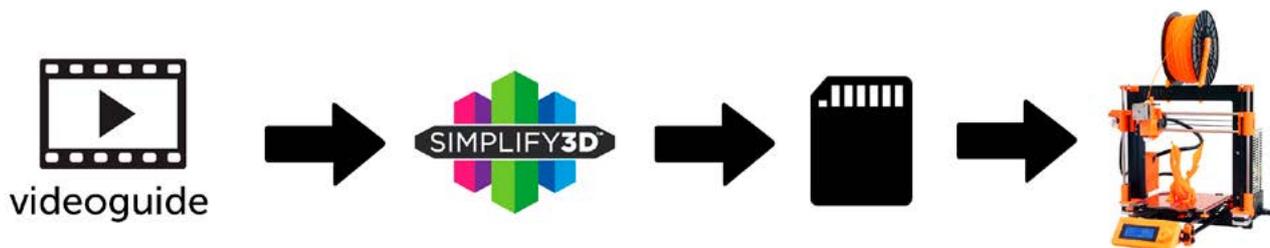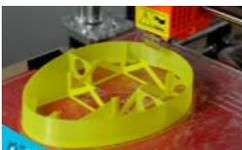


## AND... please give a look to VideoGuides:

video 2 Simplify3D setting



video about Thin Wall Printing

## options D CURA or MatterControl

MatterControl and CURA are free :-) and also gives very good results and airframe is still strong enough, slicer setting is very easy.

Please try find right extrusion multiplier and temperature for good weight and bets layer bonding, give a look to parts weight list for proper multiplier setting.

You can also use our predefined CURA or MC slicer setting file included in package (always adapt it for your printer, change build volume, filament diameter and so on... depends on your printer!!!):

CURA_wing_fuse.ini      (wing and fuselage and so on... parts)
CURA_ailer_elev.ini   (only ailerons, elevator and rudder parts)
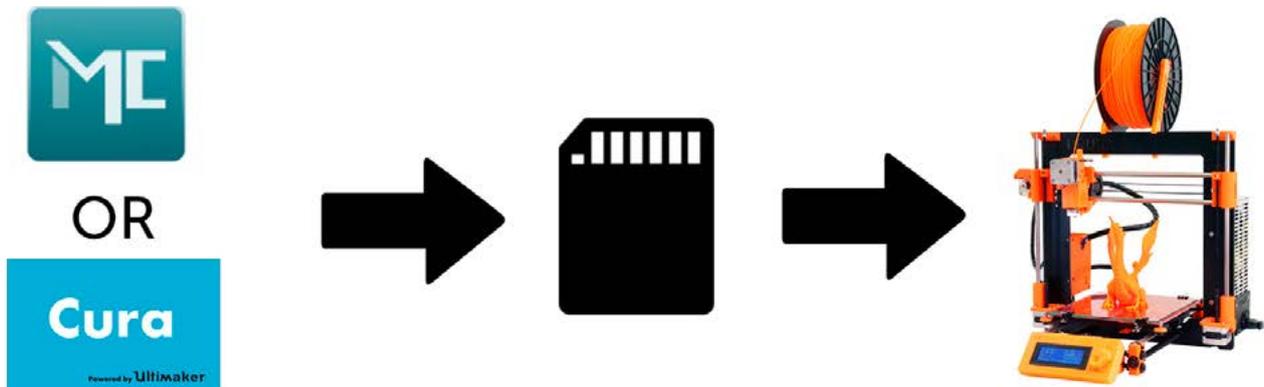CURA_thick.ini             (motor mount, battery holder, spinner)
OR
MC_wing_fuse.slice        (wing and fuselage and so on... parts)
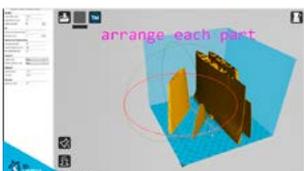MC_ailer_elev.slice     (only ailerons, elevator and rudder parts)
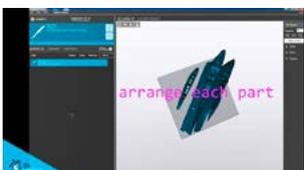MC_thick.slice             (motor mount, battery holder, spinner)



