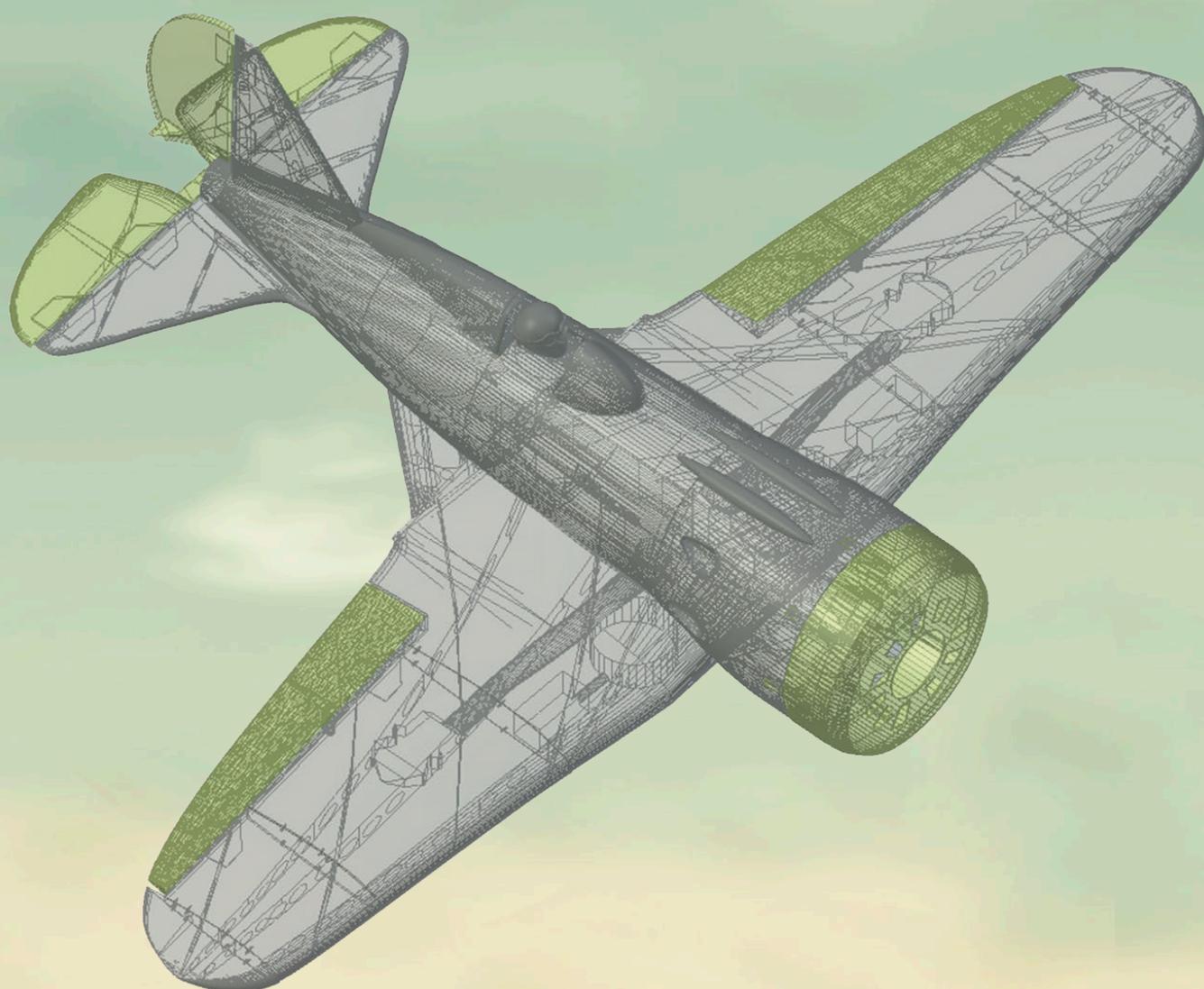


# USER GUIDE POLIKARPOV 1-16

V. 05/2018

3D PRINTED RC MODEL



# USER GUIDE

## POLIKARPOV 1-16

3D PRINTED RC MODEL

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**HOW FAR  
DO YOUR  
DREAMS REACH?**



# USER GUIDE

## POLIKARPOV I-16

3D PRINTED RC MODEL



### 1. PRINT AT YOUR HOME

The d3ling.com models have been redesigned and modelled specifically for being printed in the most popular 3d printers, you will not have any problem, since we facilitate all the files and common configurations so that you get to fly our models without any other help rather than our material.

