



X30 WATERSWIFT 60cc

**ASSEMBLY
INSTRUCTIONS
AND USER MANUAL**

MAN-087

FEEDING

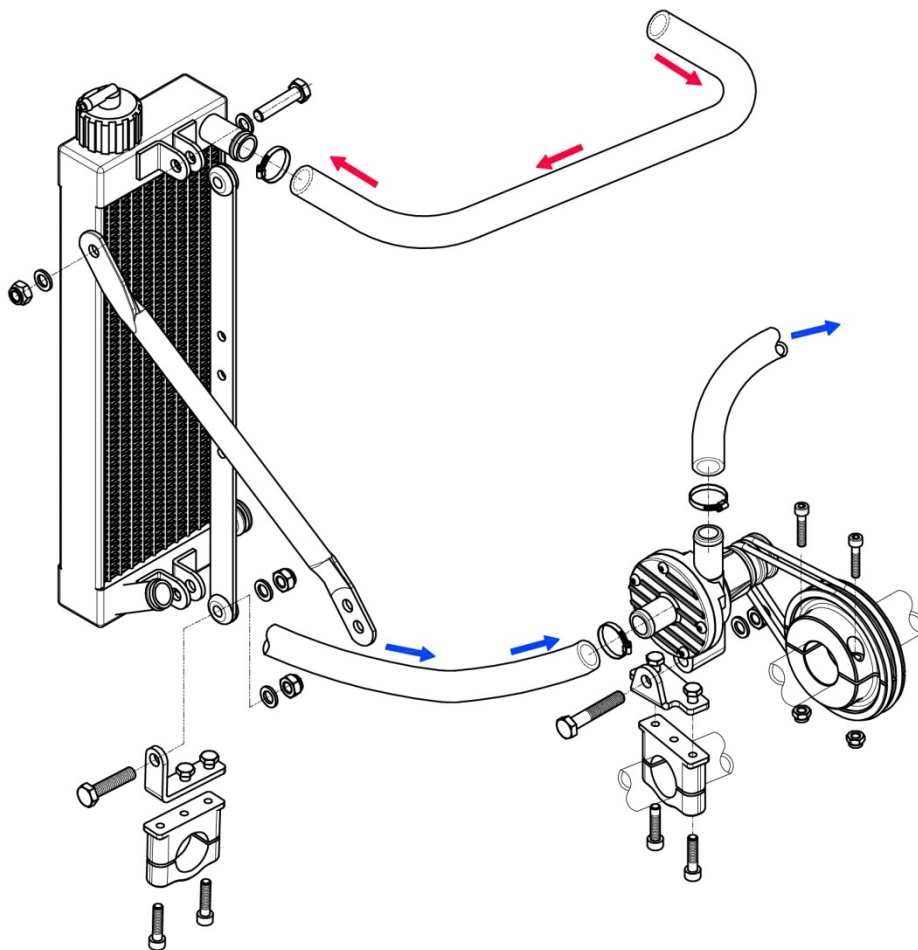
Mixture of **98 RON** petrol and **6%** (16: 1) minimum oil.
CIK homologated mix oil.

Recommended mix oils:

- WLADOIL K 2T;
- ELF HTX 909;
- ELF HTX 976;
- LEXOIL 996.

COOLING SYSTEM

ASSEMBLY THE WATER COOLING CIRCUIT AS FOLLOWS



After filling the circuit (pure water only), provide for proper air vent.

