

HOW TO BUILD THE **WORLD'S FASTEST**

Words **JIM MOORE** Photography **DAVE COLLISTER**



Rob Hodson and a
Key Racing Ducati 916
approaching Duke's at
the 2025 Classic TT

916

No other example of Ducati's iconic '90s superbike has circulated the Isle of Man TT course as quickly as Key Racing's bike. This is how you make a 30-year-old twin as rapid as its modern-day equivalent





e're here to win," Key Racing boss Tim Keay tells me, while showing me around the team's sizeable awning during practice week for this year's Classic TT. "We set ourselves that standard in 2024, when we won with Mike

[Browne]. That was Ducati's first victory around here since Rob Holden won the Singles race back in 1995, so to do it with the 916 was really special. Now that we've won – and make no mistake, we want to do that again – our other goal is to go quicker than we've ever been around here before."

That was no easy target. Dean Harrison showed the Ducati's potential back in 2023, posting a series of 125mph laps during practice week, before alternator failure scuppered any chance of a result in the race. Key Racing's fastest-ever race lap came alongside its victory in 2024, after the team's Paddock Manager Gary Vickers told Mike Browne to "wring its neck", sensing that the weather might play its hand in the race.

He was right, it did. The result was declared after just one lap. Browne's blistering pace from a standing start saw him pull almost 14 seconds on second-placed man Rob Hodson (Kawasaki) in just one circuit of the Mountain course, setting a 123.919mph lap in the process. For 2025 Key Racing retained the services of Browne as well as welcoming Hodson into the fold, giving the squad the very best chance of repeating its win and beating the event's fastest ever lap of 127.469mph, set by Kiwi Bruce Anstey on a Padgett's Yamaha YZR500 Grand Prix bike in 2017.

The team were well on course to achieve both of those goals this year until the weather again played its hand, this time wiping out most of race week and any chance of back-to-back victories around the world's

most gruelling circuit. But the team did achieve – nay, obliterate – its other aim. New rider Hodson, riding the SMT-supported Key Racing 916, concluded practice week with a best lap of 127.402mph. Hodson's lap is all the more impressive considering he achieved it on a production bike; Anstey's was riding a full-on GP machine of similar vintage. Perhaps more impressively, the lap would also have put Hodson fourth in qualifying against the latest machines in this year's Supersport TT – just 0.3mph off Michael Dunlop's lap on the ex-factory Ducati Panigale V2 (the actual bike that won the 2024 World Supersport title).

All of which begs the questions: why take a 916 to the Island and, more importantly, how do you take an Italian superbike with a reputation for fragility and make it capable of matching a prototype racing machine and modern tackle around such a brutal track?

"It's taken four years to get where we are now," says Tim of the team and its achievements. "The 916 and its derivatives dominated short-circuit racing back in the 1990s, but never figured in the results at the TT. They were deemed too WSB-focused and not robust enough to cope with the rigours of the course. Consequently there's very little data to reference when it comes to the Isle of Man. So when we first came here, after the Classic Superbike eligibility rules were tweaked, we had to start from scratch."

Tim's a self-confessed Ducati nut who, since the late '90s, has amassed a collection of Bologna-born road and race machines, as well as an impressive inventory of trick racing parts. In 2022 – the first year of the Classic TT's revised rules, allowing pre-'97 four-cylinder 750s and up-to 1000cc twins into the Superbike class – Tim and the team entered an 888 and a 916, ridden by Leicestershire-based Mike Mace and Italian Andrea Majola. The experience was humbling.



'The Key 916 did a 127.402mph lap – only 0.067mph adrift of the fastest ever lap at the Classic TT'



