MACFLY user manual

Update : 04/02/2026

Congratulations on the purchase of your MACFLY Paramotor.

This paramotor is the result of 25 years of experience in paramotor design and use, including national and international competition, as well as intensive field use in flight training with pilots of all sizes and experience levels.
MACFLY frames are continuously developed and improved to meet current technical, performance, and safety standards.

It is essential to read this manual carefully before operating your paramotor for the first time. This manual is intended to help you obtain the best performance from your equipment. It provides detailed information regarding the design of the power unit, as well as operational recommendations, maintenance guidelines, and best practices to ensure safe use and long service life.

We hope you will experience the same level of satisfaction and confidence in flight with our equipment as we have gained through years of testing and development.

Good flights!
The MACFLY team

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1 – Caution / regulations

The training program is relatively flexible in most countries, and teaching methods for the discipline can vary significantly from one training center to another.
The regulations specific to each country must be carefully reviewed before flying. For this reason, Macfly cannot be held liable in the event of an accident resulting from improper use of the power unit, and we strongly recommend that you strictly follow the instructions and recommendations provided in this manual.

WARNING: MACFLY acknowledges that the handling and operation of a paramotor involve inherent and unavoidable risks.
By purchasing, owning, or using this product, the user expressly acknowledges, accepts, and assumes full responsibility for all risks, whether foreseen or unforeseen, associated with its use.

Improper use and/or inadequate maintenance of your equipment significantly increase these risks.
Macfly paramotors are intended for qualified pilots as well as pilots in training. Under no circumstances shall the manufacturer, importer, or distributors be held liable for the use of this product.
We strongly recommend that pilot training be conducted through competent and certified training schools.
Pilots should continue training on a regular basis in order to keep up with the evolution of the sport, flying techniques, and equipment.
Your equipment must not have been modified in any way and must be in good condition and regularly inspected and maintained.
A complete pre-flight inspection of all equipment before each flight is mandatory. Never attempt to fly with damaged equipment or equipment that is not suited to your level of experience.
Always fly equipped with an approved helmet, appropriate footwear, and gloves.
Avoid flying in rain, snow, strong winds, turbulent conditions, or clouds under all circumstances.

1.1 Certification, Licensing, and Insurance

Depending on the country or state, paramotoring may be subject to specific regulations or may not be regulated at all.
The pilot must obtain any required certification or license specific to the country prior to operating the power unit.
In addition, some countries require mandatory insurance coverage.
All pilots must demonstrate an appropriate level of training and experience and, depending on national regulations, must hold at least valid third-party aviation liability insurance.

1.2 Identification / Registration

In some countries or states, the paramotor is considered a means of transportation or a vehicle and may require specific identification or registration.
Pilots are responsible for verifying applicable requirements with the relevant ministry, aviation authority, or national federation before operating a paramotor.

1.3 Wing Connection

There are many types of wings available, some more suitable than others for paramotor use.
Some wings are not specifically designed for powered flight and are intended for free-flying (paragliding) applications.

2 - Characteristics of the different engines on the Macfly frame

We currently assemble 2 different brands of engines on our frames :

- **POLINI ENGINES**
Thor 80 I Thor 130 EVO I Thor 202 I Thor 260 I Thor 303
https://www.polinithor.com/fr/

- **VITTORAZI ENGINES**
Moster 185 - Dual / Atom 80 / Moster 185 / Factory-R / Moster EFI
https://vittorazi.com/en/services/

The maintenance and user manuals for the two different engine brands we offer are available on their respective websites listed above.
We recommend that you strictly follow their operating and maintenance instructions and regularly review their service bulletins for any updates or required actions.
In case of doubt, contact your authorized dealer for advice.

We recommend that your equipment be regularly inspected and maintained by a qualified professional.

3 - Handling of the Macfly powered-paraglider

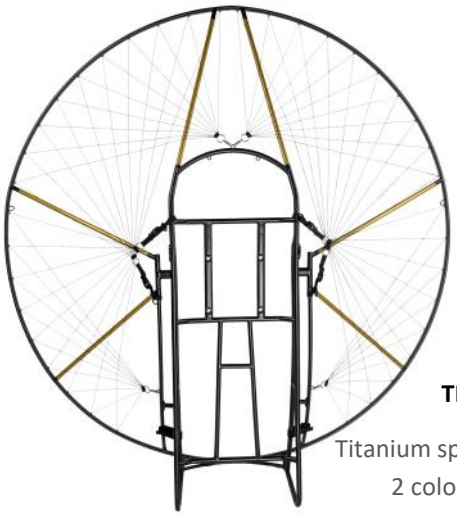
3.1 Présentation of the frame / cage, assembly and disassembly

The Macfly frame is made of titanium material which combines the lightness of aluminium and the resistance of stainless steel. Grade 2 titanium was chosen in order to be TIG welded if needed. Nevertheless, you'll have to equip with a special welding rod that Macfly can provide you.