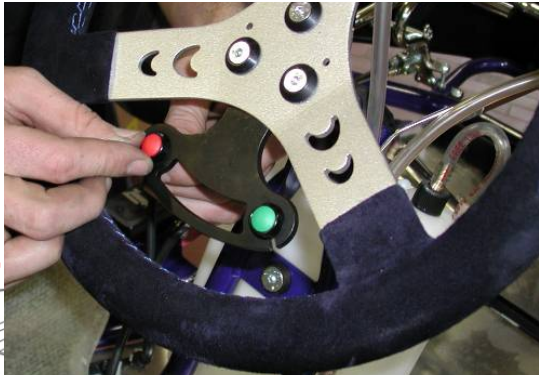
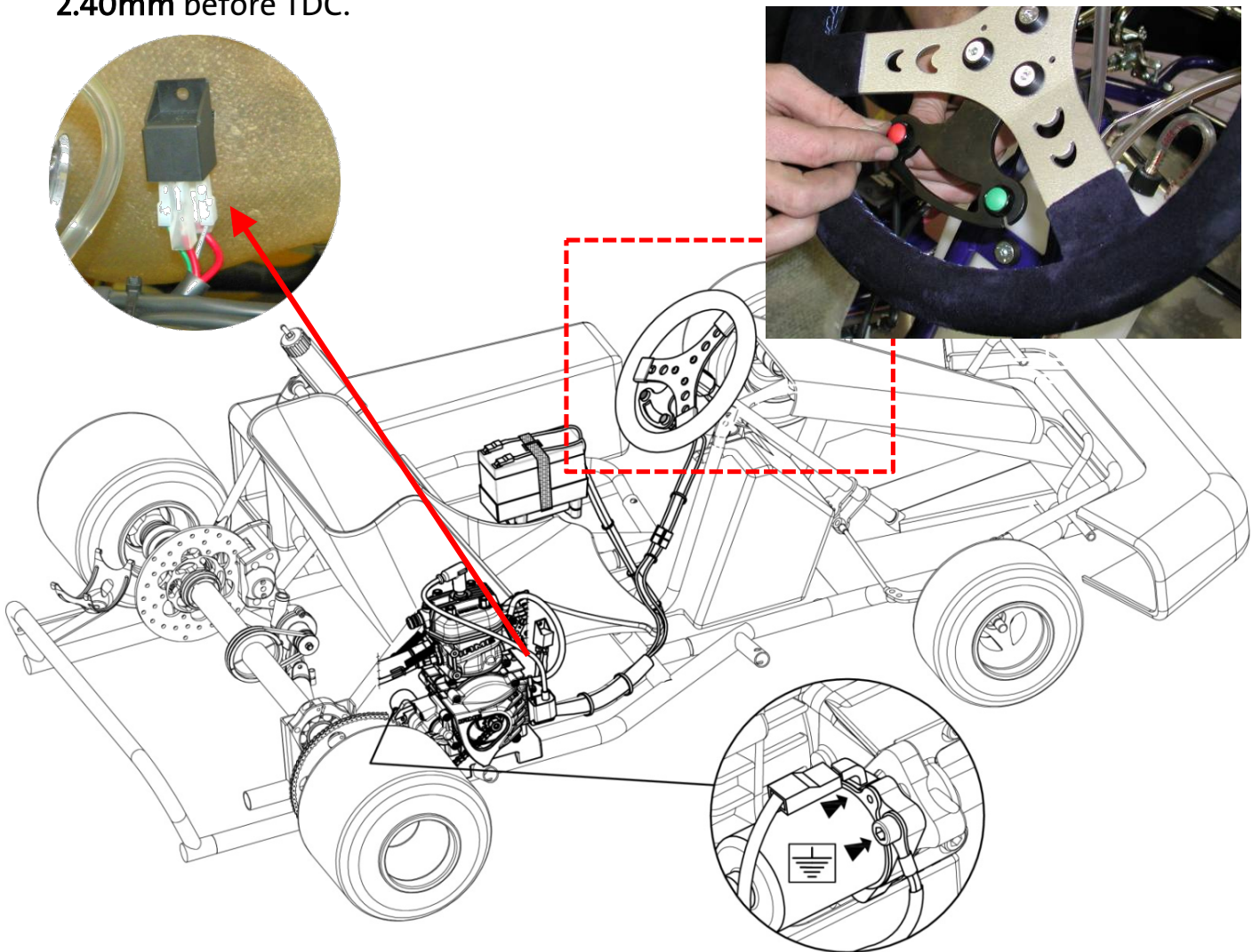
The absence of the thermostat implies the need for an adequate choking of the radiating surface and the application of protective screens on the cylinder in cold temperatures ($\leq 5^{\circ}\text{C}$).



