

MARK-3[®]

185cc 50:1 Fuel Mix Ratio

TECH-NOTE

Overview

The following document (Rev.3) includes an update to the oil recommendation for the engine break-in process.

With the introduction of the new 185cc engine with Nikasil[®] cylinder, WATERAX recommends a new mixture ratio and two-cycle mixing oil which will be compatible on both Nikasil and cast iron sleeve cylinder engines:

- Fuel Mix Ratio: **50:1** (gasoline to oil)
- Oil: **2-cycle** mixing oil with **API-TC, JASO FD and ISO-L- EGD certification (e.g.: Amsoil Saber[®] Professional Synthetic)**
- Gasoline: unleaded 87 octane automotive gasoline (maximum 10% ethanol)

Due to the lower operating temperatures of the Nikasil cylinder engine, this new fuel mixture is highly recommended to reduce carbon deposit while providing proper lubrication and improving overall performance.

Benefits

There are several benefits to the new fuel mix ratio:

Reduced carbon deposit

A leaner mixture in combination with a cleaner oil will decrease the amount of carbon deposit inside the combustion chamber, at the exhaust port, and in the spark arrestor, resulting in lower engine maintenance cost.

Engine protection

The new fuel mix ratio combined with the superior oil will provide the same protection as the previous fuel mixture but with half the oil consumption.

Increased performance

The thinner synthetic oil will have a positive effect on throttle response, maximum engine speed and overall performance.

Environmentally friendly

With the leaner mixture and cleaner oil, exhaust smoke, smell and overall emissions produced by the engine will be reduced, thus making the pump friendlier to the environment and operators.



TECH-NOTE

Similar overall fuel cost

The potential cost increase of synthetic oil will be offset by the +50% reduction in oil consumption with the new 50:1 fuel mix ratio.

Carburetor settings

The carburetor settings should be re-calibrated as per standard procedures.

Engine break-in

During the engine **break-in process** (required whenever a new piston or cylinder is installed), it is recommended to use an API-TC certified **mineral** 2-cycle mixing oil (e.g.: Castrol Super Two Stroke) or **Amsoil Saber Professional** at a fuel mix ratio of **24:1**. Once the break-in process is completed, the fuel mixture can be switched to 50:1 as specified in this Tech- Note. For further information on the recommended break-in procedures, please visit our website at www.waterax.com to download the associated Tech-Note.

Gasoline, octane and ethanol

WATERAX recommends using high quality automotive grade gasoline with a minimum octane rating of 87 (AKI) and a maximum ethanol concentration of 10% in its fuel mix for the MARK-3.

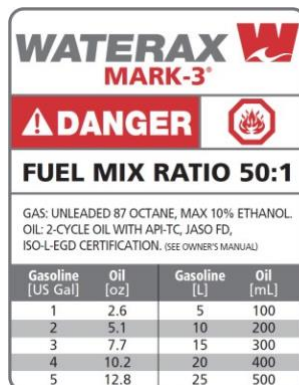
It is important to note that gasoline has a shelf life. Depending on storage conditions, gasoline can go stale in a matter of weeks. Gasoline will deteriorate in three ways:

1. The more volatile components of the gasoline evaporate, leaving behind a heavier gasoline which can lead to inferior engine performance and a more difficult engine to start.
2. Certain hydrocarbons in the gas react with oxygen (oxidation) producing new and harmful compounds. The stale gasoline will smell sour, its color will go dark, and gummy particles can appear in the gas. This can lead to poor engine performance and reliability issues with the carburetor.
3. Water contamination, which is normally caused by condensation, can be catastrophic to the engine. Gasoline containing ethanol is more susceptible to that problem. Ethanol is hydrophilic, which means that it tends to draw in moisture. If the water contamination is severe enough, the ethanol will separate from the gasoline and drop to the bottom of the fuel tank. Since water and oil do not mix well, this ethanol and water blend can cause severe engine problems due to the lack of lubrication.

To prevent any damage to the engine, it is highly recommended to only use fresh gasoline. Gas stabilizers can be used to increase the gasoline's shelf life; however, it will not restore back bad gasoline.

Label

A label for the new 50:1 fuel mix ratio is available: item no. 701253.



The label features the Waterax logo at the top, followed by 'MARK-3'. Below this is a red 'DANGER' warning box with a flame icon. The main heading is 'FUEL MIX RATIO 50:1'. The text specifies 'GAS: UNLEADED 87 OCTANE, MAX 10% ETHANOL' and 'OIL: 2-CYCLE OIL WITH API-TC, JASO FD, ISO-L-EGD CERTIFICATION. (SEE OWNER'S MANUAL)'. A table at the bottom provides the fuel mix ratios in US Gal, oz, L, and mL.

Gasoline [US Gal]	Oil [oz]	Gasoline [L]	Oil [mL]
1	2.6	5	100
2	5.1	10	200
3	7.7	15	300
4	10.2	20	400
5	12.8	25	500

WATERAX

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WATERAX INC.
6635 Henri-Bourassa W.
Montreal, QC H4R 1E1
T 514 637-1818
F 514 637-3985
TF 1 855 616-1818
info@waterax.com

waterax.com

To help you stay **#ReadyForWildfires**, we've made a few changes, placing 100% of our focus on manufacturing our core products, portable fire pumps.

To do so, we've established a network of trusted supply and distribution partners that can help us provide *WATERAX* pumps quickly in addition to water-handling equipment and accessories.

For immediate assistance when it comes to pumps and water-handling accessories, please [contact your local dealer](#).

For genuine spare parts, visit our [online store](#).

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