



USE AND MAINTENANCE MANUAL

ROS 125

CHASSIS AND COMMON PARTS

Welcome Onboard!!!

Congratulations!!! You have decided to fly a **PAP** machine. This airplane will let you access in a very simple manner an easy type of flight similar to that you had in your childhood dreams. So, please take the time needed to read through the recommendations below in order to avoid this dream becoming a nightmare for you and for the people you will fly over.

Have nice flights!!!...



...and Happy Landings!!!

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TECHNICAL SPECIFICATIONS

Series	ROS 125	
Models and technical features		
	1250 R	1400 R
User Manual	ROS 125 User Manual 	
Motor Type	ROS 125 single cylinder, 2-stroke, air-cooled	
Cylinder	123.67 cc	
Carburettor	Walbro 24 mm	
Power & Ignition	29 HP at 10000 R.P.M, Electronic	
Reduction gear	Mechanical in oil bath, inclined teeth	
Reduction ratio	1/4	1/4
Centrifugal clutch transmission	yes	
Start	Manual (pull) with foot extension (kick start in flight)	
*Thrust (kg)	+/- 55**	+/- 60 +/-65 **
Fuel	Leaded or unleaded Super grade + synthetic oil 2,5% (we recommend Castrol)	
Fuel tank	13,5 L	13,5 L
*Autonomy hours	3 h	3h
Cage	Round pipes in stainless steel , T.I.G. welding	
Cage in 2 parts	yes	yes
Cage in 3 parts	Optional	Optional
Wood propeller (cm)	2 blades 115	2 blades 125 or 130
Metal reinforced Wood propeller	Optional	Optional
Carbon fibre propeller	Optional	Optional
Paramotor weight (harness inc.)	25,5 kg.	26 kg.
Max. Pilot weight	120 kg.	150 kg.
Recommended Pilot weight	110 kg.	120 - 130 kg.
Harness	Sup'Air Special PAP, with automatic buckles + neoprene pockets.	
Size (cm)	125 x 125 x 43	140 x 140 x 43
Propeller case	yes	yes
H.R.S Head rescue system	yes	yes
RPM counter	optional / yes	optional / yes
Transport bag in Maxi-trex	optional / yes	optional / yes

* Thrust, autonomy and general performance depend greatly on the glider, the altitude and the pilot, so the data offered here must be taken only as reference data.

** The best thrust we have obtained with carbon prop

HANDLING SAFETY ON THE GROUND

If you are new to Paramotoring, it is extremely important to get used to use the Paramotor on the ground in order to be safe and avoid accidents. Our experience as pilots, and by comments provided by our beginners and advanced clients, tells us to be cautious with the Paramotor from the very moment you buy it until you are ready to fly with it. Therefore, please read through the following conclusions.

- Having acquired a **PAP** Paramotor, you should take a course by an authorized professional flying instructor qualified by your local air federation or similar organization. They will be responsible for training you and provide you with all the safety tips and standards. This is, without doubt, the best option...
- If after acquiring your **PAP** from your local dealer you have chosen not to take the course because:
 - You count on the help of a good experienced Paramotor pilot friend and on your own expertise as a free-flight pilot. This would be enough to acquire the necessary level to fly and enjoy the flight with Safety...
 - You have decided to acquire your experience and technique by yourself because you are a very experienced free-flight pilot

If these latter two are your options, please find below the following advice, because you have NOT obviously made the right choices to start with the exciting world of Paramotor.

WARNING: Most Paramotor accidents take place while operating on the ground.

ADVICE AND RECOMMENDATIONS

1. How do you carry your Paramotor to move it on the ground?

Since this is a dismantable model (2 parts version), you may notice there is a double horizontal tube in the middle. The lower tube corresponds to the fixed part of the chassis (base) and the upper tube to the dismantled part. This part is attached by 4 PVC separators and some nylon pegs. ALWAYS carry the Paramotor by the lower tubes in order to avoid loosening the connecting system. (PICTURE 1).

On the 3 part version, this horizontal tube corresponds to the dismantled area, but its design allows holding by this area (PICTURE 2).

2. What should I check and watch before starting up the unit?

Every unit goes through a quality control by PAP; therefore you can start your Paramotor as soon as you receive it. You must add a mix of petrol and synthetic oil – at the recommended ratio (see *Running-in of the Engine*)–, then open the safety valve placed behind the left *ACTIVE SYSTEM* arm –standard version– (PICTURE 3) or on the upper auxiliary tank –competition version– (PICTURE 3B). Check that there are no loose objects nearby or that any article of clothing can get sucked into the propeller, and that the Paramotor is properly placed on a mat (we recommend a thick and heavy mat so it is not sucked by the propeller) this will keep stones, grass, and/or ground dirt from the propeller. NEVER direct the propeller towards people, animals, paragliders, or any other object. Before starting up the Paramotor, you should warn everybody around.

3. What will occur when you pull the starting rope?

When you start up the engine, it begins to run, but the propeller is not turning unless you press the throttle. This is due to the centrifugal clutch. It is important that you are aware of this. The Paramotor becomes unstable on the ground due to its inertia, vibrations and movement, especially when you press the throttle. Therefore, it is ESSENTIAL to place the Paramotor on a flat surface so it is stable and steady. Then, you should securely hold the Paramotor during the start-up, acceleration, and warming-up phases. This will help you avoid the Paramotor falling over or produce any sudden movements and risk of accidents (PICTURE 4).

WARNING: From phase 4 and on, please handle the Paramotor with maximum caution. Your own safety depends on that!!!

4. How should you proceed to start the engine?

- A) Check that the throttle is not sticking by squeezing it several times. Hold the throttle with your left hand in order to conveniently use it (PICTURES 5 and 5B) and hold the chassis against the ground when pulling the starting rope. Do not leave the throttle hanging from the net, on its original location, or on the ground (PICTURE 6).
- B) Press your left forearm tight on the top area of the harness or on the H.R.S. system. (PICTURE 7).
- C) Press your left foot tight on the lower curved part of the chassis, next to the tank, and place your right foot firmly so you will have a strong support in order to avoid falling down or unbalancing when you pull the start rope (PICTURES 4 and 7).
- D) After pressing the starter or priming the petrol circuit (depending on the carburettor) (see *Starting up the Engine*), firmly grip the pull start handle and pull quickly and accurately. This will let the engine to respond more efficiently. Low cubic capacity motors need a small amount of throttle to start-up. Do not exceed doing this, since the Paramotor could get out of balance and fall over you if you have not held it tight (PICTURES 4 and 7).
- E) It works! Eureka! Now, when you open the throttle you will have to resist the thrust, pressing yourself against and down the ground. Let the engine run during one minute before opening the throttle (PICTURE 8).
- F) Then, get used to the throttle by squeezing smoothly and strongly in order to become familiar with the reactions of the Paramotor. The more you press the throttle, the bigger the thrust will be and the more unbalanced you will become. Therefore, you will have to strengthen your support on the Paramotor (PICTURE 8).
- G) The picture chapter shows examples on INCORRECT WAYS TO HANDLE THE PARAMOTOR during the phases of moving/transportation (PICTURE 2), starting-up (PICTURE 9) and warming-up (PICTURE 10).