A visual inspection of the net must be performed before each pre-flight.

Replacement of the net is recommended every 100 flight hours, or as soon as any fraying of the net is observed, whichever occurs first.

In the event of abnormal engine vibration, the net may deteriorate rapidly.



TRAVEL CAGE

Titanium spars - Full paint option, 2 colors Gold and Black

We currently offer two cage sizes:
- Travel Cage : 138 and 150cm, Titanium and Carbon spars

Explanations for Assembly / Disassembly of Foldable, Travel and Standard cages are available on the website : https://www.macflyparamotors.com/montage-utilisation_en.html

The cage painting option is available, with multiple configurations:

• Cage ring only, or full cage painting
• 8 colors available, with the option to select two different colors distributed across the titanium frame and cage components

https://www.macflyparamotors.com/chassis-cage_en.html

TRAVEL CAGE

Carbon spars - Black paint option

3.2 - Swing arms, adjustments and disassembly

The “gooseneck “movable arms will enable you to have both comfort and harness reactivity. Neither too high nor too low.

The two movable arms have a slight torsion on the left , to reduce motor torque when propeller rotation is clockwise ; and a slight torsion on the right for propeller rotation counter -clockwise

The movable arms are delivered with the manufacturer’s standard adjustment.

The attachment point of the left and right ring is slightly different (difference between 1 and 2 cm). This setting adjusts the effects of engine torque

You may have to change this adjustment slightly for different reasons such as comfort, pilot’s weight, tandem flight or trike installation, which could slightly change your flight position or also to adjust your engine torque.

To do that, proceed as follows :

A - Adjustment of the Cage plan, or propeller / Pilot inclination:

The cage must be inclined from about 10 to 15 degrees backward from the vertical of the level flight.

If you are rather at zero degrees (you are **too upright),** you’ll have to **move <u>the two rings</u> forward** according to the standard adjustment. (according to the table “*Ring settings based on pilot weight*”)

If you go beyond the 15 degrees (you are **too backward**), you’ll have to **move <u>the two rings</u> backward** according to the standard adjustment.

Here is a small non-exhaustive table to give you an idea of what your setting could be, your setting.

Note that this is very customizable.

It is to be adapted according to your height, weight, morphology, and that you must hang you on a gantry to validate your adjustment.

RINGS SETTINGS BASED ON PILOT WEIGHT	
Pilot weight	Setting
50 kg to 60 kg	- 1 cm to - 2 cm
60 kg to 70 kg	- 0,5 cm to - 1 cm
70 kg to 80 kg	Standard
80 kg to 100 kg	+ 1 cm to + 2 cm
100 kg and more	+ 2 cm to + 3 cm

B - Adjustment of the anti-torque :

Once your adjustment of the propeller thrust axis is correct, you can fine-tune and accentuate your anti-torque.

To do that :

*** if the propeller turns clockwise**

move the ring **of the left movable arm** from 10 to 20 millimeters forward.

*** if the propeller turns counterclockwise**

move the ring **of the right movable arm** from 10 to 20 millimeters forward.

Be careful, when you increase your anti-torque, the position will be more comfortable at full throttle but you'll feel a slight torque on the other side when you'll reduce throttle.

The "standard" adjustment seems to be the best compromise.

You can disassemble these movable arms to save storage space during a trip for example.

Durind the reassembly, take care not to fully tighten the nut on the axle.
Be careful to leave a slight play on the spring.
It is recommended to change this kit (Screw + spring + washer + nut) every 100 flight hours or every 2 years)

WARNING: The self-locking Nylstop nut is for single use only, and must be replaced after each disassembly

3.3 Presentation of the harness and setting up on the frame.

The comfortable harness was specially designed for paramotoring. It includes different adjustments that we'll explain in detail later in the chapter "harness adjustments". It is equipped with two removable side pockets. (You may replace one side pocket by a specific pocket to install a pocket with a reserve parachute).

3.3 Presentation of the harness and setting up on the frame. (continued)

Les fixations de la sellette sur le châssis :

- On the upper part of the frame, with two straps. ->

- On the lower part of the frame, with two straps.
These straps are used for the lateral stability of the frame on the back, particularly during take off when torque is more perceptible during the acceleration phase.
The straps must be properly tightened.

- With 2 quick release buckles on the lower part of the frame. These straps are carrying straps and provide a backpack comfort, the frame doesn't slide anymore on the lower back and it is well carried on the shoulders.

On the two moveable arms to fix the risers.
It is the centering axis of the machine.

