

Technical Specification of NC30 - Honda VFR400R

General Specifications	Item	Specifications
Dimensions	Overall Length	1,985 (78.1)
	Overall Width	705 (27.8)
	Overall Height	1,075 (42.3)
	Wheelbase	1,345 (53.0)
	Ground Clearance	125 (4.9)
	Dry Weight	175Kg
	Curb Weight	192Kg
	Maximum Weight Capacity	347Kg
Frame	Frame type	Backbone
	Front Suspension	Telescopic Fork
	Front wheel travel	120 (4.7)
	Rear Suspension	Swingarm (Single Sided)
	Rear wheel travel	120 (4.7)
	Rear Damper	Gas filled damper
	Front tyre size	120/60 VR17 (Pressure 33psi)
	Rear tyre size	150/60 VR18 (33psi or 2 Up 36psi)
	Front brake	Hydraulic double disc
	Rear brake	Hydraulic single disc
	Caster Angle	25°20'
	Trail Length	96 (3.8)
	Fuel Tank Capacity	15 Litres
	Fuel Tank Reserve Capacity	2 Litres
	Engine	Bore and Stroke
Displacement		399cc
Compression Ratio		11.3:1
Valve Train		Gear driven DOHC, 4 valves per cylinder
Lubrication System		Forced pressure and wet sump
Oil Pump Type		Trockoid
Cooling System		Liquid Cooled
Air Filtration		Paper Filter
Crankshaft Type		unit-type, 4 main journals
Firing Order		1-4-3-2
Spark Plugs - Standard		NGKER9EH or nippon Denso Y27FER
Extended High Speed		NGKER10EH or Nippon Denso Y31FER
Electrod Gap		0.6 to 0.7mm
Valve Clearances cold - Inlet		0.12 to 0.18 mm
Exhaust		0.21 to 0.27 mm
Cylinder compression		157 to 213 psi
Oil Pressure (Warm engine)		71 to 85 psi
Engine Idle Speed		13000 +- 100 rpm
Cylinder Arrangement	4 cylinders 90° V	
Carburetor	Carb' Type	Constant velocity, 4 carb's
	Carb Synchronisation max difference	40mm Hg
	Throttle Bore	32 (1.3)
Drive Chain	Clutch System	Multi-plate wet
	Clutch Operation System	Cable (10 to 20mm free play)
	Transmission	6 speeds
	Primary Reduction	2.117 (34/72)
	Secondary Reduction	
	Third Reduction	
Final Reduction	2.666 (15/40)	

	Gear Ratio	2.928 (14/41)
	Gear Ratio 2nd	2.166 (18/39)
	Gear Ratio 3rd	1.800 (20/36)
	Gear Ratio 4th	1.591 (22/35)
	Gear Ratio 5th	1.435 (23/33)
	Gear Ratio 6th	1.318 (22/29)
	Gear Shift Pattern	Left Foot/1-N-2-3-4-5-6
	Drive Chain Slack	15 to 25mm
Electrical	Ignition System	Digitalised full transistor ignition
	Starting system	Electric starter motor
	Charging System	Triple phase output alternator
	Regulator/Rectifier Type	SCR Shorted/triple phase full wave
	Lighting System	battery
	AC Regulator Type	NA

