



*„Born to FLY...  
born to be in the SKY“*

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## ***RC paramotor***



**Please read this manual carefully before using the product for the first time.**

Thank you for choosing a product of our company. We believe that this manual will help you get started, operate safely and take care of the purchased product. Following this manual will allow you to take advantage of maximum performance and bring you pleasure from flying with RC paragliding models.

**RC para SKY team**



### **Safety warning:**

By purchasing this model you become its user and you are responsible for its use and any risks associated with its operation. The manufacturer RC para SKY or the seller are not responsible for damages resulting from a possible accident. Read this operating manual carefully to minimize the risk of problems when operating RC paragliding models.

Radio-controlled models are a source of entertainment and sporting experiences. However, their inappropriate use may be a source of danger and damages. Prior to each flight, do a thorough preflight check. Make sure the fabric of the canopy and the lines are not damaged from any prior falls. Make sure the batteries are properly charged before flying. Before the first flight, check the range of the RC kit and always check that the electronics are properly fastened and work properly (e.g. servo control, motor control, etc.). Do not fly over the audience, cars, trees and buildings, also under the unfavorable weather conditions and poor visibility.

Aerobatic flights with RC paragliding models require sufficient piloting experience to ensure correct response and control input at the right moment. Do not attempt aerobatic manoeuvres without sufficient experience and knowledge – improper handling or response by the pilot can be dangerous and result in property damage or injury. Also, do not attempt aerobatic elements with models not designed for aerobatics.



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## 1. PARAMOTOR CONSTRUCTION AND ITS PARTS

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The stable and solid frame of the RC paramotor with 33 cm in diameter is made of stainless steel. As well as the body of the pilot which is made of stainless steel sheet of 2 mm thickness. Both constructions are connected to each other with four screws of 6 mm in diameter. Other parts of the paramotor include lever arms of the pilot, which are made of 2 mm thick laminate plate. Pilot's legs are constructed of a silicone hose, thanks to the chosen material, there is no risk of leg breaking when landing. The head, hands and pilot's shoes are cast from special hard polyurethane.



## 2. SETTING UP ELECTRONICS

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In case you buy a paramotor without any electronics or just with some electronic components, you must first set up the complete electronics before the first use. The motor, controller, propeller and 2 servos are required to start the paramotor. For complete flying you will also need a battery, receiver and RC transmitter (radio).

### 2.1. Setting up the backpack (motor, speed controller, propeller)

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**Motor:** There are drilled holes with threads to attach the motor at the rear of the backpack. The motor isn't being balanced anymore. It's good for the cables from the motor to point up, for better connection with the controller. Motor power should be at least 450 W.

**Speed controller:** There is a double-sided adhesive tape stuck to the motor under the attachment, on which you stick the controller. The tape is strong and holds very well, so you don't have to worry about losing the controller. Next, connect the controller to the cables from the motor. Always choose a controller suitable for the parameters of the motor.



**Propeller:** Put the propeller on the motor bed and secure with cone. Choose a propeller suitable for other components as well and, at the same time, its dimensions have to match the size of the backpack.

## 2.2. Setting up the pilot's body (servos)

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**Servos:** Put the standard servos into the prepared holes and tighten with four screws. We recommend selecting servos that will have a minimum pull of 10 kg.

## 2.3. Complete commissioning (battery, receiver)

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For complete flying with the RC paramotor, a battery and receiver are also needed.

**Battery Li-Po:** The battery compartment is located at the bottom of the pilot's body where is the box of 140 x 50 x 30 mm.

**Receiver:** Three channels on the receiver (2x hands, 1x motor with controller) are enough to get the RC paramotor up and running.

## 3. SETTING UP BEFORE THE FLIGHT

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### 3.1. Electronics connection and motor commissioning

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Connect the connectors from the servo to the receiver to channels 1 and 4. Connect the connector from the controller to channel 3. Put the charged battery into the prepared box in the pilot's body. Now the electronics is connected.

