

FortyCaliber's Sub-Throttle Plate Removal Guide

Created by: FortyCaliber – 27th July 2007

I love the way this bike sounds. I liked it even more when I added my Two Brothers slip-on. Now I've taken it one step further.

There are all sorts of little things that you can do to this bike. You may do them to further personalize it; you may do them to simply have a reason to wrench on the thing; you may even just do things just so you can have a long list of "Mods" in user/owner forums. Most people do things to their bike because they can or might add an extra bit of "oomph" or an extra decibel to it's already obnoxiously loud output.

Today, I did these things for two reasons: responsiveness and sound.

Removing the sub-throttle plates improves responsiveness and removing the air box baffles improves (or changes) the sound of the bike.

Let's get to it. First, remove the seat and remove the toolkit. Now assess what we have in front of us:



We need to remove the two nuts holding down the gas tank. For this, we need a 10mm socket wrench. We also need to remove the trim that sits below the gas tank. For this we need good-ole #2 philips.



Righty-tighty, lefty-loosey; both bolts. It's best to put a rag or some such on the tank as socket wrenches, screws, nuts, bolts, and other nasties in Mr. Murphy's possession capable of scratching paint will scratch paint.



Unscrew the screws screwed into the screw holes on the trim.



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Now just pull back the trim from the bike. Do this slowly. The friction pins will pull out from their rubber shoes.

Here's a good time to pause for a moment and think about the next line of events. We are going to do a few things here that involve close quarters and fuel, specifically, gasoline.

There are two versions of the Ninja 650R. No, I'm not referring to color (because that would mean 4 versions, kids.) I mean the California version and everything else.

The California version of this bike has 3 rubber hoses dropping from the left side underneath the tank. One is blue striped, one is red striped, and one is not striped. These are part of the evaporative emission reclamation system required on California vehicles. It's job is two-fold: to reclaim lost gasoline through evaporation and to prevent said evaporation from harming the lungs of our tender children. Reference this photo:



What does this mean for you? Well, these rubber hoses are notoriously difficult to remove and I, personally, just assume not mess with them. If you own a California model, you will need one of two things:

A friend to hold the gas tank for up to 45 minutes (or more if you are bad with the screwy-nutty-bolty things

An object to place said gas tank on for as long as you need it out of your way.

I opted for the second option. I have no friends (willing to hold a gas tank for that long.) Also, it would probably be best to make sure there is minimal fuel in the tank anyways.

Back to the grind stone.



Now lift the tank up from the anchor point, now released, and pull the tank towards the rear of the bike. With your table (or whatever) next to the bike, lay the tank on it.

You may have trouble actually laying the bike on anything. It might currently be tethered by wires and hoses and such.



The fuel delivery system has all the problems with that. Specifically the fuel line and the fuel wire harness.



Pry or pull the red retaining clip from the fuel line.



Pull the fuel line from the fuel pump unit. It would be prudent to place a rag underneath the operation as there will be a small amount of fuel leakage.



Disconnect the wire harness for the fuel pump.



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Now that the tank is aside, we can tackle our next phase: the air box.

The air box has 4 components: the lower, the upper, the filter caddy, and the PAIR valve inlet. First we will disconnect all of the tubes, hoses and wires.



Remove the wire plug for this sensor.



Remove the hose from the PAIR Valve





Remove this thing from the hose beneath it. Also, this thing has a plug. Unplug this thing and set this thing aside.



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Unscrew the nine, count 'em, nine screws from the air box. This detaches the upper for the lower. There are also 4 screws holding in a small thing with a hose.



There is one screw holding the air filter caddy in place.



Pull the filter out from the slot.

Loosen a few of these things around the perimeter of the air box; it will help remove the upper.



Lift the upper away from the lower.



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We have now exposed the velocity stacks, the throttle bodies, and the air baffles.



These are the throttle bodies. On top of them are the velocity stacks. Inside you can see the sub throttle plates (We'll be removing these) and the main throttle plates beneath them. The velocity stacks are actually connected to a plate. This plate holds them down with four socket cap bolts.



Unbolt the throttle lower with a 5mm socket wrench.



Lift the lower.



Now we have exposed the throttle bodies, linkage, and the top of the cylinder heads with the spark plugs.



There are two ring clamps below the velocity stack plate. They are held together with two screws.



Using good-ole #2 Philips, unscrew the clamps... both of them. When Kawasaki put these on,

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they faced the clamps in the same direction. The clamp on the right side was more difficult to adjust. I flipped this one over so both screws face inside instead of to the right.



Pull the velocity stacks from the throttle bodies.



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We can now access the sub-throttle plates more easily.

Notice in my pictures that the sub throttle plates are fully closed. I did this manually. You will want to too. Otherwise you might have issues.



#2 Philips... anyone... anyone.



Using human evolution, pull out the plate. Repeat this for both sides.



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Underneath the lower are two notable features: the crank case ventilation hose and a clear tube. I don't own a service manual so my best guess is that in the even of too much oil splatter, this tube facilitates drainage.



Inside the upper are two rubber tubes. These are referred to as "baffles," These baffles are responsible for two things: lowering intake noise and restricting air flow. The latter is simply due to the fact that they exist.

We want to remove them.



Pressing as the handsome thumb in this picture is, push, wiggle, and wobble the baffle until it comes free. It takes some finagling, but it will eventually give in.

Now it's time to reassemble everything. This is done in reverse order. Once the air box is reassembled we will accomplish one more thing: Plugging the PAIR valve system.



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To plug the system, I used these two items. They are nothing more than the rubber ends or "feet" that you might find on the end of a dowel rod or some such. I picked them up for like \$0.30 each. One is 3/8 inch (yellow) and one is 1/2 inch (grey).



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The 1/2 inch one fits in the hose as such and creates a nice seal. The 3/8 inch one fits nicely in the barbed inlet on top of the air box.

Now put the hose back on the inlet. Read more about the PAIR Valve [here](#).

There is something to note when placing the fuel tank back on:

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There are two rubber knobs near the front of the bike. They fit in the round openings under the tank. If you don't get it... look harder.

That's it. We're done. I noticed a definite gain in responsiveness and the bike is louder overall but the tone seems lower but I only test rode it. Tomorrow I will ride it for real to get a better idea of the changes made. Another notable improvement is the fact that when I turn the bike on and start it, it starts up with no hesitation (that would have otherwise existed due to the Power Commander III USB.)