

KRILL AIRCRAFT

LASER Z2300 Mk2 39%

Assembly Guide

Dear customer,

thank you for choosing LASER Z2300 Mk2 39% model airplane.

Original kit Laser Z2300 was developed by our team for Freestyle flight. Kit has had great flying characteristics, but not sufficient for top competitive flying. We decided to improve it's flying characteristic and that's why we created new version Mk2 built on strong base of current kit and test it with our pilot Marek Plichta.

And what are the differencies?

At first, we made new bigger wings. Kit gets incredible flying agility also during harier manuver.. Interior of the fuselage is also improved, holder of tanks which you can buy it with the plane and already instaled rudder servo tray which you can extend with bearing arm. Holder of main landing gear is also redesigned and for all control surfaces we used Gabriel horns.

The LASER Z2300 Mk2 kit is a full composite kit. Both wings and elevator should be easily removed for transporting.

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1. Technical data:

Wingspan	2800 mm
Length	2662 mm
Weight (RTF)	17 - 18 kg
Wing area	132,5 dm ²
Engine (Gas)	150-180ccm
Minimum RC channels	6
Number of servos	9 - 11

Notice: This Assembly guide only shows how the model could be assembled. According to model specification we expect, that this airplane is assembled by experienced user, which will use his habits and skills to finish it.

As an accessories (levers, rods, fuel caps and fills, etc.) we recommend Secraft. Sets which you can order as order number:

2051000-50 for Hitec servos

2051000-51 for Futaba servos

2051000-52 for JR servos.

Here is list of Secraft parts for linkage:

Servo arm D45 mm (for elevator)	2
Double servo arm Offset D90mm (for rudder)	1
Double servo arm D64mm (for rudder)	1
SEC Ball links M3 (10)	1
SEC M3 Push rod of ALU 60 mm	8
Servo arm D40 mm (for ailerons)	4

For rudder is highly recommended SECRAFT rudder pull-pull set BASE No.: 2050130-01 or SPORT set No.: 2010130-02

For throttle servo is recommended SECRAFT servo holder S : 2050020

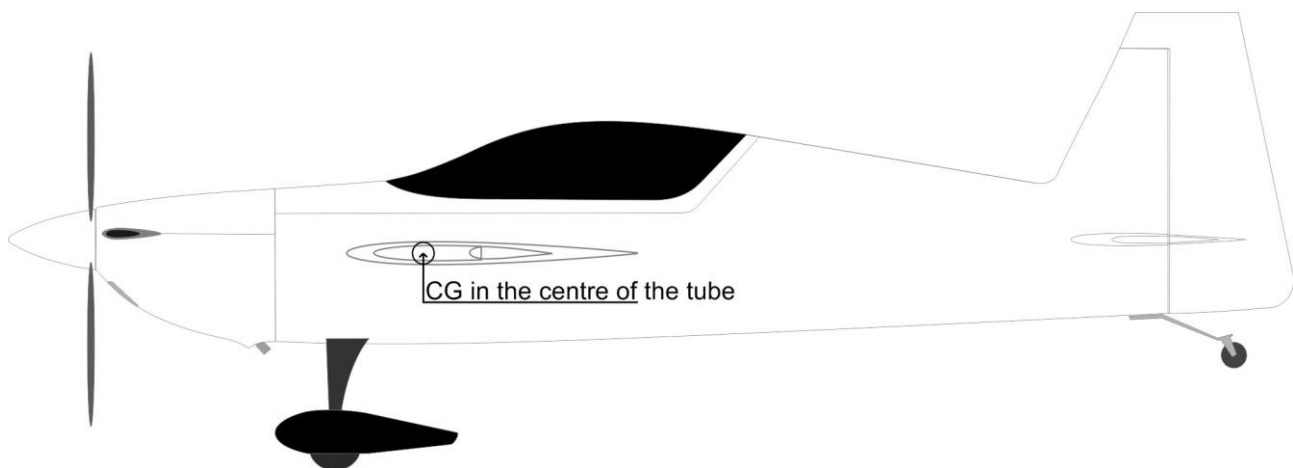
2. General informations

- all nuts should be secured against loosening (use Loctite 243)
- make sure, that all control surfaces can move freely
- all holes drilled in airplane surfaces, that is not factory made, must be reinforced (with roving, plywood, etc.)
- protect your airplane against **hot** (it can cause material degradation). Please notice that dark surface can heat up to 90°C/194°F in sunny summer days!!
- use protecting coats (you can order them with kit or separately via sales@krill-model.com email)
- please take into count that there are a lot of carbon fiber in your model, make sure that your receiver has full signal

KRILL model takes no responsibility for damages incurred during the assembling, flying, using or transporting this model airplane.

