



PAP
The Original®

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CORSAIR M 25 Y





MANUAL OF USE AND MAINTENANCE



Welcome aboard !

You have chosen to fly with **PAP**. This aircraft will open up a world of flight similar to your childhood dreams. To avoid your dreams turning into nightmares for you or for those you fly over, take all the necessary time to read and understand these recommendations.



SAFETY ON THE GROUND

For those of you who are about to start learning to fly with a paramotor, it is very important that you acquire safe habits when handling and using your engine on the ground. These safe habits will avoid accidents. Our experience as pilots, and the experience of our clients, both beginners and experienced pilots, has made us reach the following conclusions which we detail below, in a logical order, from the moment you buy a paramotor up to the minute you're ready to take off.

RECOMMENDATIONS

- You have bought a **PAP**, and normally from the beginning of your flying career you will be in the hands of a professional flight instructor, recognised by the Federation or a similar organisation. He will be in charge of your apprenticeship and your safety. Without a doubt, the best choice.
- When purchasing a **PAP** from your distributor, if you have decided against classes, either because you have a friend who is an experienced paramotor pilot and, together with your knowledge in paragliding you will learn well enough. Or because you are a highly experienced paraglider and you are keen on self-teaching so you have decided to gain experience and technique by your-self. There is no doubt that this is not at all the best choice so we give you the following advice.

1. How should I carry the engine on the ground?

The engine frame is made of two detachable parts. Along the horizontal part where the two parts are joined you'll see two horizontal tubes, the top tube is part of the top half of the chassis and the lower tube is part of the lower part of the chassis. Four PVC pieces join these two parts and Velcro straps so **ONLY** lift the engine holding the lower tube. Doing this will avoid damaging the parts that keep the two parts together correctly (Photo 1).



PHOTO 1

2. What should I check and keep an eye on before starting the engine?

The PAP Quality Control checks all engines manufactured, so they are ready for use. These engines use 4 star (Super) fuel with synthetic oil 2% mix (see Running the Engine in). Open the fuel vent valve located behind the right **ACTIVE SYSTEM** arm -Walbro version- (Photo 2) or on the auxiliary tank -Dellorto version- (Photo 2 bis). Check that there are no foreign objects near and within the propeller turning area; place the engine on a thick carpet or a



PHOTO 2

stretch of ground free of stones, high grass or dirt that would be sucked in by the propeller. Direct the propeller towards an area free of people, animals, paragliders, etc.

3. How should I start the engine?

NOTE: From this point onwards you must take extra care when handling the paramotor. Your safety depends on this.

- A) Hold the throttle in your left hand, do not leave it fastened to anything on the other side of the net or loose on the floor. (Photo 3).
- B) Lean your left forearm firmly just above the H.R.S. emergency chute. (Photo 3).
- C) With your left foot step on the lower part of the chassis, beside the tank, and seek a firm holding with your right foot so that you do not lose your balance when you start. (Photo 3).



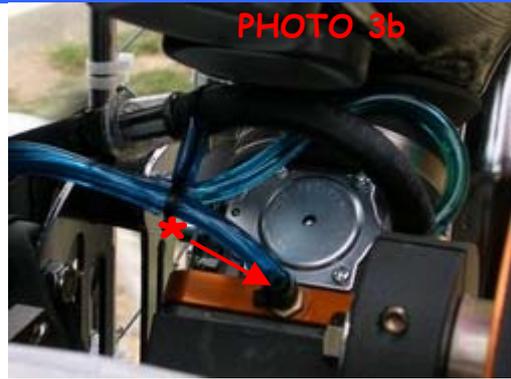
- D) Starting the M25 Black Devil engine. Do your usual pre-start safety checks.

When the engine is cold (i.e. 1st start of the day) or the fuel has been exhausted from the tank, the carburation system will require priming.

Using the "Primer" situated on the left side of the chassis under the manual starting cord handle, (see photo 3a), pump until you see fuel arrive at the inline filter located next to the carburettor. It will be necessary to pump 20 to 25 times to before it arrives.



