CARBURETOR

The Walbro WB32 carburetor, if used correctly, provides excellent performance, requiring few tuning interventions. In any case, changes in climatic and height conditions can affect functioning.
The carburetor is adjusted during the testing phase with a standard setting:

Screw H "affects the entire range of use of the engine". From completely tightened, loosen by 1 1/4 turns or "450°".

Screw L "only has an effect at a low engine speed". From completely tightened, loosen by 3/4 of a turn or "270°".

Bearing in mind the fact that the first testing is carried out at a height of 750 m above sea level, it may be necessary to change from this setting, without exceeding the limit regulations:
Screw H - do not go below one turn or "360°".
Screw L - do not go below 1/2 turn or "180°".

The carburetor is provided with a depression pump to remove the fuel from the tank. The gap between the two must not exceed 50-60cm. The same applies to the tube, which must not exceed 50-60cm.
It is advisable to insert a manual pump between the tank and the carburettor, so that the mixture can reach the carburetor before start-up, therefore avoiding stressing the starter motor.

CARBURATION

N.B. In this paragraph the term “MIXTURE” refers to the combination of the two elements: (air) + (oil/gasoline) that takes place inside the carburetor.

Changes in atmospheric conditions and height affect the functioning of the engine, in that they vary the density of the air, as a result the air/oil/gasoline mixture ratio is modified.

As a general rule, we can say that at high altitudes, high humidity or high temperatures, less air enters, and as a result the mixture is richer in “oil/gasoline”, so the correct ratio must be re-established by tightening the two "H/L" screws.

On the other hand, at low temperatures and low humidity, the denser air makes the mixture lower in oil/petrol; as a result the two "H/L" screws must be loosened.

WARNING!!!!

A mixture that is too low in oil/gasoline causes considerable damage to the engine, which can cause it to break down and/or stop suddenly.
It is recommended to carry out the carburation operations with the ENGINE SWITCHED OFF!

When the "H/L" screws are tightened/loosened, carry out variations of 1/8 of a turn each time or "45°", larger movements in one turn can cause damage to the engine.

RUNNING-IN

WARNING!!!!
- before starting the engine, ensure that there are no loosened screws or improperly attached parts.
- ensure that any people are at a safe distance and never in the range of the propeller.
- Do not start the engine if there are any stones or other objects nearby, as they could be picked up and thrown large distances by the force of the propeller.
- Do not start the engine without a propeller.
- Do not start the engine in enclosed spaces, as the exhaust gases contain carbon monoxide, which is toxic and can cause loss of consciousness and death.

Before sale, the engines undergo pre-running-in, to check the correct functioning, and a test confirms all the advertised specifications.
Once you have acquired the MINI 2 PLUS you must pay particular attention during the first hour of functioning, in order to maintain all the engine's qualities over time.

WARNING!!!
DURING THE RUNNING-IN PHASE KEEP THE EXHAUST GAS TEMPERATURE AND HEAD TEMPERATURE UNDER CONTINUOUS OBSERVATION.

After having chosen a suitable place, above all without any stones or other material that could damage the moving parts, start the engine, leaving it to warm up for 10 minutes to approx. 2,500 rpm.
Then slowly bring the engine to a higher speed, decreasing and increasing the rpm at intervals of 1 minute, using various "ranges" of use, but without exceeding 4,500 rpm.
Continuous and repeated closing/opening of the gas valve must be absolutely avoided.
Approx. 20 minutes after switching on the engine, switch it off and leave it to cool down completely.

WARNING!!! When running and also after switching off, the engine can cause burns, therefore ensure that it has completely cooled down before working on it.

Carry out a careful visual check for any faults or loosened parts.
Having checked that everything is working properly and that there are no problems of any kind, repeat the previous operation with 20 more minutes of running-in, following the same instructions.

Last running-in phase: warm up the engine again for 10 minutes at 2500 rpm, and then, as in the two previous operations, gradually increase the rpm.
This time it is possible to space it out for the entire range of use of the engine, bringing it several times to the maximum speed at intervals of 1 minute.
Once 20 minutes have passed, turn the engine off.
When it has cooled down, carry out a complete tightening of all the MINI 2 PLUS screws.
Now the MINI 2 PLUS engine is ready for the use it was designed for. Continue to use 3,5% oil for the next 10 hours.

