



MOTOR MANUAL **RM80 & PA125**

Thank you for purchasing a PAP machine and trusting in our experience. This will let you achieve and experience flight in a very simplistic form and let those childhood dreams of flight become a reality. If you do not want this dream to become a nightmare then please read and understand fully the following recommendations about its operation and use. Enjoy your machine and always respect the flight rules.

STARTING OF THE ENGINE

If the gasoline circuit is empty we will notice this right away because the knob (Fig. 13) offers little resistance and therefore we will have to pump up the gasoline until the knob hardens. If we pay attention we can hear the gasoline reach the carburetor and as so the gasoline circuit filled.

If your engine does not have the knob (fig. 13) it means that the primer system will be done by the "Primer", to see how this works go to the section Engine starting with Primer.

STARTING IN COLD WITH THE GASOLINE CIRCUIT FULL:

Once checked that it is full we press the Primer of the carburetor (Fig. 14) and while we are pressing this we will act on the knob (Fig. 13) by pressing this just a few millimeters and as a result the flow of enough necessary fuel will fill the carburetor. We can also see the small gasoline filter which is under the carburetor being filled.

Give full throttle during the first pull of the starter rope. (REMEMBER USE THE SECURITY TAPE TO LOCK THE PROPELLER) Like this the engine will start immediately without unnecessary drowning.

If we priming the engine too much, this will drown the engine and it will have difficulties too start and having to give several pulls on the starter rope. The same applies if we stay short. As a visual reference to know is when the small petrol filter is full. With practice we will easily know the fair amount (just a few millimeters of pressure on the knob (fig. 13) with the pear of the carburetor (fig. 14) pressed).

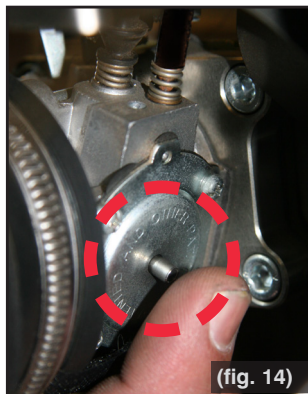
HOT START:

No action on the supply of fuel is needed.

It is not necessary to use the throttle of the starter; otherwise you will drown the propulsion hopelessly.



(fig. 13)



(fig. 14)



ATTENTION: before you start, verify that the gas cable is not blocked. To verify this a few gas actions are sufficient.

When starting and accelerating it is very important not letting the engine get too many RPM as it can push you too the sides. Do not forget to use the security tape to block the propeller when the engine has clutch.

Remember use the security tape to lock the propeller.



NEVER START WITHOUT THE PROPELLER OR REDUCTION.

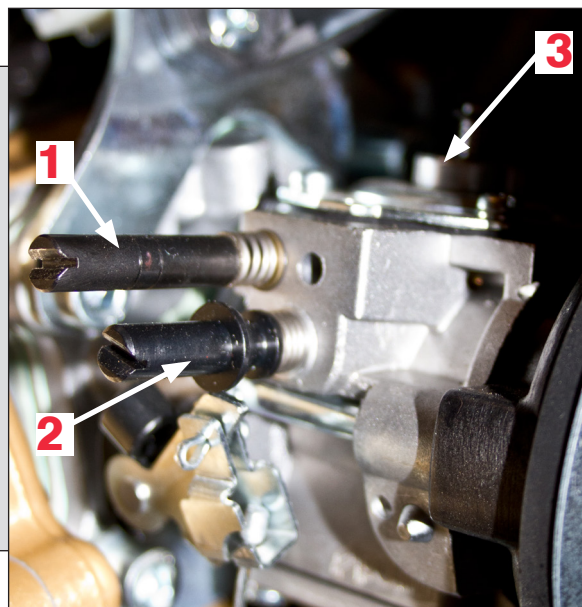
During the first seconds the engine can be a bit rich of gasoline while on low revs if you prime in excess.

1 Regulation screw low RPM; Adjustment by default is 1 ½ turns out from fully screwed in.

2 Idle screw; It adjusts the idling regime opening choker plate at its minimum. Adjust it while engine is hot and until it reaches 2100 – 2200 RPM.

THIS IS THE FACTORY SETTING. UNDER NO CIRCUMSTANCES SHOULD YOU MODIFY THIS SETTING, TO OPEN IT OR TO CLOSE IT, AS THE RISK IS HIGH OF DANGEROUSLY BORING A HOLE IN THE PISTON.

3 Button to prime the carburetor (fig 17).



RUNNING IN OF THE ENGINE

Each client receives his paraengine with approx. 15-20 min. Of having been run in on the ground, where each unit is regulated and carbureted at sea level. Also checked is that the propeller is perfectly balanced, as well as all the components of the engine (clutch, redactor, etc.)