Continue pumping and fuel will flow through the transparent tube just below the filter. Once fuel has entered the ORANGE anodized plate (*) which is situated between the carburettor and the inlet manifold, stop pumping (PHOTO 3b).



Now take the throttle control and apply full throttle, pull the starting handle energetically until the engine starts (Photo 3c).

When injecting fuel in the inlet manifold, the result is a very rich fuel/air mixture entering the engine. To allow the engine to start using this method requires a wide throttle opening. Depending upon how much fuel has been pumped into the manifold will determine whether the engine will start on the 1st or 4th pull. When the engine starts reduce the throttle setting immediately as operating the engine at high power settings without holding it firmly is potentially very dangerous



If it is the first start of the day, it is probable that the engine will run for a few seconds and stop because the fuel needs to arrive at the carburettor. If this is the case then push the primer once more, open the throttle and pull the starting rope. During the first few moments the engine is running, it may run rich as it uses up the fuel in the primer circuit. Once the primer fuel is used then the engine will run smoothly.

When the engine is warm: It is not necessary to use the "Primer" or open the throttle. Just pull the starter rope and the engine will start easily.

If after having stopped the engine for a while on the ground, or during flight you attempt to start the engine and it doesn't start after one or two pulls of the starter



rope, then press the "Primer" twice, open the throttle fully and then pull the starter rope.

PS : If you have followed the above procedure and the engine doesn't start, then it is normally because of insufficient tension of the reduction drive belt. If the belt tension is too loose then when you attempt to start the engine it can slip on the pulleys and it doesn't get the benefit of the propeller's inertia that helps to generate a good spark. Be aware that if you need to tighten the reduction drive belt, not over tighten it as this can harm the reduction drive and or crankshaft bearings.

E) The engine has started: Eureka, it works!. Now, when you accelerate the paramotor, it will move to your body, so you must to get a firmer position on the ground (Photo 4).



F) Here are some photos showing how not to handle the paramotor, while carrying it (Photo 5), while starting the engine (Photo 6) and warming the engine (Photo 7):



4. **From now on**, accelerate and decelerate, become familiar with the paramotors reactions. When you accelerate, the thrust is greater and you may loose your balance so get a firmer hold of the engine, as shown in photo 4.

5. **The engine has warmed up Now what?**

Turn it off and sit down into the chair, close the central clip and get up of the ground carefully without losing your balance. Once you are on your feet, move your

bottom into the chair and close the clips on the leg straps. To get up from the ground, get into the chair without entirely sitting down, just with your knees bent, lean forward and load the weight of the engine onto your back and then lift yourself up with a forward movement. (Photos 8 + 9).

Do not rev the engine when starting it! If you do so, the propeller will start to turn and you may lose your balance!



PHOTO 8



PHOTO 9

FOOT STARTER (F.A.S.)

All PAP paramotors are built with the foot starter. This allows you to turn the engine off whilst in flight and re-start it without the need the electric starter and it's additional weight.

We advise you take the following steps:

1. Secure the foot strap to your left foot, so that the protruding loop is behind your heel. Having strapped and secured the paramotor to ones back, you will need to look for some support e.g. a car or person. Do not attempt to kick-start the engine without leaning on some one or something stable because this could cause you to lose your balance, fall and hurt yourself and damage the propeller.



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2. Raise your left heel and with your left hand, get hold of the pull starter handle and, with an up-wards movement, fix it into the protruding loop of the foot strap. (Ph. 19)



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3. Slowly un-bend your knee, pulling on the starter and locate maximum compression point.

4. Now, lean firmly on the person or object you'd previously located, and kick forward with a firm strong kick. Brute strength is not necessary because these engines do not need much strength to start. (Photos 20+21)



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5. Still leaning against your stand, bend your leg again, remove the pull starter handle from the foot strap twisting the handle from the foot strap loop, and without letting it go, return the starter to its starting position.

6. Whilst in flight, making sure you have enough height, release your left brake and follow the same procedure as above, you can try starting and stopping the engine in flight (you will notice that it is easier to start whilst air-borne because you will not need to balance your-self). If a long while has gone from the time you stopped the engine to when you wish to start it again, we advise that you follow the instructions given for a Cold Start (see Starting the Engine: Cold Start).



