

Obsession XXI

Piers Dowell and his FZR1000-based special demonstrate why we didn't call this series Apathy

Words Gary Inman Photography www.kineticimages.co.uk

Dreadnought. The name this blown FZR1000 shares with what was, at the time, the world's largest, most intimidating battleship.

HMS Dreadnought (fear nothing) was designed to be such a superior killing machine that no other nation would even consider messing with the Royal Navy. But the Admiralty underestimated Johnny Foreigner. They also failed to realise it would start an arms race. Between its launch in 1906 and the start of World War I the threat from submarines and small, quick torpedo boats had all but rendered it obsolete.

Why the history lesson? Because if we don't learn from our past we're doomed to repeat it. When Piers Dowell started transforming his 1990 FZR1000 he was 'determined it was going to be the best special in the world'. And it could've been, had it not taken more than ten years to get to this stage.

Intense periods of work were dotted through the first ten years of the project, but these dried up three years ago when Piers bought a house that needed remodelling and his daughter was born. It wasn't until PB rattled his cage that Dreadnought once again felt the caress of a 13mm spanner.

Now the focus of the project has changed. The whole architecture and philosophy of performance bikes has changed. Piers is now less worried about building the best special in the world. 'I just want to finish the project, to prove I can see things through.'

We wouldn't usually feature a bike that hasn't even turned a wheel in anger, something that is still a work in progress, but for Dreadnought we've made an exception. Here's why...

ENGINE

Every single aspect of this motorcycle seems to have been formulated to cause the maximum amount of stress, take the longest time and impact on as many other parts of the bike as possible.

For instance, Piers decided to fit a YZF750 dry clutch – a rare and expensive A-kit race part from the Boost Yamaha BSB squad. 'I don't think anyone in the world has fitted a YZF dry clutch to a Genesis 1000 engine,' says Piers. 'And now I know why.'

'First, the clutch basket's pinion gear is different on the factory 750s to the stock 1000 so I had to change either the crank or the clutch basket. I investigated the crank route but, after talking to my friend and engineering mentor Tony Pardoe, we decided we'd make a flywheel. We had to match the gear type on the crank while duplicating all the slots for the cush and inner tolerances. After drawing it we realised every other slot came perilously close to the bottom of the gear itself. The only way to get around this was to widen the gear at the base and taper it to the top. That was okay, except the crankcase web had to be ground away a little to clear it.'

It cost Piers £150 before the job was even started for the tooling Pardoe needed to make the splines and gear on the input shaft into the gearbox. Do you get the idea? This kind of domino effect of change one thing and impact another continues all around the engine. Piers had to make a new clutch pushrod, from titanium and silver steel, machine his own cable operated clutch thrusters and so on and so on...

The engine retains its five-speed gearbox but the whole cylinder block has been replaced with a Superbike Mike item machined from a solid block of aluminium. It's 1040cc with JE pistons connected to the lightened crank with Carrillo rods. REC valves sit in a head that's been reworked by Flow-Tech.

So far, so typical of tuned four-strokes. But all along Piers wanted to supercharge his engine. He would never be happy with merely bolting on a blower and running it off the end of the crank. Piers' reasons were many, with the main one being 'because it wasn't very pretty'. Instead, he decided to 'turn the blower round and mount it between the frame rails, drive it off the alternator, which needed pulling back, leaving a shaft that I could put my pulley wheels on.' The problem with this is the blower becomes a sucker, because it's then rotating the wrong way.

The charger is a Swedish Opcom screw-type recommended by drag racer Alan Jeffreys. It has two complex intermeshing screws, one of which is driven. After much head scratching Piers decided to make a new supercharger gear case cover and drive the other screw that obviously span the other way. If he had been born 60 years earlier Piers would have helped to invent bouncing bombs.

He had to make new pulleys, machine the engine case to clear the drive pulley and belt. Then he designed and machined an outrigger plate to house two bearings and support the lengthened alternator output shaft (now driving the supercharger) and the gearbox output shaft.

Oil coolers
With a huge rad and chargecooler up front, the oil cooler had to be moved.

