

ALL THE GEAR...

GETTING TO GRIPS WITH YAMAHA'S CLUTCHLESS Y-AMT SYSTEM



SUSSING OUT SUSPENSION

STOCK VERSUS SPECIAL - WHY TRICK SUSPENSION'S WORTH THE MONEY

USED BUYER'S GUIDE

YAMAHA R1

WHAT YOU NEED TO KNOW ABOUT THE 2007 SPORTSBIKE

NOVEMBER 2024
ISSUE 421

FAST BIKES



PERFECTO PANIGALE

DUCATI DELIVERS ITS FASTEST, SMARTEST AND MOST PERFECTED PANIGALE V4 YET

RETRO RACING...

GRINNING AND WINNING AT A CLASSIC ENDURANCE RACE ON A TOP-SPEC SUZUKI GSX-R1000 K1



No. 421 November 2024

£5.25

MORTONS
MAGAZINES



9 770961 798155

11 >

WORDS: DANGEROUS
 PICS: DUCATI / ALEXPHOTO

PERFECTO PANIGALE

In a bid to ensure it stays firmly at the top of the sportsbike pecking order, Ducati's gone all-out to create nothing short of a modern masterpiece.

There are some new bikes that come along and grab your attention for less time than it takes to tie a shoelace... and then there are bikes like Ducati's new Panigale V4 – a simply exceptional machine that's littered in so many performance-inducing intricacies that even the likes of Einstein would need a lie-down after getting through half of them. As for me, my brain was fried after reading the first of many pages about this new model's raft of features and heavily revised focus. To put it simply, there's never been a Ducati quite like this before so, before you go down the route of thinking it's just a tarted-up take on the model that came before it, think again. No less than 94% of the Panigale is new, while it could be said that 100% of the thinking behind it is fresher than a mountain glade soaked in Febreze.

Building on the success of the three previous versions of the Panigale V4, Ducati's seventh-generation sportsbike has blown the doors off convention, delivering to the market a masterclass in innovation, while hammering home the point that Ducati will stop at nothing in its bid to build the very best of the best. If there's one thing we all know about Ducati, it's that insatiable thirst for winning: a thirst so profound it could make a seasoned alcoholic feel like they're having their first pint. Winning is very much in Ducati's DNA, and it's a point that the Italian marque hammers home with conviction on the racetrack. Be it at MotoGP or World Superbikes, it's at the top... for now, at least. If history has taught us anything, it's to never forget that complacency comes at a hefty – and often heartbreaking – price. Take your hand off the throttle for a moment and a rival will willingly escort you off of the podium.

So, how does Ducati ensure it remains at the very forefront, while taking on manufacturers with far higher budgets and more resources at world championship level?

Well, it has to work harder, smarter and faster. If you're a fan of racing you'll have seen innovation after innovation appearing on Ducati's race machines, often starting out at MotoGP level, where the gloves are largely off in development terms, before these trickle down to production bikes in order to fuel the homologated machines we see on the World Superbike grid, such as the Panigale V4R that took back-to-back wins in the hands of Bautista in 2022 and 2023. And maybe again in 2024? Time will tell, but time is also the reason for the major overhaul of the brand's flagship road-going sportsbike.

It only seems like yesterday I was on the launch of the original version of the Panigale V4 at Valencia back in 2018, being blown away by its brute force, smart tech and unmistakably GP-inspired soundtrack. It was a pivotal point for the brand, which then decided to turn its back on a long and successful V-twin lineage in pursuit of that next step. Fast-forward to 2020 and refinements came the V4's way, followed by more tweaks in 2022. But if there's a message in the launch of this latest iteration of the model, it's that tweaks alone aren't enough to stay ahead of the game. To be the best, you must build the best – and that's the reason for the top-to-bottom rework of this protagonist. To call it revolutionary would encourage chuntering from armchair warriors, but rest assured that pretty much all of the bike is new... and not just the addition of an unexpected double-sided swingarm or 916-inspired nose job.