### 2. TESTED STRUCTURES

We have performed complex structural tests, so that your plane can resist the heaviest conditions, if you can fly an RC airplane you will be able to fly any of our models.

### 3. EASY ASSEMBLY

With our complete PDF guide and the support of our video tutorials, you will not find any problem that obstacles you from flying your model. Also we offer support from our website, social networks and blog, so you will always get advice to achieve your goals, install your radio and manage our models through the sky of your flying field.

### HISTORIA

The Polikarpov I-16 (in Russian: -16) was a fighter of soviet manufacturing; with revolutionary design, it was the first monoplane with cantilever wing and retractable landing gear.

The I-16 was deployed in the mid of the 1930's and it became the spine of the Soviet Air Force at the beginning of the World War II. It had a relevant performance in the Second Sino- Japanese War, in the Battle of Khalkhin Gol between Soviets and Japanese, and in the Spanish Civil War, where it was called Mosca (Fly) by the Republic side and Rata (Rat) by the Nationalist side.

The alias that the Finnish gave to the I-16 was Siipiorava («flying squirrel»).

Despite its unusual appearance, with a small fuselage that seemed influenced by the American monoplane fighter Boeing P-26 Peashooter from 1932, the Polikarpov I-16 had was an excellent design.

However, it soon became obsolete compared to rivals like the Messerschmitt Bf 109 and it was replaced by other models.

Length : 6,13 m  
fast speed: 525 km/h  
Wingspan: 8,99 m  
First flight: 30 diciembre 1933  
Designer: Nikolái Polikárpov  
No. built: 8.644

# USER GUIDE

## POLIKARPOV I-16

3D PRINTED RC MODEL



### 4. CONTENTS

We export our models for you in the most standard version, so you don't find any problem at the time of using them with your popular software.

We **recommend Simplify3D**, since the configuration will be much easier, or other tools like CURA.

**Our STLs may cause problem with Slic3r software, so this one is not recommended..**

### 4.2. GCODES

We offer you the GCODE FILES, so that you only have to configure the desired temperature and start printing, without any problem, for printers with 195x195x185 size.

### 4.4. DESIGN PROPOSALS

As everybody has its own taste, we offer you a range of scale templates, so that you print the design that you prefer or even a blank one so you can design your own model.

Also, if you are skilled with the paint, you can decorate your model using spray or aerograph, to create a model as similar as possible for this beautiful airplane.

See page 06

### 4.1. FACTORY SIMPLIFY3D

In addition to the STL files, if you can use the Simplify3D software, we facilitate the Factory type files, so that you can load and configure the printing as you wish, forgetting about almost all parameters.

### 4.3. VIDEOTUTORIALS

In addition to the STL files if you have the Simplify3D software, we provide Factory files, so you can load and configure the print as you wish.