Servicing Information for your NC30

Item		Frequency	Odometer Reading							
			x 1000KM	1	6	12	18	24	30	36
			x 1000KM	0.6	4	8	12	16	20	24
			Months		6	12	18	24	30	36
*	Fuel Line					X		X		X
*	Throttle Operation					X		X		X
*	Carburetor Choke					X		X		X
	Air Cleaner						O			O
*	Valve Clearance		X					X		
	Spark Plugs			X	O	X	O	O	X	O
	Engine Oil		O		O		O			O
	Engine Oil Filter		O		O		O			O
*	Carburetor Synchronization		X		X		X		X	X
*	Carburetor Idle Speed		X	X	X	X	X	X	X	X
	Radiator Coolant				X		X			O
*	Cooling System				X		X			X
	Drive Chain		Tension every 1,000km							
	Brake Fluid			X	X	O	X	X	X	O
	Brake Pads Wear			X	X	X	X	X	X	X
	Brake System		X		X		X			X
*	Brake Light Switch				X		X			X
*	Headlight Aiming				X		X			X
	Clutch System		X	X	X	X	X	X	X	X
	Side Stand				X		X			X
*	Suspension				X		X			X
*	Nuts, Bolts, Fasteners		X		X		X			X
**	Wheel / Tyres				X		X			X
**	Steering Head Bearings		X		X		X			X
* Should be serviced by an authorized Honda dealer, unless owner has the proper tools and service data										
** In the interest of safety, we recommend these items are serviced only by an authorized Honda dealer										
X Inspect										
O Replace										

Hints and Tips for your NC30

This section is really just the letters that go into the problems page of the clubs hard-copy magazine/newsletter. Items will be removed at my whim to allow new ones to be entered. If you see something that you like or feel you'll need in the future make sure you get it whilst it's still there.

Clutch Positioning Having just set my bike up for my riding position I've encountered a problem that isn't really curable. Being tall the clutch lever was a little high to be comfortable to operate and so I decided to rotate it. Not a problem until I'd tightened everything up and tried the right hand turning circle. If you move the lever any more than a couple of millimeters past its original position, the adjuster ring will foul the Speedo housing and greatly reduce the amount of turn available. The stock parts don't offer a solution.

Removing the carbs Another fun filled job that unfortunately needs to be done from time to time. Each carb is connected to the engine via a rubber tube. Each tube has two Jubilee clips (hence 8 clips in all), to hold it in place. These are a nightmare to get to but to save some time and useless effort, don't try to loosen both clips on each tube but rather just do the top one as this will still allow you to pull the carbs off. You also don't need to take any of the cables off either if you're only checking the diaphragms etc.

Dear Uncle Charlie I have recently bought myself an NC30 which is my pride and joy and I love it. The problem is that it seems to be running really badly. It won't tick over properly, and seems to be "fluffy". What's causing this?

This is a Common problem with nearly all grey imports. The importers have a habit of leaving them standing for x amount of months with petrol in the tank and carb. When the petrol evaporates, it leaves behind a lacquer which is probably the cause of your problem. It's something that I've come across a lot in the workshop. The usual answer is to strip the carbs and clean them by hand. But there is a fuel system cleaner on the market we use before stripping them down and we find this 70% effective at cleaning the lacquer off.

Dear Uncle Charlie I am the proud owner of a NC30 and it's absolutely gleaming. But I can't get the thing running. I admit that I'm a relative novice when it comes to bikes and biking, but surely even I can get it going, couldn't I? It started first time in the showroom when I bought it, and was fine all the way home, but because of the bad weather we've been having I didn't get a chance to take it out until the other day and it wouldn't start. Can you help me?

This is another problem that I see quite often and the problem isn't the bike, it's the rider. There is a definite knack to starting a 30 from cold. This is: FULL CHOKE - NO THROTTLE

Buying & Setting-up Guide

If you have bought, or are about to buy an NC30 the likelihood is that it will be a Grey Import, as these must outnumber the 'Proper' UK spec' models twenty to one by now. You will probably buy your NC from either a dealer, in which case you will pay £3 - 4,000 and get a bike which has a UK registration, a fresh paint job and will (in theory), have been thoroughly sorted and serviced; or you will go straight to an imported and buy, as I did, a machine of similar age and mileage 'As Seen' for around two grand and set it up and register it yourself. For those of you taking the latter course, and those who's dealers are less than scrupulous, here are a few pointers (born of my own experience), as to what you are likely to need to do to get your pride and joy working safely and effectively. First, buy a workshop manual - only a tenner from the club and well worth it, as guessing torque settings and assembly orders is a recipe for disaster! From then on we need to go from the ground up:

Tyres

Bin the Japanese tyres, they are mostly pretty poor anyway and will have been nicely hardened by age and the salty air on the voyage over. Fit good quality rubber, using a matched pair and sticking to the original sizes (120/60-17 front, 150/60-18 rear), as squeezing a 160/60-18 rear tyre onto the narrow rim tends to alter its profile and upset the NC's nice neutral steering. There is now a wide tyre choice available, pick from (in approx' order of stickiness): Michelin HiSport Race 3, Pirelli Dragon Corsa, Bridgestone BT90, Metzeler Mezi, Dunlop GPR70, (available come April), Avon ST23, Pirelli Dragon GT, Bridgestone BT92/Cyrox, Dunlop GPR80

Wheels These are made from quite a 'soft' alloy so check for dings in the rim (crash or kerbing damage). The good news is that they can usually be straightened easily and cheaply. Check for play in the wheel bearings and replace if necessary. Fronts are cheap and off-the-shelf (Part No; 6004), rears are expensive genuine Honda only parts and require dealers special tools to fit.

Brakes

Throw away any Japanese 'pattern' pads (I think they make them from recycled lino!), and fit good quality replacements. Sintered metallic pads work better than the softer 'organic' type, at the cost of slightly more disc wear and noise. EBC, Carbon Lorraine, Vesrah and Brembo all now make sintered pads, but my personal choice is Dunlop Sport Compound (Part No: SDP 112) - grip like hell, wet or dry and never ever fade. Cheap 'organic' pads are perfectly adequate for the back brake and may even save you from dangerous lock-ups in panic situations. If the brakes 'drag', check for sticking pistons in the calipers. Cleaning the muck and corrosion off the pistons with WD40 usually effects a quick fix. Finally, check the discs for major wear or warpage. If you have either, replace the discs.

Chain & Sprockets

Check for any corrosion (salt damage again!), and wear, replace if need be. Always use good quality, hardened sprockets and 'O' Ring chain. Non 'O' Ring chains are false economy as the NC has no cush drive and will knacker a standard chain in very short order.

Forks

Drain and refill with 405cc of good quality SAE 5 fork oil, such as PJI or Silkolene. If your forks are leaking, strip and rebuild them with new seals. DO NOT use after-market 'Leak Proof' seals as these are a tighter fit on the stanchions than the standard seals and therefore cause more 'stiction', limiting the forks ability to respond to small bumps, and causing 'tank-slapping' type problems on bumpy 'B' roads. Genuine Honda seals are expensive but the improved ride quality will justify the outlay.

While your forks are apart, roll the stanchions on a flat surface and check for straightness. Most grey imports have been crashed at some point! Don't panic about slightly bent forks, your local motor engineers will straighten them for about £20 - 30. If you've got a bent fork leg, take the yokes along for straightening as well, they will almost certainly need it. Do all the above as a matter of course if your handlebars and front wheel doesn't point in the same direction!

Check steering head races for roughness & notches by turning the forks, and for play by a fore and aft pull on the fork legs. Grease and adjust or replace as necessary, noting that the bearing retaining ring nut under the top yoke has to be torqued to 36 ft/lb. Seems like a high figure (most other Hondas specify 18 ft/lb), but doing it this way noticeably takes away the twitchiness on poor road surfaces. An NC with the front end set up as described should never need a steering damper!

Rear Suspension.

Check the shock absorber for any leakage and the linkages for any binding or creaking. The linkage pivots on a roller bearings with proper seals, so seldom gives problems or needs more attention than a quick strip and repacking with grease. Late type (Remote reservoir), shocks are rebuildable, early ones are not.