Before running in we recommend that it should be warmed up for 15 minutes. Above 5000 RPM. Before you begin to fly with it (do not leave the engine in LOW REVS too much time because it GREASES IN EXCESS THE EXHAUST AND SILENCER WHICH WILL PRODUCE MORE NOISE AND DRENCH THE FIBER OF THE INSIDE OF THE SILENCER (This is the reason why the engine expels smoke in excess when having it in slow revs a few minutes and then accelerating. During the first hours we should not abuse to a maximum RPM of the engine. The entire running in is considered after 10 hours of use of the engine (on ground and during flight).

Respecting the first 15 minutes, please do the rest of the hours flying. In the case of heavy pilots they are advised to do, at least 1 hour on the ground before flying.

The optimal regime for good running in is to keep the engine between 6,000 to 7,500 RPM. From time to time rising above the 7,500 RPM for a few seconds. The regime must vary frequently and in progressive increase. Not giving full gas blows continuously, since the centrifugal clutch will be exposed to abnormal loads.

It is important, that after 1 or 2 hours of flight, we check the clamping screws of the cylinder head which must be tightened using a wrench (see the table of corresponding wrench tightness). Usually when the cylinder head loosens we can hear deaf 'shotgun' noises (heard when starting up the engine) or oil stains can be seen in its Union with the cylinder.

Revisions and checks during this phase are detailed in the maintenance section, (10 hours). If you notice symptoms of power loss, it may be caused by a poor engine fuel due to the regulation or that the filter has been dirtied. It is always more desirable an engine with rich engine fuel than poor; at least we exclude risks of gripe...With the following table we can check visually if the mixture (we refer to gasoline - air, not oil-gasoline) is poor or rich in function of the color of the spark plug.

COLOR OF SPARK PLUG	YELLOW / GREY	COFFEE WITH MILK	BROWN / BLACK
MOTOR FUEL	POOR	FAIR	RICH



THE PERCENTAGE OF OIL IN THE MIX WILL NEVER VARY AND IT WILL ALWAYS BE INDICATED ACCORDING TO THE MODEL OF ENGINE, NEVER ADD MORE OIL AS INDICATED IN THIS TABLE NEITHER DURING THE PHASE OF RUNNING IN. We recommend Castrol Power 1 Racing.

ENGINES	Gasoline	Synthetic oil
RM80	Unleaded 98 or 95	During the engine running 2,5 % (100 ml per five liters of petrol)
		After the engine running 2 % (100 ml per five liters of petrol)
PA125	Unleaded 98 or 95	During the engine running 2,5 % (100 ml per five liters of petrol)
		After the engine running 2 % (100 ml per five liters of petrol)



A well run in engine can increase life 100% and minimize the mechanical problems that you may have. Otherwise you have high probability of significant damage in its first hours, which will be irreversible for their useful life.

BASIC RECOMMENDED CHECKS



Is essential to tight the head cylinder after the first flight hour

It is necessary to tight the head cylinder nuts after the first flight hour accorded with the table of pairs of tightens and using for it a dynamometric key.

For the **RM80** the head cylinder pair of tightens is of **1 KGM / 10 NM** and **1.6 KGM / 16 NM** for the **PA125**.



Is essential to tight the 5 screws ø6 of the reductor after the first flight hour.

The pair of tightens for the 5 screws ø6 is of **1 KGM/10 NM**.



We recommend to always filter the fuel when you fill the deposit.

POREX FILTER

This filter (fig16) is included in all our engines. It is placed inside the fuel tank and and works to filter the gasoline to avoid bubbles and humidity in the circuit, and too avoid dirt in the carburetor.



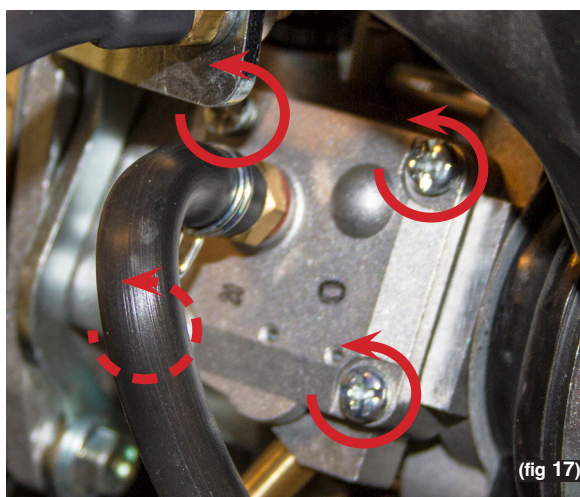
We recommend to replace it every 100 hours.



We advice to check that there is no dirt in the interior carburater filter (fig17) every 10 hours. In case there is clean it.



