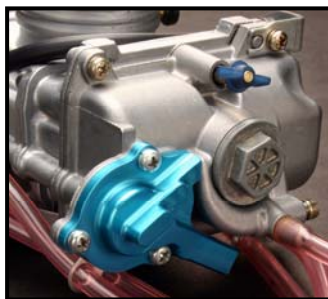


Part # 00-008



## *Congratulations on your purchase of the Merge ALJ (Adjustable Leak Jet Kit)*

These instructions are intended to provide the competent mechanic with the information necessary to understand the various functional aspects of the FCR MX carburetor and to correctly install and adjust this Merge product.

### **Product Background**

A modern four stroke off-road motorcycle is designed to run on a mixture of fuel (gasoline) and air (oxygen) and will perform its best at an air to fuel ratio of 12:1 to 14:1 depending upon a few variable factors, including the type of fuel.

When the mixture gets out of this range it can cause a noticeable loss of power, poor starting, damage to internal components, such as the inlet and exhaust valves, and it can cause the engine to overheat.

When the throttle of an internal combustion engine is opened rapidly the engine can quickly suck a large volume of air through the intake. Fuel injection engines monitor this increase in air and pump in enough fuel to keep the mixture within a very precise range. Unfortunately, a carburetor as normally seen on the competition off-road motorcycle relies on the jets and an accelerator pump to compensate; this small pump literally sprays a small jet of fuel into the engine to richen the mixture to an acceptable level. If the amount of fuel isn't increased to match the volume of the air, the bike can hesitate, or "bog".

It's very common for the jetting to be overly rich so the engine doesn't bog and very common to need carburetor adjustments to compensate for altitude, temperature and even fuel. The best way is to regulate the jetting for best performance and then adjust the accelerator pump to match the air flow.

An excellent way to adjust the accelerator pump correctly is by changing the leak jet located in the bottom of the float bowl. This jet allows excess fuel back into the bowl so the smaller the jet, the greater the flow of fuel into the engine. Unfortunately, changing the leak jet can be time consuming, and purchasing a range of jets, expensive. After you install this new kit the leak jet will be replaced with an adjustable leak circuit so you can get the engine "dialed in" no matter where you are.

## **Installation**

**Important - If you are not a competent mechanic do not attempt to install this product yourself; have your local dealer install it for you.**

**Precautions:**

- **Always wear Safety Glasses when working on a motorcycle.**
- **Always let the motorcycle cool down completely before you work on the fuel system.**
- **Gasoline is flammable! Read all safety instructions in your manual.**
- **Always clean the area around the carburetor before disassembly.**

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### **Read all instructions before installing the ALJ**

1. Remove the float bowl per the service manual for your motorcycle. Tip: You may be able to remove the bowl by loosening the clamps and rotating the carb body. Some motorcycles will require the carb to be completely removed to access the float bowl screws. Also, make a note of the overflow hose routing so you can reassemble correctly.
2. With the float bowl on a work bench remove the 3 diaphragm cover screws.

3. Turn the bowl over and remove the leak jet (Some carb versions like early Yamaha and KTM models do not have a leak jet).

4. If you removed a leak jet you need to install the leak jet plug supplied. See Fig 1

5. Secure the supplied drill fixture to the float bowl with 2 of the original diaphragm cover screws. *Important - please note the position and orientation of the fixture.* See Fig 2

6. Drill a hole through the float bowl with the 2mm bit supplied. Drill the hole straight and aligned with the pilot hole in the fixture – It is advisable to use a bench drill to carry out this procedure.

7. Remove the fixture and check to see if there are any burrs or metal fragments on the inside of the bowl. If so, remove them.

