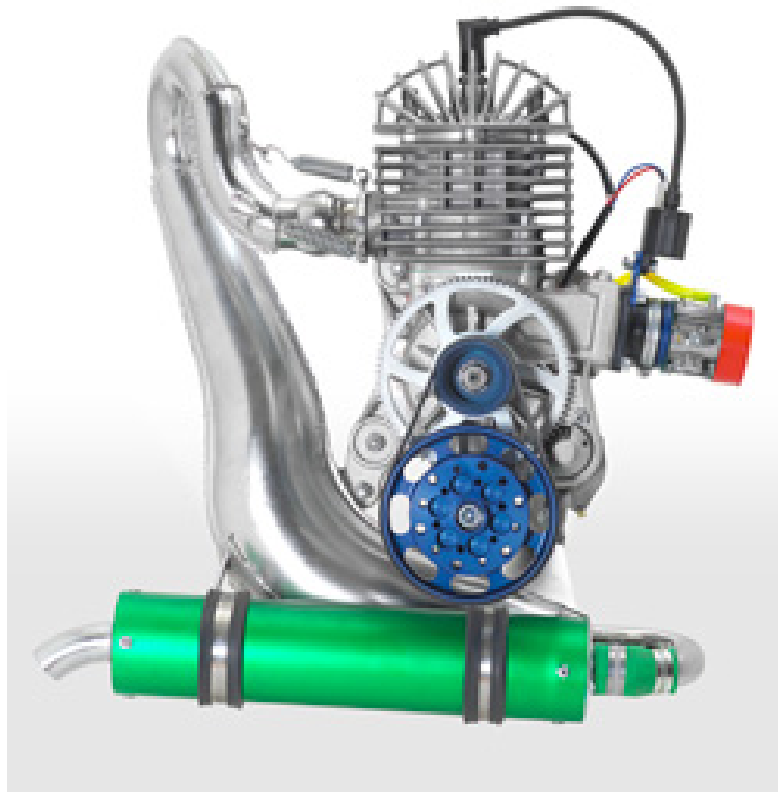




MINI 2 EVO



This handbook aims to bring to the attention of key technical, functional and maintenance of your MINI 2 EVO engine. Read carefully the following pages, will be synonymous with safety, reliability and great satisfaction durable.

This manual is considered part of the MINI 2 EVO engine, in case of transfer, please deliver it to the new owner. All the information available at the time printing are shown in this manual. SIMONINI S.r.l. reserves the right to make modifications or changes without prior notice.