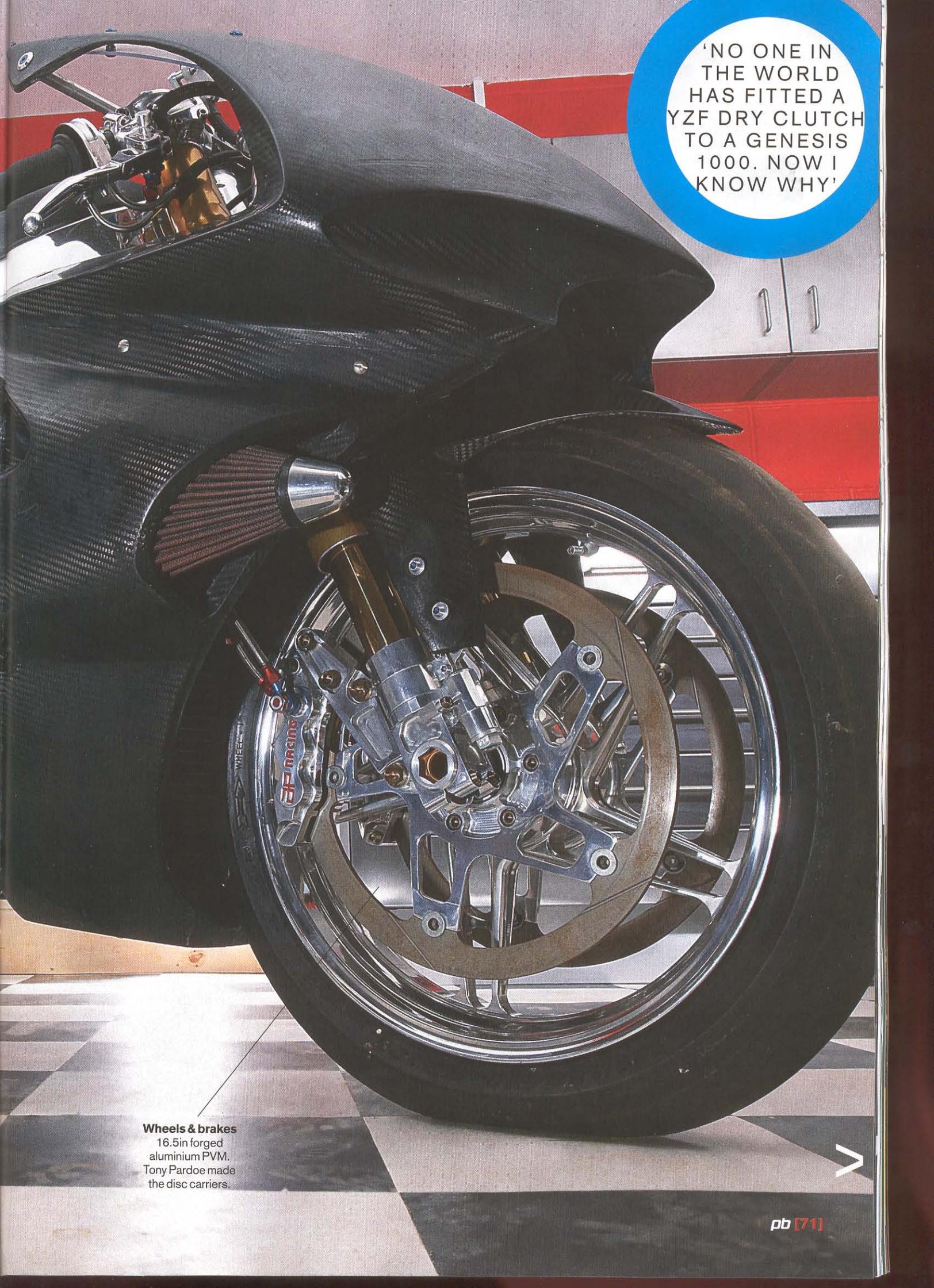


WHO IS PIERS DOWELL?

World famous airbrush artist and current British classic motocross champion. His paintjobs cost as much as a new supersport 600 (01584 810472 if you fancy one) and did a Harley for the Beckhams (über-halfwit Rio Ferdinand bought it for £65,000 at a charity auction). He also designed John Reynolds' lids in his FM days and painted Obsession XIX, the Lucky Strike RGV500 (PB, Feb 07). Plus, he owns a Supermarine Spitfire engine.



Sump
Designed and machined by Piers. Started at 26kg, now weighs under 2.



'NO ONE IN THE WORLD HAS FITTED A YZF DRY CLUTCH TO A GENESIS 1000. NOW I KNOW WHY'

Wheels & brakes
16.5in forged aluminium PVM. Tony Pardoe made the disc carriers.

At this stage it's worth reminding you that Piers earns his living as an airbrush artist. He's a self-taught machinist who decided to buy a mill and lathe to make his own parts. He's the most extreme case of PB's 'Don't Buy It, Build It' ethos we can remember. He's had guidance, lots from Tony Pardoe, but he also sat down for hours on end to work out the order things have to be machined and has spent three weeks' worth of nights working on one part for a single misjudged movement to turn it into worthless scrap.

With the supercharger mounted Piers could concentrate on plumbing it in. After another false start he decided on a Pro Alloy Motorsport nose-mounted air-to-water-to-air chargecooler. Piers made dummy ducts that hug the frame and engine then double-back under the supercharger. 'The engine must have been in and out of the frame 50 times while I was making the ducting,' says Piers. When he was finally happy with the design he got C-Tec in Hertfordshire to make pre-preg carbon fibre ducting in their autoclave.

Piers blew two motors at trackdays, which led him to discover Exups have oil pick-up issues. So while his wife Diann sunbathed at the side of a Dominican Republic pool Piers spent the ten-day holiday studying a standard sump (he'd taken as hand luggage), measuring the bottom of an engine casing, designing a new sump and plotting all the cutting routes. Why do we call this series Obsession?

He returned home and ordered a hunk of H30 aluminium. When it arrived it weighed 26kg. It took three months to machine, killed one motor on his miller and weighed 1.7kg when he was finished.