WARNING: If you lose control of the Paramotor and it suddenly falls on the ground pressing to your side: you should NEVER try to stop or hold it, but jump backwards and let it fall. Be aware that a propeller turns at 700 km/h becoming a giant blade/hammer! You are more important than a Paramotor, it can always be repaired (at the very worst)...

5. The engine is hot now, then what?

You should now stop the engine to check that the stop switch is functioning. Before sitting on the harness, you should place the footstrap of the F.A.S. system on your left foot in order to auto start the Paramotor (PICTURES 11 and 11B). Once you have sat yourself on the harness, tighten the chest strap and get up carefully in order to not to lose your balance. The way of getting up depends on you. Now that you are standing, adjust the shoulders straps, place correctly the seat and adjust the legs straps. In order to do this, we recommend sitting on the harness without sitting completely when you are on the ground, just being on your knees, carry the Paramotor on your back and get up by walking ahead a little bit (PICTURES 12 to 12F).

Do not press the throttle while doing this since the propeller will start turning and this may unbalance you!

6. And now, how do I start it up?

Due to the little resistance low cubic capacity motors offer to start-up, once you are standing you should use the F.A.S. system (see *Foot Auto-Start*) to start-up the Paramotor with your foot (PICTURES 13 to 13D).

7. Then, am I ready now to take off?

Once you know how to properly start-up your Paramotor ON YOUR OWN, check one last time that the leg straps of your harness are fastened (PICTURE 14), simulate take-off runs with the engine on, and practise inflations with engine off. When these training runs are complete, practise as many real take-offs and landings as possible. Choose easy wind conditions and sites not too high above the sea level.

8. At this stage, please read through these detailed points:

- Remember that when you fly you do it under your one and only responsibility
- Be aware of your flying ability and your knowledge of the wind.
- COMPLETELY avoid flying over air restricted or forbidden areas (airports, cities, etc.) unless your countries laws allow.
- Fly under appropriate weather conditions for paragliding and paramotoring.

- If you are already a paragliding pilot, please consider a small period of adaptation to the Paramotor, since its thrust slightly modifies the reactions of the wing and, therefore, your sensations when flying.
- The extra weight of the Paramotor at your back will also make you feel 'different' when taking off and landing.
- If you are learning to fly a Paramotor from scratch and you are not familiar with the free flight at all, you will nevertheless be able to feel the best flying sensations thanks to the *ACTIVE SYSTEM*. This system will also help you on your safely learning of free flight
- Do NOT fly under the influence of alcohol, drugs, and/or medicines
- After a few hours flying, (depending on your pilot expertise and skills), you will feel happy and comfortable aboard: Your PAP Paramotor.

Thank you for reading these recommendations.

PAP CHASSIS SECTIONS AND COMPONENTS

CHASSIS AND *ACTIVE SYSTEM* ARMS

The PAP chassis is made using a stainless steel TIG weld with argon gas. Its simplicity should not let you forget its highly technical level of construction. The ratio between its weight and strength properties represent ideal protection for the pilot in case there is an impact because it properly warps and smoothly absorbs the impacts. Its strength when inflating the wing is another advantage of this chassis, especially when there is little wind and the integrity of the chassis and the propeller could be compromised.

The AS (*ACTIVE SYSTEM*) system consists of two parallel arms that join the harness with the chassis (**PICTURE 15**). It includes two karabiners to attach the glider. It works as a lever balance between the pilot and the weight of the Paramotor. That is why it is so important to find the right static balance to your weight. You can do this by hanging yourself with the Paramotor out of a gantry (like a swing). Move the anchor points in parallel: lighter pilots backwards (**A**), and heavier pilots forwards (**E**). These 5 options (**A, B, C, D, or E**) will let you find the best tilting angle for the propeller to the ground, approximately 20° backwards to a vertical line, but it should never be tilted forwards (**PICTURE 15B**).

PAP 1250 and 1400: A => 60 kg B => 70 kg C => 85 kg D => 95 kg E => 100 kg

The *ACTIVE SYSTEM* anti-torque shackles should be placed to the left, as specified on the image (**PICTURE 15C**).

DISMANTLED CHASSIS INTO 2 PARTS (T2 and R2)

In order to assemble the top part of the chassis, you first should position the central part nylon pegs (**1**), and then, the sides (**2**). Be sure that all parts to fit are properly cleaned. It is important to properly place the clips checking they press correctly (**PICTURES 16 to 16C**). To dismantle, start with the sides (**2**), and then the centre (**1**). The structure should not be forced when assembling and dismantling (**PICTURES 16D and 16E**).

When chassis is dismantled, *H.R.S.* system (as long as it is installed on the structure) remains attached to the top part of the bottom half of the chassis, over the harness (see chapter *Assembly and Dismantling of the H.R.S.*), (**PICTURE 18F**).

DISMANTLED CHASSIS INTO 3 PARTS (T3 and R3)

The assembly of the 2 sides of the chassis (left = **A** and right = **B**) should be done according to the following points:

It is important to properly place the clips checking they press correctly (**PICTURES 16 to 16C**).

1. The two side parts of the chassis should be attached by the top area, using both clips (**1**).
2. Fit the top central part on the nylon pegs, under the *H.R.S.* system (**2**).
3. Fit parts A and B (located more to the bottom) of the central area on the nylon side pegs (**3**).
4. Attach the horizontal clips located behind the *ACTIVE SYSTEM* anchor arms (**4**).
5. Turn the down ends of the chassis hoop outwards until they stop, then fit the nylon pegs of the hoop dismantled parts **A and B** (**5**).

6. Open each rod **C and D** outwards and in diagonal (6) in order to match them to the metallic peg located on the horizontal bent bar. This last step should be accomplished by applying some upwards force to the chassis bar in order to fit in rods **C and D**.
7. Once rods **C and D** are located, insert the safety rings into their corresponding holes.
8. The dismantling process should be done in reverse order to assembly.
9. The start rope guide pulley should be hooked on to the welded rod on the chassis before starting the engine. For dismantling, simply slide the pulley off this rod (**PICTURE 17F**).
10. (**PICTURES 17 to 17F**).