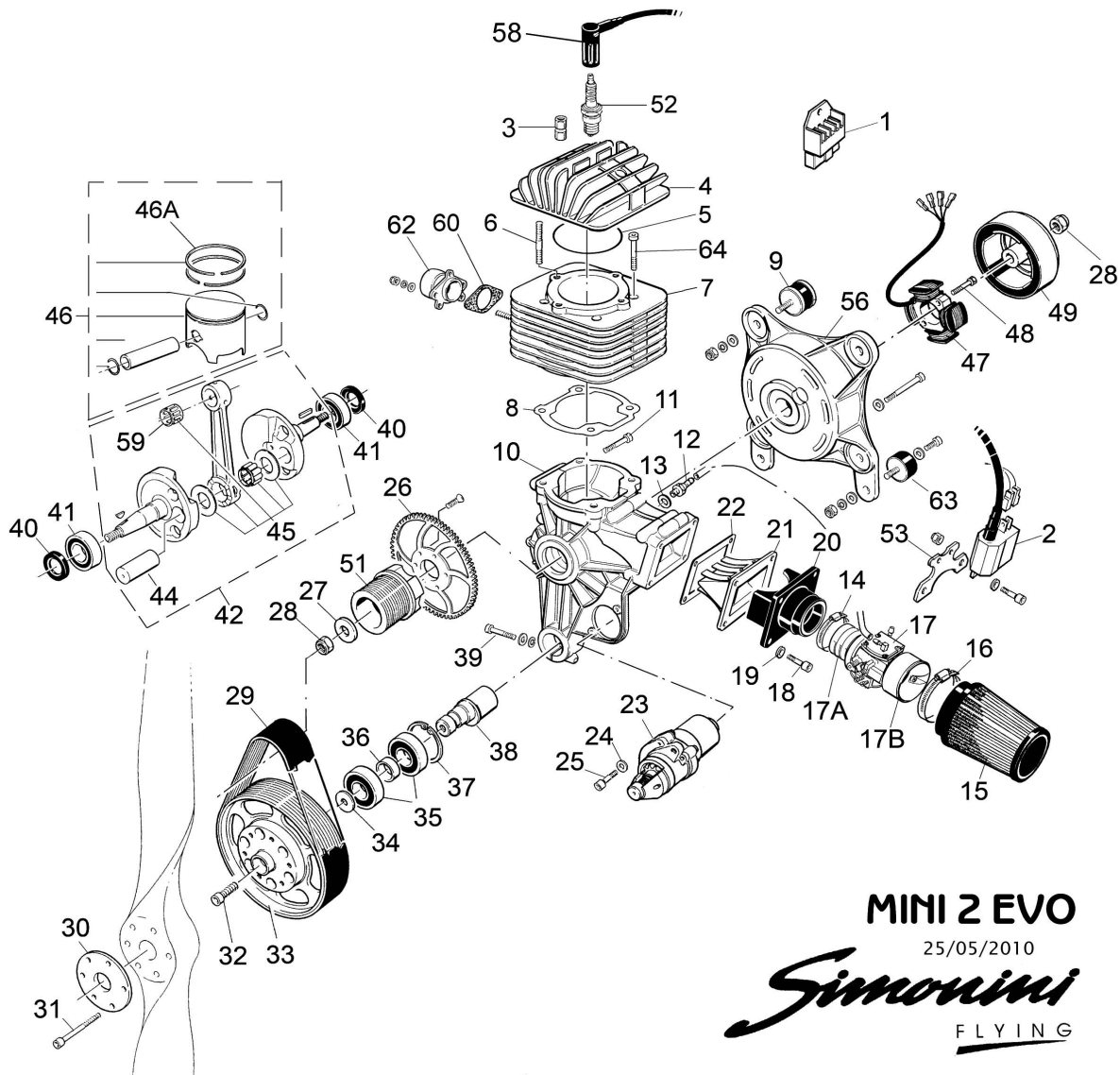
TECHNICAL DATA

BORE 70mm
STROKE 60mm
DISPLACEMENT 230.8 cc
COMPRESSION RATIO 10.1 / 1
Weight ready to fly 19.3 kg
CONSUMER A 5000 rpm 3litres/hour
POWER 7000 rpm 33hp
STATIC THRUST Over 90Kg

Lamellar intake with Walbro Carburetor WB39
Aluminum cylinder with ceramic coating magnesium,
Exhaust resonance
Poly-V belt reduction
Electronic ignition
Electric start
Alternator battery charger in flight
Lubrication premix: 2.5% with premium-grade gasoline
3.0% with unleaded fuel

REDUCTION RATIO AVAIABLE

1:230 Crown gear 129 mm / Pinion 56 mm
1:234 Crown gear 129 mm / Pinion 55 mm
1:242 Crown gear 129 mm / Pinion 53,5 mm
1:3 Crown Gear 138 mm /Pinion 44 mm