AND... please give a look to VideoGuides:

video CURA slicer setting



video CMatterControl slicer setting

# 4. Print it

Save generated Gcodes and insert SD card to your printer, prepare your printer and start printing, we prefer to use SD than direct connection via USB Note: ABS filament is not suitable for this...
Scaling the model will lead to unusable result!
video guide about printing
you will need: PLA filament - good quality and strong PLA (we need good layer bonding)
Strong hair spray (or your favorite adhesive bed surface)
Razor blade

AND... please give a look to VideoGuides:

<u>video</u> printing guide



## Main parts weight list:

## Basic Typs and Advices

Plese Experiment with your extrusion multiplier...
Also HotEnd temperature is very important for strong result, please try increase tempera-
ture to find the best value (200 up to 260 celsius)
Turn OFF cooling fan for better layer adhesion (HE fan of course ON) we dont need it for
our thin wall printing...
We try lot of filaments and so far PLA is still the best for our models (2016).
You can try aslo PETG  and PC-max from polymaker is very promising filament.

HEATED BED is very recommended, 60-70celsius (print without warping ends)
Looks like any standard quality PLA is OK for our planes, BUT it always depends on combi-
nation PLA vs. Extruder vs. HotEnd.
We find that some color of filament has lower layer adhesion also.
Nowadays there is lot of 3dprinters on the market, very most of them is OK for printing our
aircrafts (specific thin wall printing...) suficient volume, heated bed, 0.4mm nozzle.

## Please give a look to Printing Guide:

# 5. Assembling printed parts

## 5.1 Fuselage assembling

Glue with CAglue fuselage parts together, use activator, instal elevator, instal peg, fine tune parts shape with knife or sandpaper

See video guide #5 part1

you will need: CA Glue - medium or similar medium viscosity CA glue

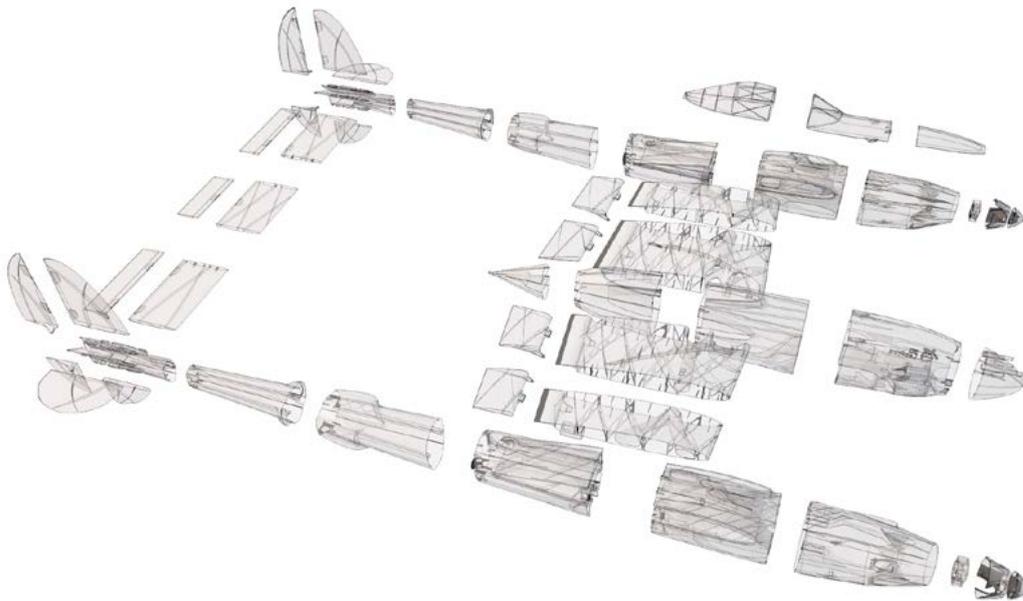Activator for CA Glue or similar, but not mechanical is better

AC Hinge Sheet or similar

Scissors

Snap knife or Sandpaper

Soldering Iron or any hot tool



# Please proceed with P-38 Lightning userguide (retract version)