

How to Tune a Gas R/C Engine with a Walbro Carburetor

NOTE: This also works on the cheaper Chinese brand Walbro (HiLo)

It is important to keep in mind that the low (L) speed needle is always active, and that the high (H) speed needle is only active above 1/4 throttle when there is sufficient low pressure in the venturi for the high speed needle to start drawing fuel.

Here is the drill to start from scratch:

Low Speed Idle mixture

1. Open both needles L~1.5 to 2.0 turns, H ~2 turns. This will ensure a rich setting.
2. Close the choke valve and switch on ignition.
3. Flip prop until the engine pops or runs for a short time.
4. Open the choke valve.
5. Using a slightly high idle throttle setting, start the engine and let it warm up a bit.
6. Adjust the low speed idle needle (closest to the engine) for best rpm and then open it 1/4 to 1/2 turn. This will be a safe rich setting to start tuning, and from here the high speed needle can be set.

High Speed mixture:

With the idle needle set about right, slowly apply full throttle. If the engine stays too rich, close the high needle a bit so the rich condition is cured, but no more than that.

This is the basic high speed needle setting, at which the engine will run without damage due to lean mixtures.

Keep this setting while running in the engine.

Let the engine run for about five minutes, then the spark plug can be checked. It should have a desert sand tan, or slightly darker. Not black, because that is an indication of an overly rich mixture, nor pale-white, because then the engine is too lean. This setting will cause damage if not rectified!

The next step is to get the mid-range just right. This can only be done after the engine is run in. If done before that, settings will change, and the process has to be repeated.

So far, you have been running the engine with a rich idle, and quite rich main needle settings. This causes four-stroking in the mid-range.

1. Let the engine warm up, and apply full throttle, until the rpm has stabilized.
2. Now slowly reduce throttle, until the engine starts to four stroke. Cure that condition by leaning the idle needle.

3. Go back to full throttle, and adjust for max rpm, then open the needle 1/16 turn extra, and throttle back again. This time, the four stroking transition will be at a lower throttle setting.
4. Repeat the above steps, until the engine runs well at all, but slightly high idle.
5. Check for crisp throttle response. If the engine lags, then open the idle needle until the condition is cured.
6. Let the engine idle for a prolonged time, and apply throttle. All should be well now, and throttle should be accepted quickly and clean, with maybe a very slight initial four-stroking to clean the lungs.

It is a fact of life, that two stroke engines do not fire every stroke when the rpm approach idle speeds. That means, that below half throttle, the engine may break into an uneven pace, so do not worry too much if the above mentioned method does not provide clean running all the way down to idle.

If after these adjustments the engine becomes harder to start, the idle needle is too lean, and if easy starting is needed, the needle should be opened up again and the high needle readjusted (leaned). Clean mid-range will suffer though.

To recap:

Because at full throttle both needles contribute to the mixture, you can run the engine with lean idle and richer main needle for good mid-range, but starting will suffer.

You can also run the engine with rich idle, and leaned out main needle, but mid-range will suffer and burble.

A larger prop will run cleaner at mid-range.

Too large a prop will make a good tuning very hard to do, and it will be almost impossible to get full throttle just right.

Andrew Scott

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