When the chassis is dismantled, the *H.R.S.* system (as long as it is installed on the structure) remains attached to the top part of the central part of the chassis, over the harness (see chapter **Assembly and Dismantling of the H.R.S.**), (**PICTURE 18F**).

PARACHUTE SYSTEM *H.R.S.* (Head Rescue System)

This system has been exclusively designed by **PAP** for its paramotors. **PAP** was the first manufacturer worldwide to use this location for the safety parachute. Simple, comfortable, and easy to use thanks to its location that properly distributes the weight of the parachute over the structure and provides the best inertia lever for fast and/or delicate releases (**PICTURE 18**).

The external **PAP** container is included with the Paramotor and you only need to install your parachute (**it is required that the main riser ends in an H form**). In order to do this, you should attach the parachute handle to your inside container on its front side, and with the help of two separate lines, pack the parachute on its container as specified below:

1. Place the parachute on its container with the flaps spread (be sure to choose the right position according to the rear straps that will attach the parachute to the chassis subsequently).
2. First insert the side flaps, then the lower flap (where the white cord loops are located), and finally the top flap. When operating, the parachute handle should remain between the two loops.
3. With the help of two separate lines, insert the cord loops through the holes of the lower and top flaps and use both curved pins to secure the flaps under the release handle panel.
4. Once the parachute is installed inside the container, close the front side of the parachute handle using the Velcro. Press the "package" where necessary in order to give it an aesthetic shape. Then, attach it to your Paramotor chassis following the next chapter instructions.
5. We recommend simulating a partial parachute release in order to be sure the installation of the parachute is correct on both container and chassis.
6. Repeat these steps for a definitive installation, and...
7. We wish you'll never have to use this system on your **PAP!!!**

WARNING: IT IS ADVISED THAT YOUR PARACHUTE IS TO BE INSTALLED TO THE *H.R.S.* SYSTEM BY A PROFESSIONAL OR AN EXPERT. THIS COULD BE YOUR INSTRUCTOR, LOCAL DEALER, PILOT FRIEND, ETC. AS LONG AS HE/SHE IS FAMILIAR WITH PARACHUTING INSTALLATION.

ASSEMBLY AND DISMANTLING OF *H.R.S.* ON THE CHASSIS

Once the parachute is in its container, please read through the following instructions to install it on the chassis:

1. Unscrew one of the Allen screws and 6mm nuts that hold the tube that secures the harness behind the pilot's neck. Release the harness by sliding one of the chassis-attachable top straps through the steel tube.
2. Orientate the parachute so the loops of the handles look upwards on to the chassis behind the pilot's head in the location for this purpose (you should now be able to read the PAP logo the correct way up) (**PICTURES 18 and 18B**).
3. Thread the two loop straps located on the lower part of the container over the steel tube, and then assemble the harness in reverse order to dismantling. (**PICTURE 18C**).
4. Fasten together clips to the back container straps over the chassis tube where the net is anchored (**A**). Then, tighten the parachute to the chassis using both clips (**PICTURE 18D**).
5. Once this operation is finished, attach right and left parachute risers to their respective karabiners, placed behind the shoulder taps cover, as shown on the image (**PICTURE 18E**). Karabiners are NOT included with your Paramotor.
6. In order to dismantle the chassis, you should only release the back container clips, so it will hang out of the harness top attachable bar to the chassis (**PICTURE 18F**).

WARNING: IT IS ADVISED THAT YOUR *H.R.S.* SYSTEM IS TO BE INSTALLED TO THE CHASSIS BY A PROFESSIONAL OR AN EXPERT. THIS COULD BE YOUR INSTRUCTOR, LOCAL DEALER, PILOT FRIEND, ETC. AS LONG AS HE/SHE IS FAMILIAR WITH PARACHUTING INSTALLATION.

HARNESSES

We use a prestigious Sup'Air harness, worldwide pioneer on flying harnesses construction. This is specially designed for **PAP** Paramotors. Cordura is the material used, one of the best worldwide fabrics used for mountain and sports materials. Black and grey colours. Three different sizes (S, M and L) that include:

- 3 automatic clips, one ventral and two for the legs
- External extension for the harness sit
- Separate legs
- Elastic straps on the shoulder taps
- High-quality pulleys for the foot accelerator
- Parachute preinstallation system
- 2 side neoprene pockets
- Sup'Air automatic steel karabiners.

This harness is specially design to provide the best comfort for long-lasting flights (PICTURES 12F, 15C, and 19).

PROPELLER

The propeller included is a wood double blade (PICTURE 20). Torque 1 kgm (10 Nm). After applying torque, it is very important to check the propeller TRACKING. Tracking is the difference between the tips of the propeller on its path. If this occurs, it means that the propeller bols may have been tightened asymmetrically. To track the propeller properly, you have to:

1st. Use a long device (a shaft or a switch) and support it on the down part of the chassis, then turn the propeller and check that all the planes pass through by the same point.

2nd. In case they do not pass or touch the device at the same distance and on the same shaft, you will have 2 alternatives to work with. You should prioritize the first one:

- A. Dismantle it again and turn $\frac{1}{4}$ or $\frac{1}{2}$ over the propeller support.
- B. Tighten a little more the side that is further away from this point of reference.

Tracking tolerance 1 mm. (PICTURES 20B to 20D).

A carbon fiber propeller is optional (PICTURE 21), dismantled into two parts. This type of propeller is especially interesting for those who travel very often as it comes in two parts. It is quite resistant to impacts produced by small stones, pebbles, and sand (PICTURES 21B and 21C).

IMPORTANT: When the Paramotor is brand-new, it is required to tighten the propeller again after a few hours of flight in order to avoid the screws unscrewing due to the centrifugal force. Every time you dismantle and assemble a propeller it is required to tighten screw the propeller screws after the next hour of flight.

WARNING: If you do not have a torque wrench, just tighten it only a little bit more than the maximum pressure applied by the weight of your hand. Otherwise, the centre of the propeller against the propeller thrust hub could be damaged and cause rotation unbalances, introducing vibrations that could even damage the chassis.

FOOT STARTING SYSTEM *F.A.S.* (Foot Auto-Start)

All **PAP** Paramotors include the foot starting system, also known as *F.A.S.* (Foot Auto-Start), created by **PAP**. This system lets you auto start the Paramotor to take-off without any external help. You can also turn your Paramotor off when flying and start it again using this system. A complex electric system means additional weight that is not necessary either. A simple strap on your left foot will help you proceed.