CHASSIS

The single-sided Spondon swingarm was originally made for Dreadnought but lived in Piers' track bike for a time. It came with an RC30 stub axle Piers liked, until he saw a factory RC45 item. Suddenly the RC30 axle 'looked like pig iron'. It was replaced.

Öhlins front forks are fairly common on specials now, and even fitted to production bikes like the R1 SP, but back when Piers built this bike you had to pay big bucks for Öhlins. They were made in Sweden, not Japan, and for racing only. Still those in the know can tell these are the real thing, even if they've been superseded by forks with radial mount bottoms.

The machining bug had well and truly bitten so Piers set about making his own adjustable yokes – the most complicated yokes we've ever seen. He reckons all the other adjustable yokes he's seen are a bodge. His four-piece replacements for Dreadnought took three months to make.

Then the dominoes toppled again. This time Piers didn't realise the Öhlins forks were shorter than stock. He could've made stepped yokes but, he'd spent three months machining some he liked, so he went for the radical solution of machining the headstock and making a shorter steering stem.

Piers is least happy with the frame. 'I should've built one from scratch,' he says. It has external bracing plates that cover the original air-induction holes, giving the frame that 'I think it's an Exup, but I'm not sure' look. Piers also made new engine mounts to replace the originals which are as ugly as a rat's breakfast.



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In detail

1 Piers designed and made the incredibly complicated four-piece adjustable yokes – three months work. Clip-ons are carbon fibre, possibly out of Team KR's back door. Neat reservoirs are from a Kawasaki crosser. 2 Carbon chargecooler mount doubles as rev counter carrier. 3 Check out the rear sprocket carrier, outrigger bearing plate, the exhausts... **Main pic** Supercharger plenum. The slivers of Red Bull can act as safety valves that blow-out if the super charger sneezes.



THE 26KG HUNK
OF ALUMINIUM
TOOK THREE
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WEIGHED 1.7KG
WHEN FINISHED

BODYWORK

'Everyone says it looks like Batman's bike,' says Piers with some exasperation. The tank and seat also have a look of one of the early incarnations of Benelli's Tornado and Kawasaki's ZX-RR GP bike. But Piers built it long before either saw the light of day. The bodywork is pre-preg carbon fibre. This is the stuff GP cars and F1 tubs are made from, not the wet lay stuff of aftermarket end cans and frame protectors. It needs cooking at pressure in an autoclave. There aren't many of them in the UK.

I could fill the magazine with the lengths Piers went to form the bodywork. Instead here's a taster of how he made the front fairing.

'The only way I could think to make a pattern from scratch was to use welding rods to build up a shaped framework. It took a couple of weeks bugging about to construct it. I covered it in dry glass fibre sheets tacked on with hot glue. Then I pasted on filler thinned with resin to give it some rigidity. That was followed with layers of filler laboriously applied and sanded over the next couple of months.

'Symmetry was very difficult on such a complex shape so after chasing myself round in circles I removed it from the chassis, so I could jig it up, re-establish a centre line and finish the pattern.

'I got to the stage where it was really difficult to finish some parts of the fairing that fitted very close to pieces inside so I decided that the best route was to take a rudimentary mould of the pattern, lay up a glass fibre version and finish that to a high degree. The guys at HGF made a quick mould and a lay-up in glass fibre. But once I had this version back it still needed a lot of modification. I think in total it took about six months to make the fairing pattern.'

That's before it had even seen a scrap of carbon fibre. Look at the self-supporting seat and tank assembly, and imagine how hard that was to produce? The seat unit holds exhaust and twin oil coolers. The tank has a Fuel Safe bladder-like liner so if the bike crashes there's no risk of a fire if the tank splits. But, having the F1-spec liner made and fitted is unbelievably difficult. 'Like giving birth in reverse,' says Piers.

Crash? You think? Piers built the bike to be a runner. No corners have been cut. It's come to mean so much to him it may never do a trackday, though Piers isn't ruling it out. It needs an exhaust link pipe and it'll be painted before being shipped to America in an effort to land Piers some seriously well-paid chopper paintjobs.

Dreadnought was built to be the best special in the world, and it could have been – ten or so years ago. But things have moved on since then. Mind you, if Piers books a trackday and it proves itself round Donington, maybe it still could be. But he needs to finish it first. **PD**

> thank you

Tony Pardoe; Alan Willetts; Pete Beale, 01327 811798; Alan Jefferys, 01926 484663; Steve Collins at C-Tec, 01992 534491; Jonathan Tubb at Fuel Safe, 01799 541955; Dillon at HGF 01432 357111; Pete Farelly at IPS welding and fabrication on 07855 685548, Wayne Clayton at Pro Alloy Motorsports on 08452267561, Mick Bennett and my wife Diann. **PD**



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In detail
 1 This is Piers' new workshop. We're jealous. The bare carbon will be painted with images of The Right Stuff era experimental planes. Shame really. We love the Stealth look. 2 The central pipe section for the exhaust is missing. Fitting the YZF750 dry clutch was a nightmare. 3 Dry-break oil lines allow quick removal of one-piece seat.



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