8. You will notice that the Merge diaphragm cover has a check valve located in the bottom. See Fig 3 If your original diaphragm cover does not have a check valve like this it is located in the float bowl and must be removed. Drive out the ball, spring and plug using the shank end of the drill bit from this kit. See Fig 4

9. Thoroughly clean the float bowl.

10. Assemble the diaphragm, diaphragm spring and Merge cover on to the float bowl. (*Tip – refer to your owner's manual to assemble the spring and diaphragm correctly.*)

11. Replace the 3 screws that hold the cover in place and tighten.

12. Assemble the float bowl on the carburetor per your user's manual.

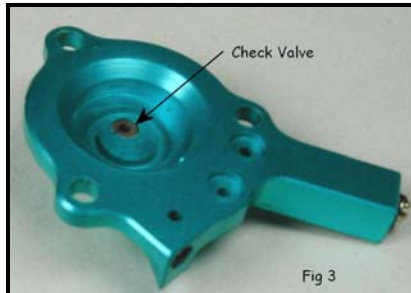
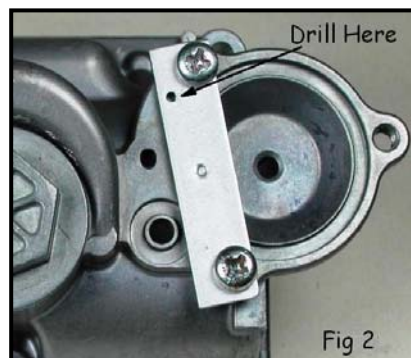
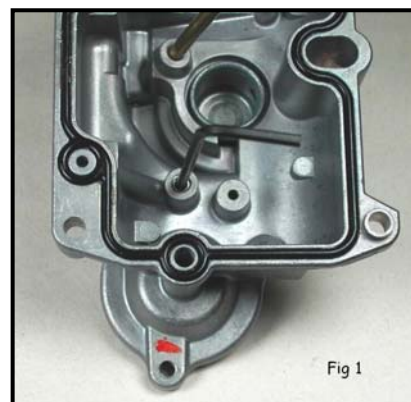
13. If you have removed the carb from the motorcycle replace it at this time. Then tighten all screws and clamps.

### **Adjustment and Setup**

- From this point forward we will refer to the Air/Fuel mixture as A/F mixture. Also, we will only refer to tuning parts that are readily available and can subsequently be replaced.
- Before you attempt to make adjustments make sure your engine is serviced. Piston, Rings, Valve clearances and the air filter etc are extremely important.

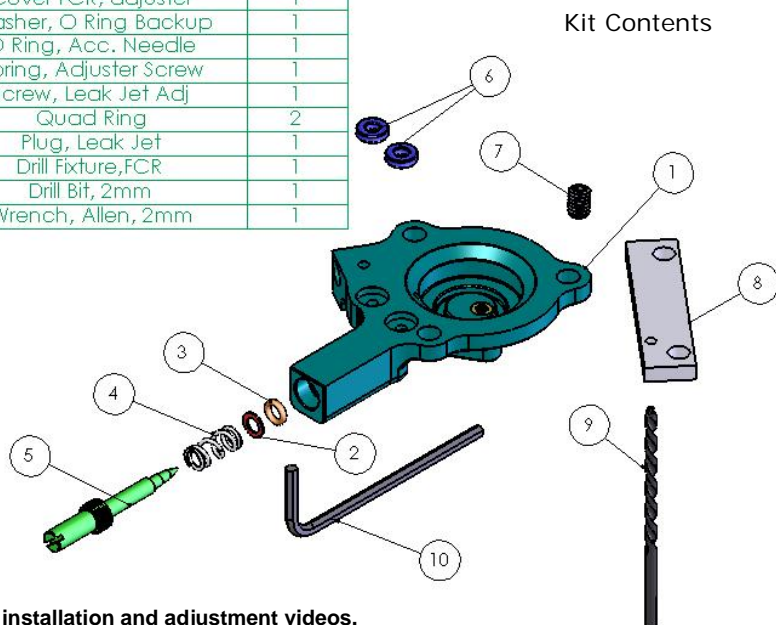
14. Fuel Screw - The fuel screw works in direct conjunction with the pilot jet. If your pilot jet is correct the engine will run best in a 1 to 2 turn range (at normal operating temperature). To adjust the fuel screw set it at 1½ turns out, then bring the engine up to operating temperature. Next slowly turn the screw in until the engine starts to slow down, then back it off 1/2 a turn. If the bike “pops” when decelerating adjust the fuel screw out ¼ of a turn at a time until it no longer “pops”. The screw should now be in the 1 to 2 turns range. If it runs better with less than 1 turn, it needs a smaller pilot. If it runs better with more than 2 1/2 it needs a larger pilot.

