

This guide was written for those with standard (or close to standard) NC30's that have yet to get up close and friendly with their bike's fuelling system.

It was put together using a few different bikes and sets of carbs that I had lying around. You may notice that I swap between NC30 bikes/carbs in this guide, however everything is applicable to NC30 carbs.

If it's your first time at doing this then put aside half a day (no need to rush it!), once you've mastered it you can rejet in very little time. None of this is very difficult, but you do need to be a little bit organised and have some patience perhaps.

The money you save doing it yourself, and the extra knowledge that you'll gain about your bike is well worth it. After you've done this you can brag to your mates that you rejettted it yourself also...

I suggest you read through this guide first to familiarise yourself with what you need to do before doing it. Let's get into it!

## **NC30 Carb Jetting**

Rejetting won't necessarily improve horsepower (it will if it's currently running excessively lean or rich), but it is important to ensure that the engine is receiving a safe amount of fuel. While you have the carbs off there are also a few little things you can do to improve performance (improve the midrange flat spot that some bikes suffer for example).

Once the carbs are off, we'll do several things:

- Check/clean/install main jets
- Check/clean emulsion tubes
- Check/adjust pilot screw settings
- Check pilot jets
- Raise the needles to improve midrange fuelling
- Drill the slides to improve throttle response

Tools needed - You will need some basic tools for this carb work:

- 10mm spanner
- #2 150mm Philips head screwdriver (long thin one!)
- 5mm flathead screwdriver (your average flathead screwdriver)
- 7mm socket (or alternatively a 7mm spanner)
- A drill, and a 2.5mm bit
- Kerosene/paraffin, carby cleaner or petrol for cleaning parts
- An old toothbrush (not essential, but handy!)

These are all well proven mods that can lead to a significant gain in rideability, nothing ground breaking about any of it.

Parts needed:

- New main jets (if replacing them)
- Washers for needles
- New float bowl gaskets (or alternatively petrol resistant gasket goo).

What we won't be doing (maybe someone else can post a DIY on this?):

- Synchronising the throttle butterflies
- Adjusting float height (covered in the Haynes manual). I recommend you do this while you have the carbs off.

Before you get started:

- Having a Haynes manual is invaluable to check things that I haven't covered here
- It's best to obtain the parts needed before getting stuck into this (although not always practical if you don't know what sized jets your bike currently has)
- Get some paper and a pen to record all before AND after settings for the 4 individual carbs (front left, rear right, etc. Draw a diagram if need be). It also helps to label the float bowl covers with the carb number (marker, or label with masking tape)

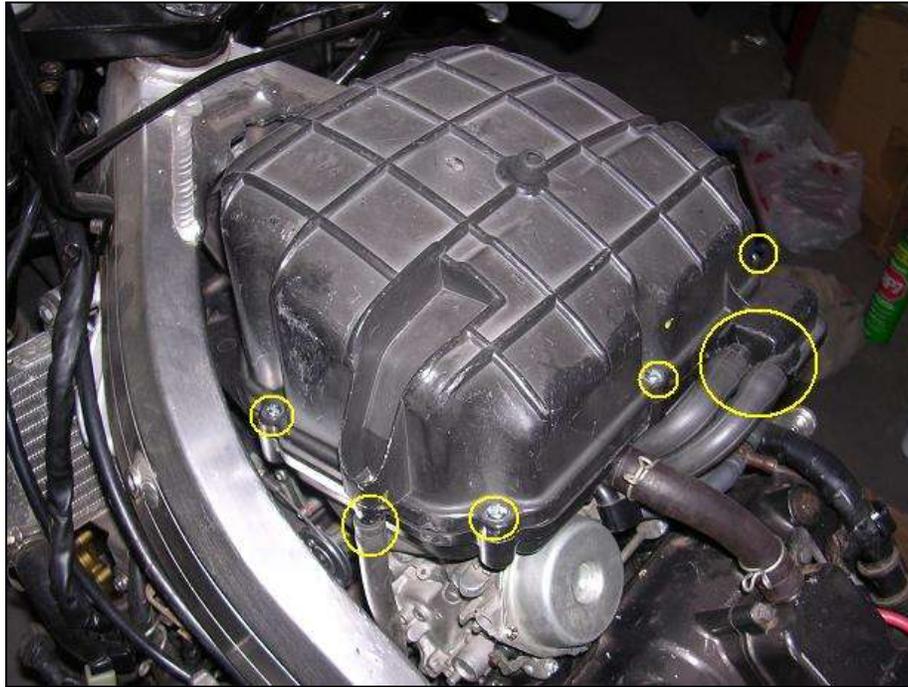
Let's get stuck into it....