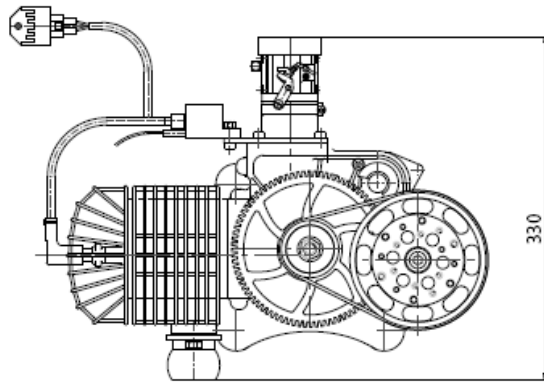
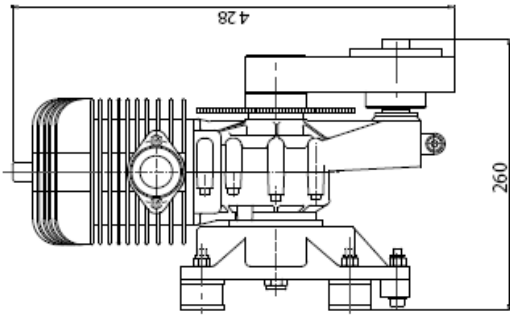
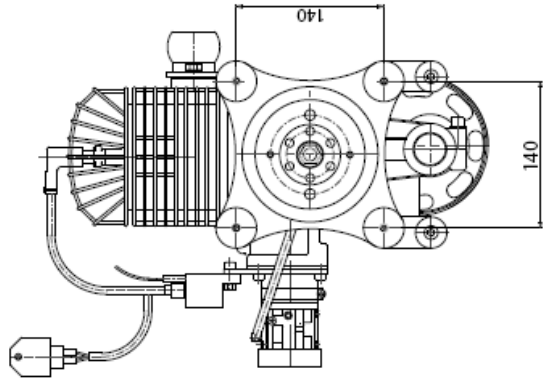


MINI 2 EVO

25/05/2010

Simonini
FLYING

MINI2EVO/01	RECTIFIER RE-CHARGE BATTERY	MINI2EVO/33	BIG PULLEY FOR REDUCTION 1:230 / 1:234 / 1:240
MINI2EVO/02	COIL	MINI2EVO/33A	BIG PULLEY FOR REDUCTION 1:3
MINI2EVO/03	KIT SCREWS FOR HEAD (4)	MINI2EVO/34	PULLEY SPACER
MINI2EVO/04	CYLINDER HEAD	MINI2EVO/35	KIT BEARINGS FOR BIG PULLEY (2)
MINI2EVO/05	CYLINDER HEAD GASKET	MINI2EVO/36	BEARINGS SPACER
MINI2EVO/06	KIT SCREWS FOR CYLINDER (4)	MINI2EVO/37	PULLEY SEEGER
MINI2EVO/07	CYLINDER	MINI2EVO/38	ECCENTRIC PINION
MINI2EVO/08	CYLINDER GASKET	MINI2EVO/40	KIT SEALS (2)
MINI2EVO/09	KIT SILENT-BLOCKS (4)	MINI2EVO/41	KIT BEARINGS FOR CRANKCASE (2)
MINI2EVO/10	CRANK CASE	MINI2EVO/42	COMPLETE CRANKSHAFT AND ROD
MINI2EVO/11	KIT ENGINE SCREWS	MINI2EVO/45	COMPLETE CONNECTING ROD
MINI2EVO/12	WASHER-PRESSURE OUTLET	MINI2EVO/46	COMPLETE PISTON AND RINGS
MINI2EVO/15	AIR FILTER	MINI2EVO/46A	TWO RINGS
MINI2EVO/17	CARBURETTOR WALBRO WB 39	MINI2EVO/47	STATOR
MINI2EVO/17A	ALUMINIUM MANIFOLD	MINI2EVO/49	FLY- WHEEL
MINI2EVO/17B	PLASTIC MANIFOLD	MINI2EVO/50	ALUMINIUM PLATE FOR STATOR
MINI2EVO/20	CARBURETTOR RUBBER MANIFOLD	MINI2EVO/51	LITTLE PINION FOR REDUCTION
MINI2EVO/21	REED VALVE	MINI2EVO/52	SPARK PLUG BR 10 ES
MINI2EVO/22	REED VALVE GASKET	MINI2EVO/53	ALUMINIUM PLATE FOR COIL
MINI2EVO/23	ELECTRIC STARTER	MINI2EVO/54	EXHAUST SYSTEM
MINI2EVO/26	CROWN GEAR	MINI2EVO/56	IGNITION CRANK-CASE
MINI2EVO/27	WASHER FOR PINION	MINI2EVO/58	RUBBER FOR SPARK PLUG
MINI2EVO/28	NUT FOR PINION AND FLY-WHEEL	MINI2EVO/59	CONNECTING ROD CAGE
MINI2EVO/29	POLY-V BELT REDUCTION 1:230 / 1:234 / 1:240	MINI2EVO/60	EXHAUST GASKET
MINI2EVO/29A	POLY-V BELT REDUCTION 1:3	MINI2EVO/61	COMPLETE GASKET KIT
MINI2EVO/30	ALUMINIUM PLATE FOR PROP. AND SCREWS	MINI2EVO/62	EXHAUST MANIFOLD AND SPRINGS
MINI2EVO/32	SCREW FOR BIG PULLEY	MINI2EVO/63	EXHAUST SILENT-BLOCKS (2)