Before I get stuck into the riding experience, I'll tick off the major focuses that were hammered home during the model's presentation at a swelteringly hot Vallelunga racetrack, just outside Rome. From a pure numbers point of view, the gains simply







don't do the model justice. The headlines are that this latest iteration weighs one kilo less than the last offering, while making 0.5bhp more. Of course, more power and less weight is what it is all about, but if you were expecting to see some massive hike in power or slash in weight, now's the time to send an angry letter to the fun police that govern Euro5+ emissions. That Ducati has actually seen any kind of increase over the last

Panigale is irrefutably impressive and it's had to work hard to achieve it. How? Well, the addition of new, higher duration lift cams have helped things along, while longer travel velocity stacks (going further in each direction) has helped to achieve a better level of induction throughout the rev range. These enhancements aside, the V4 motor benefits from the same gearbox as the one found in the Superleggera V4, while the alternator

rotor and oil pump has been donated by the race-inclined V4R... the combination of which means more power with less heat, made all the sweeter by a big radiator to ensure optimised thermodynamics.

In the presentation room, neatly arranged along its walls were a variety of core components, with the front frame being among the most enticing of all. For such a big, powerful bike, it beggars belief that the unit holding the motor to the forks is quite so minute, weighing in at just 3.5kg (a reduction of 700g). While weight loss was one goal of the new unit, the 40 per cent drop in lateral flex was perhaps the bigger of the aims. As good as the old frame was, complaints of its stiffness did not fall on deaf ears, and the same can be said about the swingarm. It seems strange to see a Ducati sportsbike with a double-sided unit, but that's where the brand now finds itself at, having been urged by Ducati Corse to go down this route. Less weight, more flex, a massive hike in mechanical grip and consistent tyre wear formed the basis for this trajectory into new territory. Taking slimming to another level was the addition of forged five-spoke alloy wheels that saved further kilos from the mix. Bad news if you want to become the proud owner of a set, though – you'll have to invest in the pricier V4S version of the Panigale, which hits home at £29,995. But for that sum you will also gain ownership of Öhlins third-generation electronic suspension.





While I'm on the topic of tech, a major emphasis of the new bike is the Ducati Vehicle Observer suite. That's the name given to the next level of digital governance that incorporates 70 different sensor inputs, plus those detected by the IMU, to refine and master the models raft of rider aids. Access to these is granted via a new, super-sexy 7in full-colour dash. There's not enough time in the day to go through its plethora of features and options, but needless to say its littered with multiple levels of traction control, wheelie control, engine brake management and engine outputs. There are also five different rider modes on tap, each of which are customisable.

One thing I hadn't expected were the seven levels of ABS. The higher the number, the more engaging the system, but it was the lower two settings that really captured my attention. In level two you get a track-focused front-only ABS set-up that even a pro could go racing on. For those who want to explore something wholly different to the Panigale's pedigree, level one sees combined braking performance, with the rear brake being moderated to compliment the stopping force of the box-fresh Brembo Hypures that adorn this ballistic beauty.

From an aesthetic point of view there's no mistaking that this is anything other than a Panigale V4, but the changes to the bike's bodywork ensures it's not only 4% more aerodynamically efficient than its



predecessor, but that it is also unmistakably different. As already mentioned, Ducati claims the 916 influenced the look and lines of the bike, which maybe rings true after a bit of squinting, with a suggestion that even the new design of wings followed the lines of the iconic machine's bodywork. Whatever the influence, the bike seems smaller, more compact, and more encapsulating of the rider thanks to a new narrower, taller 17-litre tank and a reworked tail unit. The ergonomic triangle is pretty similar to before, but the same can't be said of the seat that is now flatter, longer and wider. And to complete the racier yet comfier directive, the pegs have been made narrower (for more ground clearance), the screen has been made taller (to make life easier on the rider), and the bottom of the tank features textured areas so you can get better grip when hanging off further than Bagnaia.

With a brain full of facts, figures and countless more questions based on what we'd just heard, the time finally came to put this bike to test. To ensure us riders got the best experience from the package, we were each given our own Ducati engineer, which only added to the experience. Whether it was a consideration from the Italian brand to

ensure that we actually rode the bike in the direction of its potential is a discussion for another time, but what it meant to me was there was a bloke on hand to help me explore the potential of this 213bhp reprobate... which felt anything other than overwhelming when I tootled around the circuit to get some idea of its layout.

