



WARNING!

1.877.FASTOYS

TRINITY RACING DOES NOT TAKE RESPONSIBILITY FOR DAMAGES THAT MAY OCCUR DURING OPERATION OF YOUR VEHICLE UNDER IMPROPER JET SETTINGS. IT IS THE FINAL RESPONSIBILITY OF THE OWNER/RIDER TO ADJUST JETTING TO SPECIFIC RIDING CONDITIONS AND ELEVATION BEFORE RIDING

9242 Hyssop Drive
Rancho Cucamonga, CA 91730
909.373.1337
info@trinityracing.com
www.trinityracing.com

With our commitment to total customer satisfaction, we at Trinity Racing use only the highest quality parts and material available. Our machine shop and service department are committed to giving nothing less than 100% every time.

Because of this commitment to quality workmanship, if a failure does occur, and it is determined by us to be an oversight on our part, we will repair or replace the work free of charge. Trinity Racing is not responsible for any shipping charges incurred during the return shipment. Damages caused by third party part failure is not covered by this warranty. (example: head gasket, base gasket, or piston).

Warranty information read carefully...

If Trinity Racing serviced, assembled or modified your vehicle, we need to disassemble it or be informed about the disassembly. If any of our modified parts such as the bore, headwork, etc. are in need of repair, leave the parts as they are, do not modify or change them in any way. This may result in the void of your warranty.

Also, do not have them repaired by anyone else before we can inspect or troubleshoot the problem or you will void the warranty!

Trinity Racing will NOT Cover the following:

- Failures due to third party services.
- Failures due to third party product failure.
- Accidental damage.
- Improper maintenance.
- Acts of God

1) You must read and understand the information given in these pages to insure a proper break-in and a trouble free machine.

2) Because of the nature of racing we cannot guarantee high performance parts or services other than that stated above.

3) final jetting is always up to the customer and needs to be checked accordingly. Air density can change daily.

4) Remember Trinity Racing tech lines are open for your questions. (909) 373.1337 9:00 To 5:00 PST Monday - Friday

PLEASE READ CAREFULLY VERY IMPORTANT

The information contained on these pages is designed to give you a working knowledge of your motor and jetting. If you study this, it will guarantee many hours of riding and racing without having to learn the hard way, by experience.

One of the most common problems that people have with built or semi-built motors is learning what they can and cannot do. When receiving their built motor, they want to see just how fast it will go. So, they go out to an open area, and hold the thing wide open. Sounds logical right?? Wrong!! Because deciding how fast a bike will go is not just the fact of building the motor but also, changing the gearing.

Example: If your engine in stock form revs to 10,000 rpm. And will in top gear go 70mph. Your built engine could possibly rev up to 11,500 rpm. That will give you a mph gain of about 10 mph, or 80 mph. The problem lies not in the gain, but in the result of that gain. Meaning, the factory knows that at 70mph the stock engine will be working to hold that speed. But, with a built engine and stock gearing, you might be 10 mph faster because of the rpm increase. The built engine is maybe capable of going 110 mph with the proper gearing so at 80 mph it is not working at all. This can cause all kinds of problems. Example: burning off the exhaust side of the piston. Breaking the piston etc.. So what do you do? One thing that can be changed is your gearing, so that in high gear the engine is working to hold it. This seems like a good idea. However this will not be the best set-up for racing up a hill or drag racing. The other solution is to remember that when you are in top gear, wide open, at maximum rpm, that you don't hold it there for more than 6 seconds. Now I know that doesn't seem long but, would you go in your garage, start your bike and hold it wide open for more than 6 seconds in neutral?? I don't think so. If you did, the results would probably be the same. another problem is changing oils (pre-mix). You should never mix oils. Example: If you have a 1/4 tank of fuel / oil mixture and want to change to another brand, you should drain the tank completely before you make the change, so the oils never mix with each other. Make sure you have the proper heat range spark plug in your bike. A colder plug than that which is called for by the manufacture is safer. Built engines usually retain a higher running temperature. Therefore, a colder plug is recommended. If plug fouling happens too often, then the heat range of the plug needs to be hotter. A hotter plug is usually best for maximum performance. (LOOK AT PLUG READING SECTION, PAGE 5)