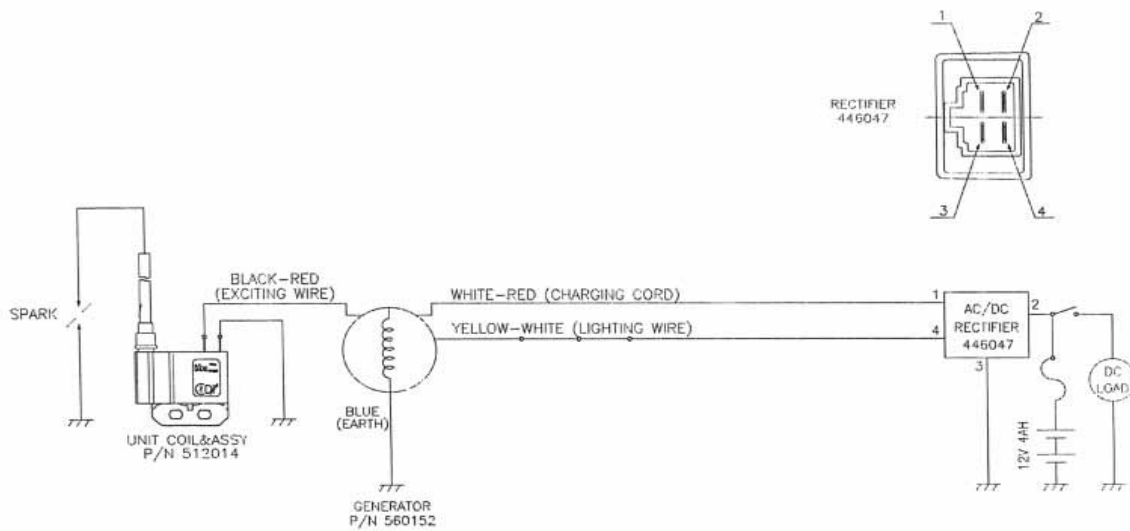


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RACING
S.p.A.

TIGHTENING TORQUES

Description	Special number in table	NM	Kgf.m
Head Nut	3	22	2.2
6x40 Screws	11	12	1.2
Connector	12	10	1.0
6x30 Screws	18	12	1.2
6x25 Screws	18	10	1.0
12 Nuts	28	54	5.4
12x30 Screws	32	60	6.0
8x40 Screws	39	32	3.2
Spark Plug	52	18	1.8

ELECTRICAL DIAGRAM



INSTALLATION

The MINI EVO 2 engine must be fitted to the frame using its four elastic supports "silent blocks", radial mounted, positioned on the support, which are a protection for the electronic ignition.