Valllunga is a beautiful track, blending absolute all-out madness in the first half of the circuit with a tight and technical latter half that demands you use first gear whether you like it or not. As the day went on, it grew on me massively, but the initial 15-minute session was nothing short of mind-boggling, and I was thankful that the Panigale was so forgiving as I stabbed at the throttle and brakes with the finesse of a four-year-old.

The engine was so much smoother than I'd imagined, being plentifully potent when asked to perform, yet docile enough to stay composed and restrained at lesser speeds in a way the old Panigale V4 motor simply wasn't. And to make things even better, I quickly came to realise how slick and effortless the shifter and blipper were. As mentioned, a good few corners on the track demanded first gear, which is a selection I rarely make because it necessitates going past

neutral. But my concerns were pointless as the downshift was slicker than a greased dolphin. The new bike sports a development called Ducati Quick Shift 2.0, which basically means they've got rid of the need for a microswitch, so gear changes feel more direct and natural. Honestly, in my opinion, there are few, if any, systems on production bikes that can go toe-to-toe with this piece of tech – it was awesome. The other thing that jumped out during that initial ride was how easy it was to place the Ducati, even on the tighter, slower bends on track, such as a corner called Tornantino, which was all about big lean and a sundial-paced apex.

In the blink of an eye, that first session was in the bag, with my best time being a humbling 1m 53sec lap – about 13 seconds off the front row pace of litre bikes in the Italian superbike championship. I'd like to think I was just taking my time to get to know the V4, which felt wholly different during my second outing. As warm and welcoming as the Ducati was first time out, I was hoping for fireworks as I left pitlane for that second thrashing. The only change to the bike was a switch from ABS level two (front-only, race attack-inclined) to level one (the same from the front but with the added





benefit of a linked rear brake), with the same 'high' power engine delivery as was selected before. Arguably, I could have been in for a copy-and-paste performance from the V4, but what I got blew my mind. I pushed a bit harder, braked a bit later, and tried to capitalise on the more familiar layout of the circuit, which only seemed to get madder and more addictive with pace. Likewise, that's how I'd describe the Ducati. Having only tickled it on my first onslaught, I never really got the bike working hard enough to show off its character... but that all changed. I could feel the front squirming on the anchors, the rear beginning to move on the gas, and the weave of the bike, pinned in fifth, tackling the kinky start straight really got my heartrate racing. It's a fine line between wanting a bit of character and being conspicuously battered by a bike for taking the piss, but what the Ducati was now delivering was that perfect middle ground

– all the excitement without any of the pain. I was loving it, and I felt egged on by the added level of feel and movement that was translating through the tyres to the suspension and the telling frame. The bike possibly needed a bit more support from the Öhlins, but the Pirelli slicks were doing a cracking job of keeping the Panigale pinned to the track, and the tech was too.

Only now was I getting the traction control kicking in, and only then on one or two of the corners. The thing is, I'd see the fancy dash light up as the TC got leaned on, but I'd be lying if I said I could feel its interaction. The set-up was seamless, as was the wheelie control. Out of the slower bends, despite a mapping of power in the lower gears to limit torque for safety's sake, wheelies were as inevitable as governments raising taxes; they were nothing short of guaranteed, with the only variable being how high or how long they'd last before they got brought into

TECH DATA

Ducati Panigale V4S

ENGINE	
Type:	90° V4, liquid-cooled
Bore x stroke:	81mm x 53.5mm
Compression:	14.0:1
Fuelling:	EFI
Claimed power:	213bhp@13,500rpm
Claimed torque:	120.9Nm@11,250rpm

ELECTRONICS	
Riding modes:	Yes
Traction control:	Yes
ABS:	Yes
Quickshifter/autoblipper:	Yes
Wheelie control:	Yes
Launch control:	Yes
Pit limiter:	No
Cruise control:	No

CHASSIS	
Frame:	Aluminium front frame
F suspension:	Öhlins 43mm NPX25/30 forks, TiN treatment, Öhlins Smart EC 3.0
R suspension:	Öhlins TTX36 unit, Öhlins Smart EC 3.0
Front brake:	Twin 330mm floating discs, Brembo Hypure monobloc calipers
Rear brake:	Single 245mm disc, Brembo twin-piston caliper

DIMENSIONS	
Wheelbase:	1485mm
Seat height:	850mm
Wet weight:	187kg (minus fuel)
Fuel capacity:	17 litres

INFO	
Price:	£29,995
From:	www.ducati.com



check. Again, all this happened without any angry intervention to the drive, allowing me to keep the throttle firmly pinned as the tech did its thing.