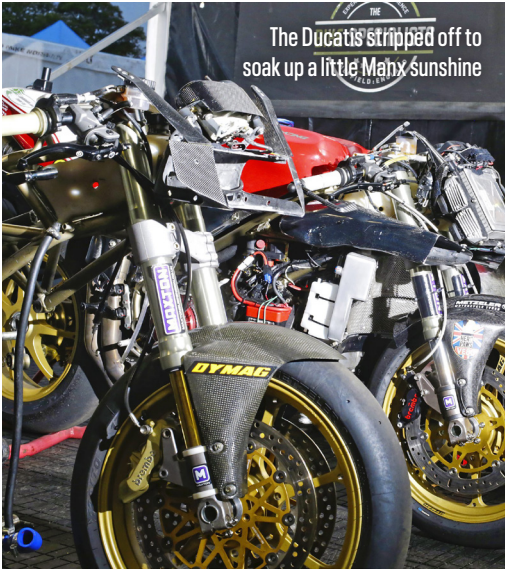
Tinkering: Gary (left) and Tim



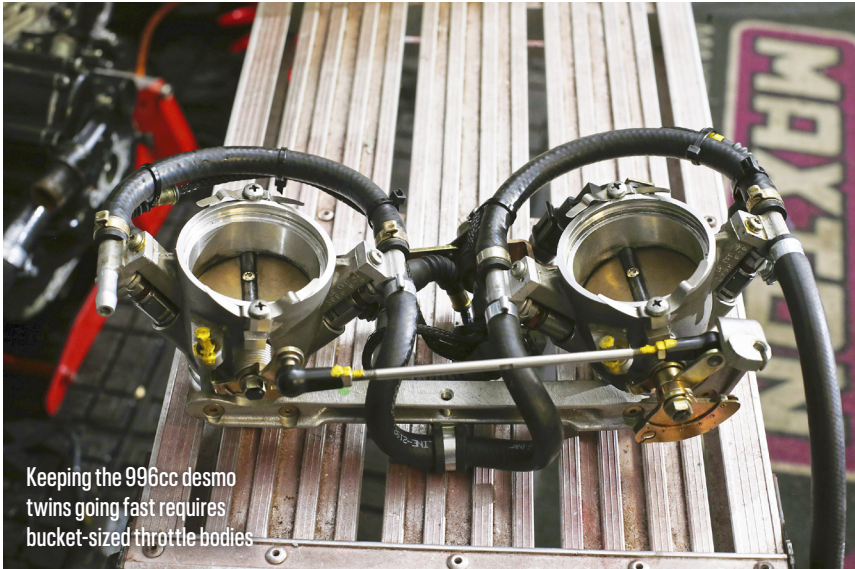
Rob Hodson and his crew. Gent in the hat was a passer-by, hence lack of team shirt...



Running a 916 can be quite involving. Paddock Manager Gary Vickers contemplates the space where the 152bhp V-twin needs to be located



The Ducatis stripped off to soak up a little Manx sunshine



Keeping the 996cc desmo twins going fast requires bucket-sized throttle bodies

BOLOGNA BULLET

“The boys finished 19th and 21st,” explains Tim. “We had no data or experience and both bikes’ suspension was set for short-circuit use. Mike ended up having to sit on the 888’s seat hump just to stop the thing from weaving about too much at speed, and Andrea took a pounding from the 916 that was set far too stiff. Neither bike broke, though – and we could see straight away where we could make improvements.”

Set-ups for short circuits and the Isle of Man are poles apart. Ducati showered the 916 with lightweight magnesium parts for WSB – trick components that also paid dividends in national level superbike competition. But the Isle of Man is unrelentingly brutal, and the races are more marathon than sprint, so what matters around four laps of the TT course is strength and reliability.

“We’ve had all the magnesium parts remade in stronger, aircraft-grade aluminium,” Gary Vickers asserts, pointing them out on Browne’s number 3 stickered machine. “Tim even had a pukka factory-spec magnesium swingarm from his collection cut in half so it could be 3D-scanned inside and out to ensure the aluminium replicas are as accurate as can be. That cost 30 grand. The rules say we can only use period parts or exact replicas, so this level of detail is critical. We’ve made improvements, purely for strength and reliability; we’re now on our fourth iteration of the ‘arm.’”

Other magnesium parts – yokes, outer engine cases and wheels – have also been upgraded with stronger aluminium alternatives. Cutting corners isn’t an option. Ever. From Tim’s point of view, if it needs doing, do it. Simple as that. An example of which he shares.