During installation, some safety precautions must be made: remember that an engine generates vibrations, even if very small, which can cause the loosening and/or removal of screws or any other object. Therefore, to prevent any engine components may cause damage to persons and/or property, make sure the engine through a small steel cable. Components normally "made safe" are:

- The filter and the carburetor to the engine
- The springs and exhaust to the engine
- The engine itself to the frame, bypassing the silent blocks. In this case we will use the "webbing" of synthetic fiber is particularly resistant to traction and tearing.

The mouth of the spherical muffler should be lubricated with grease resistant to high temperatures (e.g. copper grease) before being implanted in the exhaust manifold.

We recommend taking maximum care when carrying out these operations: in any case, during the assembly phase the proper choices must be made by expert and qualified personnel.

FUEL

The MINI 2 EVO engine is designed to operate with a gasoline/oil mixture.

We recommend using oil-based semi-synthetic that, although inferior to a pure synthetic, remains mixed with gasoline in the tank for a longer period.

During the running-in stage, use an oil percentage of 3.5% and then move to 3% once the stage has been completed.

The gasoline must have an octane number that is not lower than 95, in order to avoid pre-ignition phenomena.

Carefully mix the fuel oil in a tank is appropriate and it is better, once mixed, to use

it within one week.

Do not use vegetable or animal oil.

DO NOT MIX DIFFERENT TYPES OF OIL. We do never recommend to use Castrol TTS Oil. None guarantee by using this oil will be applied.

CARBURETOR

The carburetor Walbro WB39, if used properly, provides excellent performance requiring few tuning interventions. However, changes in weather conditions, altitude and a possible change of the propeller (both in size and pitch) can affect its 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 $\frac{1}{4}$ turns or 450°
- Screw L "only has an effect at a low engine speed". From completely tightened, loosen by $\frac{3}{4}$ turns or 270°

Given the fact that the first test is performed at an altitude of 750 m above sea level, you may need to depart from this setting without the adjustments exceed the limit:

- screw-H do not fall below a round 360°
- Screw L do not fall below $\frac{1}{2}$ turn 180°

The carburetor is equipped with a depression pump to remove fuel from the tank, but do not exceed the height difference between them as it has not exceed to 50-60cm. The same applies to the tube: Do not exceed 50-60cm.

You may inserted a manual pump between the tank and carburetor, to make the mixture reach the carburetor before the start, avoiding stress to the starter.

CARBURATION

NB: in this paragraph the words "MIXTURE" indicates the union of the two elements (AIR) + (OIL /GASOLINE) which takes place inside the carburetor.

Weather conditions or altitude changes have influence to the operation of the engine as it varies the air density and, consequently, changes the mix ratio between the element AIR and the element OIL /GASOLINE.

In general, we can say that at high altitude, high humidity or high temperatures, less air enters and therefore the mixture is richer in oil/gasoline: you will have to re-establish the proper relationship by screwing the two screws "H/L".

In contrast, with low temperatures and low humidity, the air will become denser than the lean-burn oil / gasoline, and consequently you will have to unscrew the two screws "H / L".

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 carburetion 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 a turn can cause engine damage.

RUNNING-IN

WARNING

- Before starting the engine, make sure that there are no loosened screws or improperly attached parts;
- Ensure that any persons are at a distance of absolute safety and never in range of the propeller;
- Do not start the engine where there are rocks or other objects that the force generated by the propeller can lift and throw even at a considerable distance;
- Do not start the engine without propeller;
- Do not start the engine indoors: the exhaust gases contain poisonous carbon monoxide which is toxic and can cause loss of consciousness and death.

The engine, before being sold, was subjected to a pre-running-in to verify the proper operation and a test that confirms all the features advertised.

Once you require a MINI 2 EVO, you should pay particular attention to the first hour of operation, in order to ensure all the engine's qualities over time.

DURING THE RUNNING-IN PHASE, KEEP PARTICULAR ATTENTION TO THE EXHAUST GAS TEMPERATURE AND HEAD TEMPERATURE UNDER CONTINUOUS OBSERVATION.