You'll need to take off the side fairings to get to the carbs. I take all the fairings off just because it's easy (and less chance of getting them dirty). Next you'll need to remove the tank (1 bolt, maybe the seat fairings to get to the tank off depending on what fairings you have).

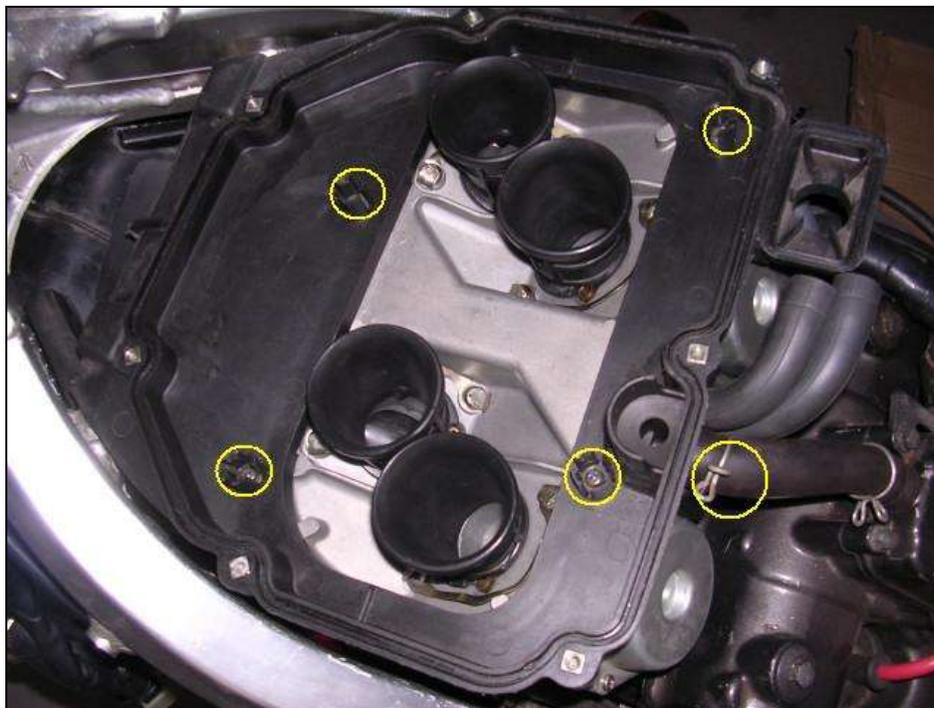
I'm starting with a bike that looks like this:



Remove the plastic airbox upper (7 screws, and 3 rubber hoses):



Lift out the air filter and unscrew the airbox base from the carb bracket (4 screws), and remove the rubber pipe:



Now it's time to prepare the carbs for taking them off.

Remove the throttle cables from the carbs (using a 10mm spanner - this can also be done when the carbs have been loosened if you find it difficult now), and also the choke cable from the carbs (loosen the cable clamp on the right front carb, and then lift out the cable from the choke mechanism).



You will also need to pry the carb idle adjuster cable from its holder on the left frame beam so it hangs loose (when you rip the carbs off the last thing you want to do is bend/break the idle adjuster - been there done that!). Remove it from this:



Now we need to unscrew the philips head screws on the upper clamps on each of the 4 carbs. The rear carb clamps are simple to access, undo these screws until they're loose:



You'll need a long screwdriver (#2 size, 150mm) to get to the front carbs. I find it easy to unscrew these by using a torch to help locate them, it looks difficult but once you find the screws it's easy to undo the upper clamps (make sure it's the upper screw you're undoing!).

Front left carb upper clamp:



Front right carb upper clamp:



The carbs sometimes need a fair bit of force to remove them. I find it easiest (and friendliest!) to use a piece of wood against the rocker cover, gently levering them off via the left rear carb. This will cause no damage to them. Lift the carbs off, being careful to feed the idle adjuster cable through with the carbs so you don't damage it:





Got them off? Good!

