



WORDS AND PICTURES: JOHN WOODS

The full SP

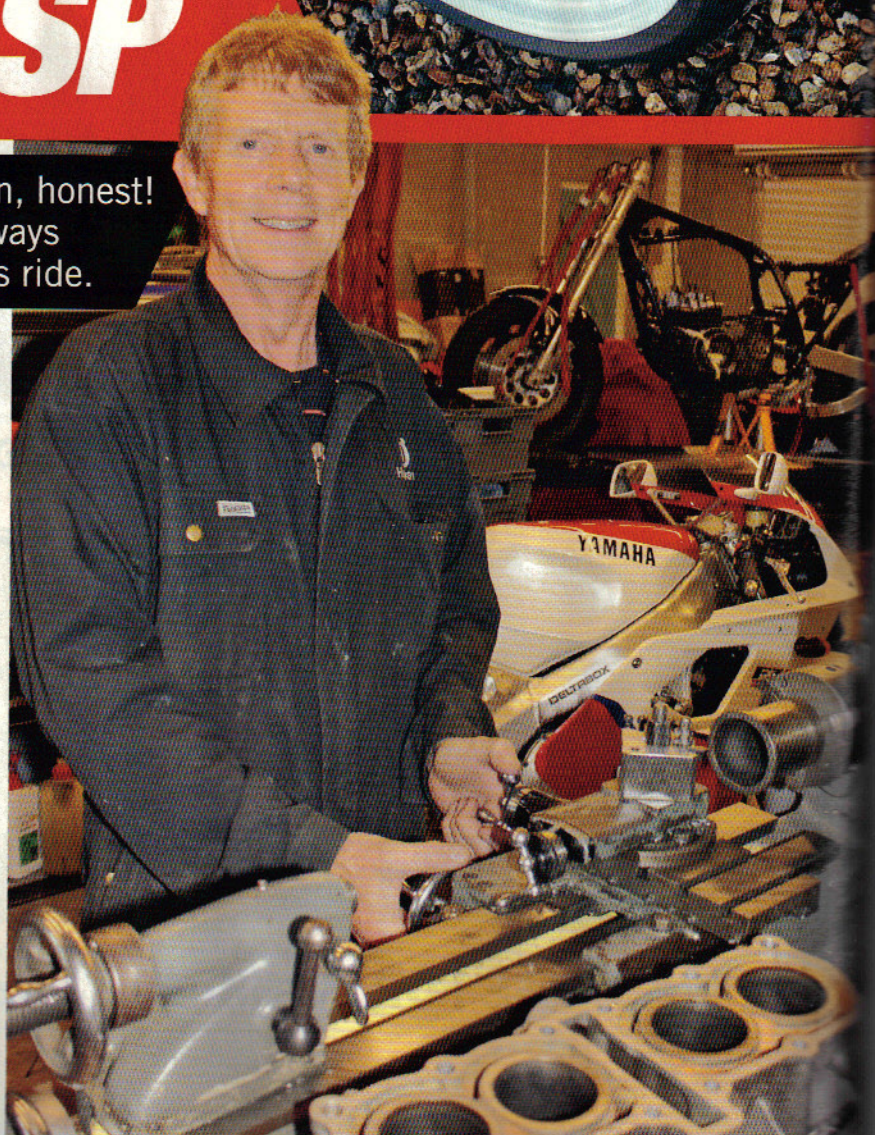
Jealousy can be a positive emotion, honest! Just ask **John Woods**, who was always casting a covetous eye on a mate's ride.

My mate Roland Jones is a bit of a Yamaha nut and despite his bike having had its fair share of mechanical problems, I always had a slightly jealous eye on his bike whenever we were on a ride together.

The bike in question is a Yamaha FZR400RR SP (3TJ2.) It just looks so good on the road and as Roland competed in the TT in his early years of biking, it appeared to punch above its weight on the handling and braking front too.

Roland and I have been riding together for the last eight years and as time went on, my appreciation for his bike grew to the point that I was looking round for an FZR for myself. At the time I was involved with the rebuild of a Kawasaki Turbo and typically the bike had taken more than its fair share of time and money, but finally in summer 2012 that bike was pretty much sorted.

