

2021 Billetron Tuning Manual

Lectron has been designing and manufacturing simple, high performance fuel systems in the United States since 1974. With a rich history in practically all divisions of two wheeled motorsports, we are proud to have you as a part of our legacy.

Lectrons outflow comparably sized carburetors while delivering fuel in a more finely atomized form. This creates better throttle response and more horsepower, all while staying in tune throughout a wide range of elevations and temperatures. Instead of rejetting throughout the day, you get to spend more time riding.

Each metering rod has a specific grind profile that has been pre-selected for your application.



Disclaimer: Lectron products come preset with a base tune determined by in-house testing, rider feedback, and other research. Each application can be influenced by external factors resulting in necessary tuning. Examples of these factors are: riding style, local fuel, custom engine work, etc.

Lectrons are mechanical fuel systems that use physics to compensate for a wide range of elevations and temperatures as well as humidity and other factors that effect air density. They DO NOT mechanically change their own tune and cannot sense load.

For extreme environment applications like dune riding, snowbiking, ice racing, Supermoto, or other related activities under variable loads, you may need to make tuning changes.

Sample Installation

These are general steps and guidelines for installing your new Lectron carburetor. The actual steps you take may vary.

View Billetron install video here: <https://www.youtube.com/watch?v=RbA3HpPGMnU>

Step 1: Prepare the Bike

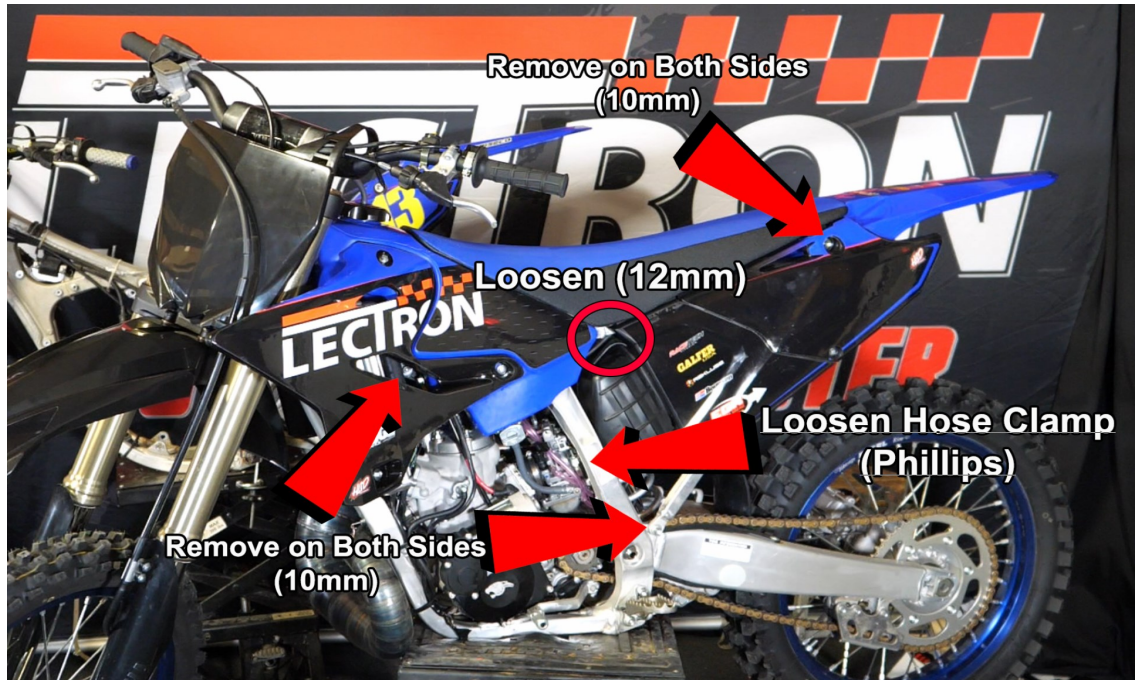
Turn your fuel off and disconnect the fuel line from the carburetor.

Drain the bowl if there is fuel in it.

Remove the seat and fuel tank.

Loosen up the center subframe bolt(s) and remove the lower subframe bolts.

Loosen the hose clamp on the air box side of the carburetor.



Step 2: Uninstall the Carburetor

With the subframe rotated upwards, loosen the hose clamp on the engine side of the carburetor and remove it from the frame.



If your carburetor has electrical plugs attached to it, disconnect those, tape or heat shrink the ends up to keep dirt out, and zip tie the plugs out of the way (usually to the frame up under the gas tank).

Disconnect the factory throttle cable from the slide. You will need to collapse the spring against the top cover in one hand, and push the throttle cable in, then outwards and it will come free.

Thread the top cover off of the factory throttle cable. On some models, you may also need to remove the lock nut as well to achieve proper freeplay.

Step 3: Install the Top Cover, Gasket, Spring, and Slide

Thread the Billetron top cover all the way onto the factory throttle cable. Do not completely tighten this as you will need to orient the front of the top cover to face the front of the bike.