*Word of warning: Don't leave them off for any extended time, the carb rubbers can shrink and harden making it impossible to get them back on. Days/a week may be fine; months of changing weather conditions will not be fine!!*

Firstly, drain the fuel from them (the float bowls will likely be full of fuel). These are the flat head screws on the very bottom of the float bowls near the drain nipple. (As standard they're on the outside face of the carbs, but your screws might be on the inside if someone before you has mixed them up with other carbs!). Undo them a couple of turns, and fuel should start to come out. Shake them a round a bit to get most of the fuel out. I sit the carbs over a bucket to do this:



When all float bowls are drained do the drain screws back up tightly.

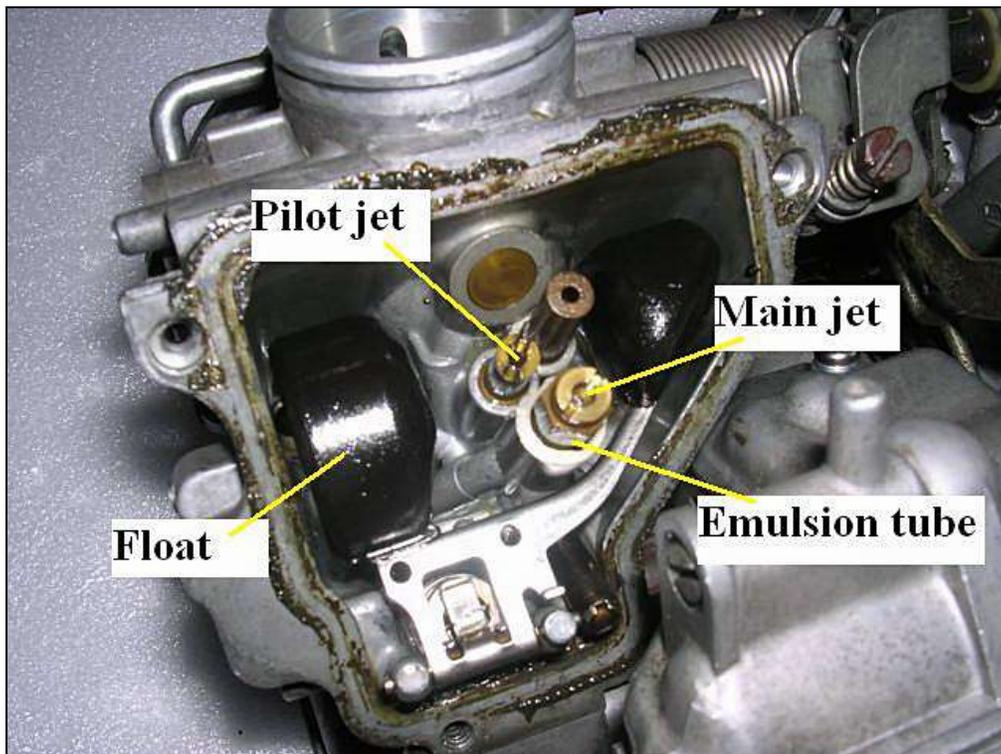
Now we can get some work done to the carbs.

*Rule: Work on only 1 carb at a time. I can't stress this enough! This is what we'll do here. (This isn't always possible if you find wrong parts in any carb - label them if you take more than one apart at a time!).*

Turn the carbs upside down (bet you're glad you drained them now!) and remove the float bowl cover (3 screws):



These are the parts you will see:



Unscrew the main jet with a flat head screwdriver. Be very gentle when taking out the brass parts (main jet, emulsion tube, pilot jet). The brass can become very soft over time, and clumsy hands can wreck them easily.



Check (and record) each main jet size, it will be stamped into the side of the part.

Standard jet sizes are: 1989 Jap model (4 x 110), all other year Jap models (2 x 115f, 2x 118r), all UK bikes (2 x 120f, 2 x 122r). 1989 Jap bikes run very lean from the factory, best to rejet as a precaution. Other year Jap bikes will need rejetting if you run any non-standard parts (pipe etc).

Main jet sizes: If you run a nice sounding aftermarket exhaust and/or pipe, then the common consensus is to run 118 size front and 120 size rear (often referred to as 118/120). If you run a very high flowing/loud exhaust or full exhaust system then you may wish to consider running 120f/122r size main jets.