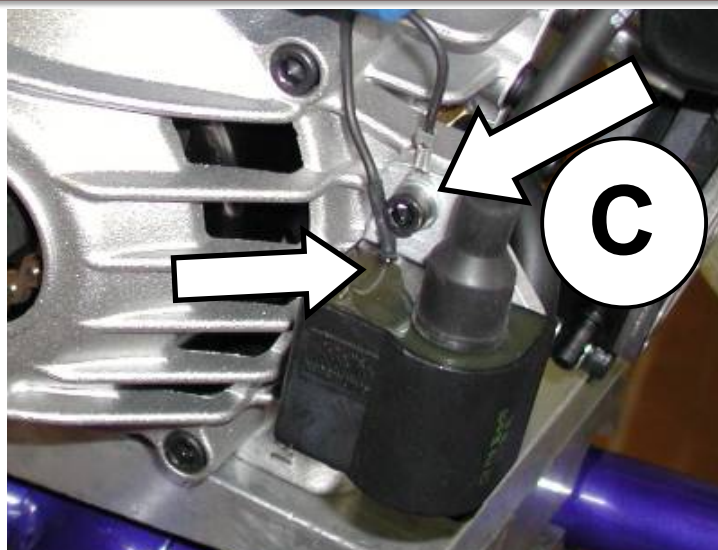
WARNING: operating limits for the temperature of the cooling liquid
min. 45 ° C / max. 70 ° C

ELECTRICAL PLANT

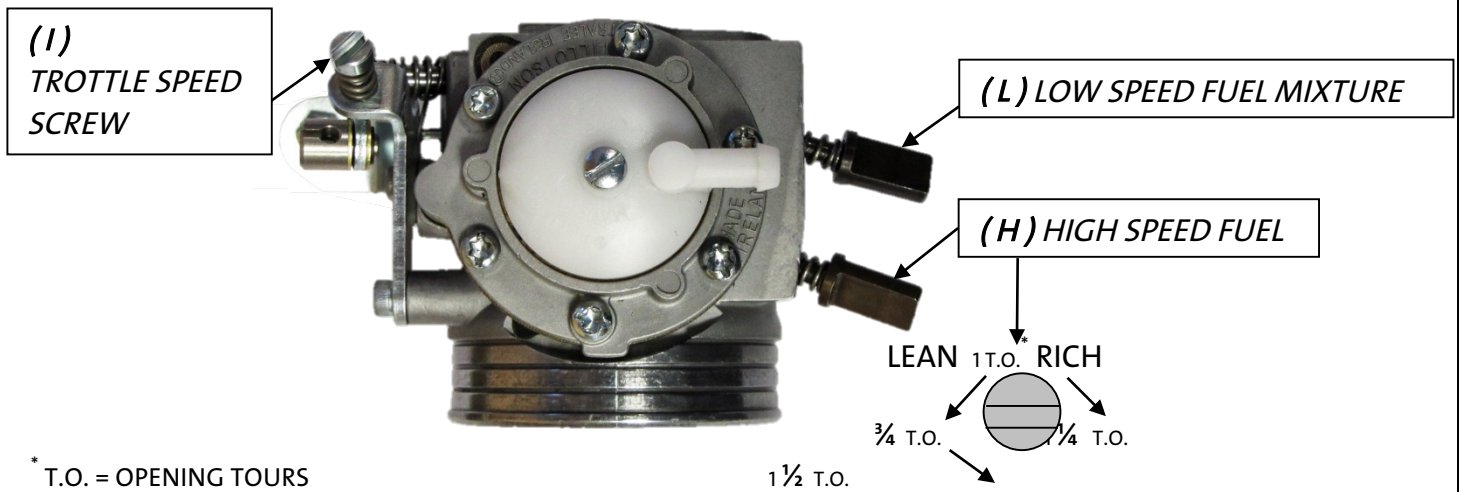
The spark is when the notches of the rotor and the stator coincide.
The engine is equipped with an analog fixed advance ignition, normally set to 2.40mm before TDC.



