SNOWY'S TWO-STROKE OIL GUIDE

It's common knowledge that vintage two stroke engines usually don't last as long as four-stroke engines, quite simply because they work twice as hard and in most cases unlike like the typical four stroke car engine, don't have a dedicated lubrication system, OK the Vespa PX and the Lambretta Luna series did, but careful attention to the type of oil and the petrol to oil ratio is of utmost importance in any vintage two stroke engine, because quite simply if you get it wrong performance will suffer and the engine will wear out a lot faster.

This is why the selection of the right two stroke oil is of the utmost importance, so when choosing a two-stroke oil for your vintage scooter it's wise to stay well away from anything with a picture of a lawn mower, chain saw or whipper snipper on the container. Sure, these "green keeper" oils are cheap, very cheap compared to synthetic oils, but they are more often than not just low grade oils that will not provide your engine with the protection it deserves when the chips are down.

The main difference between a good or a bad two stroke oil (apart from additives) is how it will react to temperature change and that means cold as well as hot. Oil condition is just as important when you are kick starting your scooter on a cold winter's morning, as when your engine has been running for an hour or so.

The better two stroke oils have a high VI (Viscosity Index), which denotes the oils ability to remain “stable”, that means not thickening up at low temperatures or becoming watery thin at high temperatures. As well as steering clear of any two-stroke oil with a lawn mower on the container treat anything with an outboard motor or with “outboard” marked on the container. These oils are designed specifically for water cooled boat engines and are definitely not suitable for air cooled engines.

Another “No-No” is car engine oils in your fuel mix, sure you may find these have the same SAE (Society of Automotive Engineers) viscosity rating, but car engine oils have additives, including friction modifiers. Yes, it is correct that when vintage scooters were new, there were no synthetic oils and car engine oils were used. The big difference today though is car engine oils are not the same as they were in the 1960’s, the additives in them are often made from products like Teflon, which is not meant to be burnt, so whereas it’s OK in the sump of a car, it’s not good on the tip of your spark plug or the hot cylinder of your vintage scooter engine.

A “perfect" oil would be so stable that its viscosity would not change whatever the temperature, but there is no such oil, some oils however are much more stable than others. The "VI" rating of an oil is not often found on the oil container, the good news is that the API rating usually is and in the same tradition as with the VI rating, the higher the API rating the better.

The API 'TC' rating is one of the most demanding ratings for oil and it was developed specifically for air cooled, high revving, high output 2 stroke engines operating under severe conditions, this certification for two stroke oil is awarded by the American Petroleum Institute (API). TheTC rating is only given once the oil has passed strict tests to determine the level of detergent performance, dispersion, and anti-oxidation. The highest level of certification for two-stroke oil is the "TC"-series, so always look for a two stroke oil that meets the API TC rating and you won't go far wrong.

It should be noted that every high performance 2-stroke oil is produced using at least API group III base oil and even better ones group IV or V. Synthetic and semi-synthetic oils are always graded at least API IV and so guarantee stability. A typical "green keeper" oil is likely to be an API grade I or II, which might be ok for engines used infrequently and for short amounts of time, but certainly not for a scooter on a five hour ride-out. There are a number of advantages when using synthetic or semi synthetic oils beyond just their higher VI (stability) ratings, including they don't readily decompose at high engine temperatures and your engine stays cleaner because they create less deposits. So don't buy cheap oils, for as Sol used to say "oils ain't oils".

Oil quality is important to me, because the engines of my two Lambrettas from the 1960's have been lovingly rebuilt and restored with genuine parts and these are very hard to find nowadays. Both my scooters require manual mixing of the two stroke oil and so over the years I have tried many oils. I eventually found what I believe to be extremely good oil at a reasonable price and one which has certainly proved to be good for my engines. It's a premium semi-synthetic oil, specially formulated for small air or water cooled two stroke engines, details as follows:

PENRITE, Grade - HI-PER TWO STROKE

The Penrite Hi-Per Two Stroke is high performance semi synthetic oil is at about half the price of a fully synthetic oil, but still twice the price of a 'green keeper' oil, but it's well worth it.

It says on the Hi-Per Two container it may be used in mowers, chain saws etc, but it also says "ideal for warranty service in two stroke motorcycle engines". Importantly it exceeds the API TC rating. The container has a handy level stripe down the side, which unfortunately is not graduated, so always have a measuring cup handy.

OIL TO PETROL RATIO

Along with selecting the right type of oil, it's extremely important to ensure the ratio of oil to petrol is right, a common mistake is the belief a little extra oil won't do any harm and will provide extra lubrication for your engine. This is wrong, because adding extra oil to your fuel mix can do more harm than good. The extra oil does not actually protect your scooter by providing extra lubrication, more oil means less petrol, which means a leaner petrol to air ratio in your scooters cylinder. A too lean air / petrol mix can cause the spark plug tip and cylinder temperature to increase, resulting in pre-ignition and other problems likely to cause serious damage to your scooters engine.

Synthetic oils lubricate and mix with fuel much better than the old mineral oils, so less can be used and your engine can run cleaner. For normal around town scootering if you must use cheap green-keeper oils use a 4% (25:1) mix, with semi or fully synthetic oils 3% (33:1) is OK.. Even with synthetics 4% will be best for continuous high speed riding or high performance engines. I know Lambretta said that 2% for certain LI's was OK, but this was never recommended by the UK scooter resellers and I know a few people in the "good old days" who seized more than one Lambretta engine using a 2% oil ratio, and that includes me. With the PX Vespa you don't have to worry about the oil ratio, just fill up the oil tank and the machine will do the rest, Vespa always worked hard to take the fun out of almost everything

OIL TO PETROL RATIOS

Petrol ► Oil ▼	1 Litre	2 Litres	3 Litres	4 Litres	5 Litres
2% (50:1)	20 ml	40 ml	60 ml	80 ml	100 ml
3% (33:1)	30 ml	60 ml	90 ml	120 ml	150 ml
4% (25:1)	40 ml	80 ml	120 ml	160 ml	200 ml
5% (20:1)	50 ml	100 ml	150 ml	200 ml	250 ml

The one disadvantage of synthetic oils is they lubricate too well, so if you are "running in" an engine after a rebuild. use cheap mineral based oil for the first 1000 klms, synthetic oil does not assist the running in process.

A FEW TRAPS TO AVOID

 Try not to pre-mix your oil and fuel too early, most oil manufacturers advise it's best to mix as you intend to use, as after a few weeks pre-mixed fuel can become like varnish, this has as much to do with the fuel as it does the oil. Castrol advises the oil (not the petrol) in two stroke mixes using their oil will last up to one year. This however is in an air tight container!

 Always turn your fuel tap off when your scooter is not in use, as the oil tends to "separate" from the petrol and sink to the bottom of the tank, petrol also evaporates faster than oil, so if you can end up with a carburetor full of oil, which doesn't help starting your engine as it doesn't ignite too well.

 Give your scooter a good shake before setting off out on a trip, to help mix the oil again. Even the best self-mixing oils tend to separate and settle at the bottom of the petrol tank after remaining stationary for long periods.

Well that's about all, in summary it's important to remember that as Sol used to say, ***"oils ain't oils"***. Your choice, along with the oil to petrol ratio you use, may be the difference between a long life or early death for your precious scooter engine, so choose your oil well and mix it carefully, happy scootering……..

Regards
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