*Note: If you have a modified induction system (aftermarket filter, removed rubber flaps, modified snorkel etc) then this jet size guide is NOT applicable to you. NC30 jet size hugely depends on your induction/filter setup. I strongly suggest only running the standard induction setup on a road bike, there are little gains and more rideability losses to be had by running a different setup! I return all road NC30's that I work on to standard induction setups, most often with better results. Modify at own risk...*

You can buy main jets from any Keihin dealer/supplier, most dyno tuners (google one near you) or Honda parts stockists. The part numbers you need to order are 99101-393-###0 (e.g. for a 118 size jet: 99101-393-1180). Simple. These are exactly the same jets that Honda uses in most of their carbied road bikes.

If you are just checking yours and not replacing them, then make sure they are unblocked by holding them up to a light and looking through them, making sure the passage is clear. If there is any doubt, clean them in some kerosene/paraffin or carby cleaner (I clean them using an old toothbrush) and recheck them.

Next job: Check emulsion tubes. These are the brass tubes that the main jets were screwed into. It's easiest to remove these by using a 7mm sized socket (or alternatively a 7mm spanner).

We need to make sure all the holes are unblocked and that the correct tubes are in the correct carbs (I've found that previous owners can easily get them mixed up!). Remove them:



The front carbs use 4-hole emulsion tubes:



The rear carbs use 5-hole emulsion tubes:



All holes in the emulsion tubes (side holes, and straight through passage) must be free from any blockage. If any are holes are blocked, unblock them by washing in kerosene/paraffin/carby cleaner/petrol and use an old toothbrush. Compressed air and very fine wire (old fashioned household fuse wire works well) will help here also.

If the emulsion tubes aren't in the correct carbs, then put them aside for when you open up the other carbs. If they are correct, reinstall them and screw your main jets back into them.

Pilot jets: Remove them by using a flat head screwdriver. Standard size is #35 on all 4 carbs (size is stamped on the side), there is no need to change from this setting on a road bike.



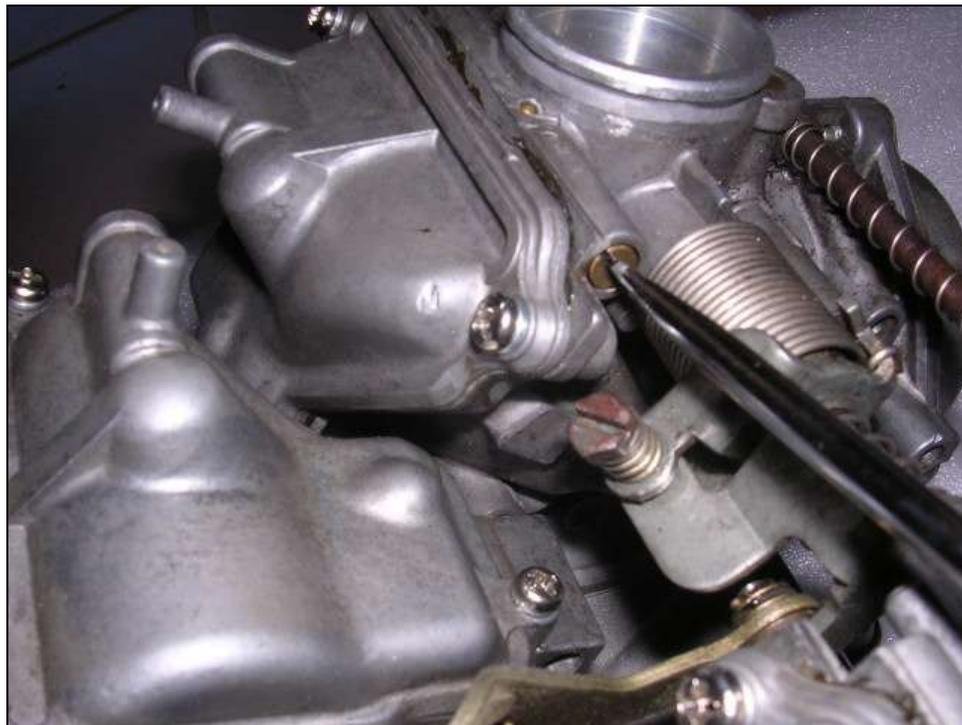
Just as you did with the emulsion tubes, make sure all pilot jet holes are free and unblocked. The lengthwise passage through the pilot jets is very small (the diameter of this is what the

size refers to), make sure it's not blocked by holding it up to a light and looking through it. If it is blocked clean it out. When clean, fit it back into the carb.