Every time that the engine is used, routine pre-start-up checks must be carried out:
- Check that the silent blocks are completely intact.
- Check that the exhaust pipe does not have any cracks.
- Ensure that the propeller is not cracked or dented.
- Ensure that there is enough fuel, depending on the desired usage duration of the engine.
- Check that the electrical system and cables do not have any abrasions or breaks.
- Check that there are no loosened screws or components.

BELT TENSION

WARNING: CARRY OUT THE OPERATIONS WITH THE ENGINE SWITCHED OFF AND COOLED DOWN

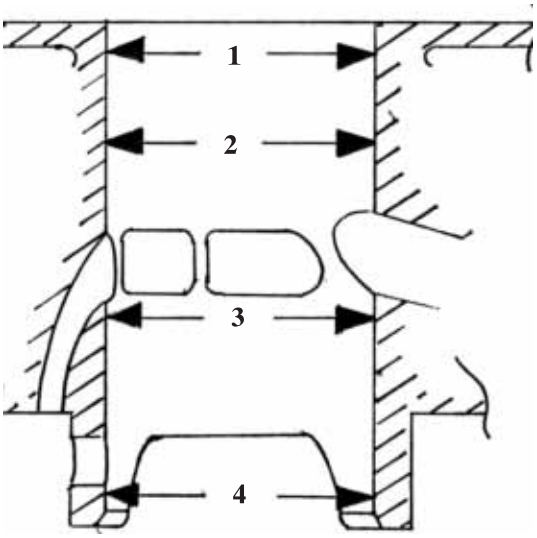
During running, the belt is subjected to traction and wear, and as a result, lengthening occurs, which could lead to sliding on the pulleys, with a subsequent decrease in the general engine performance.
To correct the tension, with a torque wrench, loosen screw M8 (No. 39) on the foot of the engine, which fastens the pulley can, turn screw M12 anti-clockwise (No. 32) using a force of 1.8 kgm and then re-tighten screw M8 (No. 39).

INTERVENTIONS TO BE CARRIED OUT EVERY 20 HOURS
- Clean the carburetor filter.
- Clean the petrol filter.
- Check the belt tension and condition.
- Lubricate the ball joint on the catalytic converter.

INTERVENTIONS TO BE CARRIED OUT EVERY 60 HOURS
- Replace the engine and exhaust pipe silent blocks.
- Replace the transmission belt.
- Check the condition of the rubber induction manifold.
- Replace the exhaust pipe sound-absorbent material.
- Check the distance of the spark plug electrodes if is greater than 0.9mm replace the spark plug.
- (Rubber components, i.e.: transmission belt, silent blocks, induction manifold, depression tube; may become damaged by atmospheric agents, therefore their duration over time may be different to that shown. Their condition must therefore be checked and possible replacement may be necessary before the established time.

INTERVENTIONS TO BE CARRIED OUT EVERY 150 HOURS

- Replace all the bearings (No. 41-No.35).
- Replace the oil seals (No. 40).
- Every 150 hours, check and replace the internal parts of the engine, if the height limits confirm the necessity.
- Cylinder:
  It must not show signs of seizure or scratches on the filling material (nickel silicon). Check the wear of the cylinder at the four points shown on diagram No. 1 (1-2-3-4) on the X and Y axles, none of the heights obtained must exceed the height limits:
  SELECTION A: 66.430mm
  SELECTION B: 66.440mm
  SELECTION C: 66.450mm
  SELECTION D: 66.460mm
  The selection is shown with a letter on the lower part of the cylinder.