15. Idle – with the engine at operating temperature run the idle as low as possible without stalling. Idle speed is a matter of preference, but if it's too low, the motorcycle will be harder to start, especially when the engine is hot. Most factories recommend 1700 to 1900 RPM



16. ALJ Screw – The adjustable leak screw is normally set at 1 turn out; test your setting by adjusting the screw in ¼ turn at a time. The engine will be noticeably rich when it's too far in, and you open and close the throttle rapidly. From this point unscrew it 1/8 of a turn. You are now at the maximum fuel setting for your engine. You can unscrew further to create more traction on slippery tracks.

POS.	Merge #	DESCRIPTION	QTY.
1	00-008-1	Cover FCR, adjuster	1
2	00-008-7	Washer, O Ring Backup	1
3	00-008-5	O Ring, Acc. Needle	1
4	00-008-8	Spring, Adjuster Screw	1
5	00-008-2	Screw, Leak Jet Adj	1
6	00-008-6	Quad Ring	2
7	00-008-3	Plug, Leak Jet	1
8	00-008-4	Drill Fixture,FCR	1
9	00-008-9	Drill Bit, 2mm	1
10	00-008-15	Wrench, Allen, 2mm	1



### Online Videos

Log on to [www.mergeracing.com](http://www.mergeracing.com) to view introduction, installation and adjustment videos.

### Jetting for Performance

130 applications have been logged at the time of introduction. However, hundreds of fuel, aftermarket tuning options and climatic variations make it impossible to give exact jetting specifications. We will however post updates for specific models and tuning tips on our web page as they become available - [www.mergeracing.com](http://www.mergeracing.com)

### Additional items required

- Electric Drill
- Med Flat Blade Screwdriver
- Small Hammer
- Med Philips Screwdriver
- Owners manual for your motorcycle

**Safety Notices - Offroad motorcycles should never be ridden when they are not functioning correctly.**

**Make a note of your ALJ adjuster screw setting and periodically check that it's correct. Under normal circumstances it will not move. If it does, replace the O ring, Washer and spring to increase the tension and resistance to the original specification.**

**Never run with screw more then 2.5 turns out.**

### Other recommended Merge Racing Products

# 00-019 "AFS" Air / Fuel Adjustment Screw

# 00-018 "APS" Accelerator Pump Spring

**Disclaimer** - Merge products are inspected prior to packaging. Our guarantee is limited to the replacement of defective products and/ components. This limited guarantee is in lieu of all other guarantees or warranties implied or expressed. Buyer assumes all risk for any and all damage caused to himself, a third party and/or property by virtue of failure of this product. We make no warranty as to products distributed by Merge Racing Technologies, expressed or implied from our suppliers or 3rd party vendors. This includes, without limitation, any warranties or merchantability and fitness for a particular purpose. All products are offered and designed for use with standard machines. Merge Racing Technologies makes no claims as to the products effectiveness on modified machines. Merge Racing Technologies is the sole determiner of abuse, misuse, installation errors and modifications. We assume no liability for any errors in listings, specifications, part numbers, prices or model applications. We reserve the right to change specifications, product descriptions, product quality, pricing and application at any time without notice and without further obligation. By installing and/or using a Merge Racing Technologies product, you hereby accept and understand these stated terms and conditions and have followed all instructional steps.

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