As the sessions clicked by and the mocking from my mate on the data ramped up, the Panigale and I really started to gel. By the early afternoon I was feeling super-comfy on the bike, having made little to no changes to its extensive web of electronic warfare. Yeah, I'd firmed the bike a little, but everything else was pretty much as it came. This being the case, my pace was ramping up nicely, with consistent 1min 46s being the order of the day by the second half of our innings. I knew where there was more time to be found, and that came down to trusting the bike to do what it was capable of.

What had also hit home by this point was how consistent the experience was, quite unlike the Panigales of old. I knew that if I braked at a certain point, I'd be guaranteed to make that corner entry, or that by braving it out of a bend at full throttle, the tyres and chassis would happily take the abuse. More to the point, the traction control, as dialled down as it was, was unequivocally dependable, whatever the speed. It became a game of point-and-shoot, anticipating the reaction of the bike and building trust in it when that exact thing happened again. Even when more tenths were taken from the time, the Ducati's behaviour was up there with a loyal Labrador... it's hard to describe how much the thing grew on me, and the same has to be said of all its tech.

The system on the bike that probably won me over the most was the traction control, but the rider aid I hadn't expected to be so surprised by was the linked brakes. In the


latter part of the day, I went back to ABS level two (front brake only), and not only did the bike feel harder to slow, but it also became harder to turn and hold a line. I couldn't wait to change it back and regain that rear brake support that I didn't know I wanted or needed. I'm telling you, that system is genius and a game changer to riding fast. Apparently, Peco had said a similar thing when asked for his thoughts on it at the end of his testing of the bike, which says it all when a rider of his level has such thoughts.

The more I rode that bike, the more I liked it, not just from a mechanical point of view, but from the point of ergonomics too. I liked how spacious it was, with plenty of room to hustle around the seat. For me at 5ft 10in, the pegs offered more than ample legroom and the flatter seat meant my wrist wasn't quite so laboured on the wide bars. The big screen felt easy to tuck in behind and the large dash was so easy on the eye.

During the test I became pretty obsessed by my lap time, and my eyes were drawn at key moments to the live splits that flashed up if I was up or down on my best sector time. Likewise, the buzz of seeing your new best lap pop up on the display was something else

and made me appreciate just how advanced and focused this model is.

Sure, it's got indicators, headlights and a horn, but the truth is that beneath all that road-going clutter lies a ballistic beauty born and bred with performance at heart... even the sound of it made me feel like I was on a pukka race bike. I genuinely fell for everything that this bike was about, but also wound up the test realising that despite six 15-minute sessions in the bag and having knocked about 10 seconds off my inaugural laptime, I'd only just touched the surface with this thing.

What a piece of kit. 



UNDER THE SKIN: DUCATI PANIGALE V4S

Just when you think Ducati's Panigale V4 couldn't get any better, the Bologna Bullet has been given a comprehensive rework, including more power, less weight and a new look. Here's a closer look at some of the main features...

THAT'S THE LOOK:

This is the slipperiest Panigale V4 yet. The whole of the bike's bodywork has been redesigned, resulting in a 4% reduction in drag. The package also encourages better cooling, while the twin air intakes of old have been dropped in favour of a hidden single air intake. At the rear of the bike, the new seat unit is more spacious and generous on the rider than before, meaning there's more scope for moving around with ease. Last but not least, Ducati isn't holding back in saying that the look of the bodywork was heavily influenced by its iconic 916. Throw in a new, bigger screen, plus quintessential wings, and you end up with a very saucy-looking Ducati.

PUSHING THE LIMITS:

The headline is that the power-to-weight ratio on this bike has increased thanks to a 0.5hp gain in output from the bike's revised V4 motor and a drop of two kilos over the last model to 187kg. In stock form, Ducati is claiming a whopping 216hp from this ballistic beauty, which has seen the introduction of new cams and improved, variable intake stacks to help punch out more poke. The gearbox is now the same as the one found on the Superleggera, while the oil pump and alternator are shared with those found on the V4R.