Here is a list with recommended steps:

1. Place the strap on your left foot. The loop should be placed behind your heel and the fastening clip over the top of you foot (PICTURE 11B).
2. When the Paramotor is on your back, look for a support, e.g., a person, a car, or a tree. If you are not a very experienced pilot, do not try to start the Paramotor without this support, you might loose your balance and fall and damaging yourself or the Paramotor (chassis, propeller, arms, etc.).
3. Lift your left heel bending your knee and with your left hand hold the pull start handle and insert it into the loop on the balck of the foot strap, always from underneath (PICTURE 13).
4. Place the engine on the maximum compression point smoothly using the handle.
5. Stand firmly and kick forwards without putting your heel on the ground. It's like kicking a ball. You should not need to do it very hard since the engine does not need too much effort to start-up (PICTURES 13B to 13D).
6. Release the pull start handle from the foot strap by turning it and without releasing it completely from your hand, then take it back to its original position on the chassis (bending your knee and lifting your heel can help you on this operation). Note do not just release the handle with the rope extended as it recoils it may get wrapped around the machie, enter the propeller and damage the mechanism.

7. Once you have gone through an adaptation period you will likely be able to start it up without the help of a support.
8. If you want to re-start during flight, please be sure you are high enough and that you have a landing spot within gliding distance. Release your left steering line and follow above instructions. You will notice that starting up is easier when flying since there is no balancing.
9. If there is a long interval since you turned the engine off, we recommend following the cold start instructions (*see Starting up the Engine, Cold Start*).

WARRANTY

A **PAP** Paramotor includes a 1 (one) year warranty in chassis welding and engine (manufacturing and/or assembly faults). Seizing of the engine not included in warranty. In the event of a problem, please contact your dealer and then please send the faulty parts to factory. When requested by the manufacturer you will have to include pictures of the faulty parts of the engine and/or Paramotor.

NOTE: The owner or client will be liable for the courier and/or mail expenses.

PRE-FLIGHT CHECK

According to our experience as manufacturers since 1990, we can state that most of the issues, failures, faults, etc., on a Paramotor could be easily avoided, or at least, minimized if the pilot would regularly go through a pre-flight check.

In fact, all other air disciplines go through a **COMPULSORY** pre-flight check by means of a check-list. This works as a previous procedure against failures and, most important, to avoid accidents. Therefore, we recommend apart from a pre-flight check, also a post flight check of the Paramotor in general, engine, and all other parts.

1. Do a physical inspection (and rectify if necessary) of the engine and all other parts related for a proper operation:
 - Engine, thermal group, dampers attached to chassis, and all fastening parts.
 - Exhaust pipe: Tube, silencer, slip ring, springs, and all fastening parts.
 - Reduction Gear: Whole body, levels, clutch, springs, and all fastening parts
 - State of the propeller, support and, all fastening parts.
 - Inlet: Carburettor, air filter, cable and throttle sleeve, and all fastening parts.
 - Fuel system: Tank, tubes, manual pump, filters, and all fastening parts.
 - Electric installation: Ignition coil, spark plug, engine cut off switch, cables, and all fastening parts.
 - Start-up mechanism: Start-up handle, pulley, rope, internal mechanism, and all fastening parts.
2. Do a physical inspection (and rectify if necessary) on the chassis and on all other parts related for a proper operation:
 - Chassis: Weldings, tolerances and distances between chassis sections, dismantling mechanisms, net, arms, and all fastening parts.
 - Piloting position: Harness, pockets, flying accessories (variometer, GPS, wind line, radio, antennas, map-holder, mirrors, etc.), throttle, paraglider accelerator, carabiners, H.R.S. system, paraglider steering lines, and all fastening parts.

ADVICE:

- Do not put your hands inside the Paramotor when the engine is running and the propeller is not turning
- After your flight, clean your engine and propeller for possible oil, dust, etc. with a clean cloth. This is the best way of finding possible faults. Besides, you are doing your post flight check more relaxed than when you decide to fly.

If you have any doubt, do not go flying and check with your instructor, local dealer, and/or manufacturer.

IN FLIGHT

Please check with your flight instructor, local dealer, and/or local training school. If you are already a paragliding pilot you should feel almost the same sensations as in free-flight, especially in thermal conditions...

However, we **DO NOT recommend** learning without an instructor, especially if you do not have any previous experience. Remember that the Paramotor engine could stop at any time you should **ALWAYS** have an alternative landing and a safe glide to a landing spot. If you are flying low, do it always into the wind direction.

On your first flights, we you stop the engine before landing so the propeller is not working when you touch the ground, and thus avoiding breaking it.

Remember you are carrying a weight of almost 30 kg on your back. Please take it into account when you decide to take off and to land.

Do not let the circumstances to take you by surprise!!!

MOST OF THE DANGER COMING FROM THE PARAMOTOR OCCURS ON THE GROUND

WATCH OUT ALL YOUR MOVEMENTS AND DO NOT LET ANYBODY HELP YOU, UNLESS IT IS ANOTHER EXPERIENCED PARAMOTOR PILOT





ENGINE MANUAL

USE AND MAINTENANCE



**ROS 125 cc
ENGINE**

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ROS 125 c.c. ENGINE - COMPONENTS AND ELEMENTS:

ENGINE

This engine is especially conceived and created for the sport of Paramotoring. It is a two-stroke monocylinder engine of 125 c.c., high compression, cooled by forced air — maintaining temperature of the motor at its best—, variable ignition and high performance. It uses premium-grade petrol with a ratio of 2.5 % (40:1) of synthetic oil per litre. An excess or lack of oil will damage the operation of your engine. Therefore, it is important to always use the same oil ratio. Never mix different types of oils. We recommend NOT using petrol that has been mixed more than 50 days ago, since the oil molecules will break down with the petrol molecules. We also recommend filtering the petrol when filling up (**PICTURE 22**).

PAP recommends CASTROL TTS PREMIX and MOTUL 700.

RUNNING-IN OF THE ENGINE

All engines include a 15 to 20 min running-in on the ground, where they are regulated and the carburettor mixture is adjusted at sea level. The propeller is checked to be perfectly balanced and other parts of the Paramotor (clutch, reduction gear, etc.). We recommend warming it up for 15 minutes over 5000 RPM (in order to not to harm the clutch mechanism) before start flying. During the first hours, you should not force the engine at its maximum RPM (we recommend flying on a gentle breeze or meteorological weather to help the engine). Complete running-in is finished after 5 hours of use (on the ground and/or in the air) with unleaded petrol and a ratio of 2.5%. This ratio should never change during the use of your Paramotor.