6. Am I now ready to fly?

Once you have learned to start the engine **BY YOURSELF**, practice simulated take off runs, with the paramotor working on your back. Inflate your canopy with the engine off and once you have mastered these techniques, practice as many taking offs and landings as possible.

We would like to make an important point. Remember that whenever you are about to fly, you do so under your sole responsibility. Apart from 1) correctly evaluating your flight knowledge, 2) being **COMPLETELY** sure that you are not within a limited or restricted fly zone (airports, towns...) and 3) having assessed that the weather conditions are suitable, you must take into account that you will have to submit to slight changes in flight. The thrust of the paramotor modifies, although only slightly, the reactions of your canopy and therefore your sensations in flight. A few hours of flight will be sufficient for you to adapt.

PARTS AND ELEMENTS OF THE PAP PARAMOTOR

CHASSIS AND ACTIVE SYSTEM ARMS

The chassis is made of stainless steel, it's simplicity should not make us forget its technicality. The Active System consists in the two parallel arms that join the harness to the chassis (**Photo 10**). They include the quick links for the canopy. The whole works like a roman scale. So, the first thing to do is find out which is the best position for your weight, once fully equipped. We recommend that you hang the paramotor from a swing so that you can sit in the chair as you would do in flight then adjust the quick links back or forward (**A, B, C, D o E**) to position the propeller vertical to the floor surface. Generally lightweight pilots will move the quick links backward and heavy weight pilots will move them forward.

A = ± 55 Kg B = ± 70 Kg C = ± 80 Kg D = > 90 Kg E = > 140 Kg



Positioning de The Black Devil Anti-Torque hoops

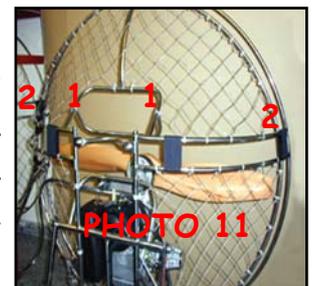


Positioning the pull start cord in the 4 or 5 part chassis



2 PARTS DISMOUNTABLE CHASSIS

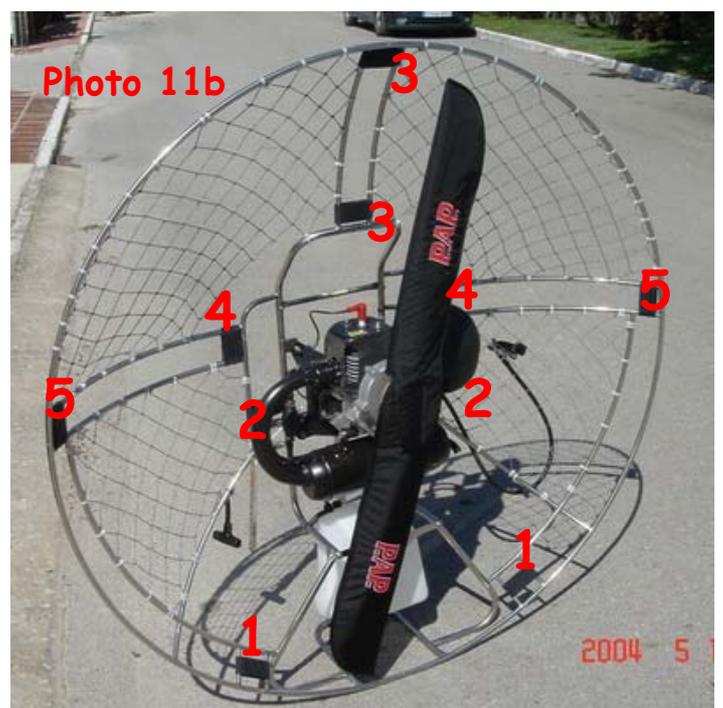
To fit the top section of the chassis (Photo 11) first make sure that all the parts are clean then start fitting the central section in place (1) and then put the side stops (2). The Velcro straps should be tight. To separate the chassis, start with the sides (2) and then the central section (1).



