

**COLLECTOR'S
SUPPLEMENT**

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GTPORSCHE



991GT3

Porsche's road racer laid bare

Contents

004 Bigger, Bolder, Stronger

Less evolution, more revolution; the 991 GT3 is like no other 911 GT3 that has gone before.

012 Andreas Preuninger: Mr GT3

He's been responsible for every generation of GT3 and he says the 991 is the best yet. We ask him why.

022 991 GT3 First Drive

You've read the technical highlights and what the man responsible for the 991 GT3 thinks, but what's it actually like to drive? Read on...

032 911 GT3 Timeline

Porsche Motorsport has built half a dozen 911 GT3 variants during the model's 15-year career. Here's a rundown on all six of these remarkable 911s.

First published in GT Porsche during 2013





BIGGER. BOLDER. STRONGER.

A new engine, gearbox and body for the first time in 14 years sees the 991 GT3 fighting fit to take on all comers.

Story: Stuart Gallagher Photography: Porsche AG



It is perhaps fitting that in the year the 911 celebrates its 50th anniversary, Porsche will release the fifth generation of its hugely successful 911 GT3. 14,145 examples have been built since the original 996 variant was launched in 1999 and later this year, as a 2014 model year car, the first all-new GT3 for 14 years will start arriving with those fortunate enough to have bagged an example of Porsche's road racer.

Much has been speculated about how Porsche will move the new GT3 on from the heady heights of the 997 models that produced some

of the very best road cars Porsche has built during its 65-year history. Fears that it will have a seven-speed PDK gearbox are confirmed – it's the only gearbox the GT3 will be fitted with – and that the legendary Hans Mezger-designed, dry-sumped flat-six will be put out to pasture is also true. The element that will cause most angst perhaps, is that the introduction of the 991 Carrera models resulted in a less-than-warm reception for the company's new electromechanical power steering, and that also is fitted to the new GT3. It's not looking like a

particularly strong start, is it? More stalled on the grid than taking the lead at the first corner, some might say.

But then you delve deeper into the new GT3's technical DNA and understand this is so much more than just a hotted-up Carrera (not that any GT3 has ever been so) and that Andreas Preuninger and his team don't do compromise. On paper the 991 GT3 starts to present a mouthwatering prospect, and we've yet to drive a new Porsche that has failed to outperform its 'on paper' billing.



As we're discussing a new 911 there is no more logical place to start than at the back of the car, specifically with its engine. With the Mezger motor waved off into retirement, the Porsche Motorsport Department has had its work cut out in increasing the performance levels of the outgoing engine while integrating them into the Carrera S' 3.8-litre engine. The raw ingredients make for a salivating read. The engine is dry-sumped with an on demand oil pump and it's fitted with a new crank, forged titanium con rods and forged aluminium pistons. There is a new valve train, too, that makes the most of the new cylinder heads that have been developed exclusively for the GT3 and feature both larger inlet and exhaust ports, larger valves with a new valve rocker arm control that allows for individual valve control at very high engine speeds, while still allowing for a longer stroke and valve openings for maximum torque. The rocker arm control works in conjunction with Porsche's VarioCam variable valve timing. The GT3 gains direct fuel injection for the first time, too, with multi-hole injectors providing a larger, more usable range of fuel quantities to be injected. There is a new air-intake system featuring a specific plenum on the bootlid that incorporates a ram-air principle, with airflow across the car's body utilised to increase the intake manifold pressure, which is also completely new; made from plastic, it is not only lighter than the aluminium item used on the last GT3, but it is also larger with improved airflow resulting in a further improvement in fattening-up the engine's torque curve. Naturally a sports exhaust is fitted as standard, which is switchable and when activated increases torque by 18lb ft between 3000 and 4000rpm.

An extensive weight saving programme has also been carried out on the GT3's new engine, primarily to reduce mass in the engine – which it has done by 25kg – to enable it to spin as quickly and as freely as possible. And it has clearly worked: the engine revs to 9000rpm! The headline numbers are 475hp produced at 8250rpm and 324lb ft at 6250rpm, increases of a 40hp and 7lb ft respectively over the gen-two 997 GT3, specific output is 125hp per litre. This is an engine that sounds far from compromised.