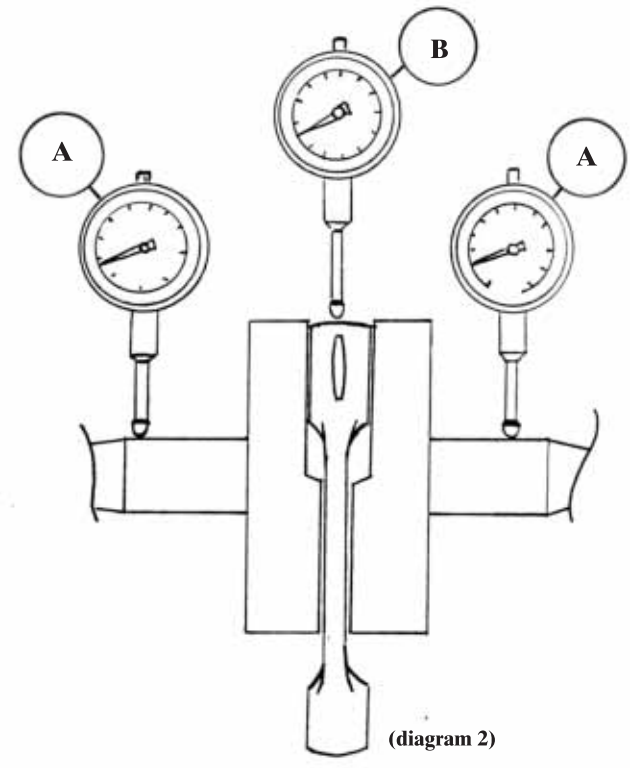


(diagram 1)

(diagram 1)

- Pistons:
  There must not be any signs of seizure or deep cracks. Check the wear by measuring the piston at 18.5 mm from the bottom, keeping the measurement tool at a right angle to the pin axle. Height limits:
  SELECTION A: 66.290mm
  SELECTION B: 66.300mm
  SELECTION C: 66.310mm
  SELECTION D: 66.320mm

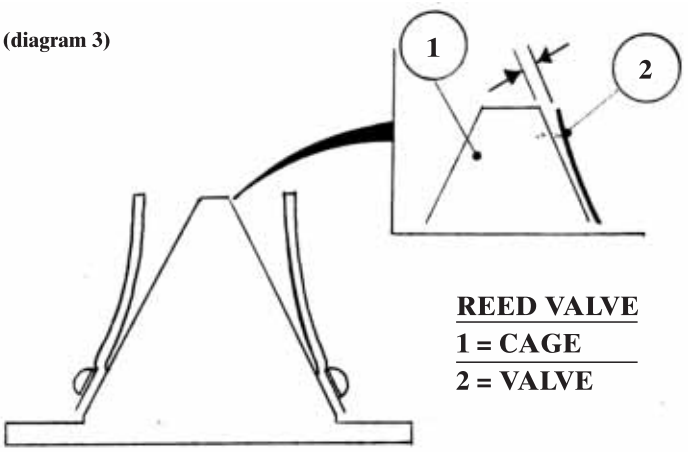
- The pin must not have a colour that indicates a high working temperature and the external diameter must not be less than 15.990mm.
- Measure the slack between the Piston Ring and its seat on the piston: slack height limit 0.1mm.
- Piston Ring:
  insert an Piston Ring at a time into the cylinder using the piston so that it is square, measure the space that is created between the two ends of the Piston Ring using Feeler gauge. Height limit: 0.7mm
- Drive shaft:
  Supporting the shaft at the two working points of the oil seals, with two comparators, measure the centering at the two working points of the bearings, marked on diagram No. 2 with the letter (A). Height limit: 0.05mm (diagram 2)

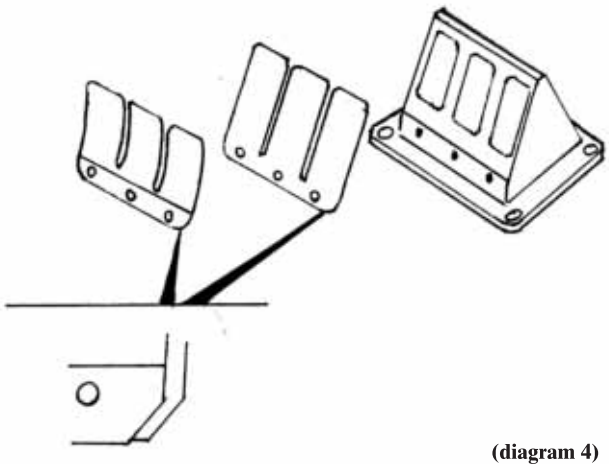


(diagram 2)

- Measure the bearing seating, which must not be lower that the height limit: 19.98mm
- With a feeler, check the axle slack of the connecting rod foot between the two semi-shafts, which must not exceed the height limit: 0.7mm
- Check the radial slack of the connecting rod on the coupling axle, which must not exceed the height limit: 0.05mm. This is achieved by positioning a comparator (B), as shown in diag. No. 2, and moving the connecting rod vertically. The slack shown by the comparator is assessed. Measure the diameter in the hole in the connecting rod head. Height limit: 20.00mm
- Lamellar set:
  Check that there is no space between the frame and the reeds (Diag. No. 3)
  Height limit: 0.2mm
  Warning, the reeds cannot be turned (diag. No. 4)

(diagram 3)





(diagram 4)

WORKING TEMPERATURE

The MINI 2 PLUS was designed to work at certain working temperatures, please carefully adhere to the following.
Temperatures that must not be exceeded when cruising or when the engine is at a fixed rpm for a long period of time:
Exhaust gas temperature 550°C.
Temperature under the spark plug 170°C.