**WARNING: IT IS VERY IMPORTANT TO CONNECT
THE GROUND CABLE (C) TO THE CRANKCASE**



CARBURETTOR HW-31A SETTING



The recommended setting of the carburetor screws, after run-in, is the following:

- L (closed all the way down, then open): 1 T.O. + $\frac{1}{3}$ (1 tour + 20')
- H (closed all the way down, then open): $\frac{1}{2}$ T.O. (30' of a tour)

According to different conditions, such as altitude and ambient temperature, it may be necessary to recalibrate the carburetor in order to optimize the engine performance.



WARNING:

- *Never excessively lean the mixture, risk of overheating and seizing.*
- *Never tighten the screws H and L forcefully, screws seats may result damaged and the carburetor unrepairable.*
- *Carburetor adjustment must always be carried on warmed up engine.*

WARNING ON THE EXHAUST PLANT

Check that the muffler mounting springs are well hooked. In case of breaking, replace the broken spring. Do not use the engine if not with the 2 springs hooked, the muffler may vibrate more than the tolerated limit.

It is recommended to remove the bottom cup of the muffler every 10/15 hours and check that the counter-cup holes are not clogged with deposits.

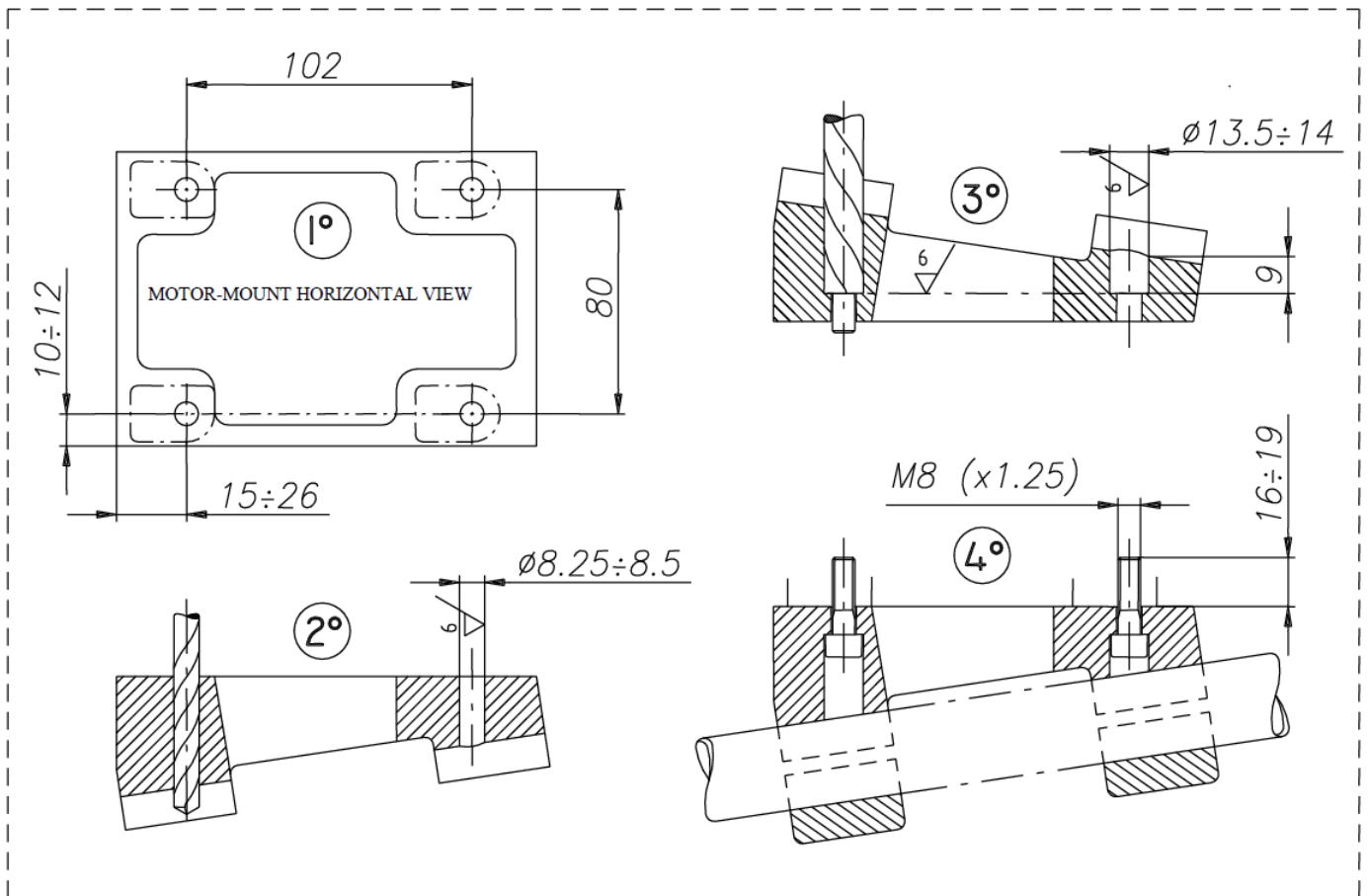
WARNING ON THE INLET SILENCER

Make sure that the inlet silencer is mounted with the inlet hole facing upwards and that is not blocked in any way. Make sure the clamp on the carburetor is not loose and that the inlet silencer body is well attached by a cable tie to the side rail of the frame.