Next, you will test whether the motor is rotating in the right direction. Take the transmitter, put the lever in the zero position and turn the transmitter on. Then connect the connectors from the regulator and the battery (always be careful not to connect the battery incorrectly - it may cause a battery short-circuit and an explosion!!). After the connection, the controller should give us a "beep". Now gently add gas to see if the motor and propeller rotate in the right direction. If so, you have everything connected properly. If not, disconnect the battery and switch the two connectors between the controller and the motor. Reconnect the battery and try again with a slight addition of gas. Now the motor is tested and ready for the first flight.

### 3.2. Pilot's hands adjustment, control types

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First, let's attach the arm levers to the servos. Turn on the battery to bring the servos into neutral position, pass the prepared pilot's hand through the jacket's sleeve and attach the hand to the servo in the position shown in the following picture (so-called neutral hand position). Do the same on the other side. Secure both sides on the servos with screws and tighten them.





Selecting the control style of the pilot's hands depends on which style you select when you are in control or which one you are used to. Here are two of the most common control styles in MODE 2, which means the gas is on the left lever. If you will use MODE 1, the gas will be on the right lever.

### A. Classic hand control

This control is comparable to the control of a real size paragliding wing. The right lever is the pilot's right hand, the left lever is the gas and the pilot's left hand. This control allows you to control the RC pilot and canopy sensitively, so you can use this style to achieve a finer and more realistic flight, thanks to the fact that each pilot's hand is controlled independently. Characteristics of this control:

- pull the left lever on the transmitter to yourself, the motor is off
- push the left lever on the transmitter from yourself, the motor speed increases (add gas)
- push the left lever to the left, the left pilot's hand will go down
- push the left lever to the right, the left pilot's hand will go up
- push the right lever to the right, the right pilot's hand will go down
- push the right lever to the left, the right pilot's hand will go up

this position is shown in the picture:  
„push the right lever to the right, the right pilot's hand will go down“ (left hand is in neutral position)



this position is shown in the picture:  
„push the right lever to the left, the right pilot's hand will go up“ (left hand is in neutral position)



## B. Control via the so-called delta-mix

If you choose the delta-mix control, there is a disadvantage that you can't control each pilot's hand separately. However, this applies only to older types of RC transmitters. For newer RC transmitter models, you can set the same control as in "A. Classic hand control". For older types of RC transmitters, where it isn't possible to control each hand individually, the following control features apply:

- pull the left lever on the transmitter to yourself, the motor is off
- push the left lever on the transmitter from yourself, the motor speed increases (add gas)
- push the left lever to the left, the left pilot's hand will go down and the right one will go up
- push the left lever to the right, the right pilot's hand will go down and the left one will go up
- pull the right lever to yourself, both pilot's hands will go down
- pull the right lever from yourself, both pilot's hands will go up

this position is shown in the picture:  
„push the left lever to the left, the left pilot's hand will go down and the right one will go up“



this position is shown in the picture:  
„pull the right lever from yourself, both pilot's hands will go up“



### 3.3. Check the paramotor weight

Always weigh the paramotor before flying and **try to balance the weight to the correct ratio of the chosen RC canopy according to the manufacturer's recommendations.**

**The weight check of the paramotor is very important.** If you choose the right weight, the RC canopy will be more responsive to controlling, will be more vivid and skillful. At a lower load, the canopy will be less stable.

In case you need to add additional weight to the paramotor, it is important to keep the correct center of gravity of the whole flight system and the right tilt of the suspended paramotor under the canopy, so the entire system must be balanced during flight. If this isn't the case, then the paramotor can get into the wrong position after the takeoff - either in the "leaning forward" or "leaning backward" position. A large backward leaning causes the torque to be transmitted from the propeller to the vertical axis, which may cause rotation of paramotor around the vertical axis, if the motor is too strong and the paramotor too light. Then the lines will tangle together and you will lose control - so called "twist". Such situation can not occur with a well balanced paramotor.