If you go through a proper running-in, the useful life of the engine could increase by 100% and any mechanical failures will be minimized. Otherwise, it may suffer from important and irreversible damages.

The engine regime should change often in a progressive increase. Do not violently apply the throttle, since the centrifugal clutch will suffer from abnormal loads.

Every time before you start the engine we recommend going through a thorough check so all mechanical parts work properly. All screws, bolts, and nuts should be checked as well.

Apart from the first 15 min, we recommend doing the running-in by flying, but remember not to operate at maximum power too often. If you are a heavy pilot, we recommend going through a 1 hour running-in on the ground before flying.

Revisions and checks during this phase are detailed on section Maintenance, First 5 hours.

If you feel the engine is losing power, it may be due to a poor carburation because it is not properly adjusted or because the filter is dirty. Depending on the altitude, you will have to readjust the carburation in order to avoid it being too poor. It is always recommended that the engine carburation is richer than poorer; you will therefore avoid the risk of seizing.

After one or two hours of flight, it is important to check the torque of the screws of the cylinder head (**see Maintenance**). You will usually notice that the cylinder head is loose because dull noises can be produced or stains of oil are placed over the cylinder area.

STARTING THE ENGINE

It is forbidden to start the engine without the propeller and/or the reductor gear. A two-stroke engine has very little mass and without the load of these elements, it reaches its maximum revolutions in a fraction of a second. There is no RPM limiter. All mechanical components are designed to stand only to those RPM limits of the propeller. Over revving could be catastrophic for the engine.

Pulling the pull start rope should be precise in order to NOT to damage the start-up mechanism (**PICTURE 23**).

This engine includes a variable lead ignition and delays the spark before reaching 200 RPM in order to make start-up easier.

Warming-up requires at least 1-2 minutes. During this period you should accelerate progressively in order to reach the proper operating temperature. Avoid letting the engine run at 4500 RPM, since at these revolutions, the clutch shoes are constantly opening and closing due to the limited centrifugal force.

If you want a cold start, you only need to press your finger against the push-button valve over the inner membrane of the carburettor and at the same time on the petrol circuit feeder pump, injecting the amount a feeder pump can hold. We recommend full-throttle at the same time you are pulling the starting rope. When the engine has started, you should leave the engine ticking over as soon as possible.

If the engine is hot you do NOT need to use the feeder pump or the throttle.

Each situation requires a specific action depending on the state of the engine. If you ignore this piece of advice, you will have difficulties to starting.

By means of practising you will sense the proper action to take. A good thing is to remember how long it has taken since you last start it up, thus determining if the next start will be cold or hot.

REDUCTION GEAR AND TRANSMISSION

The reduction gear runs in an oil bath and is quite efficient and reliable, and has a very low noise production. Its ratio is 4:1. Very little maintenance and adjustments are necessary, except check every 100 hours that the oil level and state of the clutch (PICTURES 24 and 24B) are correct. The amount of oil to apply is 40 ml of SAE 140.

The transmission from the crankshaft to the reduction gear is connected by means of a dry centrifugal clutch that allows the propeller to be stationary when the engine is on idle. No maintenance is required apart from periodic inspection and removal of friction material dust,(PICTURES 24C and 24D).

INLET

WALBRO CARBURETTOR

COLD START:

In order to start from cold, prime the engine with the petrol from the fuel feeder pump (PICTURE 25) at the same time pushing the button on the carburettor (PICTURE 25B). Then, use full-throttle when you pull the starting rope. This is the only way of starting up the engine without any problems. Do not apply full-throttle too long and go back to idling as soon as you are sure start-up was correct. With this action, the engine should start operating normally, unless the outside temperature is too low, therefore, we recommend repeating the above procedure.

IMPORTANT: Before starting, check that throttle cable is not sticking. To avoid this, just squeeze the throttle several times.

WARNING: If you start the engine with the throttle open, you should release the throttle before the engine's RPM increases and the engine pushes towards you.

Be aware that the pull start rope can pull back or be locked if you have over primed the carburettor, and that it could hurt your hand due to its backward movement. A 125 cc engine applies a lot of pressure when in compression state.

HOT START:

NO action is necessary with petrol priming when hot starting. You do NOT need to throttle, otherwise you will flood the engine.

ADJUSTMENT OF THE CARBURATION

If you are not totally sure how to control and monitor this type of adjustment, avoid any adjustments since this carburettor is quite stable at any heights and temperatures. Please contact an expert to carry out this procedure.

The manufacturer has adjusted the carburettor before delivery.

A rich fuel mixture makes the engine vibrate and consume too much petrol, a weak mixture is more regular but gets hotter more often and it becomes dangerous because it can damage itself. Obviously, and from a safety point of view, first option is preferred.

SPARK PLUG COLOR	YELLOW / GREY	CAFÉ AU LAIT	BROWN / BLACK
CARBURATION	WEAK	OK	RICH

WALBRO CARBURETTOR

This ROS125 engine is fitted with a Walbro 24, the same carburettor as Top80 engine. It could be necessary to change carburation according to the season —spring/summer and autumn/winter—, and to the altitude. It is extremely important for the best engine efficiency and its own life to keep your carburettor adjustment under the best conditions.

Carburation can be adjusted by means of a screw located on its top area:

The left screw marked with **1** adjusts the flow of petrol in low RPM (range from minimum to half throttle); it also adjusts, but not as much, in high RPM (range from half to maximum throttle). Turning left (open) the mixture will enrich and turning right (close) will weaken (PICTURE 26).

Adjustment by default is 1 ½ turns out from fully screwed in.. In order to get this you should open from closed position depending on the situation (altitude, temperature, humidity, and air density). On hot seasons, it will be necessary to close it a bit more. These adjustments will be done every one minutes, (scale according to a watch measurement), since it is very sensitive.

If the low range is very weak, starting will be difficult and accelerating will fade it away. If the low range is very rich, it will vibrate and will loose some RPM when you will use full throttle. Besides, the exhaust fumes will be excessive.

Idling adjustment is very important for two reasons:

1. It will allow the engine to work at its best during the preparation, inflation, and take off phases, so the start-up system will turn freely, not wearing its parts.
2. You will avoid suffering from an engine cut, just when you are about to take off or in any other preparation moment before taking off, when you should be totally focused.

The right screw marked with **2** is shorter and has a conic area (**PICTURE 26B**). It adjusts the idling regime opening choker plate at its minimum. Adjust it while engine is hot and until it reaches 2100 – 2200 RPM (**PICTURE 27**).