3. Setting and set up

Setting – incidence and CG



Basic setup:

Ailerons	deflection 20degrees, expo 50 – 60%
Elevator	deflection 30degrees, expo 50 – 60%
Rudder	deflection 30degrees, expo 50 – 60%

Idle 1 for 3D:

Ailerons	deflection 35degrees, expo 60 – 70%
Elevator	deflection 40degrees, expo 60 – 70%
Rudder	deflection 40degrees, expo 60 – 70%

Idle 2 for 3D:

Ailerons	deflection 42 – 45 degrees, expo 70 – 80%
Elevator	deflection 60degrees – full, expo 70 – 80%
Rudder	deflection 50degrees – full, expo 70 – 80%

4. Recommended servos:

You can use any strong and fast servos in standard size.

Recommended torque: min 35 kg/cm

Recommended speed: 0,08 – 0,11 s5.

5. Assembly

5.1 Empenage

5.1.1 Rudder

Gabriel horns 6/20

It's so simple just glue the horns into the prepared holes using an epoxy resin.



5.1.2 Horizontal stabilizer

Two operation for horizontal stabilizers is needed. First is to place the servo and drill the hole for servo lever. Make sure that lever has enough space for full movement. Otherwise the lever can damage stabilizer surface!



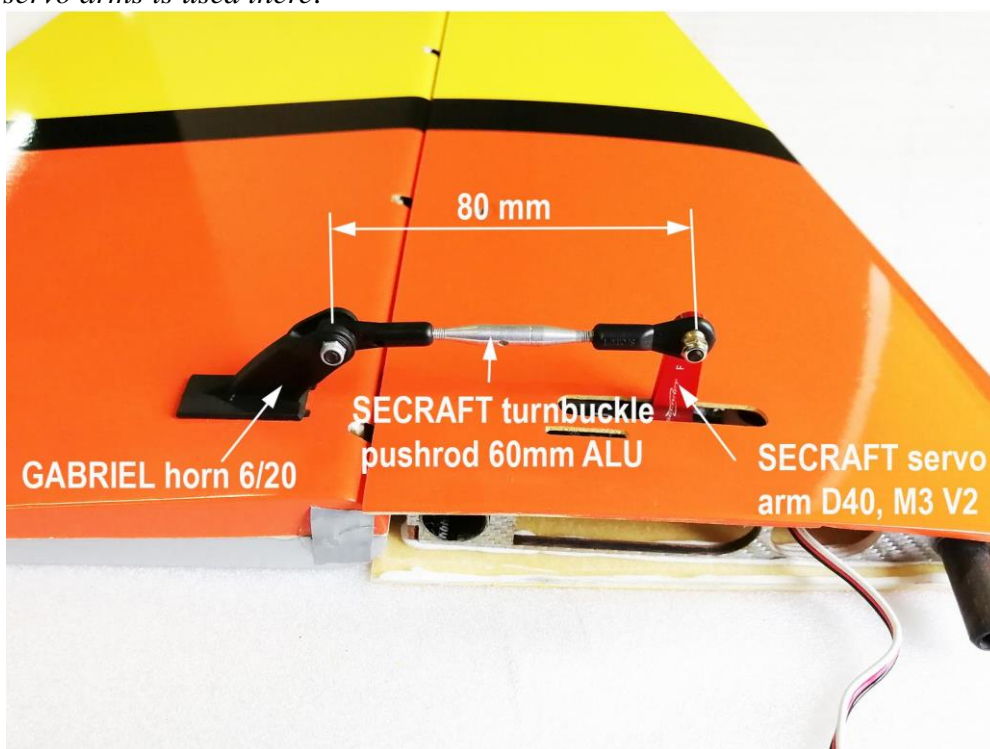
Second operation is to secure horizontal stabilizer against motion. This can be done two ways. First is to drill hole, which goes through surface and carbon fiber tube (stabilizer spar). And place a pin (or screw) into this hole. This operation has to be done on both halves!