No force is necessary to accomplish this operation.

DISMOUNTABLE IN 4 o 5 PARTS

(Photo 11b) We start mounting from the bottom to upside (1) and we go on to the lateral (2). And if the chassis is of 5 parts we mount upper part (3), and after we put from the middle to the corners to the lateral external side. Dismounting we start from the lateral parts (5) to the bottom upside down (4-3-2-1).



HARNESS



The paramotor is equipped with a Sup'Air harness especially designed for PAP (Photo 12). It is equipped with three automatic clips, and internal articulated seat extension, separated leg straps, elastic shoulder fittings, accelerator pulleys, pre-installation for the emergency chute, 2 neoprene pockets. All for maximum comfort during those nice long flights.

PROPELLER

At the PAP workshop we tighten the screws to a pressure of 1 kg/m. You must check the propellers tracking once the screws have been tightened (Photo 13). The tracking is the movement observed when you turn the propeller and it is a consequence of an asymmetrical tightening of the screws. To check the tracking of the propeller:

- 1°: Take out the spark plug to facilitate easy engine turn over.
- 2°: Lean a long instrument (spanner or rod) against the chassis. Turn the propeller and check that the ends of the propeller pass by the spanner or rod at the same distance and on the same axis.
- 3°: If they do not pass by the instrument at the same distance or axis you will have to tighten the screws on the end that passes by with a greater distance.

IMPORTANT: Remember to re-tighten the propeller screws after the first hour of flight every time you replace or reinstall the propeller.





MOTOR CORSAIR M 25 Y

- This 172,5 c.c. engine is designed for an aeronautical use specifically. It offers many advantages: good manufacturing and finition, power, reduced weight, easy electric start, not high consumption, low vibrations, good acoustic level, aesthetic and a high quality of aeronautical materials.
- Use 97 octane gasoline with 2% of synthetic oil per liter. The excess or lack of oil will damage the functioning of your engine. It's important to always use the same proportion of oil and never to mix the oils between each other. Don't use old mixed gasoline.
- The two brands most recommended by **PAP** are CASTROL TTS PRE-MIX and MOTUL 600.

1. RUNNING-IN OF THE ENGINE

- Each engine, before being delivered, are subject to a severe quality-check at brench tests for 15 minutes, in order to verify if all components respect the fixed parameters, but a further running-in is anyway necessary. A good running-in will prolong the life of the engine.
- Rotate the engine during 50/55 minutes before flying. To follow the next table is necessary:

TIME	RPM / MIN	HOW IT DO
5 Minutes	2.500	Continuous
15 Minutes	3.000 / 3.500	Continuous
15 Minutes	4.000	Continuous
Switch off the engine and check that are no loosen nuts or bolts and every component is OK		
5 minutes	4.000	Take it up step by step
15 minutes	4.500	Continuous
1 minute	From 3.000 to 6.000 rpm	Short but steady accelerations
During the first 4 Hours	Not prolong maximum rpm's & extreme efforts	

- The complete running-in is considered after the last cycle; its good performance doesn't appear until the 10-15 hours aprox.
- At each start we advice to check the functionality of all the mechanical parts as all the fasteners, screws and nuts.
- After the first hour and during the running-in period, we advice to verify all the engine's screws, especially of the propeller.

2. START THE ENGINE (COOL & HOT)...

- Press the "Primer" gasoline's manual pump (placed behind the left Active System arm) **one time**, to make arrival gasoline to carburetor.
- Normally, it's not necessary to press the accelerator, but to do it smoothly sometimes can needs to start.
- For the heating at least 1 minute is necessary. In this period we will go accelerating the engine progressively to get to the operation temperature.
- Don't start the engine without prop. The mechanical components are projected to resist just in use with prop. An over régime can be catastrophic.
- Don't make the engine work with loosen bolts, sine this can cause the detaching of the prop, the ovalization the prop holes, the damage of the eletric start and the breakage of the silentblocks.