Occasionally check that no oil deposits inside the inlet silencer. If necessary, remove the rubber manifold and clean the inside with gasoline or a diluent.

ENGINE MOUNT PREPARATION

In case you are not provided with an engine mount previously prepared with holes at the distances as prescribed in the figure, drill 4 holes $\varnothing 8.5\text{mm}$ in the engine mount as described in the drawing.



CENTRIFUGAL CLUTCH

The engine is provided with a centrifugal dry clutch with reduced maintenance. The following requirements, if carefully followed, allow an extended life of the clutch.

When starting the engine, make sure the brake pedal is pushed in order to prevent sudden accelerations.

WARNING:

Avoid unnecessary accelerations (glossy clutch and / or drifting) when the engine is running that can overheat and deteriorate prematurely the clutch unit. Oil the chain before each test session. Check after each test or race the sprocket status and replace if necessary.

A bad front/rear sprockets alignment or lack of chain grease can cause irreparable damage to the sprocket.

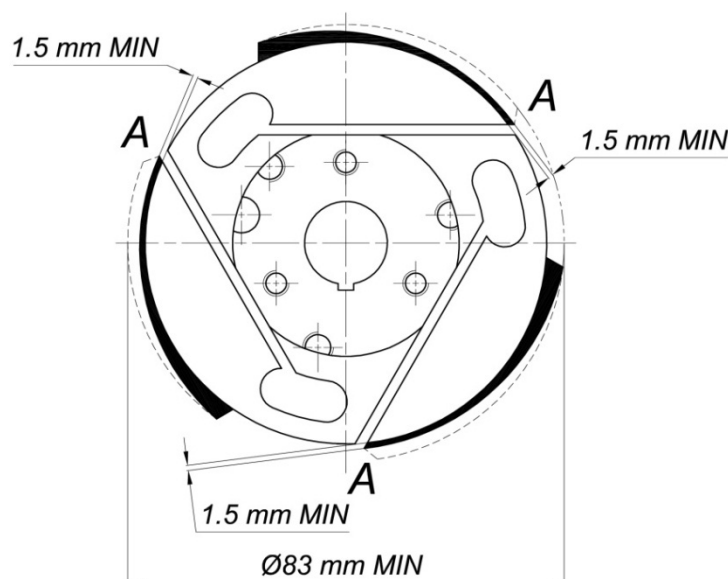
Check the clutch assembly:

- After every 5 hours of normal use
- When metallic noises are heard inside the clutch.
- If the minimum engagement limit overruns 6.000 RPM.
- When the clutch has been over heated (presence of smoke or burning smell).