Install the Billetron top cover gasket and spring onto the cable.

Collapse the spring up against the top cover so the cable is free, then insert the ball end of the cable into the opening on the face of the slide. Release the spring into the hole on the slide as pictured.

Step 4: Install the Billetron

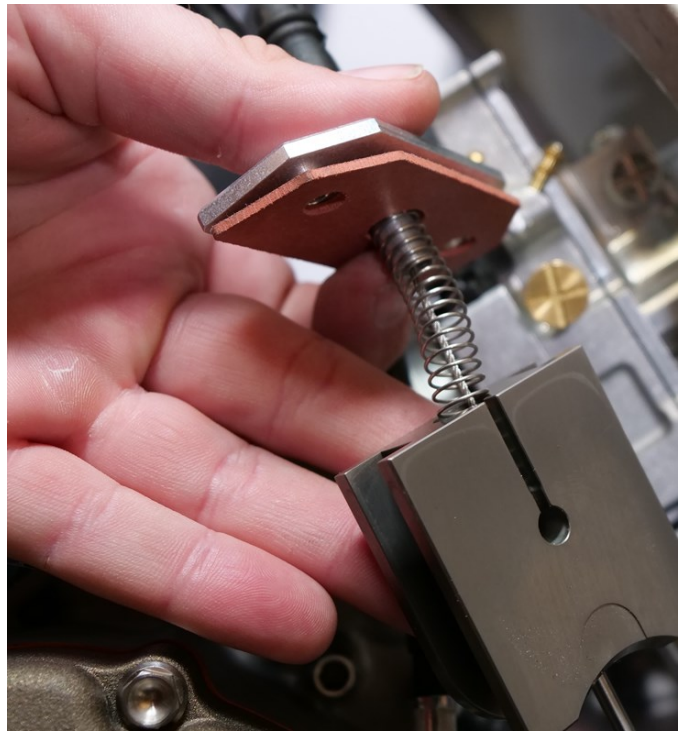
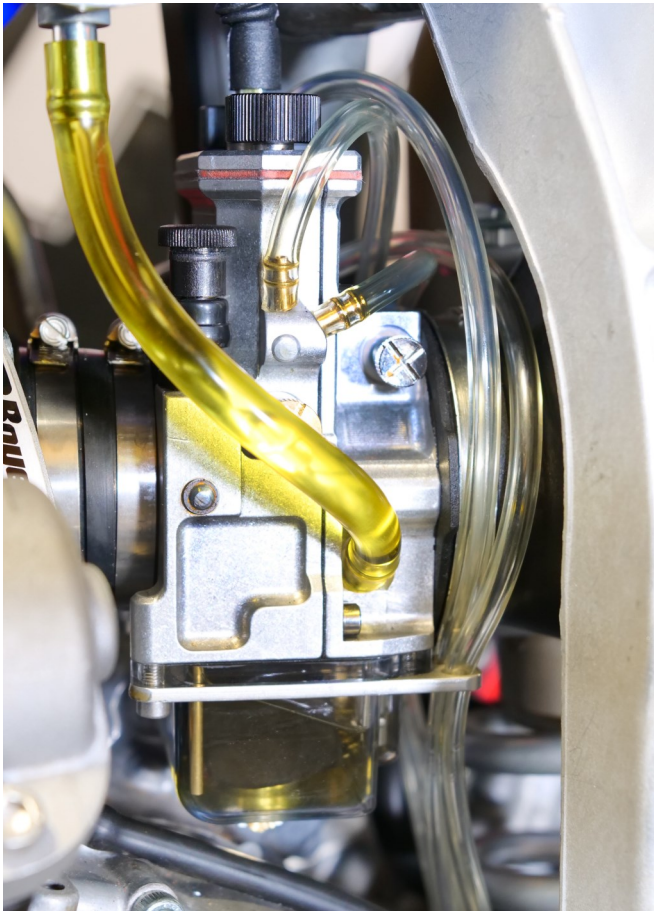
Seat the spigot of the Billetron into the intake flange, leaving the hose clamps loose. If the carburetor does not fully seat, you may need to trim the locating tabs off of the flange.

Route the vent lines down by the shock. If you choose, you can route one or two vent lines up towards the frame or into the airbox.

Do not restrict the vent lines with wire or zip ties, or route them into an unvented catch can.

Confirm that the slide is open no more than 1/8" in the bore of the carburetor. If it does not close enough, thread your cable adjusters together first.

If you still do not have enough freeplay, remove the lock nuts from the carburetor side first, and the throttle side if necessary.



Step 5: Reassemble the Bike

Carefully lower the subframe while guiding the silencer back onto the pipe and the air boot onto the carburetor bell. You may need to flip the hose clamp so the screw is in an accessible location.

Carefully inspect the bell of the carburetor to ensure the boot is fully seated. You may need to rotate the carburetor back and forth so it seats.