See VIDEOTUTORIAL 0

PRINT CONFIGURATION



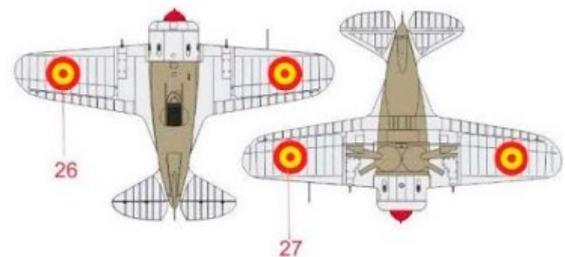
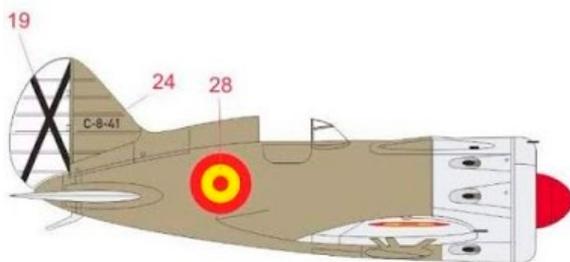
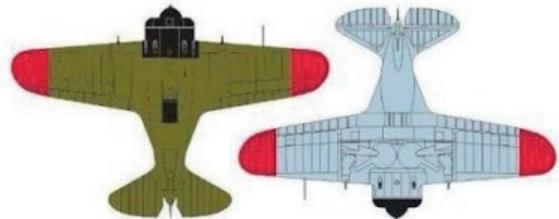
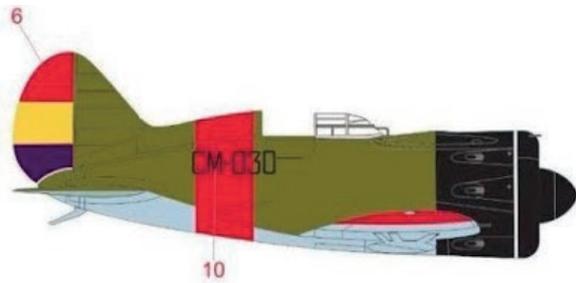
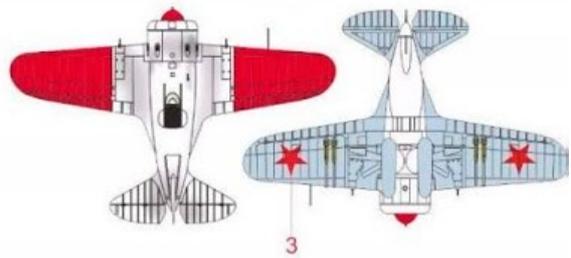
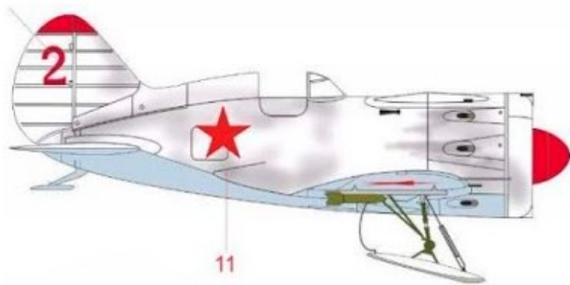
# USER GUIDE

## POLIKARPOV I-16

3D PRINTED RC MODEL



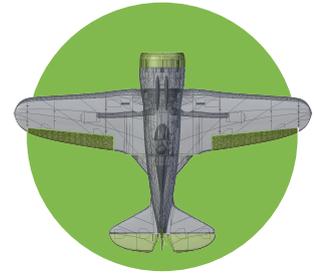
### 4.4.DESIGN PROPOSALS



# USER GUIDE

## POLIKARPOV I-16

3D PRINTED RC MODEL



### 5. STEPS TO PRINT A D3LING MODEL

5.1. Select the model that you wish from our website [www.d3ling.com](http://www.d3ling.com)

5.2. Register and download all the material in a handy compressed file.

5.3. Prepare your files.

A. If your printer has got a standard size 195x195x185, load the files in your SD and adjust the temperature which you get the best results, we recommend for materials like PLA a temperatura of 190°C, but you have to adjust it according to your preferences.

B. If you have Simplify3D and you prefer this option, load your Factory and prepare a custom printing. You will get outstanding results.

C. If on the contrary you haven't Simplify3D or you don't like this option, you can load the STLs files in your reference software in the usual way.