While on holiday in France with the missus I saw a 3TJ2 for sale on eBay, so I dropped a couple of emails to the guy selling it and he seemed honest about its history, telling me that it had fuelling issues and would not tick over, had no tax





or MoT and would benefit from some new rubber. Apparently he and a mate had bought it to race but lost interest before they started. I remember the auction ended on the night of the opening ceremony of the Olympics. I won gold and duly rented a van to take me from Gloucestershire to Essex for the pick-up.

The bike was as described. It was gutless and spluttering with a strong smell of unburnt fuel. Barring a few original parts missing it was pretty well all there. It was only when I got the bike home that I realised how much of it was not actually original including bits such as fastenings and the little odds and sods that Yamaha charge big money for. Cosmetically, the bike was pretty ragged but the history with it had shown it had done only 19,000km.

Despite the motor not running well, it had no knocks or rattles and the gearbox seemed okay. You could select all the gears but as the bike would pull away with some gusto, the engine would suddenly lose all of its power. As mentioned it wouldn't tick over and there was hardly a whisper from the cam area at all.

Aesthetically, it was not very pleasing. The tailpiece was an aftermarket glass-fibre job, which didn't really fit that well and every time it was removed it brought half the wiring harness with it... The fairing had lost its 'ears' and the mirrors were AWOL. The 'floating' brakes seemed to have been modified so there was around 3-4mm of play in the front discs. I just chucked the lot in the bin. Despite all this, I had an SP!

I stripped the bike down to frame and engine to assess the amount of work that was needed. During the strip-down I found more and more missing and broken parts, including a broken air filter case and a piece of garden hose acting as the engine breather. There were no oil leaks and it had a new chain and sprockets, so that was something.

Searching for parts was left to a mate who is a dab hand with the overseas websites, particularly Yahoo Japan. A fairing turned up pretty soon, but I had given up all hope of finding a tailpiece, but finally I won one for buttons – again on Yahoo Japan. I thought bits like this would be commonplace – but they're not, so you have to be pretty lucky to find fairings and tail units.

The frame and swingarm had been polished at some stage and I gave a great deal of thought to restoring this to the factory finish, but eventually decided that polished was 'en-vogue' back in the day, so I decided to stick with it and polished up the bits I had already experimented on. With the front discs binned, I sought some decent second hand



THE REBUILD: 1/ The bike as bought: looks an easy job, right? Wrong! 2/ Bodywork was a mix of OE and aftermarket until success on Yahoo Japan. 3/ Many frustrating hours on the motor. 4/ When exhausts off, solution was found. 5/ Lovely brakes took time.

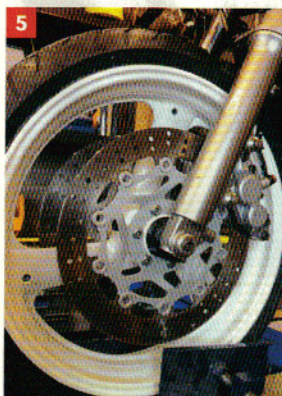
ones on eBay and nailed them for next to nothing only to find they were incorrectly described and so too small. Sometimes with bike restoration lady luck visits you and in this case she arrived in the form of a disgruntled eBay buyer who had bought a lightly used pair on eBay that were too big for his bike so we did a direct swap!

The bobbins on the discs were sloppy so I made 25 new ones (only 20 needed but I wanted some spares) in total on the Myford lathe and I shimmed and 'wave washered' and circlipped the whole set-up. Making this type of product on a Myford requires about 20 tool changes per piece. Yet again this was extremely time consuming and expensive, but the net result is good, if not original, but the originals cost a fortune. It worked though, as I then had a very powerful and progressive front brake after the addition of new original pads.