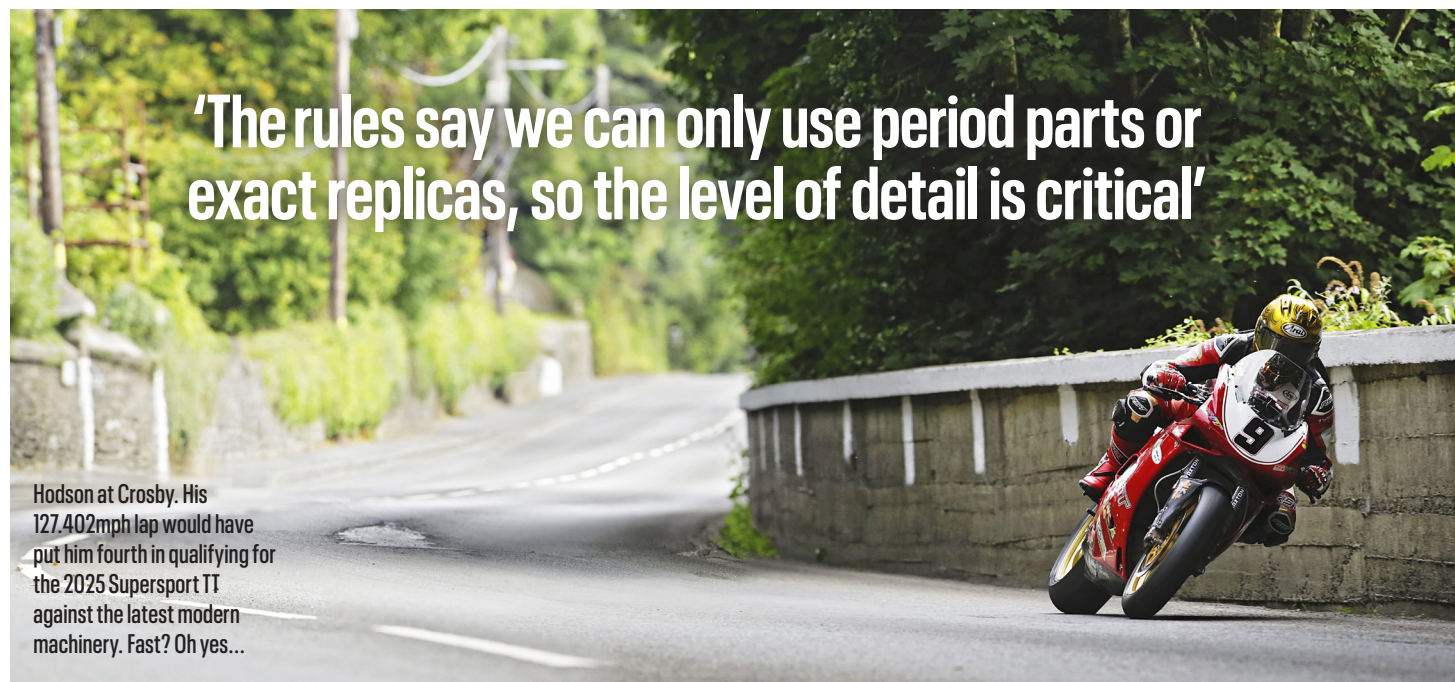
“We had an issue with one of the bikes misfiring, then cutting out on the dyno. To begin with, we couldn’t work out what was wrong, so we changed the whole loom. Later on we discovered it was a routing issue, causing interference with the wiring. But that meant a complete rebuild of the front end to get it right, because the guys – Mike and Rob – are putting their balls on



Mike Browne struggles to keep the 916 in contact with the ground over Ago’s Leap

‘The rules say we can only use period parts or exact replicas, so the level of detail is critical’

Hodson at Crosby. His 127.402mph lap would have put him fourth in qualifying for the 2025 Supersport TT against the latest modern machinery. Fast? Oh yes...