The clutch control can be performed only by removing the clutch cover and clutch drum.

Replace the clutch hub:

when the thickness of the garnished material (see drawing) of the clutch hub is lower than 1.5mm in correspondence of the “A” area indicated in the drawing, or, if the diameter of the hub is less than 83mm. When the outer surface of the friction material in the “A” are is very rough (wear and degradation due to overheating of the friction material).



AVERAGE DURATION OF THE MAIN ENGINE COMPONENTS

CYLINDER / PISTON PAIRING

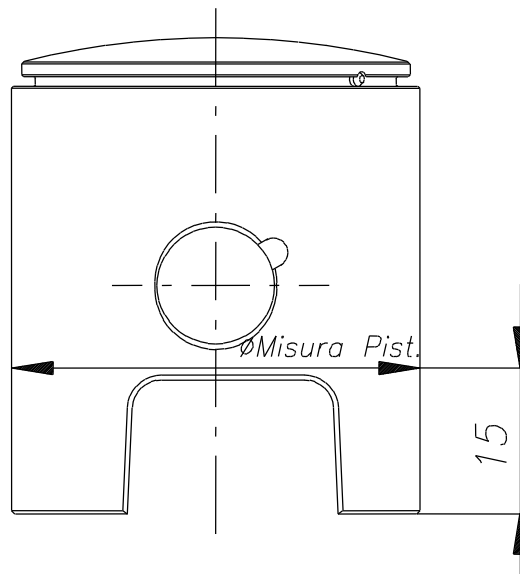
The piston must be replaced within certain intervals, expressed in consumed liters of mixture. Intervals may vary according to the use the engine, ex: professional (top performance required) or hobby (top durability).

IAME recommends to replace the piston for professional use every **200 liters** of use, or earlier, if the cylinder/piston tolerance exceeds **0.10mm**.

For hobby application piston should be replaced every **400 liters** or when the piston/cylinder clearance exceeds **0.10mm**.

The prescribed cylinder/piston clearance, when a new piston is mounted, is **0.08mm**.

The actual diameter of the piston can be checked at **15mm** perpendicular to the piston pin from the piston base.



If the marking on the piston crown indicates:

-a point **GREEN** or with the letter **V**: add **0.01mm** to the measure marked on the piston crown to match the barrel.

-a point **RED** or by letter **R**: add **0.02mm** to the measurement marked on the piston crown to match the barrel.

Moreover, the clearance between the tips of the segment (installed in the cylinder) must be between **0.15 to 0.20mm**. The clearance can be controlled with a feeler gauge after placing the ring in the cylinder.

CON ROD SMALL END ROLLER CAGE

For professional use replacement is recommend after about **200 liters** of use. For hobby use, the replacement is recommended after **400 liters**.

CRANKSHAFT, CON ROD BIG END CAGE, CRANK PIN, WASHERS

Replacement is recommended after **400 liters** of use.