Having selected a suitable place and above all free from gravel or other materials that may damage the moving parts, start the engine and let it warm up for 10 minutes at 2500 rpm, then slowly bring the engine to a system more high, decreasing and increasing the speed at intervals of 1 minute, thus going to affect various "range" of use, but without exceeding the 4500 rpm. Absolutely avoid the constant and repeated closing/opening the gas valve. After about 20 minutes from start-up, shut down the engine and let cool completely.

WARNING! When the engine is running and even after its shutdown, it can cause burns: so make sure it is completely cooled before working on it.

Proceed with a thorough visual inspection of any anomalies or loose parts. Once you make sure everything is working properly and there are no problems of any kind, you must repeat the previous operation for another 20 minutes of running, respecting the same indications.

Last running-in phase: warm up the engine again for 10 minutes at 2500 rpm and then, as in the two previous operations, gradually increasing the rpm. Now you can wander over the entire range of use of the engine, bringing it several times to the maximum speed at intervals of 1 minute.

After 20 minutes you can turn off the engine and, once cooled, you will proceed to a full-tightening the screws on the MINI 2 EVO. Now the engine MINI 2 EVO will be ready for use for which it was designed by continuing to use a percentage of oil by 3% for the next 10 hours.

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

MAINTENANCE

Each time you use the engine, remember to perform routine checks pre-start-up:

- Check the silent block condition in complete integrity
- Make sure the exhaust does not present any cracks
- Ensure that the propeller does not present cracks or dents
- Make sure you have enough fuel, according to the duration of intended use of the engine.
- Check that the electrical system and cables do not show abrasions or disruption.
- Check that there are no screws or parts loosened.

BELT TENSION

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

During operation, the belt is under strain and wear and as result, lengthening occurs, which could lead to sliding on the pulleys, with a subsequent decrease in the general engine performance.

To restore the proper tension, loosen the screw M8 (No. 39) on the foot of the engine which fastens the pulley can, turn screw M12 (n°32) anti-clock wise using force of 1.8 Kgm and then re-tighten screw M8 (n°39)

INTERVENTIONS EVERY 20 HOURS

- Clean filter carburetor
- Clean fuel filter
- Check the belt tension and condition
- Lubricate the ball joint of the muffler

INTERVENTIONS EVERY 60 HOURS

- Replace the engine and exhaust silent blocks
- Replace the transmission belt
- Check the status of the intake manifold rubber
- Replace the exhaust pipe sound-absorbent material
- Check the electrode gap spark-plug: if it is over 0.6 mm, change the spark plug
- Rubber components such as belt transmission, silent block, intake manifold and depression tube may be damaged by atmospheric agents. Their durability can therefore be different from what is reported, you should therefore check their condition and provide a possible replacement even outside the agreed time.

INTERVENTIONS EVERY 200 HOURS

- Replace all the bearings (N°35 + N°41)
- Replace all oil seals (N°40)
- Check the internal parts of the engine and carry out their replacement in case the height limit confirm it is necessary.
- Cylinder:
 - must not show signs of seizure or scratches on the filling material (nickel silicon);
 - check the wear of the cylinder in the four points (shown in diagram 1) on X and Y axles, none of the heights obtained must exceed the height limits:

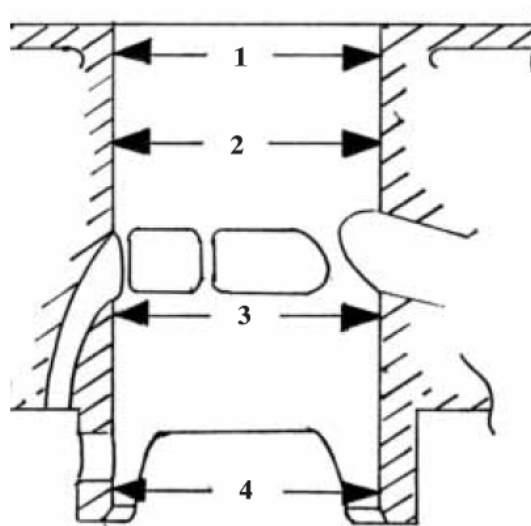
SELECTION A: 69.940mm

SELECTION B: 69.950mm

SELECTION C: 69.960mm

SELECTION D: 69.970mm

The selection is shown with a letter at the bottom of the cylinder



(diagram 1)