Pilot screw settings: This setting can be critical to how the bike idles and runs off idle. Turn the carbs upside down, they're a small brass flat head screw (not to be confused with the float drain screws that we used earlier!).

Count how many full turns it takes to wind them fully in from where they are now. Write down this setting (to the nearest quarter turn).



Time to set the pilot screws: If your bike is standard, set all four to 2 (two) turns out from fully in. If your bike has an aftermarket exhaust or pipe (most NC30's), set all four to 2.25 (two and a quarter) turns out. Done.

Once everything is correct in the carb, it's time to replace the float bowl cover (3 screws). The Haynes recommends using new float bowl gaskets each time, I don't do this (whoops!).

Important: It's best to make sure that the float bowl cover goes back onto the carb that it came off, or else the gasket surface may not mate up properly and the carb will leak badly when you start the bike. Rick Oliver sells gasket sets cheaply (I need to get some Rick!). I use a thin smear of petrol resistant gasket goo over my old gaskets which seal them well. The choice is up to you.

We are now done with the underside of the carbs. This is what we've done so far:

- Check/clean/install main jets
- Check/clean emulsion tubes
- Check/adjust pilot screw settings
- Check pilot jets

And how easy it all was!!

Next: Raising the carb needles. We'll be adding an extra washer (which raises the needle height) to help out midrange fuelling and to help alleviate that midrange flatspot that some bikes suffer from.

Remove the carb slide cover (4 screws):



Underneath the cover is the slide spring, remove it:



You can now withdraw the slide from the carb:



Time to remove the needle from the slide. Using your philips head screwdriver unscrew the needle retainer inside the slide by turning 1/4 turn anti-clockwise. The retainer and needle can then be removed from the slide by turning it upside down.

Note: All standard NC30 models use a single 0.5mm washer on each carb needle. If yours are missing then you'll need to get some (easily obtained at any hardware store).

You can add an extra 0.5mm washer (for a total of 2 x 0.5mm washers), or you can remove the standard washer and use a single 1.0mm washer (Rick Oliver sells high quality machined items). Do as you choose.

Standard needle:



Extra 0.5mm washer:



Standard rear carb needles are marked J51A. Front carb needles are marked J51B. Make sure your needles are in the correct carbs.

You can see now that there are a few carb parts that are specific to the front or rear carbs, chances are that some of yours will be incorrect if many hands before you have got stuck into them without the right information!

Overview:

Front carbs: 4-hole emulsion tubes, J51B needles.

Rear carbs: 5-hole emulsion tubes, J51A needles.

While you have the slides out you can drill out the hole in them to improve throttle response. This won't improve power but it does improve throttle response a bit. Standard hole size is 2mm, we'll enlarge it to 2.5mm. Grab your drill and 2.5mm drill bit, and carefully drill out

the outer slide hole (not the central needle hole!). Be sure that you clean them afterwards thoroughly and remove all the plastic swarf:



Insert the needle and washer/s back into the slide, followed by the retainer and do it up (1/4 turn clockwise). Assembly is the reverse of taking them apart, paying particular attention to how the slide diaphragm seats into the groove. Make sure the small loop in the diaphragm lip is seated where it needs to be:



Note: If the slides have been sitting out of the carbs for some time, the rubber diaphragms can shrink and harden. A good tip for restoring them is to soak them in petrol for a few days, it works well to soften and expand the rubber.

Once the slide is seated nicely, slip the spring in (easy to forget!) and put the cover back on, making sure the notch in the cover aligns with where the loop is in the rubber diaphragm:



Note: Test the slides to see that the diaphragm is seated properly by pushing each slide up in the carb. They should return without fuss in a fairly even manner. If not, then it's possible that you have an air leak and you'll need to check that the diaphragm is seated in the groove properly.

All done!! Aren't you glad you got stuck into the bike yourself instead of handing over your hard earned cash to a dyno tuner that may or may not do all of the above?!

Refitting the carbs to the bike.