SPECIFICATION

ENGINE/TRANSMISSION Type

Liquid-cooled dohc 8v Desmodromic
90° V-twin **Capacity** 996cc **Bore**
x stroke 98 x 66mm **Fuel system**
Fuel injection, twin 60mm throttle
bodies **Ignition** Magneti Marelli

TRANSMISSION Primary/final

drive Gear/chain **Clutch** Multiplate,
dry **Gearbox** Six-speed

CHASSIS Frame

Tubular steel lattice
Front suspension 43mm Showa
forks with Maxton GP30 internals,
adjustable preload, compression and
rebound damping **Rear suspension**
Maxton GP10 monoshock, adjustable
preload, compression and rebound
damping **Front brakes** 2 x 320mm
discs, four-pot Brembo calipers
Rear brake 1 x 200mm disc, one-pot
caliper **Wheels** Dymag, seven-spoke
forged aluminium **Tyres** Metzeler
Racetec RR slicks, 17in

DIMENSIONS Wheelbase

1428mm
(56.2in) **Seat height** 790-800mm
(31.1-31.4in) **Fuel capacity** 24 litres
(6.34 galls) **Weight** 175kg (385lb) wet

PERFORMANCE Power

152.3bhp
at 11,500rpm (measured)
Torque 85 lb ft at 7500rpm
(measured) **Top speed** 185mph (est)



the line every time they go out. It just has to be right.”

Ducati engines require a different approach when competing on the Island, too. In full WSB trim, these 996cc motors are capable of producing 175bhp and revving to 13,500rpm. Perfect for 25 laps of a short circuit, but on the TT course where Superbike races are set to run for four laps – 113.25 miles, much of it flat-out – the demands on the engine are much greater.

“We limit revs to 11,500,” says Tim, “giving the boys 150bhp to play with and 85 lb ft peaking at 7500rpm. We can’t run the later, narrower Testastretta heads either, because they weren’t introduced until 2001. Our bikes run standard 996 cases, factory cranks, Pankl titanium rods, high-comp pistons, standard road bike gearboxes, plus 748R cam belts and exhaust cams. The factory heads are CNC ported – they really are like rocking horse shit to find. I scoured the world for factory parts, tapping up contacts in Italy, the States and other places to get the right bits.

“The inlet cams are factory spec, too. The valves are a mix of titanium inlet and the exhausts are nimonic steel – a nickel-chromium alloy that’s strong and really

good at coping with high temperatures. With that spec we get 500km [310 miles] between services, although that basically means a complete engine refresh. Our engines are put together by ‘Ducati John’ at Cellier BVT Workshop in Leeds. He’s the absolute guru when it comes to putting these race engines together.”

In keeping with the spirit of the rules, and pre-’97 tech, both Mike and Rob’s bikes run quickshifters to enable faster, smoother gearchanges – but, unlike modern shifters, theirs allow quick upshifts only. Going back down the ’box requires the clutch. Similarly, the bikes’ fuelling, through 60mm throttle bodies and twin injectors, is taken care of via a period factory Ducati ECU – a P8 unit, made by Magneti Marelli – programmed with a fuel map based on that of John Reynolds’ 1997 BSB bike (which Tim owns), modified slightly to better suit the demands of the TT course.

Useable, reliable power and beefed-up componentry are two hugely important elements when it comes to building any bike capable of winning races around the Island. But there’s another arguably more important factor without which the aforementioned would be

EXPERIENCE OUR EXPERIENCE
THE
BIKE SPECIALISTS
MIKE'S TANK

Due to Mike Browne's diminutive size, the team reduced the size of his bike's fuel tank to 20 litres by cutting a 40mm strip out of the bottom. This affords him greater control without sacrificing too much capacity. His bike still has around 1.75 litres of fuel left in the tank after two laps, at which point it's time to change the rear tyre as well as refuel.

FRAME

Mike's bike (left) runs an ex-BSB frame; Rob's bike was a former race machine too - bought for the team by sponsor The Bike Specialists, Sheffield - then totally rebuilt by Tim and fitted with stronger aluminium parts in place of old magnesium, and factory parts where needed.

BODYWORK FASTENERS

Fairings and seat units are held in place by easy to remove and refit Dzus fasteners. Due to the sustained high speeds, vibration and wind blast unique to the TT course, Key Racing tape or lockwire (depending on position) the fasteners flat to prevent them from working loose.

BRAKES

Period WSB-spec 320mm Brembo fully-floating steel rotors gripped by four-pot two-piece Brembo calipers. Gold was out of stock, so the team went with black on Mike's bike instead.

ABOVE Gary with Mike's bike and Jim Hodson - Rob's dad - with his son's machine

wasted. Given the course's unique challenge of prolonged high speeds, constantly changing surfaces and teeth-chattering bumps, the way a bike handles and copes with those obstacles can make the difference between being at the front and wobbling around at the back.