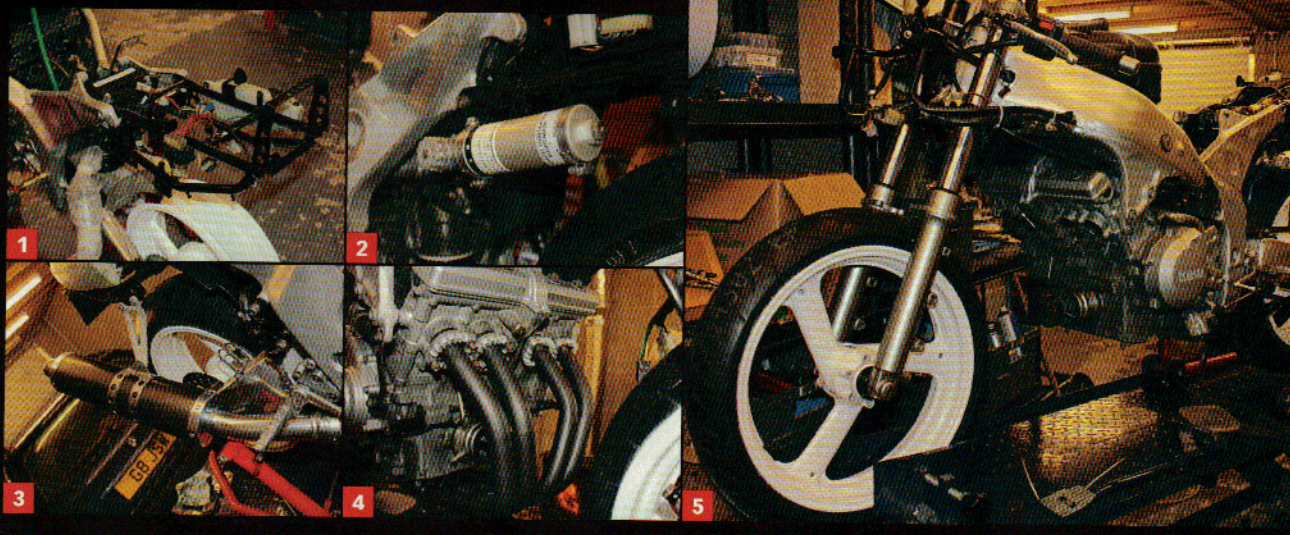
As a matter of routine, I always renew seals and brake lines, using original seals and aftermarket braided lines. I used Elliotts in Swindon for all the new parts I needed as the company had a pretty good grip on the grey import models and was very competitive on price. I replaced the fork bushes and seals and all the swingarm linkage bearings and wheel bearings just to be on the safe side.

To refurbish the forks I could not find a colour match for the scratched fork sliders that needed refinishing. Eventually, I found someone who was willing to mix up a paint based on the original colour determined by a very clever colour matching machine. They actually made up a quarter litre of paint and it was very cheap considering all the trouble they went to. The stanchions were in surprisingly good condition and for the first time on any resto I have done I did not send them away to be reground and rechromed.

My first job on the motor was to sort out the



READER'S RESTORATION



THE REBUILD: 1/ Wiring originally came off with seat hump! **2/** Remote reservoir for shock. **3/** Original can hard to find now. **4/** One of these hid the dark secret! **5/** Original discs ditched.

irritating fuelling problem that would not let the bike tick over and causing it to lose power. While messing about with the carbs I noticed a weak spark on cylinders two and three; the result of two defunct HT leads. I bought two new HT leads and changed all the carb rubbers and seals and reset the adjustments to factory settings. I then realised the needles and jets were not original and priced up new ones from Yamaha. Just as I was about to part with my hard-earned, someone on the 400Greybike.com forum offered me a set of original carbs for not very much, so I transferred all the good bits I had to my refurbished carbs.

While messing about with the carbs I did a compression test and found good compression across all pots. With the refurbished carbs and the confidence that the engine was delivering good compression, I took it out for a run but the problems were still there. I decided it was time to look deeper into the bowels of the engine. Whipping the cam cover off I was surprised to find the majority of the inlet valves had no clearance at all (when cold). How

could this be when I had such good compression? So, I took the head off, and removed the valve springs to find that a previous owner at some point in the bike's life had reground all of the valves recut the seats using techniques and angles that I could not find in any book. Simply put, the head was knackered and beyond economic repair, but my mate of mine who runs a performance engine shop reground and salvaged the valves. At this point to search for a new head and that's where the power of the internet kicked in once more.