5.4. Print your model.

5.5. Don't miss and pay attention to each of the videotutorials that we have in YOUTUBE, we show tricks and recommendations that will make the assembly

**HAVE YOU EVER  
DREAMT ABOUT  
FLYING?**



# USER GUIDE

## POLIKARPOV I-16

3D PRINTED RC MODEL



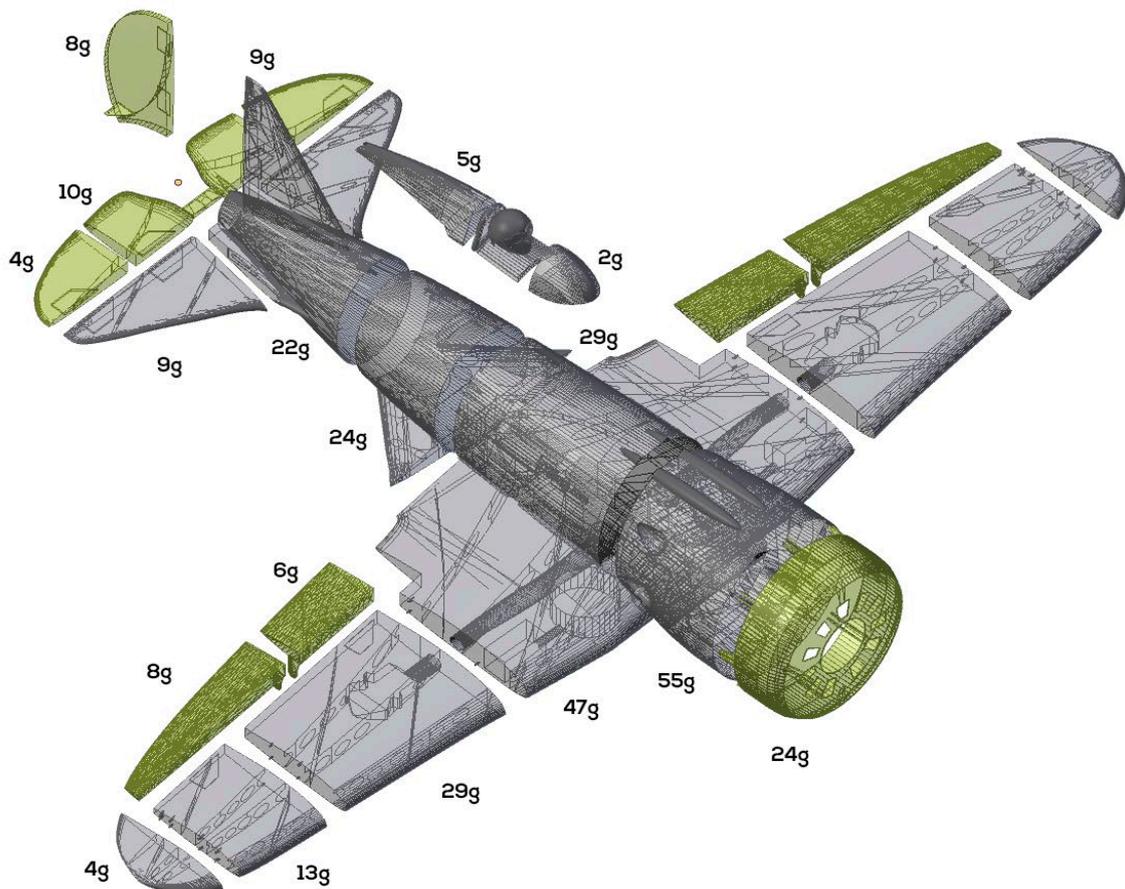
### 6. MODEL ASSEMBLY

#### TECHNICAL SPECS

WINGSPAN : <b>840 mm</b>	PRINTED MODEL WEIGHT: <b>500 gr</b>
LENGTH: <b>590 mm</b>	FLIGHT WEIGHT: <b>800 gr - 900 gr</b>