✓ RIGHT



✗ WRONG – leaning forward



✗ WRONG – leaning backward





### 3.4. Attaching the canopy to the paramotor

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In case you purchased the RC paramotor and canopy from our company RC para SKY, attach the canopy to the paramotor as described here. When using a canopy from another brand, you should follow the recommendations of the particular manufacturer.

Attach the canopy to the paramotor using karabiners so that the "A" line faces forward in the direction of flight. Pass the brakes through the D-rings at the lower part of the riser, which is designed for the "C" line (or "B" line - according to the canopy type - see the operational manual of RC canopy) and then tie it to the pilot's hand. The recommended brakes length for each of our canopies is specifically described in the operational manual for each RC canopy.



## 4. TAKEOFF, MULTIPLE FLIGHT MODES AND LANDING

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### 4.1. The takeoff and flight phases

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Always fly in the open space and make sure that there are no obstacles in the flight direction.

Grab the paramotor and lift the canopy overhead. If it's filled with air properly, you can slowly add gas on the paramotor (**never give it full throttle at this stage, there may be a situation when the pilot will "outrun" the canopy and fall**) and send the pilot to the air into the flight phase. With a slight gas



correction you will ensure a slight climb of the canopy. If you have adjusted the brakes on both hands correctly, the canopy continues in a straight flight.

**Warning:** Take extra care when handling the paramotor / trike! Always be careful that the propeller does not cut our hands or crash the paraglider's lines due to improper handling when the engine is turned on.



## 4.2. Flight modes

The pilot controls the paraglider with brake lines - so-called brakes. The rear edge (trailing edge) of the paraglider is pulled down with brakes, which changes the forward resistance of the glider on the side on which the brake has been pulled. Paraglider control, change of the flight direction, is done with the brakes only in the horizontal plane, the glider can't climb by itself. Rising air currents are used to climb or a propulsion unit - a propeller motor - is used to obtain the height.

1. Direct flight is the most basic movement of a paraglider. When pulling the brake lines, the forward speed decreases and the fall increases. This can be done until its forward speed is greater than the minimum. When the minimum speed is reached, you mustn't brake anymore, otherwise the canopy will deform and the wing will go into a non-standard flight mode (spiral, etc.).
2. Slight turn is made by pulling the brake line on the side to which you want to turn. It's pulled only a little because of the slight turn. When the canopy makes the required turn, you will slowly release the brakes again.
3. Sharp turn "tightened" is done by a larger and faster pull of the brake line on the side to which you want to turn, while releasing the brake line on the other side. Thanks to a larger tilt, the forward speed will reduce more and the fall will be greater than with the slight turn. If you fly with the motor, you can help yourself by adding gas to it.
4. The spiral is a situation that you get into when intensively braking one side of the paraglider. Due to the specifics of this mode, the spiral ranks in paragliding among so-called non-standard modes.



**Warning:**

When controlling RC paragliding models, it's necessary to fly with a soft touch on the transmitter levers, because the canopy always responds to the breaking with a slight delay, compared to other RC models (aircraft) when the aircraft's response to the controlling is immediate.

At the moment, when you pull the transmitter lever while flying with the RC canopy, the pilot's hand will react immediately, but the canopy will react only afterwards. If you were to pull the transmitter lever even more at that moment, because you would have thought that the canopy didn't react, the paraglider will suddenly answer with a sharp turn and if you will get surprised with this situation and will immediately so-called "counter" on the other side, you will swing the canopy from side to side.

The solution is to stop trying to straighten the canopy by pulling the left and right lever alternately, rather put the canopy to rest by slightly pulling (braking) on both sides, and the canopy will straighten itself to a calm flight.

### 4.3. Speed bar system

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The speed bar system (also "accelerator") is the type of control that is used to increase the canopy speed. When using a speed system, the wing's angle of attack will change to the ground - lines A and B will be shortened. This increases the speed and also the sinking of the canopy, but also increases the possibility of collapsing the leading edge of the canopy. If the speed system is used, the canopy should not be braked (in the neutral position of the pilot's hand), since there is a deformation of the wing profile, not the desired acceleration of the canopy.