Frame

Main frame is very robust, so you'd be unlucky to get a bent one. But the rear subframes are very often bent/twisted to the right. This is because the very solid standard silencer is mounted to the subframe with two hefty brackets. So if the silencer hits the road in a crash, the subframe is the first thing to bend. The cure is unobvious but simple, so don't be afraid to tackle it. Remove the rear bodywork and the mudguard assembly and set the bike up on axle stands under the footrests. Getting it dead upright with a spirit level on the flat top of the tank. Strap a good size scaffold pole to each of the subframe top tubes with duct tape and getting a stout friend to steady the bike, simply heave the bugger back into line using as your datum points a straight edge held against each side of the rear tyre and your spirit level across the top tubes to check for twisting. Check swingarm bearings for any play and if you find any, get your cheque book out as they are non-adjustable ball races and needle rollers.

Engine

Again, pretty bullet proof and so you're unlikely to find any major problems. Just stick to changing the following:

Oil - Use a good quality semi-or fully- synthetic oil and change it every 3-4,000Kms. My own choice of oil is Motul 3100 Semi-synthetic. Be sure to buy a specifically produced motorcycle oil. Car oils such as Mobil 1 are not formulated to do the same job. Oil Filter - Use genuine Honda if possible and replace every other oil change Plugs - NGK ER9EH/NDY27FER for road use or ER10EH/Y31FER if you are doing track days. A set should last about 10,000Kms which makes the price of around £40 a set slightly less painful! Also - If the bike has reached 24,000Kms, run it down to your local Honda dealer and get the valve clearances checked. Should cost around £30-40 but much cheaper than replacing a burnt out valve. Finally, if you're new to NC ownership, don't worry about the whining noise from the cam drive gears, they all do that!!

Carbs

Grey imports rarely have their carbs drained before being exported. So they are often full of the crud left behind by evaporating Japanese petrol. It is therefore usually worth removing the carbs, cleaning out the float bowls and blowing through the jets. Particularly if the bike runs roughly. While you are in there, check the float level heights (6.8mm from top of float to carb flange with the carb inverted), and the main jet sizes. Early (RK) models came with 110 main jets all round, which made them run very weak even on the standard exhaust and dangerously so when fitted with a race pipe (on any early NC with a persistent high rpm misfire, this is almost certainly the problem). Replace the jets with 115 front cylinders and 118 rear cylinders for a standard exhaust, 118F/120R for a race system. Lastly, check the pilot screw settings, balance the carbs if you have access to vacuum gauges, and replace the air filter if it looks dirty or clogged.

Electric's

Potential problem areas are:

Battery - if the original battery (Jap writing on it), is still fitted you may find that it doesn't hold a charge too well. They are often wrecked by being transported/stood for a long period in a discharged state. If you need a new one, shop around. I asked my local fast fit (car) tyre and battery depot to run the part number (YTX7A-BS) past his wholesaler and he came up with a genuine Yuasa battery for a retail price of less than £30.

Regulator/Rectifier - was a weak point on early models. If the unit itself or its wiring are running hot, or if the battery is overcharging (i.e. more than 15.5V@5,000rpm), replace the unit. Again, don't pay silly Honda prices, Electrex (01491 682369), will supply you with a better-than-original heavy duty unit for under £50.

Finally - have a look at the ignition unit, just ahead of the rear lights under the seat hump, and see if it has a small black box plugged in in series with it. This is the gizmo which overrides the com pulsory Jap' market 180Kph speed restriction. If you don't have one, buy one. At £45 it's the cheapest 15mph top speed increase you'll ever buy. Incidentally, even with a derestrictor fitted the speedometer still stops at 180kph but watch the rev-counter and you'll see that the extra speed is

really there.

Registration

You will need to go to your local vehicle licensing office (not to a post office), and present the following:

- Customs clearance form
- Japanese Log book
- MOT certificate
- Insurance certificate
- Form V55/5 (filled in)
- Payment for 6/12 months road tax

Insurance and MOT certificates should be filled out with the bike chassis (VIN) number in place of the registration mark which it hasn't got yet!

The LVLO inspector may want to check the bike over before issuing a registration and if so, he will phone you and make an appointment. But such is the volume of Grey imports lately that as a rule he wont bother. Please note that you may legally ride your unregistered bike to the MOT station, but not to the licensing office.