NOTE: Aluminium is the material used for these carburettors, we therefore advise not to exceed adjustments. Otherwise excessive use of these screws will wear them and will provoke intolerances and/or other wear.

MAINTENANCE

FIRST 5 HOURS (RUNNING-IN)

1. Check torque of all screws and nuts of the engine and of all other elements related, especially the exhaust pipe.
2. Check torque of all screws and nuts of the chassis and all its elements.
3. Check torque of all cylinder head nuts with a torque wrench (**12 Nm or 1.2 Kgm**), with a cold engine in order to avoid distortions.
4. Check inside Walbro carburettor petrol filter by opening the inner part cover.
5. Check torque of all screws of the propeller (**max. 10 Nm or 1 Kgm**).
6. Check spark plug. The inner part colour should be clear brown and have a 0.5 mm gap between electrodes.
7. Remove the reduction gear from the engine casing body and clean the dust of the friction material from clutch. Check state of clutch springs.
8. Adjust Paramotor *ACTIVE SYSTEM* anchor arms to paraglider in order to get the best balance in flight (during the 1st hour of flight).

EVERY 5 HOURS

1. Thorough cleaning of engine and all other elements related for a proper operation.
2. Fix any issue, especially if it is not under the normal checking periods.

EVERY 20 HOURS

Same as every 5 hours, and:

1. Check main engine elements: main screws and nuts, cylinder head torque (**12 Nm or 1.2 Kgm**), outside petrol filter and inside carburettor filter, propeller torque (**max 10 Nm or 1 Kgm**), spark plug check, clutch check and its springs.
2. Check spark plug. The inner part colour should be clear brown and have a 0.5 mm gap between electrodes. Replace spark plug after first 25 hours (**model NGK B10ES**).
3. Check amount of reduction gear oil via the sight screw located under its left front side (**PICTURE 24**), adding, if necessary, (by means of its top screw), max from empty is 40 ml. of SAE 140.
4. Check movement of exhaust pipe elements and their supports.

EVERY 50 HOURS

Same as every 5 + 20 hours, and:

1. Check state and elasticity of inlet plates. If they are worn or not elastic anymore, please replace them.
2. Check state and elasticity of carburettor membranes. If they are worn or not elastic anymore, please replace them.

3. Check state of the clutch shoes and the clutch bell , Clean inside the clutch bell.
4. Clean carbon residue out of cylinder head, exhaust manifold, piston, and cylinder. Check con rod needle bearing set by vertically moving the piston. Change cylinder gasket if you consider it is worn and cylinder head gasket (O-ring).
5. Check spark plug and change if necessary. Check contact between spark plug cable and cap.

EVERY 100 HOURS

Same as every 20 + 50 hours, and:

1. Replace reduction gear oil and oil catches in reduction gear.
2. Replace casing oil catches.
3. Replace both piston rings, cylinder base gasket, cylinder head gasket (O-ring), exhaust gasket, and exhaust dampers (if cracks appear).
4. Replace main petrol tube and check state of the other fuel circuit sections.

EVERY 200 HOURS

Same as every 20 +50 + 100 hours, and:

1. Check state of the engine bearing and change if necessary.
2. Check piston and change if necessary.
3. Replace throttle cable and sleeve if necessary.
4. Check general state of electric elements and replace those that are worn.
5. Check general state of petrol circuit and inlet elements and replace those that are worn.

EVERY YEAR

If the number of flying hours is not very high, please continue with previous revisions and replacements schedule. Otherwise, if flying hours are more than 200, please send your Paramotor to manufacturer in order to replace worn elements and review thermal group.

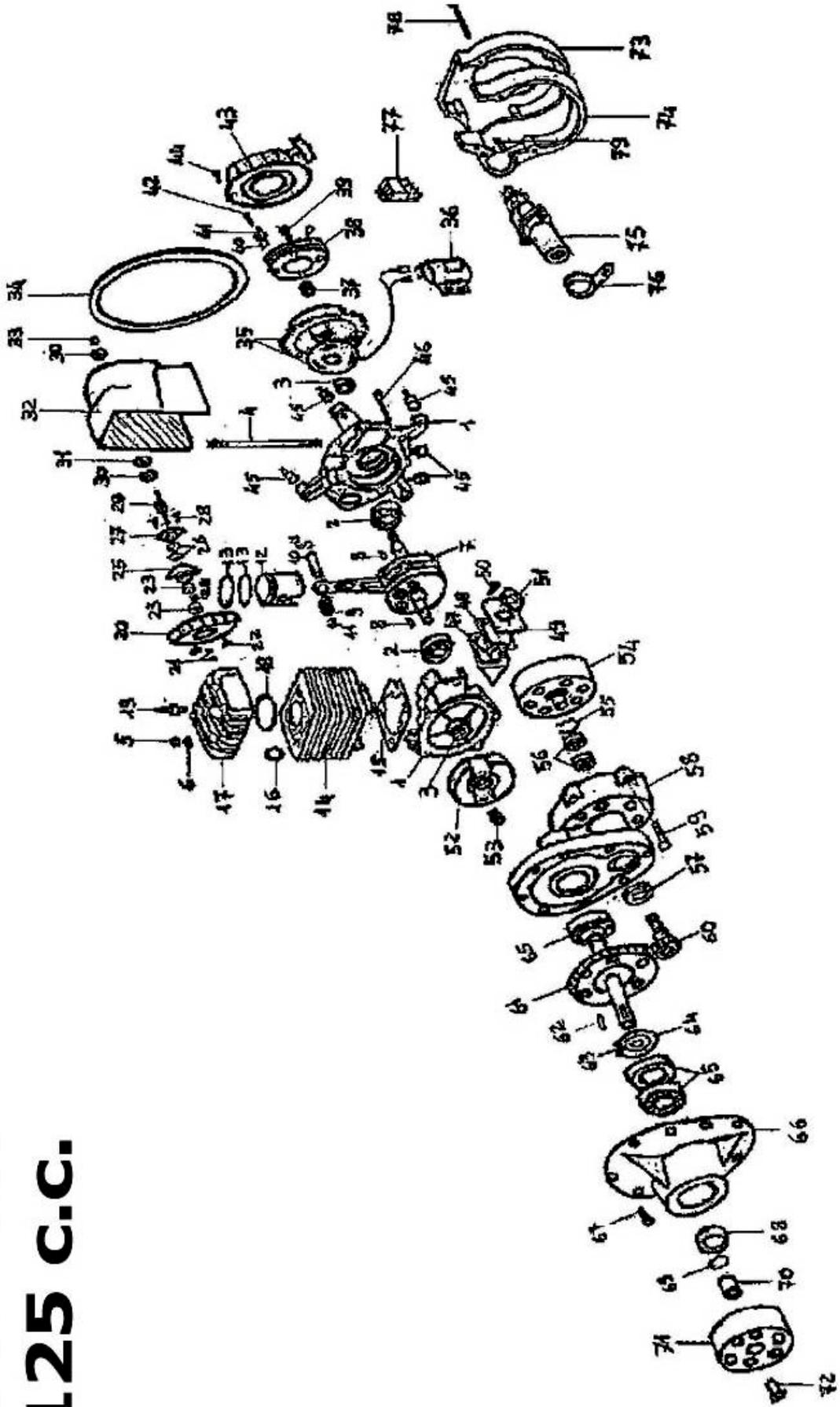
1. Check state of the carburettor membranes and replace if necessary.
2. Check casing oil catches.
3. Check all plastic, rubber, and/or elastic parts, especially engine and exhaust pipe dampers and replace when cracks appear on the rubber.