As for the weight, there's losses in precious grams all over the bike, with a good chunk being saved by a new front frame and double-sided swingarm. The engine is also a little lighter too, along with gains found by the introduction of super-fancy Brembo Hypure calipers – an industry first.






YOU'VE BEEN FRAMED:

Ducati's emphasis on a more agile machine with improved grip and feel has meant for significant changes to the Panigale. Most notable of all is the loss of a weighty single-sided swingarm in favour of a 2.7-kilo lighter double-sided option, the gains of which also include a revision of the lateral stiffness, seeing a 37% reduction over what's come before. And the new front frame follows suit, with a whopping 40% drop in lateral stiffness, while saving roughly 0.7 kilos along the way.

WHAT THE TECH:

Weighing in at a whopping 6.9in, the Ducati's new dash is the star of the model's technological show. With more interface options than you can shake a stick at, including a GP-derived track mode, it's fair to say riders will be able to while away many hours customising the look of their bike's class-leading dash. That's also the place where riders will be able to govern the huge raft of riding aids that bestow this machine, including

the latest generation of what Ducati brands as DVO... Ducati Vehicle Observer. Think traction control, slide control, wheel control and even launch control. Using 70 different sensors, the technology on the Ducati is simply cutting-edge, made all the sweeter by the super-fancy Öhlins Smart EC 3.0 electronic suspension that can calibrate factors such as rider weight into the set-up performance. 



WORDS: DANGEROUS PICS: DUCATI/ALEXPHOTO

DEVELOPING THE DUCATI

Look at any cool picture of a new Ducati being thrashed around a racetrack and chances are it'll be the brand's chief development rider, Alessandro Valia, under the visor. Without wishing to sound like some stalker-spec fan boy, it needs to be said that Valia is probably one of the most knowledgeable and talented riders you'll ever meet. He's also really humble, which makes you feel even more downhearted because you can't even hate the guy. He is quite simply a cracking bloke, and perhaps one of Ducati's biggest assets. For the past four years, one of his major focuses has been the development of the new Panigale V4, so over a few beers, I fired a few questions his way...

How big a decision was it for you to go to a double-sided swingarm?

As a brand, we are focused on racing, so from one side of Ducati there was a big request from the racing department, from Gigi Dall'Igna, for help with the chassis. They had arrived at the technological limit of the single-sided swingarm – something that could cope with the added power and reality of modern tyres. They needed something that would allow more grip, more consistency, and so on, so there was from one side this clear request, and we said we cannot do this because we have had this single-sided swingarm since the 916; it's an icon for us. But in the end, we want to keep winning, so we decided to build and compare the best single-sided swingarm we can produce today, but also the best symmetrical swingarm (double-sided) option too.

The single-sided structure was an improvement, for sure, but the double was better for every tester. We used different testers on different tracks and built a special mule bike to test them back-to-back, and we did many laps. In the end, every tester came back with common comments. The double-sided swingarm was better in every aspect, so this is the reason we changed.

How hard was it to develop the new rider aids?

For us, it was very important to develop this kind of new generation of rider aids that are basically the algorithm and the technology we have on the MotoGP and World Superbike machines. Because we have that data, it has helped us so much to define in a really accurate way the targets

of spin and of wheelie control. It means we can make the systems to work in a predictive way because we know exactly the torque and the trust the bike can accept in every condition. For example, if you are at a 50-degree lean angle in second gear, we know that you cannot deliver more than 20Nm of torque because the bike will not accept it – you will crash. So, instead of having a peak of torque and then a cut of the control, then torque again, it's better to go in a more logical way and only permit at that angle the right level of torque.

We also introduced a new two-phase approach for acceleration in race modes. This means when you accelerate out of a corner, the first phase is more controlled until you've completed the first load transfer; the second phase kicks in when the transfer is there on the rear tyre, which helps keep the bike much more stable under acceleration. This approach is what makes the controls so smooth and accurate. It was new for us, but a great direction. We tested the new systems against the old model's technology and the difference was a big improvement.

The stock Panigale V4 features a 260 profile rear tyre, but it can comfortably fit a 265. Are bigger tyres the answer?