Setting up Suspension

On Jap' market NC's, standard set-up is basically to soft for European sized bodies. So to make the best of it, I suggest you try the following:

Forks - Maximum preload, damping adjusters 3 or 4 clicks from fully anticlockwise (on late models).
Rear Shock - Highest step on the preload ring on early models and on the later ones, wind the threaded adjuster ring up until the suspension is just 'topped out' with the bike unladen and standing on its wheels. Damping adjuster 3/4 turn from fully anticlockwise. Note that the damping adjuster is on the left side of the bottom of the shock! what looks like an adjusting screw on the right isn't! Start with this baseline and experiment to see what suits you Tyre pressures - Recommendations vary from one manufacturer to another but the basic logic is this: High pressure=less tyre flex=lower running temperature=more mileage/less grip. Lower pressure=more flex=higher running temperature=less mileage/more grip. You might therefore run 36 psi front and rear touring, 33 psi front and rear for sports riding and 30 psi both ends for a trackday. Increase the rear pressure by 3 - 4 psi when carrying a pillion. Finally, I advise that you ignore Hondas eco-friendly recommendations and always run the bike on 4-star (leaded) fuel. It will run better & last longer. If you have a moral problem with this , just consider that unleaded petrol is heavily laced with benzene, a proven carcinogen which emerges unburned from your exhaust (hence that 'sweet' smell). Brain damage or lung cancer, guys the choice is yours!

Ride safely and enjoy your bike

Engine Modifications

Greetings NC freaks!

This time I'm going to talk about tuning your grey import NC30 for more power and speed, so first we need to understand the baseline from which we are working.

Japanese legislation during the NC's production period required that 400cc bikes should produce a maximum of 59bhp and be speed restricted to 180Kph (112Mph). As you will all know by now, the speed limiter is electronically imposed and can be overridden by fitting an M-Max or similar derestriction unit in series with the ignition "black box", under the seat hump. This does not make the engine produce any more power, it simply allows the bike to reach its true potential top speed of 125Mph or so. The NC30 engine unit was designed with the brake horsepower limit in mind, and so

in standard road legal trim 59 Bhp is the most that a healthy one will produce. This can be improved upon to some extent by modifications to inlet, exhaust and ignition systems to allow the engine to breathe and rev more freely, but you will always be bumping into the inherent limitations of a "designed for 59BHP + engine, and so extracting serious power increases will require the attentions of a professional tuner to carry out such internal work as porting, increasing compression ratio, changing cam profiles and fitting big bore kits. I will therefore approach the subject in two stages - the "bolt on/do it yourself" level, and the "call in the professionals and spend big money" stage.

DOING IT YOURSELF

1) Exhaust system - this is where we all start, 'cos let's face it, a standard NC does sound like a sewing machine, doesn't it? The cheapest and simplest option is to fit a "slip-on" replacement can. These are available in road legal or race types. Road versions are unlikely to show any significant performance increase, although they may sound a bit fruitier than standard. Race cans will improve performance, but are, of course, illegal for road use, so don't tell anyone I encouraged you! There is a relatively wide choice of face cans on the market - a £300 carbon fibre job won't perform any better than a £130 alloy one, it just depends on how much you value the pose factor. Because the collector pipes and silencer of the standard system are all one piece, you will have to saw off the silencer to fit a "slip-on" can. Some manufacturers supply an adapter to re-fit the standard can for M.O.T. purposes, but I would suggest that, if you have an undamaged standard exhaust on your bike, you don't saw it up, 'cos they are scarce and valuable - get your local breaker to sell you one with a crunched silencer (plentiful and cheap) and use that to mount your race can on.

The second option is to fit a "half system", which uses the standard front pipes, but replaces the original collector and silencer assembly with something lighter and more efficient. As far as I know, no-one in the U.K. make such a system, but many Japanese after-market suppliers do, so lots of them come in on grey imports. I've seen at least four different versions; mostly they are all-stainless constructions, and are designed and fabricated to a standard which puts certain major British exhaust makers to shame. Shop around at grey importers and breakers and see what they have in stock - you might just buy yourself a bargain.