(fig 16)



(fig 17)



(fig 17)


First 10 Hrs (running-in)	Every 50 Hrs	Every 100 Hrs	Every 150 Hrs	Every 200 Hrs
<ol style="list-style-type: none"> 1. Check torque of all screws and nuts of the engine, exhaust, frame, and cylinder head; with a cold engine too avoid malformation. 2. Check the sparkplug, the inner part should be a brown light colour and have a 0.5mm. 3. On engines with pulley check the correct belt tension. 4. Check that there is no dirt in the interior carburater filter (fig17). In case there is clean it. 	<ol style="list-style-type: none"> 1. Replace sparkplug and check contact between spark plug cable and cap. 2. Replace membrane kit. 3. Check thickness of clutch del ferodo. 4. Piston rings. 5. Clean carbon residue from clutch and exhaust manifold, piston head cylinder manifold. Check needle-bearing set by vertically moving the piston. 6. Replace cylinder gasket and and cylinder head gasket. 	<ol style="list-style-type: none"> 1. Replace reduction gear oil and check the state of all engine membranes and replace if necessary. 2. Replace piston rings and membranes. 3. Exhaust and engine antivibes. 	<ol style="list-style-type: none"> 1. Change piston 	<ol style="list-style-type: none"> 1. Check the state of all engine bearings and change if necessary. 2. Replace piston and engine membranes. 3. Replace throttle cable and sleeve if necessary. 4. Check general state of electric elements and engine dampers and petrol circuit and replace if necessary. 5 Replace main petrol tube. 6. Check general state of reed valve sheets and replace those that are worn or not elastic.


REDUCTOR GEAR AND TRANSMISSION

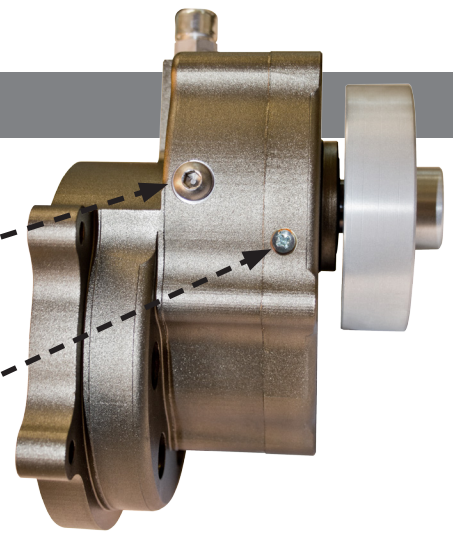
The reductor gear leaning in oil bath is quite efficient and reliable, and has a very low noise production. Its ratio is 3,65 / 1. Almost no maintenance and adjustments are necessary, except check every 100 hours that oil level and state of the clutch are correct.

The transmission from the crankshaft to the reductor gear is connected by means of a dry centrifugal clutch that allows the propeller to be not moving when idle. No maintenance is required.

The amount of oil to apply is: **40 ml. 75W – 90.**

 **IMPORTANT**
This screw is used to change the oil.

 **IMPORTANT**
This screw is used to check the level.



PAP WARRANTY COVERAGE

1. - The warranty is for a period of 2 years from the time of delivery.

2. - It ensures product conformity according to the use for which it is intended.

3. - Within the warranty period of the first 6 months, we will evaluate without charge, any malfunction of the unit due to manufacture error, either by repairing, or the replacement of damaged parts. If this is not possible, we will then replace the complete unit, provided that the chosen option is feasible, and not economically disproportionate to the replacement of the faulty part, this decision will be decided at our discretion. To qualify for repair, the owner should contact an authorized service dealer, alternatively please contact the factory directly.

4 - The guarantee, referred to in paragraph 1, is suspended during repair. The suspension period will start from when the consumer delivers the unit to our dealer, and ends with the delivery of the unit to the customer. Consequently, the warranty is extended for the repair period.

Excluding the responsibility of guarantee:

This warranty is void in cases of : misuse, improper use, tampering, deterioration of the unit due to external agents such as harmful products , chemicals, corrosive obstructive, or due to improper maintenance, lack of cleaning or the use of non-original spare parts for our brand.

Also not covered under this warranty, any failures from misuse, as understood due to the situations described below:

1.- The use of propellers which are not supplied by PAP or repaired by particulars or professionals who are not the manufacturers who supply the propellers to PAP, will mean the cancellation of all guarantee rights. (*This norm is due to the vibration produced by propellers which do not correspond to the engine model or unbalanced due to an incorrect reparation, all this can produce imperfection on the engine or frame, which in no way are imperfections from the manufacturer.*)

2.- The guarantee does not contemplate the seize-up of the cylinder. (*Mechanically this is understood as the engine goes through a quality control at the manufacturer and the tests done at the PAP workshop., it should never seize-up unless there is not enough oil in the mixture or that the mix of air and gasoline is disproportioned, due to dirt in the carburettor, a defective joint or a sparkplug not tightened properly. Resuming, due to the loss of stagnation on the engine blocks, factors which can always be avoided following the recommendations and most important of all revising periodically the engine*).

Shipping costs to the factory will be borne by the customer.