- piston:
 - There must not be any signs of seizure or deep cracks.
 - Check the wear by measuring the piston at 18.5mm from the bottom keeping the measuring instrument at a right angles to the axis pin.
- Height limits:

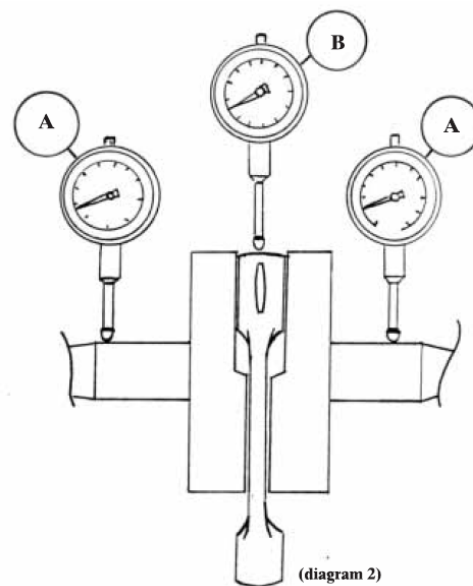
SELECTION A: 69.564mm

SELECTION B: 69.574mm

SELECTION C: 69.584mm

SELECTION D: 69.594mm

- The pin must not be blue because that indicates a high working temperature and the external diameter must not be less than 17.990mm.
- Measure the slack between the piston ring and its seat: slack height limit 0.1mm.
- Piston ring: insert a piston ring in the cylinder one by one, by using the piston, so it is a square, measure the gap that is created between the two ends of piston ring using feeler gauge. Height limit: 0.7mm
- Crankshaft: supporting the crankshaft at the two working points of oil seals, with two comparators, measure the centering at the two working points of the bearings, marked on diagram 2 with the letter A. Height limit: 0.05mm