The final option is to fit a full race system. The only one available in the UK is made by Micron. This replaces the entire standard exhaust and is a multi-sectional job with quick release, spring-retained joints. It is a 4 into 1 system with equal length headers (all others mentioned so far are asymmetrical 4 into 2 into 1 systems) and is therefore tuned to give optimum top end power, possibly at the expense of some mid-range. This system will give you the most peak RPM horsepower, and the more tuned your engine, the better it will work.

Drawbacks are:-

- a) You have to remove the fan assembly from behind the radiator and,
- b) The cost - nearly £800 new.

However, as I keep saying, shop around - I bought my Micron with a scratched can from the Motorcycle News classified ads. for £150.

2) Air Filter - the first thing to say is don't be tempted to remove or seriously to modify the air filter box. The shape and volume of the box are tuned to work in harmony with the carbs for the best spread of power, and removing it will radically interfere with the carburetion. Just fit a K&N filter element, which will give slightly freer airflow and also will never need to be replaced.. One small D.I.Y. which will help breathing is to re-direct the airflow into the airbox snout by cutting a window into the plate which extends forward from the bottom airbox moulding into the space behind the steering head.

If you look at your bike from the front, you will see a small plastic airscoop just above the top radiator. This directs air into the "vee" of the motor to keep the carbs cool. The plate on the front of the airbox forms the top wall of this airduct, and you will see that, if you cut it away between the

moulded ribs, then the airbox intake will breathe clean cool air from under the fairing nose instead of hot stagnant stuff from beneath the tank. Pop rivet some gauze over the aperture that you've made in order to keep the flies out. It's nothing like a proper "ram air" system, but it's an improvement.

3) Carburetors - Now that everything is flowing more freely, the carbs will need rejetting to suit. Without getting too technical, there are basically three overlapping phases in carburetor operation. The pilot jets and airscrews control tickover and initial pickup, the needles and needle jets cover the mid-range and the main jets take over when the throttle is fully open.

The very least that you will need to do is get the main jets right. An alternative set of needles will improve mid-range, and there is a carb slide modification which will improve the speed of pick-up.

As I mentioned in the last magazine, early (RK) Model NC30s have 110 main jets, which need to be changed for 115 front/118 rear as fitted to later models, or 118F/120R if you are using a race pipe. This is a rule of thumb guide to sizes, which you can double check by giving your bike a good flat out thrash and then having a look inside the tail pipe of the exhaust, which should be coated with a dry, coffee-coloured deposit - if it's white, it's too weak, dark brown or black, too rich. (In an ideal world, you should check the colour of the spark plugs, but this way is a lot less trouble, and accurate enough for a road bike).

Mid-range carburetion can be improved by changing the carb needles, this will fill in the noticeable flat spot which is present around 5 - 7,000RPM on most NCs. I have personally tried two different carb needle kits (both of which come complete with main jets). The first was the American-made "Factory" kit, and must as I hate to slag off anyone's products, I have to say that, fitted as per instructions, it made practically no difference to the power curve, but did put fuel consumption up from high 30s to low 20s of miles per gallon. Putting that one down to experience, I subsequently tried a kit produced by Jonathan Collins at Cayman Products. This uses dynojet main jets and their own custom-made needles, and it works just fine, filling in the mid-range and improving peak power by 5BHP with a race exhaust. It would be noted that Dynojet main jets as used here are, because of their better flow characteristics, effectively one size larger than standard Keihin jets, i.e. Dynojet 118s are equivalent to standard 120s. Pilot jets will not need changing, just make sure that the pilot air screw settings are as per the Workshop Manual or carb. kit instructions (usually around 2-2½ turns out from fully seated).

