

Introduction :

Congratulations on your purchase of a high performance SH engine. Our engines have been specially designed and manufactured using modern computer assisted equipment combined with years of R/C racing experience, resulting in an engine that's both powerful and easy to tune.

Items required to start your engine :

- ⊙Glow plug : We recommend using a quality glow plug such as SH#3, SH#5, O.S.#8 or McCoy MC-9 Turbo engines should use the SH#7 or #8 Turbo Glow Plugs.
- ⊙Glow igniter : A 1.5 volt ignition battery with glow plug clip or a self-contained glow plug igniter should be used.
- ⊙Fuel : Use only fuel specifically blended for high performance engines. SH engines are capable of using fuels containing 5%–40% nitro methane. If Using fuel containing more than 25% nitro, you must insert an additional 0.1mm head shim between the cylinder liner and head insert to lower the compression ratio.

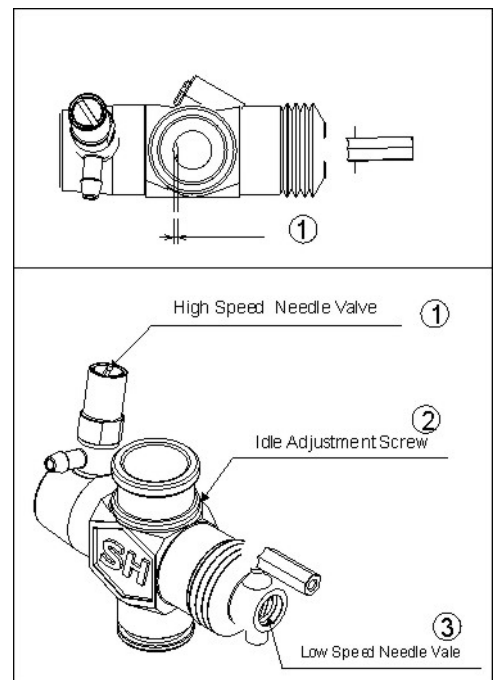
Starting your engine and adjusting the carburetor :

The first three tanks of fuel are the most critical time for a new engine. This initial running period will determine how well the engine performs over its entire life. Follow these steps and precautions, and keep in mind that optimum carburetor settings are reached only after your engine has been properly broken in.

Setting the carburetor for break in:

1. Gently push the carburetor slide in (toward the high speed needle). Adjust the idle stop screw so that 1 mm opening remains between the slide and the edge of the carburetor throat. The idle stop screw is a mechanical adjustment that only varies the speed at which the engine idles. It is not a mixture screw.
2. Both the high-speed needle and the low speed mixture screw have been adjusted at the factory to enable the engine to start in a "rich" condition. Should you lose the factory settings, simply turn the high speed needle valve clockwise until you begin to feel resistance (do not force speed needle valve counterclockwise three complete turns).
3. With the throttle set at idle, start the engine and observe the speed at which it operates. If the RPM is excessive (above 3,000 RPM), turn the low speed needle valve counterclockwise 1/8 turn until the speed decreases to a safe idle setting. If the engine stops because of a "rich" condition (lots of smoke and unburned fuel the exhaust). Turn the low speed needle clockwise 1/8 turn until the engine idles reliably.
4. Increase the throttle slowly by manually opening the throttle slide. Adjust the high-speed needle so that the engine is running very rich condition (again, lots of smoke and oil exiting the exhaust). Make sure to keep the throttle opening below 50%, and run the engine as rich as possible for the first 20 minutes or so. Note : You may wish to keep the glow igniter attached to the glow plug during this initial running period to ensure the engine runs reliably in this rich condition. The aim here is to keep the engine running, but set as rich as possible. Should the head temperature increase to over 110 degrees C (230 digresses F). Immediately shut down the engine and allow it to cool prior to restarting.
5. Run your vehicle back and forth in a straight line with the engine set at this rich setting. Initially, the vehicle will run slowly with an excessive amount of smoke and oil coming form the exhaust. If the engine will not run reliably because of this rich carburetor setting, try either increasing the idle speed (by turning the idle stop screw clockwise about 1/2–1 turn) or leaving the glow plug igniter attached.
6. After consuming 2 tanks of fuel, the high-speed needle valve can be adjusted clockwise about 1/8 turn, which will allow the engine to re at full throttle. Note the increase in performance and change in engine sound. After consuming another tank of fuel at this new setting, continue to lean the high-speed needle valve 1/8 turn at a time until the vehicle attains the highest possible straight-line speed. Note : If the high speed needle is set too lean (screwed in too far), the engine will overheat and will not accelerate smoothly. If this happens, immediately stop the engine and turn the high-speed needle counterclockwise 1/8–1/4 turns before restarting the engine.
7. Continually monitor the performance of your engine by making small adjustments to the high-speed needle valve until a setting is found that produces the highest possible straight-line speed without overheating. Now, to allow for a margin of safety, rotate the high-speed counterclockwise 1/8 turn and mark it. Now that the high-speed needle is set properly, it's time to adjust the low speed needle valve.
8. With the engine running, close the throttle and allow the engine to idle for about 5 seconds. Pull the throttle open and observe the performance of the vehicle. If the engine produces lots of smoke form the exhaust and does not accelerate smoothly, the idle mixture is too rich. Turn the low speed needle valve clockwise 1/8 turn at a time until the engine acceleration is crisp and reliable. Make sure to test the throttle response after each adjustment of the low speed needle valve! Carry out these adjustments slowly and patiently under actual running conditions until your engine is properly set.