#### ELECTRONICS PROPOSALS

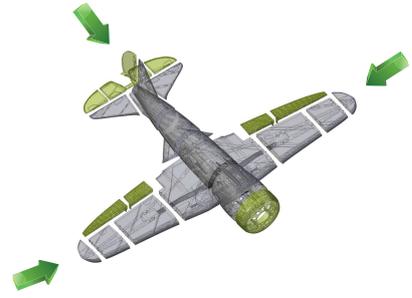
MAIN ENGINE: <b>D4023 850kv Brushless</b>	PROP: <b>12x6</b>
ESC: <b>HobbyKing 30A ESC 3A</b>	BATTERY: <b>3S 11.1V 2200mAh</b>



# USER GUIDE

## POLIKARPOV 1-16

3D PRINTED RC MODEL



### 6.1. WINGS

In the first place, we will attach all the pieces to each other as shown in the picture, bearing in mind that the mobile parts (displayed in color green in the picture) will be joined by hinges (paper hinges, nylon hinges, duct tape).

See VIDEOTUTORIAL 1

WING ASSEMBLY



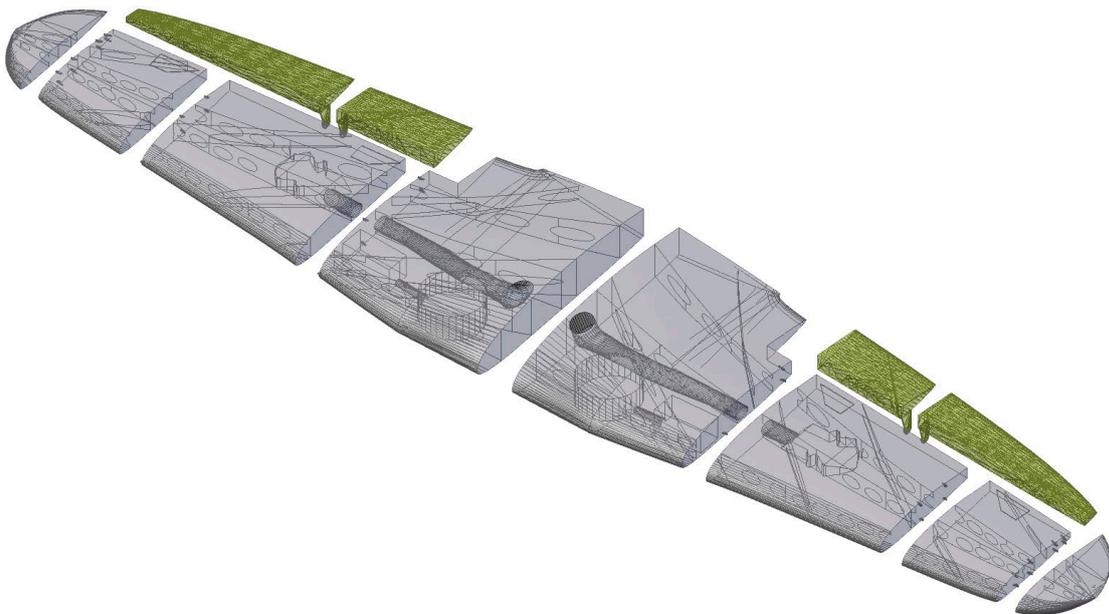
#### Necessary items:

Cyanoacrylate based glue

Cyanoacrylate activator

Hinge paper or similar

2 9g servos



# USER GUIDE

## POLIKARPOV I-16

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### 6.2. FUSELAGE

The first step to attach the fuselage will be to look for fuselage part 3 and place the servos as seen in the following [videotutorial](#).

This is done so because accessing to this part afterwards is remarkably harder.

After, we attach each part with cyanoacrylate based glue, joining them as is shown in the picture below.

Bear in mind that mobile parts must not be attached (they are displayed in green in the picture), these will be joined later with hinges (paper hinges, nylon hinges or duct tape), such as the depth aileron and the steering rudder, or will be assembled later (Fuse 0 and bottom part).