At the end of the moveable arms, this is where the pilot's weight is mainly spread to the frame.
(See the assembly in the pictures)

WARNING : It is recommended by the harness manufacturer to change the carabiners every 5 years or after 500 hours of use

More informations about the **SUPAIR** harness: http://www.supair.com/document/notices/PARAMOTEUR_EVO_FR_2015.pdf

More innformations about the **SOL** harness : https://www.solparagliders.com.br/userfiles/files/manuais/evolution2_br.pdf

https://solparamotors.com.br/assento-paramotor-revolution

More informations about the **DUDEK** harness : https://dudek.eu/en/produkt/powerseat-light/

https://dudek.eu/en/produkt/powerseat-comfort-dp/

3.4 Setting up the reserve parachute

WARNING: Rescue parachute manufacturers recommend repacking your rescue parachute every 6 months, refer to its user manual.

We recommend that your reserve parachute be packed and installed by a professional.

There are different types of reserve parachutes, each with its own specific packing method, as well as particularities in the extraction chain and deployment.
Please refer to the manufacturer's user manual for packing instructions, fine-tuning the installation, and above all to understand how it works on the day you may need it.

Remove the harness side pocket (preferably on the side opposite your throttle)
Replace the pocket with the container holding the parachute.
Place the parachute risers along the harness, then at the top of the harness and **outside the swing arms**
Connect the risers to the shoulder straps, on the loop provided for this purpose.
Use a "square link" specific to reserve parachutes.
It should be noted that installing a reserve parachute requires further attention during the pre-flight checks : check that your parachute container is properly closed.

After installation, perform an extraction test on a hanging frame to ensure correct deployment of the reserve parachute, then reinstall it in the same configuration.

Harness manuals SUPAIR / SOL / DUDEK: see the end of the previous page.

WARNING: Aerobatic flights and extreme maneuvers are not recommended, the equipment has been tested for school, leisure, and competition flights. But has not been tested / proven for aerobatic flight with the structural constraints, and the forces associated with it.

3.5 Handling and moving on the ground

You can carry your paramotor with your hands on the frame between the two cages, facing the harness. For a long distance on foot, we advise you to carry it on your back, with the two shoulder straps to prevent the premature wear of one carrying strap.

3.6 Storage

Avoid running the engine with mixed petrol that is older than one month.
In that case, empty the old mixture and replace it with some new one.
We advise you to disconnect your PPG battery (if equipped), as well as the spark plug noise suppressor when you move or store your PPG.

4 – Pre-flight checks 1/2

WARNING : We strongly recommend a careful and thorough pre-flight before each flight. In case of suspicion of an anomaly, however small, DO NOT FLY WITH IT, contact your dealer.

Each engine is different in use and maintenance. Follow the recommendations of the engine manufacturers concerning the mechanical parts (manuals available and updated on the websites of each engine manufacturer)

HARNESS

- ☐ Pockets closed (including pilot pockets)
- ☐ General condition of straps
- ☐ Upper and lower harness attachments, swing arms
- ☐ Reserve parachute container closed, straps correctly routed and secured
- ☐ Seat board checked and secured

FRAME

- ☐ Frame not deformed, sufficient propeller clearance within the cage
- ☐ Lower frame bars tightening checked
- ☐ Cage sections properly fitted
- ☐ Velcro fasteners in good condition *(replace every 150 h or 2 years, or at first visible wear)*
- ☐ Net condition and tension checked *(replace every 150 h or 2 years, or at first visible wear)*
- ☐ Starter shackle and pulley checked
- ☐ Engine silent block mounts checked

See the video on : macflyparamotors.com

WARNING: Aerobatic flights and extreme maneuvers are not recommended, the equipment has been tested for school, leisure, and competition flights. But has not been tested / proven for aerobatic flight with the structural constraints, and the forces associated with it.

4 – Pre-flight checks 2/2

ENGINE (follow fuel system)

☐ Fuel level checked, refilled if necessary

☐ Fuel tank condition and attachment to frame checked

☐ Fuel filter pickup clean *(replace yearly or every 50 h)*

☐ Fuel cap properly tightened, no leaks

☐ Fuel lines in good condition, no leaks, routed away from hot parts *(replace yearly or every 50 h)*

☐ Primer bulb not cracked and properly secured *(replace yearly or every 50 h)*

☐ Carburetor and airbox securely mounted, unobstructed, rubber intake boots in good condition

☐ Spark plug cap properly seated, spark plug tightened

☐ Ignition coil secured, electrical connectors in good condition

☐ No engine block leaks *(no oil seepage)*

☐ Engine cowling properly secured

☐ Exhaust system and muffler in good condition: no cracks, no leaks, springs tensioned, rubber mounts OK

☐ Reduction drive checked: no bolt play, no excessive oil seepage at decompression valve, belt tension checked

☐ Propeller and hub bolts checked: no play, no abnormal noise, general condition and leading edge checked

☐ Throttle control checked: full travel, smooth and positive return

☐ Starter pulley and rope in good condition. Do not pull to avoid accidental engine start

PILOT

☐ Physical condition compatible with flight *(no illness)*

☐ Mental condition compatible with flight: no abnormal stress, agitation or emotional distress

5 – Engine starting

WARNING : We strongly recommend that you do not start your engine on the ground.

