

Tech Tips
Super Tigre Carburetor Adjustment Procedure
(Author unknown)

The Super Tigre carburetor has two needle valves for adjusting fuel mixture. The # 1 needle is the high-speed adjustment needle (on left as viewed from rear of engine, the needle closest to the fuel inlet nipple). The # 2 needle (on right as viewed from rear of engine, and close to the throttle linkage attachment) is for slow speed adjustment. Newer Super Tigre carburetors have gone to a recessed screw in the barrel for slow speed adjustment. The idle speed adjustment screw is located to the left of the carburetor throat (as viewed from rear of engine). The screw on the right of the carburetor throat (as viewed from rear of engine) is the barrel retaining screw.

Super Tigre carburetors have been maligned by some modelers as being hard to adjust and too finicky. My 30 plus years experience with Super Tigre engines has taught me to make any carb adjustments in very small increments, and once they are properly set they stay that way. If you are used to cranking a needle 1/4 to 1/2 turn to try and improve a condition, you will never get a Super Tigre carb adjusted properly. I have had properly adjusted Super Tigre carburetors go from too rich to too lean in less than a quarter turn of the low speed needle.

To set up this carburetor you will need a short piece (1 foot) of clean fuel tubing.

First the idle speed adjustment screw needs to be adjusted so that the throttle barrel is open about the diameter of a modeling T pin. Later after the idle and mixture has stabilized and the engine is mounted in the aircraft this setting can be backed off so that the throttle barrel will close all the way with low throttle and low throttle trim to kill the engine.

Open the throttle barrel wide open, then with the length of clean fuel tubing attached to the fuel inlet nipple, blow through the tubing. Screw the high-speed needle in until you hear no air escaping. Now open the high-speed needle 2-1/2 turns.

Now with the throttle barrel at the previously established closed position, gently blow through the tubing. Adjust the low speed needle in until you can barely hear air escaping. Now open the low speed needle 1/2 turn from this position.

Bear in mind if you change the position of the throttle stop you will have to reset the low speed needle. Also the setting on the high-speed needle will affect the low speed transition. I have had the best luck trying to get a reliable idle and good transition with brand new Super Tigre engines after they are properly broken in. I have run as much two gallons of fuel through Super Tigre ringed engines before the idle and transition stabilized to an acceptable level. The breaking in of a Super Tigre engine is time consuming and if not rushed, will reward you with an engine that should almost last a lifetime.

With the engine mounted on your aircraft it is time to start it. Fill the fuel tank and open the carburetor wide open. With your finger over the carburetor throat (and glow plug driver NOT CONNECTED) bring the prop up on the compression stroke and slowly turn it through one revolution. You should see fuel flow into the fuel line and into the carburetor, flip through about two more revolutions with your finger over the throat. If when you remove your finger from the carburetor throat and the fuel in the fuel line flows back into the tank, this could be an indication that your fuel tank is too low relative to the carburetor's centerline. Go to low throttle, high throttle trim on your radio. Connect the glow driver and with a chicken stick flip the prop through until the engine starts. Some of the hotter Super Tigre engines that I have had had a propensity to start in reverse. If this is the case try rotating the prop backwards against compression and letting it pop back. Usually the engine will start and run in the proper direction. If the engine starts and will idle fairly well, let it run for a minute or two to allow the engine to come up to operating temperature. Advance the throttle slowly to wide open. Listen to the engine and determine if it's four stroking or two stroking. If it's four stroking screw in the high-speed needle until the engine transitions to two stroke. Now open the high-speed needle until the engine just goes into four stroke. Back off the throttle to idle and have a helper hold the aircraft. With the helper holding the aircraft advance the throttle to wide open. Have your helper point the nose of the aircraft to the sky. If the engine speeds up to a stable two stroke, the high-speed needle is set properly. If the engine is new, I generally open the high-speed needle about 1/8th turn additional to ensure a rich high end until it's broken in.

Once the high-speed needle is set, return the aircraft to the level position and set the throttle to low throttle/high trim. If the engine is idling let it idle a few seconds then slowly advance the throttle. If the engine burbles, and it may spit fuel out the throat, it's too rich. If this is the case, close (clockwise) the low speed needle about 1/8th turn. Run the engine to full throttle to clear it out then return to idle for 10 to 20 seconds then slowly advance the throttle. Repeat the above procedure until you have a smooth throttle transition. If the engine sags and hesitates with no burbling it means the low speed needle is too lean. Open (counter clockwise) the low speed needle about 1/8th turn and try it again. This is the most time consuming part of adjusting any model engine carburetor so be patient. Once you are satisfied with the idle and transition return the throttle to wide open and recheck the high speed setting as per the previously outlined method and make the necessary small changes, then fly.

Note: Do not be tempted to short cut the break-in, burn at least a gallon of fuel with the high speed set rich. After break-in is accomplished do not try to adjust to the last few higher rpm's, as this is the quickest way to turn your Super Tigre engine into a so-so performer (or worse) rather than a star performer. Also do not use the glow plug that came with the engine, substitute an OS #8 plug.

Some have reported that the venturi can be rotated from it's straight down position to a slightly forward facing position to improve low speed transition. I have never encountered a problem that made this necessary, but it remains something to consider if all else does not give satisfactory results.