TORQUE TABLE

CYLINDER – HEAD	1.2 KGM / 12 NM
IGNITION WHEEL	2.5 KGM / 25 NM
REDUCTOR GEAR	3.5 KGM / 35 NM
PROPELLER SUPPORT	1.5 KGM / 15 NM
CLUTCH	2.5 KGM / 25 NM

DIAGRAM OF PARTS

ROSmotor 125 C.C.



**THANK YOU FOR CHOOSING A PAP PARAMOTOR AND RELYING ON
OUR EXPERTISE**

ENJOY YOUR PARAMOTOR EVERY TIME YOU FLY

CREATED BY PILOTS FOR PILOTS

**Should you have any comments, suggestions, and/or queries regarding
this manual or your PAP Paramotor, please do not hesitate to contact us**



www.papteam.com

CHASIS Y ELEMENTOS COMUNES

CHASSIS AND COMMON ELEMENTS



!!! N. 1 !!!
 ::: CONSEJOS :::
 ::: ADVICES :::



!!! N. 2 !!!
 ::: CONSEJOS :::
 ::: ADVICES :::



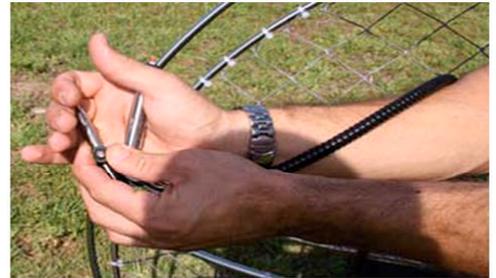
!!! N. 3 !!!
 ::: CONSEJOS :::
 ::: ADVICES :::



!!! N. 4 !!!
 ::: CONSEJOS :::
 ::: ADVICES :::



!!! N. 5 !!!
 ::: CONSEJOS :::
 ::: ADVICES :::



!!! N. 5B !!!
 ::: CONSEJOS :::
 ::: ADVICES :::



!!! N. 6 !!!
 ::: CONSEJOS :::
 ::: ADVICES :::



!!! N. 7 !!!
 ::: CONSEJOS :::
 ::: ADVICES :::



!!! N. 8 !!!
 ::: CONSEJOS :::
 ::: ADVICES :::



!!! N. 9 !!!
!!! CONSEJOS !!!
!!! ADVICES !!!



!!! N. 10 !!!
!!! CONSEJOS !!!
!!! ADVICES !!!



!!! N. 11 !!!
!!! CONSEJOS + SISTEMA FAS !!!
!!! ADVICES + FAS SYSTEM !!!



!!! N. 11B !!!
!!! CONSEJOS + SISTEMA FAS !!!
!!! ADVICES + FAS SYSTEM !!!



!!! N. 12 !!!
!!! CONSEJOS !!!
!!! ADVICES !!!



!!! N. 12B !!!
!!! CONSEJOS !!!
!!! ADVICES !!!



!!! N. 12C !!!
!!! CONSEJOS !!!
!!! ADVICES !!!



!!! N. 12D !!!
!!! CONSEJOS !!!
!!! ADVICES !!!



!!! N. 12E !!!
!!! CONSEJOS !!!
!!! ADVICES !!!



!!! N. 12F !!!
!!! CONSEJOS !!!
!!! ADVICES !!!



!!! N. 13 !!!
!!! SISTEMA FAS !!!
!!! FAS SYSTEM !!!



!!! N. 13B !!!
!!! SISTEMA FAS !!!
!!! FAS SYSTEM !!!



!!! N. 13C !!!
!!! SISTEMA FAS !!!
!!! FAS SYSTEM !!!



!!! N. 13C !!!
!!! SISTEMA FAS !!!
!!! FAS SYSTEM !!!



!!! N. 13D !!!
!!! SISTEMA FAS !!!
!!! FAS SYSTEM !!!



!!! N. 14 !!!
!!! CONSEJOS !!!
!!! ADVICES !!!



!!! N. 15 !!!
!!! SISTEMA AS !!!
!!! ACTIVE SYSTEM !!!



APROX. 20°

!!! N. 15B !!!
!!! CHASIS ACTIVE SYSTEM !!!
!!! ACTIVE SYSTEM CHASSIS !!!



!!! N. 16 !!!
!!! CLIPS CHASIS !!!
!!! CHASSIS CLIPS !!!



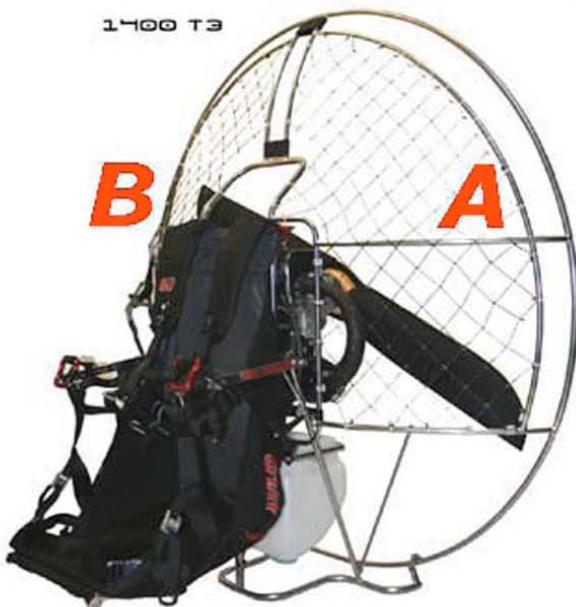
!!! N. 15C !!!
!!! SISTEMA AS !!!
!!! ACTIVE SYSTEM !!!