We insist on the fact that a start on the back is much less risky.

During a cold start, turn ON the choke. (depending on engine model)

Straps closed, take the throttle handle in your right hand, and tighten properly the velcro strap on the back of your hand.

Incline the engine slightly on the right, to take easily the flash starter handle.

Take the flash starter handle between the thumb and the forefinger of your right hand. You can use your ringfinger or little finger to accelerate slightly during starting. With your left hand, grasp the spring on the flash starter cord

WARNING : Don't pull the flash starter without having the handle in a good position, with the stop button immediately accessible.

Pull the starter cord slowly until you feel resistance, until you find compression stroke, then pull quickly straight ahead. Your two arms must be stretched. After the compression stroke, your engine should start. After starting the engine, don't let the flash starter cord shoot back abruptly but let if rewind slowly.
If you let go the flash starter handle abruptly, it might damage the flash starter mechanism.

If you have chosen the option "left hand handle", proceed as described with the opposite hand.

After starting the engine, you can move the choke lever to the “OFF” position after a few seconds.
Don’t take off with the choke in the “ON” position !

In order to reduce the risks of accidents, you shouldn’t completely warm up your engine with full gaz when you are not in flight.

Ground warming up aims at identifying any potential engine malfunctions (noise, vibration)

Each engine has its "little character", learn to tame it to start it at best.

In case you can not start your engine on your back :

(example: diaphragm carburetor too primed, engine flooded),

We recommend disassembling the propeller, to start the engine on the ground.

WARNING : Be careful never to mount it in RPM without propeller, it will damage the engine.

Once started, turn off the engine and reassemble the propeller.

WARNING : For your safety, we strongly advise against starting the engine on the ground with the propeller mounted.

Place your left hand as indicated in the photo, holding
vertical and the throttle handle as indicated.
No throttle during the first engine start attempts.
Pay particular attention to the position of your thumb near the stop button.

Your thumb mustn’t be stuck in the throttle handle strap.
Don’t pull the flash starter without having the handle
in a good position, with the stop button immediately accessible.

6 – Installation and adjustment of the harness

Get down on your knees or crouch to place the 2 shoulder straps. Get back on your feet carefully, without I nclining too much the engine forward to avoid fuel going up through the overflow fuel line.

Adjust your shoulder straps symmetrically and comfortably (the PPG must be carried comfortably on your back and not on your lower back).

Fasten your leg straps and check that the seat board extension isn't turned under the harness, then fasten your chest strap. The adjustment of your chest strap will have an effect on your piloting through your weight shift (turning by shifting your weight), as well as the transfer of information wing/pilot.

More concretely, if you loosen the chest strap, you will control the harness more easily, but you will be more "shaken" in case of turbulence.

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There is a small strap above the chest strap that must be closed, it only aims at preventing shoulder straps slipping during take-off and landing phases.

We advise you to tighten the leg straps pulling them down towards your knees (bring them down by leaning you slightly forward) in order to sit more easily after take off

Complete user manual of harnesses :
SUPAIR: http://www.supair.com/document/notices/PARAMOTEUR_EVO_FR_2015.pdf

SOL: https://www.solparagliders.com.br/userfiles/files/manuais/evolution2_br.pdf
https://solparamotors.com.br/assento-paramotor-revolution

DUDEK : https://dudek.eu/en/produkt/powerseat-light/
https://dudek.eu/en/produkt/powerseat-comfort-dp/

7 – Check list / Vital actions

You are ready for take-off. One last check is necessary to forget nothing :

FINAL TAKE-OFF CHECKLIST

- ☐ Windsock visible from the inflation area
- ☐ Inflation technique selected: forward or reverse launch
- ☐ Wing, risers and lines checked
- ☐ Environment checked before engine start
- ☐ Thigh, chest, pectoral and helmet straps fastened
- ☐ Main carabiners closed and locked
- ☐ Front risers in hand, no twists
- ☐ Brake handles in hand, no knots, correct routing through pulleys
- ☐ Radio switched on, correct frequency and volume set
- ☐ Final engine warm-up completed, avoiding blowing the wing or sucking in lines
- ☐ Current weather and aerology assessed, wind strength and direction confirmed
- ☐ Airspace clear in front and behind
- ☐ Inflation without engine, or slight propeller assistance only *(maximum 5% engine power)*

HAVE A NICE FLIGHT !