

The web has many guides. **Always use a tach, never by ear**

1. Hi needle to around two turns out, and low needle to 1.75. This will be pretty rich and the engine will be grumpy. Start, and set a reasonable low idle (2500rpm) with your trim. Let the engine warm up then open it up and wind in the Hi needle for maximum revs. When you get near optimum for all needle settings 10 degrees can make a big difference. When you think you have the max, hold it for 60 seconds at see if the rpm are stable - if it begins to slow down after a while it is lean - this is bad - open it up a shade then try again. It's not a glow engine so no need to back it off "a few hundred rpm".

2. Using your transmitter (**throttle stick not trim**) bring the rpm to around 40% power (**by RPM not throttle movement** - i.e. 3500rpm). Wind in the Low needle - start with 20 degree (small!) increments. When you do this the rpm will go up. Bring it back down to 3500rpm each time with transmitter stick and keep going until you no longer get an RPM increase. It might take a while. Now, from this position unwind it 90 degrees and that's your base setting. You will be very close to perfect now.

3. Readjust your top end again, as per point 1. Set a reasonable idle (2200 rpm or so) using your **transmitter trim**. Now you're ready to do the subtle stuff!

4. Let the engine idle for at least 60 seconds then go straight to 100% (WOT). If the engine sags a bit and doesn't rapidly increase revs you are a shade too rich. Close the low needle about one screwdriver width and try again. If the engine cuts out instead - too lean - same adjustment only open it a bit. Play with this (small adjustments, always letting the engine settle - it's not like setting the needle valve on a glow - takes a little bit of running for the effect of adjustments to become evident). When it sounds zappy in its acceleration. set your idle again with your transmitter trim, kick it up to WOT and check once more no sagging at high RPM (if so, open the Hi needle a barely perceptible amount)

5. Now the last bit. You may get a bit of mid-range four stroking - suboptimal rather than dangerous - i.e. it won't make your engine stop. Take your engine up to WOT and wind it back with one click at a time on your throttle stick. Each click, wait 20 seconds and listen for four stroking. It may become evident around half way down. If it does, that's because it is rich in the mid-range which is largely (but not totally) under control of the low speed needle. Wind your low speed needle in a "tiny" amount. Then repeat from high throttle to low, one click at time, if the four stroking happens again it will likely be at a lower throttle position, so repeat, repeat, repeat until you get all the way down, or close to your idle RPM. Check your rapid transition from idle to high (after letting the engine idle for a minute or so) then you are set for optimal and trouble free flying! In some engines you can never totally get rid the mid-range burble - especially if they're not broken in.