We recommend to use cyanoacrylate activator for a faster and safer assembly

See VIDEOTUTORIAL 2

FUSELAGE ASSEMBLY 

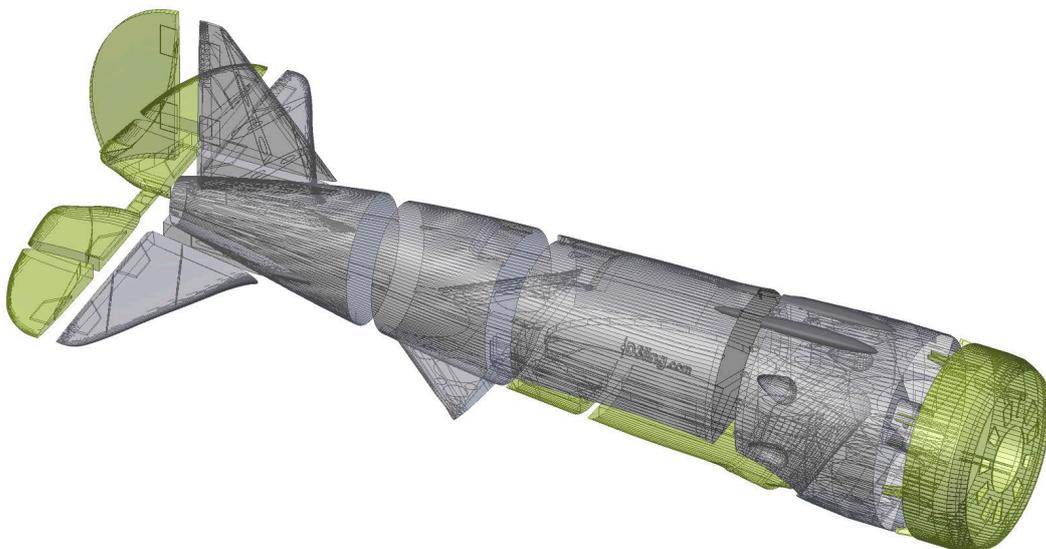
#### Necessary items:

Cyanoacrylate based glue

Cyanoacrylate activator

Hinge paper or similar

2 9g servos





## 6.3. SERVOS

At this time we already have the body of the model with its wings completely attached and ready to place the servos.

In this case we will work in the slots that are ready for this in the base of each wing.

Pass every servo connector through the holes in place for this, and after, as you can see in our [videotutorial](#), proceed to fix it with cyanoacrylate based glue.

With a 1mm piano string, or any other wire suitable for push rods, proceed to attach the servos to the ailerons.

After this proceed to place the push rods for steering and depth, by joining them to the just installed servos.

See VIDEOTUTORIAL 3

SERVOS ASSEMBLY



### Necessary items:

- Cyanoacrylate based glue
- Cyanoacrylate activator
- 2 9g servos
- 1 mm piano string or push rods



# USER GUIDE

## POLIKARPOV 1-16

3D PRINTED RC MODEL



### 6.4. ENGINE INSTALLATION

Select a valid motorization for the configuration of our airplane, we provide a recommendation according to our flight tests.

MOTOR: D4023 850kv Brushless Outrunner.

VER ENLACE ▶

ESC: HobbyKing 30A ESC 3A UBEC

VER ENLACE ▶

BATTERY: 2200mAh 3s 11.1v LIPO

VER ENLACE ▶

Join the hold that better suites your engine to the fuselage using the screws provided by the manufacturer, so that it gets attached to the fuselage.

If the engine belongs to the type in the picture, in the following videotutorial we explain step by step how to perform a correct assembling.

Bear in mind that is the part of the airplane that will undergo a biggest stress, try this part to be firmly attached to the fuselage