Once the carburetor is fully seated, snug up the hose clamps on both the spigot and the bell. Do not overtighten the hose clamps as it can cause the boots to slip off the carburetor.

Continue reassembling the bike beginning with the subframe. Use a torque wrench and follow the motorcycle's service manual.

Pre-Start Check

IF THE SLIDE DOES NOT FREELY OPEN AND RETURN TO THE CLOSED POSITION, DO NOT START THE MOTORCYCLE.

Before the first start, move the handlebars from side to side to confirm the cable is not binding.

Open and close the throttle to confirm it has a smooth action.

Install a clean air filter, fresh spark plug, and fill the tank with fresh gas. If you are premixing your fuel, mix it according to the oil manufacturer's recommendations.

First Start

Note: Starting the bike on a metal stand on a concrete floor can cause excessive vibration and make the carburetor overflow.

First Start

Turn on the petcock and watch the float bowl fill with fuel. There should be a small air pocket in the top right corner of the float bowl.

Pull the choke and fire the bike up.

You may need to blip the throttle to keep the bike running as these chokes are very rich.

Run the bike for a few seconds on the choke, then turn it off.

Continue lightly revving the bike until it is up to operating temperature.

If the bike is making an unusual noises, pinging, revving uncontrollably, or anything that may indicate an issue, turn it off immediately.

Once the bike is up to operating temperature, take it for a nice, easy test ride. Listen for any indications that it could be running too lean or too rich and adjust as necessary. If you are unsure which way to go, always start going richer first.

IF THE BIKE WILL NOT START

Pull the spark plug and see if it is wet or dry.

If it is dry: Take 3 vent lines in one hand and cover them with your thumb. Lightly blow in the 4th one and it will force fuel up the power jet line and into the bore of the carburetor. Continue trying to start the bike. If this is the only way your bike will start, check for spark and proper compression. A leak down test is an easy way to confirm that the bike is generating proper vacuum to the carburetor and there are no air leaks. This is method for starting is NOT meant to be a permanent solution.

If it is wet with fuel: Install a fresh spark plug and continue trying to start it. If it will not start after a few cycles, hold the throttle wide open and try to start it. If it still will not start and the plug is wet again, refill the tank with fresh gas, confirm the air filter is clean, and try again. Further troubleshooting steps include checking the stator and coil for proper output.

Setting Cable Free-play

Link to Video: <https://www.youtube.com/watch?v=6aeOLkmP-Fo>

Once the bike is up to operating temperature, make sure the bike is not loaded up and set the idle to 1300-1800 RPM.

Back the cable adjusters out JUST until you hear the idle RPM begin to increase.

Thread the adjusters back in 3-5 turns and lock them there.

Confirm that you have enough free-play to adjust the idle by turning the idle screw out and lock the adjuster in place. If turning the idle screw out does not affect the idle RPM, then turn the cable adjusters in further to add more free-play.

If your cable adjuster at the throttle has too many threads showing or will not achieve the proper amount of free-play, use the other adjusters on the cable or at the top of the carburetor to do so.



Basic Tuning

The metering rod allows for 1/8 turn adjustment increments. **Do NOT tune it before starting the bike.**

Lectron offers many different rod profiles to suit all riding styles. To adjust the rod, remove the two screws from the top of the carburetor and remove the slide assembly.

Richen it by threading the rod in (shortening it).

Lean it by threading the rod out (lengthening it).

The flat side of the metering rod must ALWAYS FACE THE ENGINE. If the rod does not face the engine after your adjustment, push the metering rod up into the slide, and rotate it to where the flat side faces the engine. Metering rods will have play in them. When the spring is engaged, the length will not change. Each 1/8 turn is .003"

Rich Metering Rod Indications

- Idle screw turned all the way in/large slide gap at idle
- Slow return to idle
- Blubbing/stuttering at low throttle
- Reduced fuel mileage
- Pipe bang on decel
- Runs worse at elevation
- Black or wet spark plug
- Does not want to rev until higher RPM

Lean Metering Rod Indications

- Idle screw turned out/small slide gap
- Stumbles off idle/does not take throttle
- Reduced power
- Fast hanging idle/wandering idle
- Detonation at low throttle positions.
- Runs better on choke
- Runs better at elevation
- No color on the spark plug
- No power until higher RPM
- Does not want to rev until higher RPM

Two Stroke Power Jet Tuning

The power jet works like a valve or faucet. Tighten it down to reduce the flow (clockwise - leaner) and loosen it up to increase the flow (counterclockwise - richer).

Rich Power Jet Indications

- Blubbing at wide open throttle (runs like choke is on)
- Bike feels flat at wide open/will not rev out
- Less peak HP (lean no more than 1/4 turn at a time)
- Dyno graph falls off at high rpm

Lean Power Jet Indications

- Detonation under load (sounds like marbles in engine)
- Excessive pinging
- Discolored pipe
- Spark plug is white/blistered