The last carburetor mod. is to reduce the degree of damping on the slides to enable them to rise more quickly when the throttle is opened. This has no effect on power, just improving throttle response, and is achieved by increasing the size of the air bleed holes which you will find in the bottom of the carb. slides, off to one side the needle. Remove the slide from the carb. as per the instructions in your Manual, and extract the needle from the slide. Carefully drill out the air hole from its standard 2mms. to 2.5mms, blow out any swarf and reassemble the carbs.

4) Ignition - we have already discussed the "M-Max" type of derestrictor box, but there is also another ignition uprate available. This is a unit produced by H.R.C., Honda's Racing Division, which plugs in series with the ignition unit and derestrictor box and (as I understand it) modifies the ignition advance curve so that it holds full advance right to the red line and moves the rev. limiter cut-off point up by about 1,000 rpm.

Contrary to some claims, the H.R.C. box makes precious little difference to a standard bike, but used with a tuned engine and race exhaust will enhance top end power. The box is available in this country on special order from an H.R.C. Dealer as a cost of over £300, but again I'd say shop around - plenty of ex-race or race school NCs come into this country, so ask your breaker or check the MCN "Race Bits & Pieces" ads.

That's about it as far as D.I.Y. tuning goes, but if your engine is in good condition, it should now be giving a good spread of power with no flat spots, peaking at 63 - 64 BHP and revving out to 14,000 RPM.

GETTING SERIOUS

Professional tuning is a highly precise, labour intensive job, and as such is going to cost a not inconsiderable amount of money, so, before you go down this road, stop and think about the fact that the cost of a cylinder head porting job, when added to the resale value of your NC would easily buy you a late model CBR600 or similar, producing 100 BHP in standard trim. Having pondered on that, if you love your '30 enough to proceed, here's a rough idea of what you'll get and what it will cost you. I've based this on information kindly provided by Stan Stephens and by T.T.S., both of whom have reputations for good quality work and offer "staged" tuning packages.

Stage 1

Carb. modifications and race can - same as you can do at home, but done by the tuner and set up on his dyno - cost around £90 for the carb kit, £150 - 300 for the can plus maybe £50 for the setting up and dyno time. Result - 64BHP and improved mid-range - see the following dyno chart courtesy of Stan Stephens Performance Centre.

Stage 2

Cylinder heads ported and gas flowed, valve seats recut, combustion chambers modified to increase compression ration - cost £500 - 600 if you strip your own engine and just send the tuner your heads - add anything up to another £500 if you want to take the bike in and have it done for you. Result - similar power curve, but more of it, peaking at possibly 68 - 70BHP.

Stage 3

Camshafts reground to a more "racing" profile - cost £350 - 400 exchange, plus a small charge for fitting (or maybe fitted free if done at the same time as a Stage 2 package). Result - more top end power. Maximum BHP now perhaps 72 - 73, but produced at 13,500 RPM instead of 12,000, enabling the bike to be geared down for better acceleration with no top speed loss.

Stage 4

444cc big bore kit - cost £470 for pistons plus maybe £200 for reboring work and the usual £400 - 500 to rebuild the engine. Result - more power and torque throughout the rev range, peaking at 76 - 78 BHP if you're lucky.

Before leaving the subject, I have to mention that the ultimate engine job is a full tune and blueprint done by Honda V guru, Tony Scott, engine builder to many top race teams including Honda G.B. The following list shows what is involved, and the price of £1,600 plus parts hardly reflects the time and care taken. "Plus parts" in this context would ideally mean the HRC race kit of cams, carbs, etc., which would probably have to be specially imported from Japan, and cost nearly the price of another NC30! Having said that, what you will end up with is the sweetest, smoothest running and most powerful NC engine that money can buy, and bullet proof reliability as well. Master craftsmanship has never been cheap.

So, to summarise - £2 - 300 wisely spent can buy you a noticeable performance increase, major power gains will cost you big money, and next time someone tells you that his bog stock NC30 with a loud exhaust is making 70BHP, you will absolutely, categorically know he's bullshitting!!

Rick Oliver