See VIDEOTUTORIAL 4

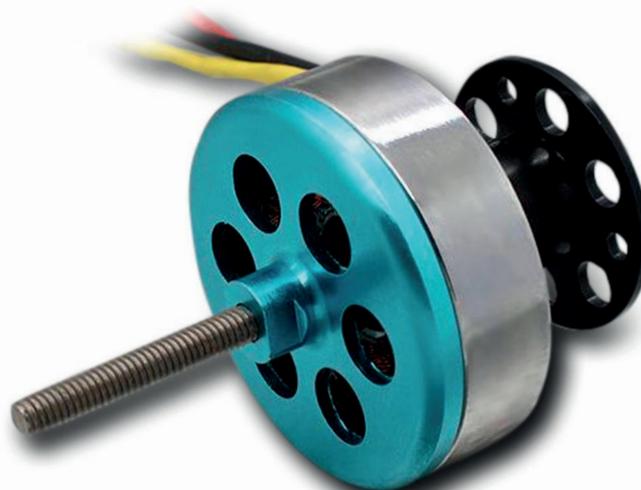
ENGINE INSTALLATION



**Necessary items:**

-4 Screws M3

-Recommended engine



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## POLIKARPOV I-16

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### 6.5. FULL ASSEMBLY

After finishing the previous steps, proceed to join the bottom fuselage closure, that will be attached with cyanoacrylate based glue to the wings.

Make sure that it is well centered since this will be the piece that guarantees that the wing is perfectly aligned with the fuselage.

Add the latch that will help to a perfect fixation of the wing to the fuselage.

The gravity center of the plane must remain at about 4 cm of the wing's leading edge, see in the picture how it matches with the mark for the landing gear.

See our [videotutorial](#), to check how to place the battery accordingly and so adjust its gravity center

See VIDEOTUTORIAL 5

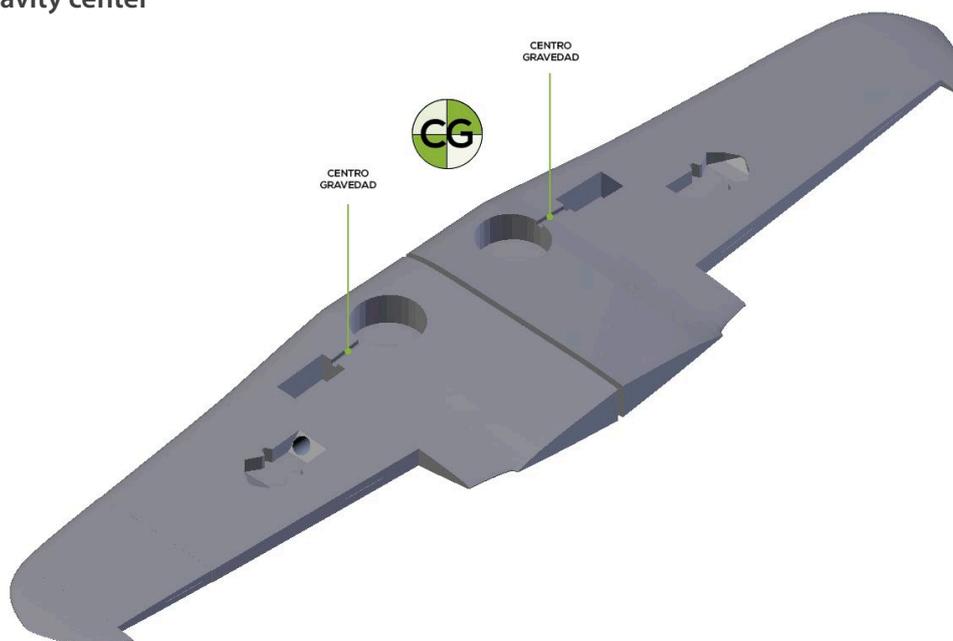
FULL ASSEMBLY



**Necessary items:**

Cyanoacrylate based glue.

Cyanoacrylate accelerator.



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### 6.6. LANDING GEAR

The landing gear is an optional piece for our model, but we advise to perform its assembly, since it will be a big help in the first flight to check the behaviour of our model in the land, and thus being able of fixing assembly errors if it is necessary.

Assemble the hold for the back wheel with cyanoacrylate based glue and place one wheel attaching it to the steering rudder.

In a following update we will provide a version ready for retractable landing gear.

Meanwhile, see our [videotutorial](#) to check the full assembly process.