5.1.3 Elevator

Use Gabriel horns 6/27 size from accessories. Glue it to predrilled holes on both elevators.



For linkage use Secraft turnbuckle ALU pushrod 60 mm long, from one side is mounted Secraft ball link M3, from second original Gabriel ball link, overall length of the link is 80 mm. 45 mm ALU Secraft V2 servo arms is used there.



5.2 Wing

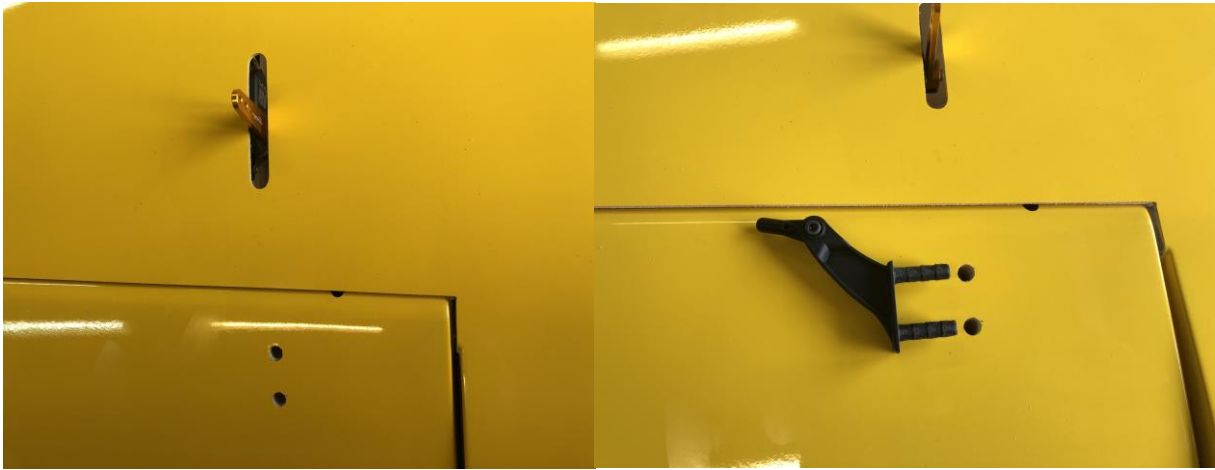
5.2.1 Servo instal

First step is put the servos to the prepared holes and fix it with screws. Second step is stretch the cable (ONE4TWO) through the prepared holes in the wing and connect it to the servos. Then you should fix the MPX connector to the 3D printed holder and fix the holder into the prepared hole.



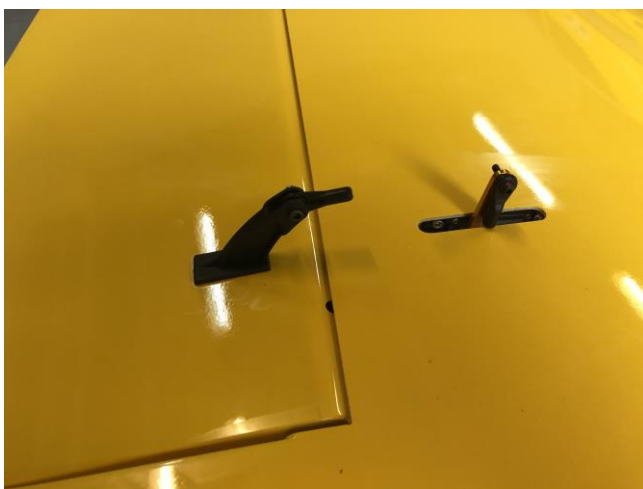
Next step is to drill holes for servo arms, there is a small hole in the right position for this size of servos. You should just make this small hole bigger enough for your arm.

One of the last steps is to glue the Gabriel horns into the prepared holes in the ailerons.