Temperatures that must not be exceeded when taking off and when all the power is required of the engine:
Exhaust gas temperature 580°C.
Temperature under the spark plug 200°C.

WARNING! The engine must NEVER, at any time or under any conditions, exceed:
580°C exhaust gas temperature (EGT)
200°C temperature under the spark plug (CHT)

It is therefore necessary to use a tool to read these temperatures, in order to protect the engine, and above all ensure the safety of yourself and others.

We also inform you that high exhaust gas temperatures, in many cases, are a symptom of poor carburation. While high temperatures under the spark plug are due to poor heat dissipation of the engine, caused by high external temperatures or excessive propeller diameters, which cause poor air flow over the engine.

COMPONENTS AND TOOLS ON REQUEST

In order for you to have the possibility of customising the engine and therefore adapting it to various needs and methods of use, SIMONINI offers a range of components on request:

ENGINE PINION
Four different diameters (53.5/ 55/ 56/ 57).
As well as providing the right reduction ratio, they can be used to aid the engine or make it faster when increasing speed, or to move any points on the torque curve that do not fulfil your needs within a certain range of use, for example when cruising, keeping the propeller speed constant.

Code MINI2PLUS/51 MM. 53,5
Code MINI2PLUS/51 MM. 55
Code MINI2PLUS/51 MM. 56
Code MINI2PLUS/51 MM. 57

"BING 84" CARBURETOR
Compared to the Walbro, supplied as standard, it makes the engine cleaner over the entire range of use, removing small humming sounds that are noticed at medium speeds.
It is more sensitive to atmospheric changes but requires more frequent tuning.
It is also necessary to use a fuel pump, which is available on request.

Code MINI2PLUS/56 CARBURETOR
Code MINI2PLUS/57 AIR FILTER
Code A 18 FUEL PUMP

PROPELLERS
We have two types of wooden armored two-blade propeller, available in diameters of 125 cm and 130 cm.

Code E01 cm. 125
Code E02 cm. 130

MAINTENANCE TOOLS
To aid maintenance operations, two distinct tools have been produced with the aim of extracting the ignition flywheel and engine pulley.

Code U01 Pinion extractor
Code U02 Ignition handwheel extractor

REQUESTS FOR REPAIRS OR REPLACEMENT OF COMPONENTS UNDER GUARANTEE

WARNING

THE GUARANTEE IS VALID FOR 12 MONTHS FROM THE PURCHASE DATE AND EXTENDS TO ALL THE ENGINE COMPONENTS (EXCLUDING COMPONENTS SUBJECT TO WEAR AND TEAR: NIKASIL FILLING OF THE CYLINDER, PISTON MANTLE AND TRANSMISSION BELT).
THE GUARANTEE IS FORFEITED IF THE ENGINE HAS BEEN TAMPERED WITH OR IF ANY COMPONENTS HAVE NOT BEEN REPLACED WITH ORIGINAL PARTS OR PARTS THAT HAVE NOT BEEN APPROVED BY US.
THE COMPONENTS REPLACED UNDER GUARANTEE WILL BE COVERED FOR 12 MONTHS FROM THE DELIVERY DATE.
FOR ANY REPLACEMENT UNDER GUARANTEE, THE FAULTY COMPONENT MUST BE SENT BACK TO SIMONINI RACING SRL, CARRIAGE PAID BY THE SENDER.

We would like to thank you for your custom, and remind you that the staff at SIMONINI S.r.l. are at your complete disposal for any queries or explanations.

SIMONINI RACING SRL

Via Per Marano 4303, Loc. San Dalmazio - 41028 Serramazzoni (Mo) Italy
Tel. 0039/0536/953005 - Fax. 0039/0536/953006
Http: www.Simonini-flying.com - Email: info@simonini-flying.com

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