The speed bar system is primarily used for slope soaring where wind currents can be more unstable (impact wind). We can also use it in powered flying to accelerate the flight, for example, when we need to fly out of a rising stream.

**How to connect a speed system?**

**The use of the speed system in our canopies is not necessary, because all our canopies are already designed with the required acceleration.** However, if you want to use the speed system, the risers of our canopies are ready for this speed system.

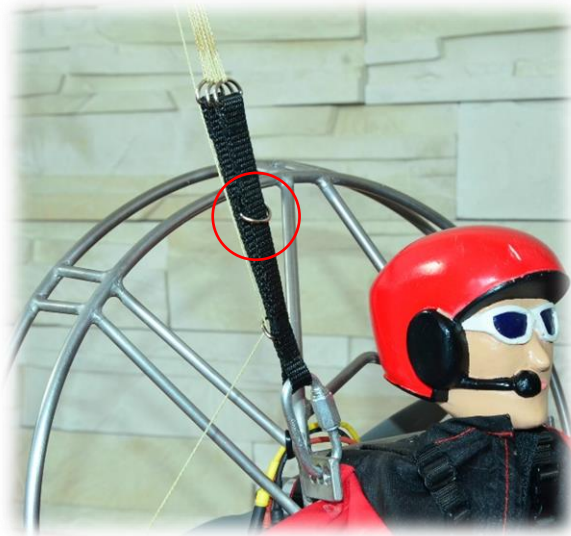
At the riser there is a D-ring on which we tie the line. We do the same for both risers. It is very important that the lines for the speed system are the same length on both sides!!!

**Our paramotor is not directly ready for use of the speed system, but it is only sufficient at the end of the pilot's body (at the point where legs start) to cut the holes on the sides according to the size of the selected servos and attach two servos (on each side one servo) including the servo lever.** Servos should have a minimum thrust of at least 7 kg. End of the line of the speed system, tie into the servo lever.

**When using a speed system, we pull down a maximum of 2 cm during the flight, otherwise the canopy may be collapsing.**



D-ring is ready on the riser



tie the line into D-ring



how to pull down the speed bar



speed system is ready on both sides



#### 4.4. Landing

Try to land with the canopy against the wind ideally and with the motor off (in case of landing in wind direction, the canopy will inadvertently accelerate and if the motor is on during the landing, the propeller can collide with the lines and break them). So you are flying against the wind and at a moment when the pilot is about 1 - 2 meters above the ground, fully release the breaks and turn off the engine, if you haven't done so earlier. By releasing the breaks, the canopy will speed up and the fall to the ground will increase. When the pilot is just before the landing (about 20 - 30 cm above the ground), fully pull both sides of the brakes at once to experience the softest landing. The canopy will swing up with this move and the pilot will land.





## 5. RC PARAMOTOR CARE

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The condition of your RC paramotor and its service life **depend on the correct handling, storage and care** that you give it. Therefore, please observe the following points:

### Use

- Check the range of the RC transmitter before the first flight.
- Make sure that the batteries are properly charged before each flight. Also, always check that the servo control and the motor work properly.
- Pick a suitable starting point and a suitable landing area. Follow the manufacturer's recommended landing instructions for the paramotor so that the pilot's landing is as smooth as possible with minimal impact into the ground. Never land on concrete or asphalt.

### Storing

- Store the paramotor in a dry place with controlled temperature.
- Always disconnect the batteries when storing them.



## 6. TECHNICAL DATA

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- construction of the paramotor backpack with 33 cm in diameter is made of stainless steel
- construction of the pilot's body is made of 2 mm stainless steel sheet, with 140 x 50 x 30 mm box (for battery insertion)
- pilot's lever arms are made of 2 mm thick laminate plate
- pilot's legs are made of a silicone hose
- head, hands and pilot's shoes are cast from special hard polyurethane
- harness with straps
- clothes for the pilot
- carabiners for attaching the RC canopy



## 7. MANUFACTURER

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