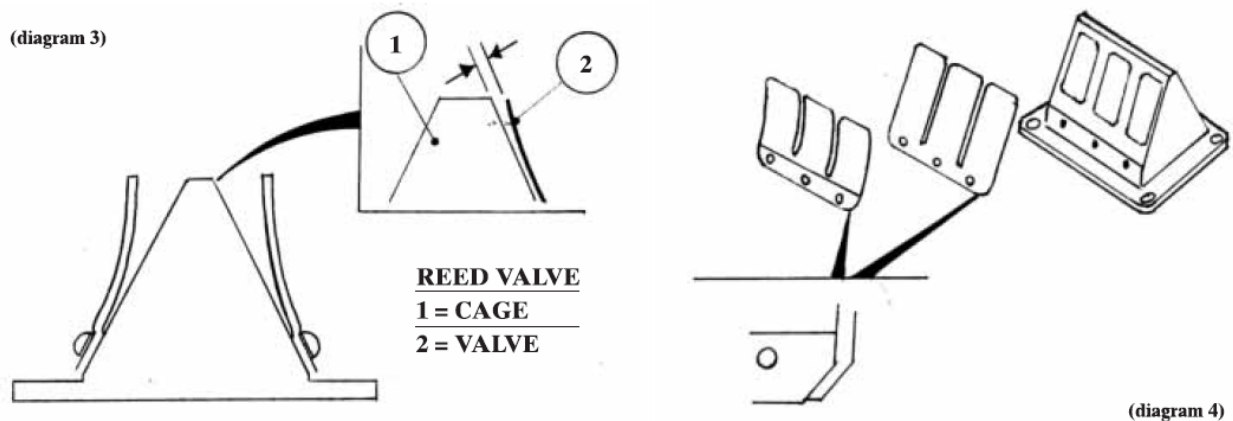


- Measure the bearing seating, which must not be lower than the height limit: 24.98mm
- Check with a feeler gauge that the axle slack of the connecting-rod between the two semi shaft, which must not exceed the height limit: 0.7mm
- Check the radial slack of the connecting rod on the coupling axle which must not exceed the height limit: 0.05mm. This is detected by placing a comparator (B), as shown in diagram 2, and moving the connecting rod vertically. The slack shown by

the comparator is assessed. Measure the diameter of the hole in the connecting-rod foot. Height limit: 20.00mm

- Reed valve: Verify that between the frame and the reeds there is no space (diagram 3). Height limit: 0.2mm.

WARNING: The reeds should not and cannot be turned (diagram 4)



TEMPERATURE

The MINI 2 EVO has been designed to work under certain operating temperatures: so please stick strictly as written.

Temperatures that must not be exceeded when cruising or when the engine is at a fixed rpm for a long time:

- Exhaust gas temperature 580 ° C.
- Temperature under spark plug 170 ° C.

Temperatures that must not be exceeded when taking off or when all the power is required to the engine:

- Exhaust gas temperature 600 ° C.
- Temperature under spark plug 200 ° C.

WARNING engine will NEVER, at any time and condition, exceed:

- 600 ° C temperature of the exhaust gas.
- 200 ° C temperature under spark plug

It therefore makes it appropriate to adopt an instrument that detects these temperatures for the protection of the engine, but especially for your and others' safety.

We also inform you that high exhaust gas temperatures, in many cases, are a symptom of poor carburetion. While high temperatures under the spark plugs, usually, are due to poor ventilation (heat dissipation) of the engine, caused by the presence of bodies and / or materials that prevent the passage of air cooling.

COMPONENTS AND TOOLS ON REQUEST

To have the possibility to customize the engine and then adapt it to different needs and methods of use, SIMONINI offers a range of components on request:

§ PINION

In four different diameters (44/53/55/56) as well as providing the proper reduction ratio, can be used to soften or make more rapid rise in engine speed or to move, maintaining the propeller revolutions, any points of the torque curve that does not meet your needs at a specified "range" of use, as when cruising.

Code MINI2EVO/51 mm. 44

Code MINI2EVO/51 mm. 53

Code MINI2EVO/51 mm. 55

Code MINI2EVO/51 mm. 56

§ PROPELLERS

We propose a two-blades wooden propeller and armored vehicles, tractors or pushing. Code E06 cm. 130

§ MAINTENANCE TOOLS

To facilitate maintenance operations, we propose two distinct tools with the aim of extracting the ignitions flywheel and engine pulley:

Code U02 Fly-wheel extractor

Code U06 Pinion extractor for diam. 53 / 55 / 56

Code U07 Pinion extractor for diam. 44 ratio 1:300

REQUEST FOR REPAIR OR REPLACEMENT OF COMPONENTS UNDER WARRANTY

WARNING

THE GURANTEE 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 WARRANTY 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 WARRANTY WILL BE COVERED FOR 12 MONTHS FROM DATE OF THE SHIPMENT. FOR ANY REPLACEMENT UNDER WARRANTY, THE FAULY COMPONENTS MUST BE SENT BACK TO SIMONINI RACING SRL, CARRIAGE PAID BY THE SENDER

PLEASE INDICATE:

- NAME
- ADDRESS
- SERIES NUMBER OF THEENGINE
 - FIRST POWER DATA
 - RUNNING HOURS
- ANY PREVIOUS REPAIRS
- CARBURETOR SETTING
- DESCRIPTION OF PROBLEM

Thanks for having choose our engine, we remind you that the staff of SIMONINI RACING srl will be at your disposal for any questions or explanation.

SIMONINI RACING SRL

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