The 400greybike.com website revealed a non-forum member with a 3TJ2 head they wanted to sell. The replacement head was skimmed, the seats recut, and a careful head rebuild ensued. While I had the head off I thought I would take the barrels and check the bores, rings, pistons and replace the base gasket. To my horror I found massive scoring on cylinder number two. At this point I threw away my cheap compression tester and sought a rebore. Knowing this would be expensive I checked everything very carefully and found the pistons were in good condition and well within tolerance. I did some maths on the cost of a rebore (including new oversized pistons and rings) and was so depressing that I started to look for a cheap way of doing things. I wondered if it would be possible to reline the bores and utilise the existing pistons. An internet search threw up a company called LA Sleeve in Los Angeles that had four (and only four) replacement liners in stock. I bought them, paid the agonising duty and got my mate Mark Maynard, of Maynard Engineering in Stroud, to remove the old liners and fit the new ones. He bored and honed them then I refitted the barrels and fitted with new standard size rings.

After this amount of messing about I was surprised the bike started on the first press of the magic button. I took it out for a run with no bodwork (private land officer) and the fuelling issues had disappeared! You need to give these bikes a fistful as they're revvy and the gearing is so high but I was delighted to finally sort out the problem after nine months. My joy was short-lived. The bike was now smoking and I was confused as to whether this was just burning off rebuild oil or something more sinister. After an hour it was still smoking - it was time to delve inside once more. When I took the exhaust off it was obvious that it was cylinder

The SP is pure race.





"Restoring bikes is a funny old thing. You appear to make no progress for months and then all of a sudden you make a real breakthrough. That happened when the plastics came back from Dream Machine."

number one causing the problems as the header pipe had lots of oil in it. Taking the head off was becoming second nature and I was expecting to see number one cylinder scored or with a broken piston ring. Instead, I saw nothing wrong – just lots of oil, so I figured it may be a head problem. Finally, I noticed one of the new valve stem seals was defective. It looked like during the injection process not enough material had been injected and left it not sealing properly on the stem. I had some spare seals so I put one in and put the bike back together taking the opportunity to check the valve clearances while it was apart. Finally, the EXUP valve wasn't seized but it was stiff so I dismantled it and cleaned it. Getting it apart involved shearing all the hex screws, so Time-Serts and HeliCoils became the order of the day.

Gordon Kingham, of Top Guns in Cambridge, Gloucestershire, sprayed various non-plastic bits and Mikris, of Stonehouse, Gloucestershire, coated many other parts, including the exhaust, which although not a match to the original, is a brilliant likeness and a fantastic finish. The majority of the plastics were scratched or cracked including the recent additions from Japan. So it meant the laborious task of fixing all the plastics by cutting opening the cracks with a conical Dremmel bit and either plastic welding or adhering with Plastex – a brilliant find. Plastex looks like there isn't enough when you buy it but it goes a long way once you get the hang of using it. I rubbed down, filled and primed all the panels that needed painting.

Restoring bikes is a funny thing. You appear to make no progress for months and then, all of a sudden you make a real breakthrough. When all the plastics came back from painting at Dream Machine, the whole thing went from being an engine, wheels and frame to completely finished in a few hours.

I also got a kmph to mph speedo converter that gets rid of that irritating ECU-determined speed restriction. When you look at a bike for sale it's not obvious how many original parts are missing and this is what costs the money. I stopped counting how much I spent at about £1500, as it was depressing. That said, many of the original bits were there, such as a near-perfect silencer and radiator, which are specific to the 3TJ2.

At the time of writing I still need to set up the suspension and fine-tune the fuelling. I will benefit from a trip to a rolling road and a bit of fiddling. The bike no longer smokes but would benefit from an oil change just to get rid of that build oil.

Do I still feel the same way about it as I did when I was coveting my mate's bike? I will tell you at the end of Steve Cooper's road test next issue! **cmm**

These things are so special.

Finally finished.