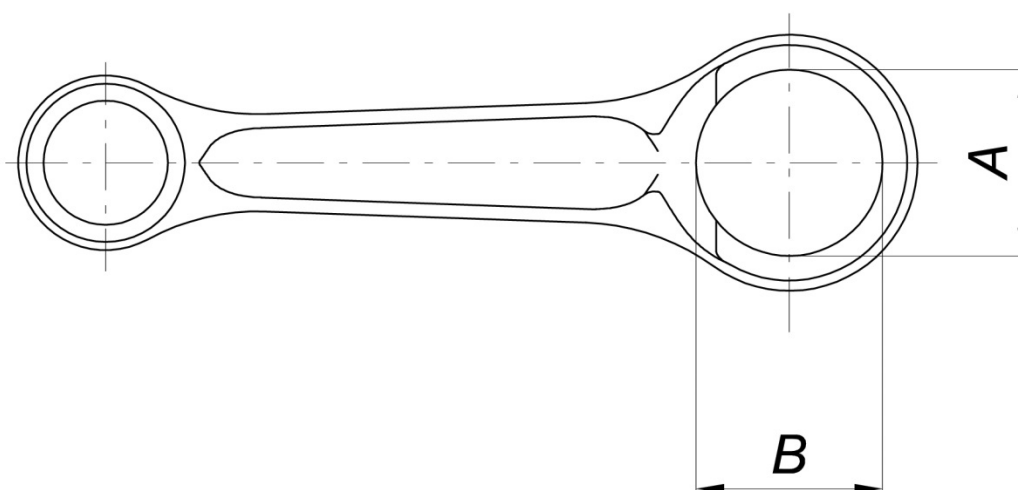
MAIN ROLLER BEARINGS

Replacement is recommended after **400 liters** of use.

CON ROD

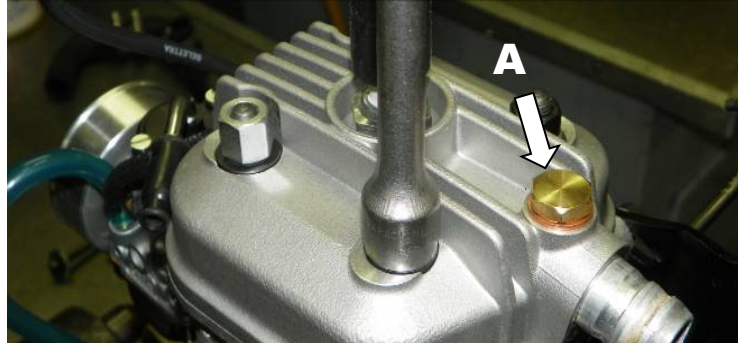
Replacement is recommended after **800 liters** of use

The con rod must be replaced when the roundness of the big end hole exceeds **0.01mm**. This value is given by the difference between the diameter measured at the positions indicated below "A" and "B".

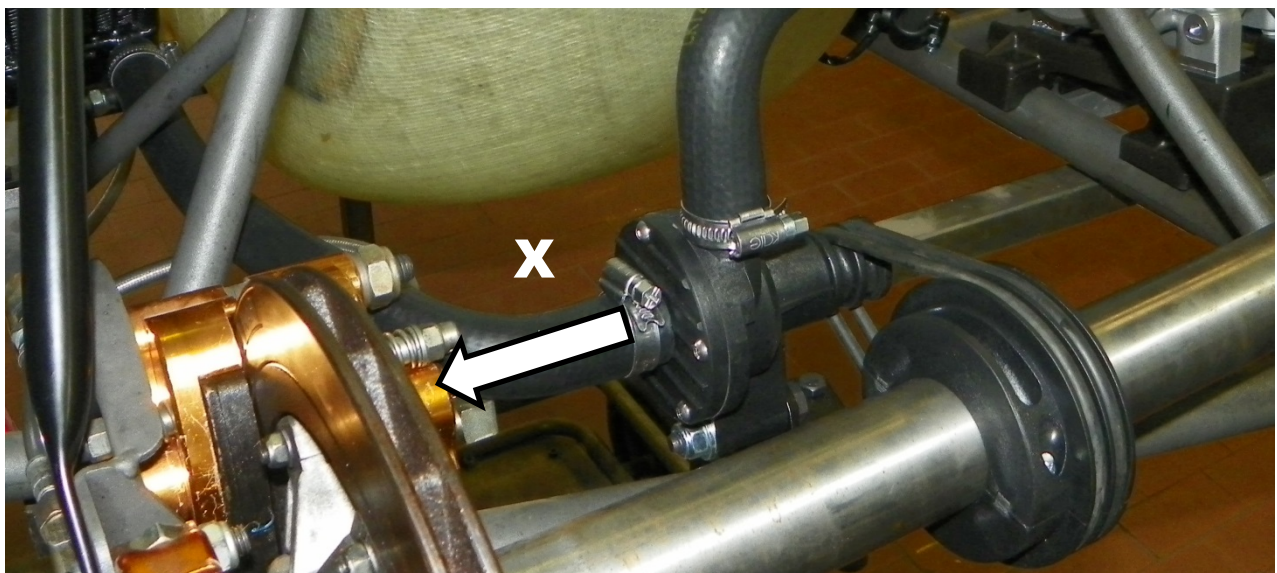


COOLING SYSTEM WARNING

- Unscrew the radiator cap and loosen the bleed screw on the cylinder head (detail "A").