This is a good time to check that the lower clamps on the rubber intakes are done up tightly. A short philips head screwdriver can be good for this, depending on which way the bottom clamps face.

Before attempting to refit the carbs, make sure that the 4 upper rubber intake clamps are facing the correct way (e.g. facing a way that you can easily get to them with your screwdriver) and that they're seated in the groove of the rubber. If the upper clamps are too tight it will make it impossible to get the carbs back on, too loose and you risk the clamps not being seated properly in their rubber grooves.

Feed the idle adjustor cable through the opening and hang it loosely near its bracket. Attach the throttle cables to the carbs (this is much easier to do before the carbs are installed if you use two cables).

Start by aligning the front carbs with the rubbers, I usually just sit them gently in the rubbers. I next see how far out/in the rear carbs are by pushing them gently down at the back. Generally there will be no issues with the front carbs going into the rubbers, but the rear carbs don't always like to align properly.

The basic idea is to get the front carbs sitting in the intake rubbers a little bit (not all the way), and at the same time pry the rear rubbers (with a flathead screwdriver) to get them closer to where they need to be, without the front carbs popping out of the rubbers. This is all there is to it my friends.

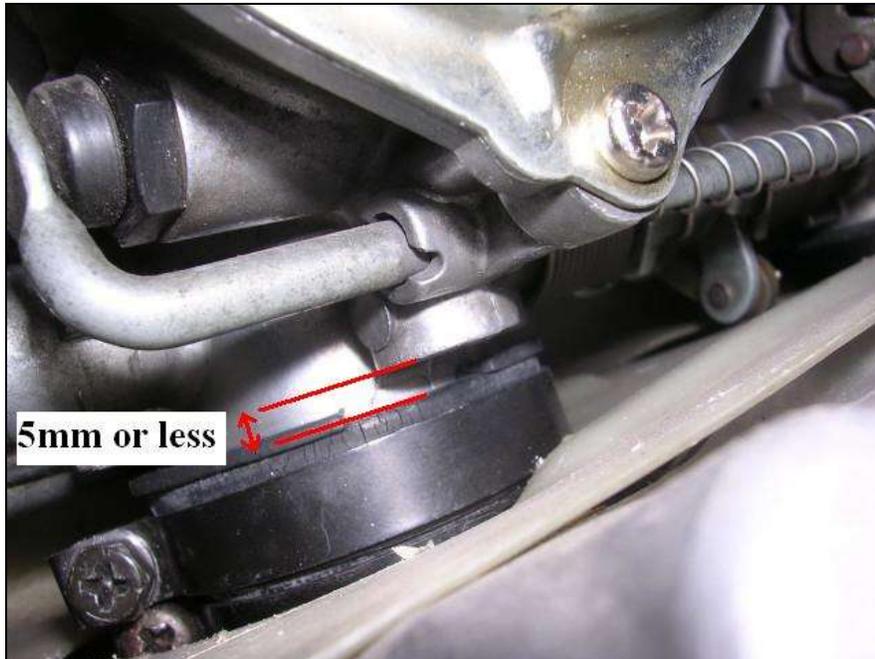


Push down evenly on the whole carb assembly, and it should go into place. Check to see that no carb rubbers are bent or deformed from pushing the carbs down.

When you think it's all squared up, use more force to push down to ensure they're seated properly (I usually stand on the carbs and jump up and down a little!). Once you've got this far the last thing you want is a carb with an air leak (it won't run properly). Spend some time on making sure they're seated correctly.

It might look impossible at first, but you will get there! This can sometimes take some patience - walk away and return later if you get frustrated! The difficulty is often because the rubbers have hardened over some time. If it's looking impossible, soak them in petrol overnight, it will make a considerable difference to old rubbers. New carb rubbers will make this a much easier experience.

Check that all carbs are seated properly, you might need a torch to check the front carbs. The bottom protrusion on the carbs should be approximately 5mm or so away from the rubbers, this is when you'll know they're seated properly:



When done, tighten the upper carb clamps with your trusty screwdriver, put the idle adjustor in its bracket, and reattach the choke cable to the linkage and clamp on the right front carb.

Reassemble the rest of the bike in reverse order from how it was taken apart, and take it out for a spin.

Let me know how you get on. Be sure to post on the forum if you get stuck at any stage, or have any questions.

Ride on, Cam.