JETTING DO'S AND DONT'S

- 1) The first thing you want to do is to use the fuel required for your engine work, meaning if you requested a race engine that Requires a high octane fuel you would not want to use a 91 octane pump gas.
- 2) If you ride mostly at a higher elevation and your jetting is set for that. You don't want to go to a sea level elevation without making a change in the jetting.
- 3) Your jetting should be checked every outing even if you ride in the same place. Air density is what changes, air density can change hourly and along with that jetting changes. Example: Have you ever noticed how your bike runs better at night some time than it does during the day. That is because air becomes more dense at night and makes the motor run a little leaner and leaner is meaner! (two stroke)
- 4) One thing that can change jetting is how the air flow is delivered to the carb. If your air filter is over oiled or dirty It will make the engine run like it is extremely rich. Example: the motor will seem like it has no low end, it will also be sluggish on the top end. In other words it will seem like it has no horse power .all these problems from a dirty or over oiled filter , so watch it . One other thing that has become a problem is the use of a wrap over the filter. Some wraps work well and some work so well they keep the air out too. We like to use a Uni. or a outerwear wrap without oil this allows the sand to fall off and not stick. The sand that works its way through will get caught in the oil of the filter. This works well but does require more attention, as the dirt will get between the filter and the wrap. One of the things that doesn't work very well is the use of a regular nylon. Nylons are very fine and ruff, this tends to hold sand and clog very easy.
- 4) Air flow can also be restricted by the air box it self on modified motors. When the factory designed the air box they did so with the requirements of the stock motor in mind. The needs of a modified motor usually exceed those of the stock air box. So you have a choice of removing the air box or cutting enough holes in it to allow it to flow. Both of these changes require a jet check.

Jetting (Mikuni)

I unfortunately can't teach you everything about your carb here, but I can go over some of the basic steps. Most people when jetting start with the main jet. But the main jet only meters from 3/4 to full throttle. The majority of the riding is done between 1/2 to 3/4 throttle. Now that we know that, lets go jetting.

A regular carb has five main jetting areas (1) pilot jet, (2) slide Or throttle valve, (3) needle, (4) needle jet, (5) main jet.

- 1) pilot jet: the pilot jet is the low speed jet for idle and can effect to 1/8 th throttle.
- 2) slide: the slide cutaway effects up to 1/4 to 1/3 throttle
- 3) needle: the needle effects from 1/4 to 3/4 throttle.
- 4) needle jet: the needle jet works with the needle.
- 5) main jet: the main jet effects 3/4 to full throttle only.

(these are throttle positions not rpm ranges, (very important)

Looking at the above list you can see that some of the areas cross over into the others, so changing one may effect another.

I will take you through a normal jetting procedure as if I were to do it. Starting with the main is what most people do and we are no exception. But I like to check something first. I like to start by taking the needle and move the clip all the way to the top or the first position (full lean). Put the needle back in the slide and then remove the main jet. (that's right remove the main). Put the carb back on and ride the bike at full throttle.

(*of course you are going to warm the bike up first*). Now you will find one of two things, (1) the bike runs real fat. If this is the case, go on to the next step. Or, (2) the bike runs and cleans out on top. If this is the case you need to change to a richer needle or a richer needle jet. To give you a brief explanation of what we just did. We checked to see if the needle and needle jet could flow enough fuel to feed our motor. As you can see, if we left the # (2) scenario alone we may never find the right main jet for our motor. Once you get that right you can move on to the main.

The safest way to set the main, is to go up till the motor stumbles and then go back two sizes. (special note a leaner setting is better for maximum power) Now lets go to the idle circuit or pilot jet. Start with the one in the carb. You must first locate the air screw on the side of the carb (this is not the large idle adjust screw but the small inset screw) . If the screw is to the rear of the slide (closer to the air filter) it adjusts air. If it is to the front (towards the motor) it adjusts fuel. I will deal with the one that adjusts air since it is the most common. Start by turning the air screw all the way in, then back out 2 turns. Start the bike and keep it running till it warms up. Set the bikes idle screw (the large one) so the bike idles some what. Now turn the air screw clockwise slowly until it's all the way in. If the motor continues to climb all the way till the screw bottoms, the pilot is to lean. The actual result should be it gets to rich and dies. If you have to screw the air screw more than (2) turns out to get a good idle it's to rich. To achieve a good clean idle you should be between (1) to (2) turns out. The opposite of this is true if you are adjusting gas. Now, the slide. You adjust the slide by the cutaway if the cutaway is to high the motor will probably cough and die as the throttle is opened. If the cutaway is to low the motor will load up and sputter. The cutaway only effects to 1/4 to 1/3 throttle . You might find yourself going back to adjust the pilot jet and air screw if you change the slide. On to the needle and the needle jet . Both of these work together to jet from 1/4 to 3/4 throttle. The needle has (5) adjustments that move the needle up and down. You should start with the needle in the # 3 position (in the middle) . The # 1 position is at the top, you count down from there. With the needle in the middle you can go richer (moving the needle clip down) or leaner (moving the needle clip up) if you have to. If you find the bike at 1/4 to 3/4 throttle bobbles and stutters at a steady position in that range, you will need to raise the clip (make it leaner). Do the opposite if the bike hesitates and stumbles. If you run out of adjustments on the needle, you will have to change the needle jet or the needle taper. It is also possible to have a rich condition at 1/3 throttle and a lean condition at 3/4 throttle. In this case you will need a different needle profile. If you take the throttle up in steps and check how it runs in these steps you can jet your carb without even reading a plug ! If you have the experience to read a plug you can do so, but it is not necessary to jet if you go up till it sputters and go back a little.