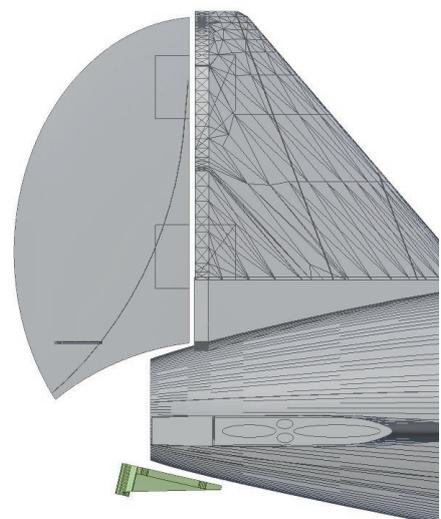
See VIDEOTUTORIAL 6

LANDING GEAR



#### Necessary items:

- Cyanoacrylate based glue.
- M3 threaded rod approximately 30cm length.

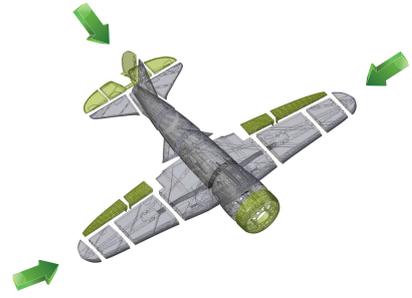


Tail wheel detailed

# USER GUIDE

## POLIKARPOV I-16

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### 6.7. ADVICES

If you find that the wing is not firmly enough attached to the fuselage because your flying method is severe, or because your printing has not been accurate, don't worry.

In the following [videotutorial](#) we show you some advices to get the wing perfectly attached, as well as the latch that joins the fuselage to the wing.

See [VIDEOTUTORIAL 7](#)

PRACTICAL ADVICES



**Necessary items:**

1 hot melt glue stick  
hot glue gun



# USER GUIDE

## POLIKARPOV I-16

3D PRINTED RC MODEL



### 6.8. FLYING

At this point you should have your beautiful polikarpov model perfectly assembled and with all the electronics properly connected. You just need to review that the GC, after the battery has been installed, is perfectly situated in the position indicated in the step 6.5 of this guide, and if you want, you can decorate it with the printable template that you will receive in your email with several proposals for decoration, or use your creativity and paint it as you wish. Once the model is finished, charge batteries and go to the flying field. See in our videotutorial the takeoff and landing.

See VIDEOTUTORIAL

FLYING



**Necessary items:**

Finished Polikarpov I-16

Charged batteries!!



# USER GUIDE

## POLIKARPOV I-16

3D PRINTED RC MODEL

### 7. TO CONSIDER

Before flying the model that you just purchased, take into account that the model is based in a real air lane, hus the flying difficulty is medium, it is not a trainer airplane.

Remember that in the first test flight, it is a good idea to move forward the GC a little bit, in order to obtain extra maneuverability. Do not fly with the Gravity Center behind the recommended mark,

ince the model could react in an incorrect way.

Every time that you fly, do it in a safe and responsible way, this model is not a toy and you must make ure that you fly in safe conditions.

D3LING.COM ill not be held accountable if there is a misuse of the model. Every time that you fly an RC product, do it safely and under your responsibility, and following the security regulations in you region.

Finally we want to state that we have worked very hard for a long time, and we will keep doing it in order to offer you every time better models and at an incredible price, f the most emblematic RC airplanes, but for this to be possible, lease do not distribute any of the files purchased in this package.

The d3ling team thanks you very much for that

We think now you know everything you need to know to enjoy your model.

If you have any suggestions, doubts or questions, don't hesitate to communicate them by sending an email to [info@d3ling.com](mailto:info@d3ling.com), y using the contact form in our website or by any other means that you find more suitable.



We have worked very hard for a long time, and we will keep doing it in order to offer you every time better models and at an incredible price, for the most emblematic RC airplanes, but for this to be possible, please do not distribute any of the files purchased in this package.

The d3ling team thanks you very much for that

[info@d3ling.com](mailto:info@d3ling.com)