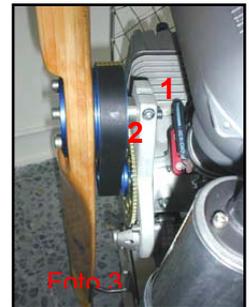


3. WALBRO CARBURETOR: Settings

- This carburetor has two screws for adjustment. One screw signed **L** adjusting idle speed during Low speed and one screw signed **H** for High speed.
- In order to make the adjustment, tighten clockwise then unscrew: screw **L** a little bit more than 3/4 round , screw **H** 1 ¼ to 1 1/2 round. From here these adjustments can be different on the basis of weather conditions and flight altitude.
- These adjustments must be done by intervals of 1/8 round, since this carburetor is very sensitive.
- Ideal mixture air-gasoline is reached when the insulator of the spark plug is white coffee-coloured.
- If the colour is black, the mixture is too rich, therefore turn screw **H** clockwise 1/8 round per time.
- If the spark plug is grey/white, the mixture is weak; therefore turn screw **H** counterclockwise always 1/8 round per time.
- REMEMBER: If the mixture is too weak (very clear colour), the piston can seize.
- You can see better the colour of the spark plug by keeping the engine for 20 seconds al maximum speed and switching it off suddenly without letting it slow down.
- Once you have found the perfect mixture don't change it unless you change flight place or climate conditions,
- Since register screws can be damaged by continuous adjustments.

4. REDUCTOR

- The correct tension of the reductor belt is fundamental for the good function of the engine (Photo 3). Set ting is as follows:
- Loosen the security bolt placed high behind the reduction platem **(1)**.
- Loosen the one placed always on the reduction plate high beside and act clockwise with a spanner n° 32 on the cam shaft that fixes the pulley **(2)**.
- ATTENTION: only in case of emergency use the red-coloured central bolt placed in the middle of the pulley to pull the belt tight; in that case DON'T TURN IT ABSOLUTELY COUNTER-CLOCKWISE, since it's a security device.
- Once you've finished this operation, tighten the side-bolt of the plate and the security back bolt **(1 & 2)**.



5. WARRANTY AND DURATION

PAP Paramotors have 1 year guarantee covering all frame weldings and the engine (spare parts included) faulty build and assembly. Whenever in doubt, contact your distributor and then send the faulty parts to the workshop together with photographs of the paramotor, if required by the workshop staff.

NOTE: Transport costs are to be paid by the client or owner.



5.MAINTENANCE

5. 1. EVERY 20 HOURS

- Check the spark plug. Inside should be of clear brown color and the space among electrode and insulator should be of 0.7 mm.
- Clean the carburetor air-filter, the gasoline filter placed into the carburetor, the carburetor filter placed at the gasoline pipe and the filter of the fuel tank.
- Verify all the screws, especially those of the head that goes to **2.2 Kgm**, making it in cross and with the engine cold, not to deform the head.
- Check the press of the screws of the prop.
- Check the tension of the reductor belt and its condition.
- Check the cables of the electric plant.

5. 2. EVERY 50 HOURS

- Same controls of the 20 hours and furthermore:
- Check the thigten of the engine's crankcases **2 Kgm**
- Check the reductor belt and the play of the pulley. Change them in case of need.
- Check the conditions of the start crown wheel.
- Change the spark plug and control the good contact of the spark plug cable with the pipette.
- Verify the screws in general and the support of the exhaust pipe in particular.
- Once a year, independently from flight hours, change the diaphragm of the carburetor.