5.2.2 Linkage

Glue the supplied Gabriel horns size 6/27 into the prepared pair of holes with epoxy resin. Servo arm is connected with the Gabriel horn using a linkage made of a 60 mm long pushrod, terminated on one side by an original ball link from Gabriel horn and on the other side by a Secraft ball link.



5.3 Fuselage

The installation of the internal equipment of the fuselage of the model is very individual, it depends on the habits of the builder, but especially on the equipment used, consider the following lines as informative, what the internal installation of the fuselage may look like.

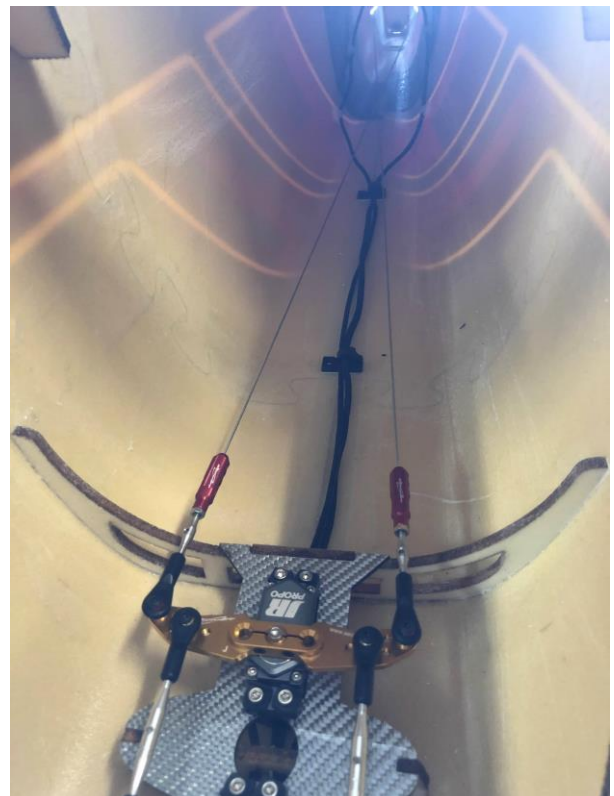
The model comes standard with a number of accessories that you can use:

- Battery holders



5.3.1 Rudder drive linkage

We recommend to use 2 standard servos mounted in the already glued deck to drive the rudder. The rear (end servo) is equipped Secraft double sided offset arm 90 mm, the front servo is equipped with a Secraft double side straightde arm 64 mm, the arms are interconnected by linkages formed by ball links Secraft and pushrods 70 mm. Than the drive itself is solved by a pull-pull drive using a Secraft Rudder pull-pull set BASE or SPORT.

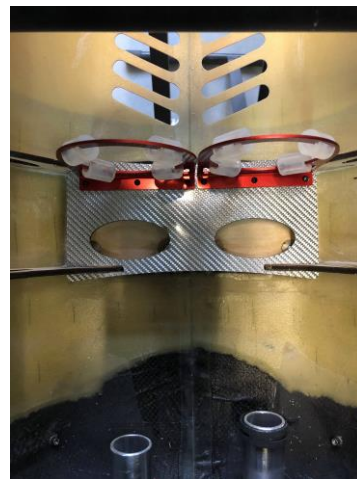


5.3.2 Engine installation

The MVVS 175NP engine was used for the model prototype shown. You can use any engine (2-cylinder boxer) size about 150-180 ccm. The engine is mounted offset to the right 2.5 degrees, horizontally at zero. It will probably always be necessary to mount the engine using spacers of suitable length so that prop hub plane is about 2-3 mm in front of the engine cover plane and respects the engine misalignment, on the engine axis at the prop hub level intersects the vertical axis of the model fuselage.