Note : Should you experience trouble while attempting the set the low speed needle valve , first make sure that there is a 1mm opening between the throttle slide and the edge of the carburetor throat at idle. It's very difficult (if not impossible) to properly set the low speed mixture when The idle speed is set too slow.



Here is another method of setting the low speed mixture :

Start the engine, warm it up and return the throttle to idle. Pinch the fuel line shut leading to the carburetor, and listen to the engine as it stops.

If the engine quits without speeding up :

The low speed needle is set too lean, turn the low speed needle counterclockwise 1/8 turn and try again.

If the engine speeds up excessively before stopping :

The low speed needle is set too rich, turn the low speed needle counterclockwise 1/8 turn and try again.

When the low speed needle valve is set correctly, the engine should speed up just slightly before stopping.

WARNING : Mixture adjustments can only be made accurately when running your vehicle on a proper course or track. Never attempt to run your engine in a car hile the wheels are off the ground.

Running the engine with the vehicle's wheels off the ground Can seriously damage the engine by overheating and exceeding the maximum RPM's f the Engine.

9. By this time your carburetor settings and break in period are almost complete. Because your engine is a piece of precision equipment, the break-in period is critical to allow the different parts of the engine to properly mate together and establish the correct operating tolerances. Running your vehicle on a track during the above break in period will ensure that it will deliver maximum power with long service life.

If your engine is equipped with a recoil starter

A. Always pull the handle straightaway form the recoil starter and prevent the starter cord form ruing on anything.

B. Allow the starter to recoil slowly by keeping hold of the handle during the "rewind" process Do not release the handle abruptly.

C. Do not let fuel come in contact with the recoil cord, as fuel will weaken it.

D. The recoil starter is designed to start the engine running in a counterclockwise rotation. Forcing the flywheel clockwise will cause sever damage to the recoil assembly.

Some additional recommendations

1. If your engine will not run properly and / or the carburetor is difficult to adjust and tune, check to see if there are any cracks, leaks or blockages in the fuel lines. It is highly recommended that you install a quality fuel filter between the tank and the carburetor.
2. Use the same brand of glow plug and fuel for break in as you intend to use when racing. Keep in mind that changes in fuel, plug, gear ratio, etc. will affect the carburetor settings.
3. You must use a quality air cleaner at all times. Make certain to clean or replace the filter element often, as dirt and dust are the enemies of your engine.
4. Should you find a problem that you believe my have been caused by a defect in materials or manufacturing, contact your local distributor or retailer. Under no circumstances will improper use of owner caused problems Be considered as a sufficient reason for retuning the engine for service.