6. TECHNICAL INFORMATION

MOTOR CORSAIR M25Y	PAP 1100 BD	PAP 1100 BDL	PAP 1300 BD	PAP 1300 BDL	PAP 1400 BD	PAP 1400 BDL
	Engine	CORS-AIR 172,5 c.c. Single Cylinder 2 Stroke, Air Cooling				
POWER & IGNITION	21 HP at 7.200 R.P.M., Dual Electronic Ignition type CDI with double spark per round					
THRUST (KG.)	± 55		± 62		± 68	
STARTER	Manual with <i>Primer</i>					
CARBURETOR	WALBRO WB membrane 37 mm.					
R.P.M. CLOCK	▲	●	▲	●	▲	●
CHASIS	Round tubes of Stainless Steel, T.I.G. Welding, 2 Dismountable Parts					
H.R.S. (Head Rescue System)	●					
PROPELLER (CMS.)	Two Blade Wooden 99		Two Blade Wooden 113		Two Blade Wooden 120	
PROP. PROTECTORS	●					
REDUCTOR	1:2,6, POLY-V Belt					
FUEL TANK	P.V.C. Traslucent Plastic, 8,5 Liters					
FUEL	Gasoline Super with/out Lead + Synthetic Oil Mix 2% (Castrol)					
AUTONOMY	2 h a 4 h 30' flying, depending prop., rpm's, altitude & pilot weight					
WEIGHT (With Harness)	25,5 Kg.		26,5 Kg.		27 Kg.	
PILOT WEIGHT (Without Equipment)	> 110 Kg.		>130 Kg.		> 160 Kg.	
HARNESS	Sup'Air Especial PAP, Automatic Clips, Neoprene Pockets					
PERFORMANCES	Depending of Pilot Weight, Prop size, Altitude & Wing used					
DIMENSIONS (CMS.)	110 x 110 x 42		130 x 130 x 42		140 x 140 x 42	
TRANSPORT in Maxi-Tex	▲	●	▲	●	▲	●
YES: ● NO: ○ OPTIONAL: ▲	The Information given in the table may change whitout previous advice					

USEFUL ADVICES

BEFORE FLIGHT IT IS IMPORTANT THAT YOU:

- Check that the propeller is not damaged, that it is secure and that it turns correctly without making strange noises.
- **BE CAREFUL:** Never put your hands in the paramotor once the engine is started.
- Check that the exhaust pipe is correctly screwed in place and that it is not damaged; check all of the engines parts, air filter and carburettor, petrol tank and pipe, spark plug and starter cable. Nothing should come loose in flight because if anything hits the propeller it could be a danger for the paramotor, the pilot and for other people.
- Check the welding on the chassis, especially where the engine is located. Check that the netting is correctly held in place. Check that none of the paragliders lines are in the way of the propeller because they may be sucked in.



- When you have landed, use a clean cloth to remove traces of oil and dust from the engine and the propeller. This is the best way to discover any possible anomaly.

If in doubt, do not take off before talking with your distributor or flight instructor.

THE FLIGHT

Talk with your flight instructor or distributor about this. If you are a paraglider pilot, you should feel the same sensations as in free flight, especially when flying thermals... Nevertheless, we strongly dissuade you to learn without the presence and advice of a flight instructor, especially if you have no previous flight experience. You must take into account that the engine may stop at any time so you will **always** have to have a possible landing site in view. If you fly low, always do so into wind. We recommend that you turn the engine off for your first landings, so you reach the ground with the propeller stopped to avoid damaging it if you have a bad landing.

**NEARLY ALL THE DANGERS OF FLYING WITH A PARAMOTOR
ARE ON THE GROUND.**

**BE CAREFUL WHEN YOU MOVE AROUND ON THE GROUND
AND DO NOT LET ANYONE HELP YOU UNLESS
HE/SHE IS ALSO A PARAMOTOR PILOT.**

**THANK YOU FOR BUYING A PAP PARAMOTOR AND FOR TRUSTING IN OUR
EXPERIENCE.**

ENJOY YOUR PARAMOTOR DURING EACH FLIGHT.

BUILT BY PILOTS FOR PILOTS.

**Do not hesitate in contacting us if you have any queries, doubts or suggestions
regarding this manual or PAP paramotors.**





H.R.S. SYSTEM: Procedimiento de Instalación / Installation Procedures

**PARACAÍDAS MAXIMO
MAXIMUM PARACHUTE**
45 m²

**Y UNION & MOSQUETONES
Y STRIP & CARABINES:
NO INCLUIDOS SISTEMA
NOT INCLUDED IN SYSTEM
SE ACONSEJA UNA PRUEBA
DE EXTRACCION, UNA VEZ
INSTALADO EL PARACAIDAS
WE RECOMMEND TO TEST
AFTER INSTALLATION OF
THE PARACHUTE**