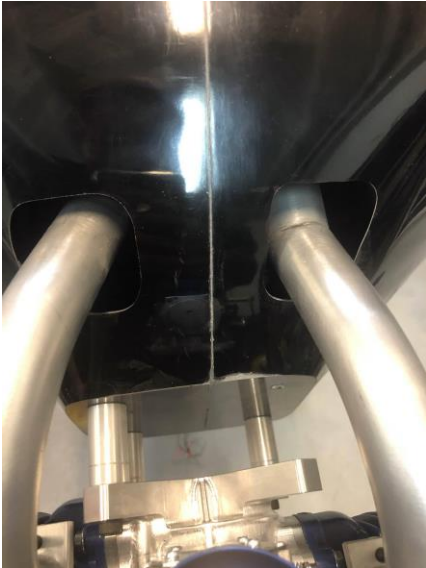
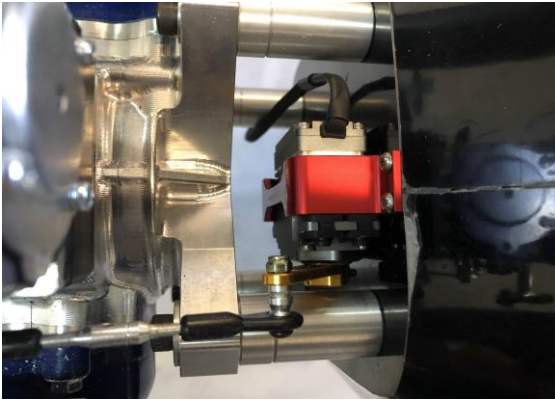
Silencers of any type can be placed on the engine, as often of the cup type, which are standardly supplied with some engines (DLE, etc.), but better, due to the noise limits, by the silencer with headers.

You can use the supplied 70 mm diameter muffler exhaust holder for this exhaust system.



The servo to control the carburetor should be placed under the engine using the Secraft side servo mount - see the picture.

Place the engine ignition on the side sloping wall of the firewall.



5.3.3 Fuel & Smoke Tank installation

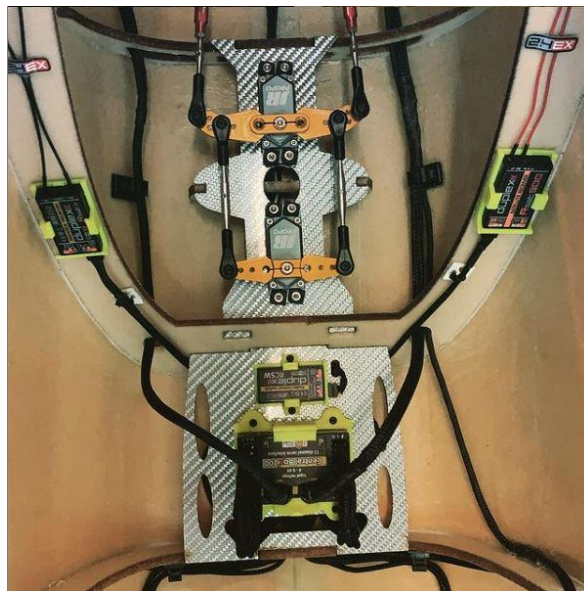
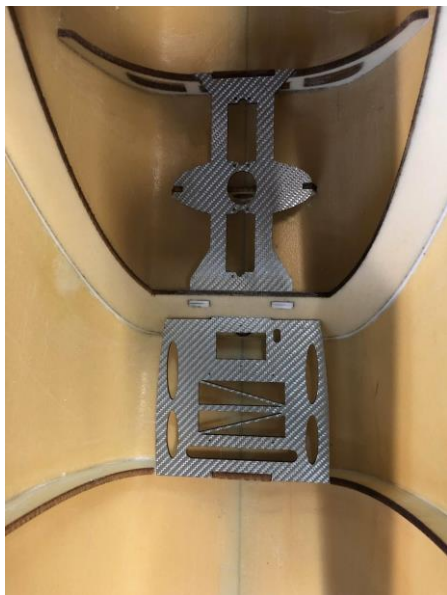
To install fuel and smoking tanks, you can use the standard delivered holder designed for use with Secraft square tanks - SE Fuel tank 1000 ml. The picture below shows an installation example. The tanks are attached to the holder with velcro



5.3.4 Equipment installation

No deck is installed in the fuselage but it's already prepared for one which you can use to mount your electronic system. For batteries (typically 2x RX batteries and 1x ignition batteries) you should use the standard delivered battery holders.