The big advantage is the contact patch you have when you're at lean, so you have more grip. And this means you can push harder on your tyres; you can break a lot and decelerate a lot when you have more tyre on the ground. For example, just fitting the wider 265 profile rear tyre will save you one second per lap. The fronts are also getting bigger.

In racing, we use 125 profile front tyres too. Obviously, to get the best result from

bigger tyres you have to work hard on your set-up and we had to decide when developing the new Panigale which size to go for, and we chose to do quite a lot of the development with the bigger size. The difference is that the bike is more agile with the little rear (260 profile), but this slows you down on the track for sure. This said, we know many of our customers will use a 260 rear on track, so we had to also develop the controls. That's why we have the sophisticated calibration system that suits the size of the tyre being used. This means everyone can get the best from the bike.

What capped you on the motor's horsepower?

The big constraint was the Euro5+ emissions, and also the rules on noise, so we decided to change the characteristics of the engine to make sure. We are very happy with the end result – for us, it was important to reach more power up top, and we recognised that with the old engine we had a lot of torque in the medium range that no one used because there was too much, so it was always cut by the controls. We decided to sacrifice this part and to add that bit more on top.

Do you feel like Ducati's having to step more towards convention?

We are focused on racing and performance, and we use technology to allow us to reach higher results. This means that sometimes changes are needed to achieve the best results, so at the time we stopped building bikes with V-twin motors, we knew we'd reached the limit with that type of engine.

The V4 motor meant that we could rev higher and gain more horsepower – it made sense. Similarly, we've introduced our new symmetrical swingarm because it allows us to take the Panigale's potential further. This is a unique design, a special part that is our own – it's not a case of following a trend; it's a logical direction we've gone down to achieve the results.

Developing such important new parts is not easy, especially when you're trying to chase a feeling rather than a number. An engineer will look at numbers and tell you that the design is at its best, but it's our job to fight for the right feeling.

What's the bit you are most proud of?

It was my personal idea to develop the combined braking system because I thought it was good for passionate riders who don't know how to use the rear brake. This way we could manage the rear brake for them and give them the benefit. It was not easy, especially in the calibration of the contribution of pressures... knowing how hard to apply the rear brake to benefit the front performance. It was a lot of work, and it was a big fight to convince our engineers that it was a must for our bike. They said it would be nice to have, but I said it was a must. The problem was that it was more expensive because you needed a special

ECU with four pressure sensors (there was one only on the last Panigale), plus the mass of the system adds weight to the motorcycle, and it's bigger, so you don't know where to put it on the bike. There were many problems outside of developing the system itself, but in the end we arrived there.

What weaknesses did you identify with the previous Panigale?

For sure, there were some points to improve. First of all, the ergonomics. We were not so satisfied about the shape of the tank or the seat. We wanted to give our customers something that could help them ride with less effort. By altering the seat and tank, we could make the bike easier to hang off in a corner, like in MotoGP, which would then reduce the necessary lean angle in a bend, and that means you have more tyre in contact with the ground, meaning more grip and more safety. Everything is connected, so we worked very hard in this area, making the seat longer and flatter, and the tank narrower and easier to work with.

Then we had to improve the stability of the bike during acceleration because especially at some tracks, like Vallelunga, we had some obvious problems – it was a characteristic. There was grip, no grip, and

then grip again. It's something you can get used to and learn to live with, but it was a problem especially for riders who were not used to riding Ducatis. And it was particularly obvious in group shootouts when you jump between different bikes from different brands; there were some big differences there. At the same time, we realised the grip could be improved, so we worked hard on the mechanical grip with the new bike.

What was the most significant gain?

The big gains came from the combination of the new chassis and double-sided swingarm. With the new Panigale, you straight away feel the great compactness of the bike and how much more talkative it is with the rider. It's telling you what's happening under the tyres. The bike now feels so much more in control, intuitive, and easier to ride. From our experiences at MotoGP and World Superbike, we understood that it's better to reduce the lateral stiffness of the structure as it makes the bike easier to ride and also much improves the braking phase when the bike's going into a corner with lean. Because racers can now brake harder with lean, the entry speed into a bend is also higher. I would say apex speed is more or less 3% improved. 