!!! N. 16C !!!
!!! CLIPS CHASIS !!!
!!! CHASSIS CLIPS !!!



!!! N. 16B !!!
!!! CLIPS CHASIS !!!
!!! CHASSIS CLIPS !!!



!!! N. 17 !!!
!!! CHASIS DESMONTABLE (T3 & R3) !!!
!!! DISMANTLED CHASSIS (T3 & R3) !!!



!!! N. 17B !!!
!!! CHASIS DESMONTABLE (T3 & R3) !!!
!!! DISMANTLED CHASSIS (T3 & R3) !!!



1400 T3
::: N. 17C :::
::: CHASIS DESMONTABLE (T3 & R3) :::
::: DISMANTLED CHASSIS (T3 & R3) :::



1400 T3
::: N. 17D :::
::: CHASIS DESMONTABLE (T3 & R3) :::
::: DISMANTLED CHASSIS (T3 & R3) :::



1400 T3
::: N. 17E :::
::: CHASIS DESMONTABLE (T3 & R3) :::
::: DISMANTLED CHASSIS (T3 & R3) :::



::: N. 17F :::
::: SISTEMA ARRANQUE :::
::: START SYSTEM :::



::: N. 18 :::
::: MONTAJE SISTEMA HRS :::
::: HRS SYSTEM ASSEMBLY :::



::: N. 18B :::
::: MONTAJE SISTEMA HRS :::
::: HRS SYSTEM ASSEMBLY :::



::: N. 18C :::
::: MONTAJE SISTEMA HRS :::
::: ACTIVE SYSTEM ASSEMBLY :::



::: N. 18D :::
::: MONTAJE SISTEMA HRS :::
::: HRS SYSTEM ASSEMBLY :::



::: N. 18E :::
::: SISTEMA HRS :::
::: HRS SYSTEM :::



::: N. 18F :::
::: MONTAJE SISTEMA HRS :::
::: HRS SYSTEM ASSEMBLY :::



::: N. 19 :::
::: SILLA SUP'AIR-PAP :::
::: SUP'AIR-PAP HARNESS :::



::: N. 20 :::
::: HELICE DE MADERA :::
::: WOODEN PROPELLER :::



::: N. 20B :::
:: TRACKING HELICE ::
:: PROP TRACKING ::



::: N. 20C :::
:: TRACKING HELICE ::
:: PROPELLER TRACKING ::



::: N. 20D :::
:: TRACKING HELICE ::
:: PROP TRACKING ::



::: N. 21 :::
::: HELICE FIBRA CARBONO :::
::: CARBON-FIBER PROPELLER :::



::: N. 21B :::
::: HELICE FIBRA CARBONO :::
::: CARBON-FIBER PROPELLER :::



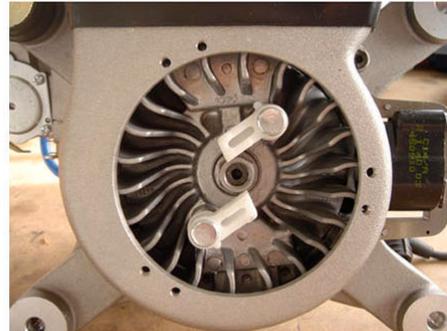
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::: HELICE FIBRA CARBONO :::
::: CARBON-FIBER PROPELLER :::



**FOTOGRAFIAS DE CONSEJOS, SISTEMAS
Y MOTOR
SYSTEMS, ENGINE & ADVICES PHOTOS**



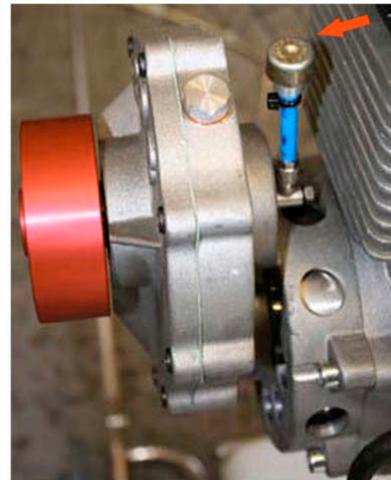
!!! N. 22 !!!
 ::: MOTOR ROS 125 c.c. :::
 ::: ROS 125 c.c. ENGINE :::



!!! N. 23 !!!
 ::: SISTEMA DE ARRANQUE :::
 ::: START-UP SYSTEM :::



!!! N. 24 !!!
 ::: REDUCTORA MECANICA :::
 :: MECHANICAL REDUCTOR GEAR ::



!!! N. 24B !!!
 ::: REDUCTORA MECANICA :::
 :: MECHANICAL REDUCTOR GEAR ::



!!! N. 24C !!!
 ::: EMBRAGUE CENTRIFUGO :::
 ::: CENTRIFUGAL CLUTCH :::



!!! N. 24D !!!
 ::: CAMPANA DE EMBRAGUE :::
 ::: CLUTCH BELL :::



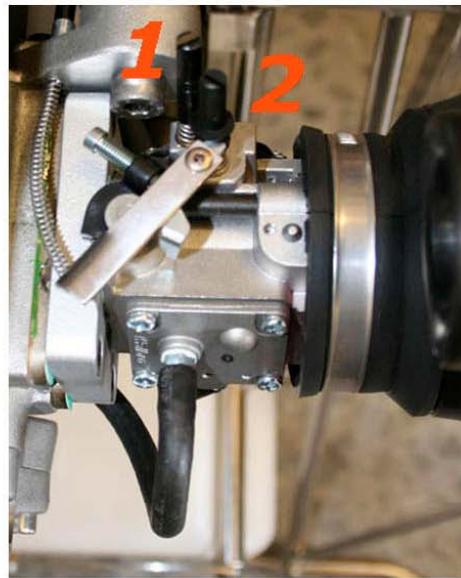
!!! N. 25 !!!
!!! CEBADOR CARBURANTE !!!
!!! FUEL FEEDER PUMP !!!



!!! N. 25B !!!
!!! VALVULA CARBURADOR !!!
!!! CARB VALVE !!!



!!! N. 26 !!!
!!! CARBURADOR WALBRO 24 !!!
!!! WALBRO 24 CARBURETTOR !!!



!!! N. 26B !!!
!!! CARBURADOR WALBRO 24 !!!
!!! WALBRO 24 CARBURETTOR !!!



!!! N. 26B !!!
!!! CUENTA RPM & HRS DIGITAL !!!
!!! DIGITAL TACH & HOURMETER !!!