The pictures below then represent a possible solution for the installation of on-board electronics, here a model equipped with JETI models electronics.



5.4. Landing gear

5.4.1 Main landing gear

Every kit is delivered with full accessories to instal main landing gear, except wheels. This item should be ordered as optional. We highly recommend using the offered SLH Wheels 100mm on ALU disc with ball bearings.



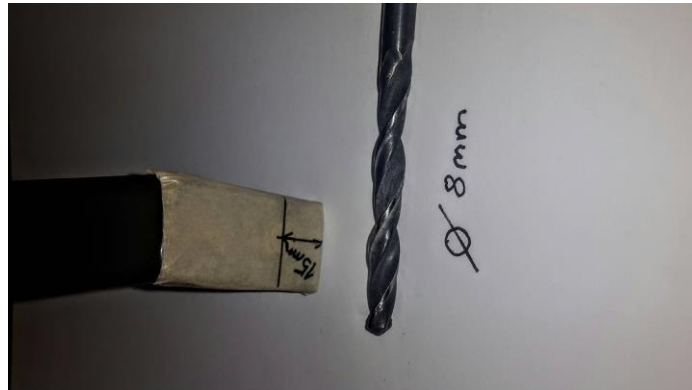
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The legs of the landing gears are delivered already drilled with the fuselage of the model. All you have to do is install the wheel axles and fit them with wheel covers.

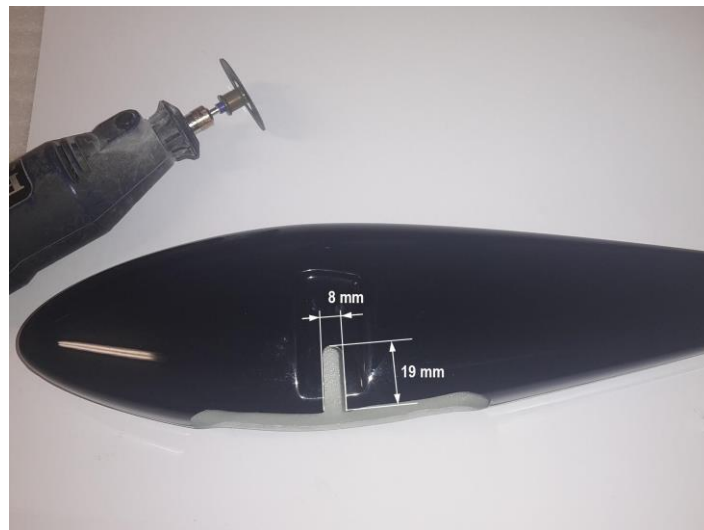
First, make sure that the wheels you plan to use pass through the holes in the wheel cover. If not, you can slightly enlarge the holes.



The chassis leg and the wheel cover fit together exactly at the point of contact. First, drill the holes for the axles in both undercarriage legs as shown.



Make a notch in the wheel cover to slide the cover onto the axle.



When installing, first install the wheel with the axle on the chassis leg and then slide on the wheel cover before final tightening.

The last operation is to put on the cover of the landing gear leg, the cover should be fixed to the fuselage with a strip of transparent adhesive tape.

5.4.2 Tail wheel assembly

We recommend using our tail wheel 2010300-81 Tail wheel 35% with leg of C / F V2 for the model.



Attach the tail wheel to the tail of the fuselage on a designated area, which is reinforced inside with plywood. There are 2 M4 nuts fixed in the plywood you can just use 2 pieces of M4x20 screws to mount tail wheel.

Drill 4 mm diameter holes into the CF leg of tail wheel as shown.



Notice:

It is not necessary for the tail wheel to be controlled by the rudder linkage, you can leave them free. It's simple and just as functional as a controlled tail wheel.

5.5 Cowling and cooling

The engine cover (Cowling) is delivered in the kit as it is removed from the mold after production. The engine cover is only folded with the fuselage and there are holes for connecting screws to the fuselage.

The picture shows which holes should be made. There are additional holes in the bottom of the engine cover for engine cooling and better air access to the carburetor. Thus, the engine cover was a modification for the used engine MVVS175NP.



For additional information about build you can contact us via sales@krill-model.com email .

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