- Fill water into the radiator until it comes out of the bleed screw, then tighten the screw and continue to fill the radiator up to the cap thread. The circuit now is filled and vented. Tighten the cap (the system contains about 1 liter of water).
- For your own and others safety, an expansion tank for water recovery from the vent of the radiator cap must be installed to avoid any dangerous loss of fluid on the track.
- After filling the system, start the engine and keep it running for about 1 minute. After switching off, check the level in the radiator by unscrewing the cap (the motor must be still cold). Top up if necessary.
- In case of inactivity and engine storing, disconnect the pump tube fixed to the filler pipe (detail "X") and completely empty the cooling circuit to prevent frost and damage to the parts and engine accessories.



STORAGE OF THE ACCESSORIES

In view of a long period of engine inactivity, it is necessary to preserve it in the a proper way:

- Disconnect the battery and charge it periodically
- Remove the carburetor and drain it from fuel
- Seal with adhesive paper the admission inlet and exhaust outlet

Carefully clean and protect steel parts subject to oxidation with a light layer of oil. Keep the engine in a dry storage.

TROUBLE SHOOTING

TROUBLE	CAUSE	SOLUTION
By pressing the start button the starter does not crank.	Bad cables connection	Check starter motor connection
	Bad grounding	Check connection and fixing of the ground cable
	Damaged cables	Replace cables
	Battery not properly connected	Check connections
	Low battery	Recharge or replace battery
	Starter motor damaged	Check
By pressing the start button the starter cranks but the engine does not start	Bad cables connections	Check the correct connection of the ignition cables
	Bad cables connections or ignition coil damage	Check or replace
	Bad ignition coil grounding	Check ground cable
	Wet spark plug	Replace
	Feeding system dysfunction	Check fuel hoses status Replace the diaphragm and fuel pump
The engine doesn't idle	Bad idle screw (M) regulation	Check carburettor setting
The engine lacks in performance	Bad compression	Check piston wear/status
	Bad carburettor setting	Check carburettor settings
	Lack of fuel feeding	Check that the fuel arrive to admission system.
	Dirt inlet silencer	Check and cleaning
Burning smell, smoke	Clutch over heating	Check clutch assembly status
Clutch engages at too high RPM	Excessive wear of the friction material	Check clutch assembly status
Excessive noise from the exhaust system	Broken or lost springs	Check and replace if necessary
	Damages exhaust muffler	

TECHNICAL DATA ENGINE SUMMARY TABLE

DESCRIPTION	SPECS.	NOTES
FUEL MIX RATION / FUEL TYPE	6 % OF OIL	98 RON Oil CIK homologated
OPERATION TEMPERATURE	min.45°C / max.70°C	
EXHAUST TIMING	143°±2°	Feeler gauge 0.2x5mm
ADVANCE TIMING	2.4mm from TDC	
COMBUSTION CHAMBER VOLUME	7.3 cm ³	6.5 cm ³ min.
SQUISH	0.75 mm	Measured with single wire from 1.5mm
PISTON RING TIPS CLEARANCE	0.15 ÷ 0.20 mm	installed in the cylinder
SPARK PLUG STANDARD CONDITIONS	NGK BR 10 EG NGK R 6252K-105 NKG R 6254E-105	
SPARK PLUG RAIN CONDITIONS	NGK BR 9 EG	

Caution should be taken when installing the spark plug. Always clean and inspect the spark plug threads before installation. Always apply anti seize compound, grease or oil.

- NEVER INSTALL THE SPARK PLUG WITHOUT SOME LUBRICATION -

You should be able to freely turn the plug into the head using only your fingers to turn the plug. Do not force the plug with a tool or damage will occur. After rotating the plug into the head by hand only. Torque to 175-230 lbs-in (20÷26 Nm).