Having experienced the shortcomings of inappropriately set-up suspension during the team's first entry into the Classic TT in 2022, and knowing Maxton suspension have a wealth of knowledge in preparing bikes for the Island, Tim entrusted Maxton's Richard Adams with one of his 916 rolling chassis.

"The TT course is fast and flowing, with minimal hard braking - the opposite of most short circuits," explains Adams. "Carrying corner speed is crucial, as is the ability to steer while still hard on the throttle. We achieved this with the 916 by increasing travel and adding extra weight to the front, while also giving more support to the rear. They're the ingredients you need for a fast lap, because maintaining momentum is key."

Quality rider feedback is another crucial factor. "When you have riders of the calibre of first Dean, then Mike and Rob on the bike, their comments and feedback are invaluable," says Gary of the team's

jockeys. "It allows us to tweak the suspension, fuel mapping and ignition timing that bit further. All those improvements add up to a better bike."

Where the Ducati really shines against its inline-four rivals is being able to use its grunt to fire out of slower turns like Quarter Bridge, Ramsey Hairpin and The Gooseneck, while also driving hard over the Mountain section. Over the distance of a race, the 916 is harder on its rear tyre than the four-cylinder machines, however.

"Dean got through a rear in three laps, so we make our changes after two laps to maintain performance over the race. Having our swingarms modelled on slightly longer factory-spec items gives us a bit more wheelbase than standard. That's crucial for stability, which is now very good on our bikes thanks to Richard's work with the suspension, plus it helps lessen the chance of wheelies out of slower turns which cost time."

When the lads need to scrub off speed, they rely on Brembo's finest - of the period. The Italian masters of deceleration still produce their '90s-spec four-pot, two-piece race calipers and matching fully-floating 320mm discs, which are more than up to the job of hauling 175 kilos of fully-fuelled 916 to a rapid halt.

EXHAUSTS

These are factory spec. Ducati used to run systems with differing pipe diameters, depending on the track they were at and whether they wanted more midrange grunt or top end performance. Key Racing run a 54mm system at the Isle of Man; Ducati Corse used to use 57mm on short circuits.



CLOCKS

Period-style analogue instruments mounted in a carbon-fibre surround tell the riders everything they need to know – rpm, engine temp, and if the ignition is on or off. In pure racing style, the tach doesn't wake up until 3000rpm.

Juiced to the brim, Rob's bikes hold 24 litres (6.34 gallons) of fuel – seven litres up on the standard tank by adding to the original's height. The team copied the dimensions from a 24-litre carbon-fibre ex-WSB tank. Even with the extra fuel, Key Racing's 916s weigh 20kg less than a stock bike minus fluids. Mike's bike runs a smaller 20-litre tank to suit his size (see left).

Despite the Manx weather washing away any chance of back-to-back wins, the team's hopes are high for the future. They now know the bikes can lap at record pace – better weather and a rubbered-in track could well see one of the Key Racing bikes surpass Anstey's lap record. Plus, with two riders – one already a winner for the team and the other the fastest they've ever had on the bike – the dream of a lap record and a win in 2026 looks more possible than ever.

That's if Tim's plan to run a Honda RC45, and make it work where others have struggled, doesn't take over the team's attention. "It's already been talked about," he says with a grin. "You'll have to watch this space..." **CB**

Rob Hodson – the man on the machine

"I clicked with the Ducati almost straight away. The first time I rode it – a test at Oulton Park, just to set up the riding position for me – we were pleasantly surprised by the lap times, because it was on Isle of Man gearing and we weren't really chasing times.

"Personally, I'm more used to modern tackle and older inline fours, such as the Kawasaki ZXR that I've ridden previously. When I jumped on the 916, it felt like a 650 Super Twin with a bit more go, whereas the tyres and suspension feel more relatable to the modern machinery I ride. Putting those two elements together made it an easy bike for me to gel with, I guess.

"I felt right from the start that if we could get the set-up right, we'd be in with a shout of breaking the lap record. And that's what we did... almost. It's just a shame we never got to race because of the weather. We'd have been right in the mix for sure."



Like a 650 Super Twin with a bit more oomph? We feel our leg being lightly pulled...