SOME OF THE MAIN THINGS TO REMEMBER ARE:

1) KEEP YOUR EYE ON THE AIR BOX AND FILTER.

2) CHECK YOUR JETTING EVERY OUTING.

3) WATCH RIDING WIDE OPEN AT MAX RPM FOR MORE THAN 6 SEC.

SPECIAL NOTE: WHEN YOU GET OUT OF THE THROTTLE, GET COMPLETELY OUT. DON'T GET OUT EASY BECAUSE YOU WILL JUST LEAN OUT THE MOTOR AND THAT'S THE LAST THING YOU WANT.

5) MAKE SURE THE GEARING IS SET-UP FOR YOUR APPLICATION.

I know this is a lot to take in but with a little practice you will get good at it. I hope this information will help you have a bike that will not only give you lots of pleasure, but give your competition lots of grief.

PLUG READING

TO READ PLUGS PROPERLY YOU WILL NEED A 10x ILLUMINATED MAGNIFYING GLASS

1. You set your heat range from the ground strap. (this is the piece closest to the piston)
2. You can do all the plug readings for jetting from the base ring (the base ring is where the ground strap is welded too)
3. You determine detonation and timing issues from the porcelain.

The porcelain shows pre-ignition/detonation, it will not accurately determine jetting / air/fuel ratios.

DO NOT BASE JETTING DECISIONS ON THE PORCELAIN COLOR.

1. How to determining plug heat range:

The ground strap is your window to getting this right. If the "color" of the ground strap "changes" too-close to the ground-strap's end, (the end opposite of the base ring), then the heat-range is "too-cold", (heat transfer is too quick to the base ring) If the "color" of the strap changes near where it is welded to the base-ring, then it means that the plug heat-range is "too-hot", (heat transfer to the base ring is too slow causing the deposits to be burned off the strap completely) The strap at this point could start working like a "glow-plug", probably resulting in pre-ignition/and/or detonation. The Properly set heat-range is when the "color" is at the half-way point on the strap.

2. Reading the base ring to determine jetting:

The base ring " color " is very close to the color of the piston crown and is used to determine the jetting. Your looking for the soot color to be a nice light to medium brown, (color is always hard to describe) if the color doesn't go all the way around the base ring (at least one full thread turn on the plug) or the color is whitish it is way too lean. If the color goes all the way around, but there is a spotting of heavy dry soot on the top of the color, you are too rich. (TWO STROKE JETTING WILL BE A LITTLE WETTER LOOKING AND DARKER THEN A FOUR STROKE)

3. Read the porcelain to determine detonation / pre-ignition

The first signs of detonation / pre-ignition will be seen on the porcelain down in the plug, It shows up as tiny black or shiny specks of aluminum. Also Look very close around the center electrode where the porcelain intersects, this will appear to be melting between the insulator and the electrode. Detonation is caused by the air/fuel mixture exploding rather than burning. This gives off a sound, (a knock) this sound is the result of a shock wave, this wave disrupts the boundary layer of cooler gasses that cover the internal parts of the combustion chamber. This causes a very rapid rise in pressure and temperature. The results, holes in the top or sides of the pistons, blown head gaskets, broken rods, (all bad stuff) This can also shock the rings from their seal causing hot gases to burn down past the rings, super heating the piston further.

REMEMBER: EXPERIENCE DOES NOT HAVE TO ALWAYS BE LIVED, JUST LEARNED.

HARRY MC DERMOTT

OWNER Trinity Racing