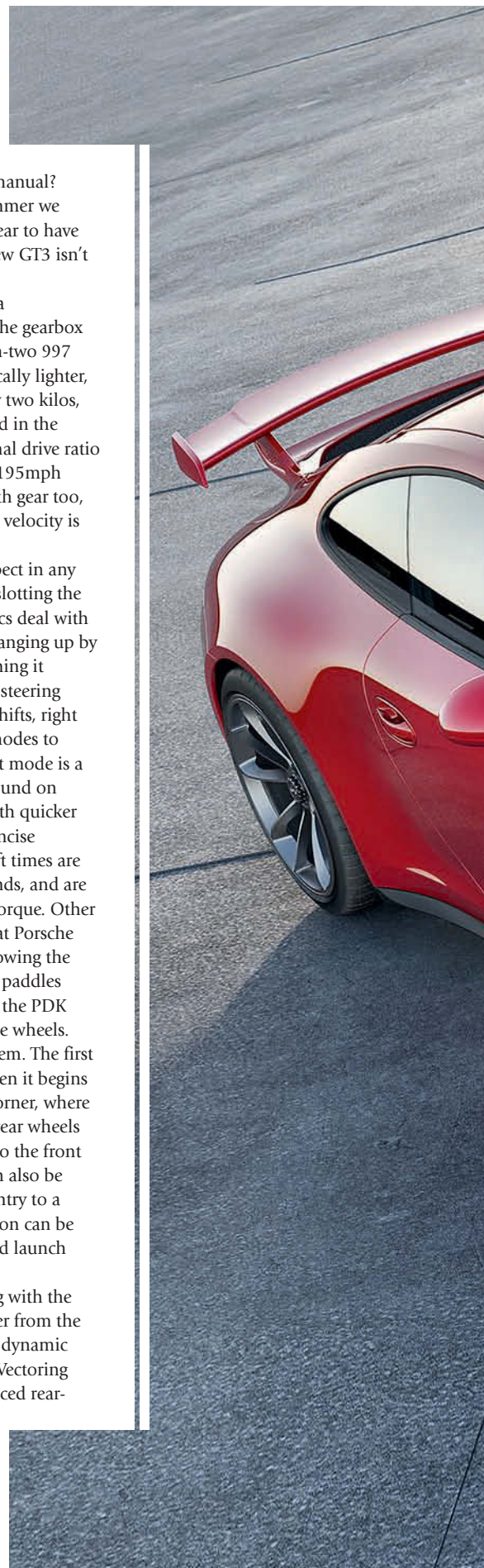
But surely the 991 GT3 will be compromised by only being offered with Porsche's seven-speed

PDK gearbox, with no option for a manual? Until we drive the car in the late summer we won't know, but Porsche would appear to have gone to great lengths to ensure its new GT3 isn't hampered by its transmission.

The PDK fitted to the new GT3 is a comprehensively revised version of the gearbox first introduced in 2008 with the gen-two 997 Carrera models. The ratios are physically lighter, reducing the PDK's overall weight by two kilos, and are also shorter than those found in the current Carrera models, while the final drive ratio is also 15 per cent shorter. The car's 195mph maximum speed is reached in seventh gear too, whereas on Carrera models terminal velocity is reached in sixth.

Gear selection is as you would expect in any PDK equipped car, the driver either slotting the level into D and letting the electronics deal with it, sliding the lever to the left and changing up by pulling the lever back, down by pushing it forward, or by using the standard fit steering wheel-mounted paddles, left for upshifts, right for downshifts. There are two shift modes to choose from: Sport or Racetrack. Sport mode is a further optimisation of Sport Plus found on Sport Chrono-equipped Carreras, with quicker shifts between ratios with a more concise feedback. In Racetrack mode the shift times are quicker still, less than 100 milliseconds, and are accompanied with an overboost of torque. Other technical enhancements include what Porsche calls 'paddle-neutral'. It works by allowing the driver to pull back on both gearshift paddles simultaneously resulting in opening the PDK clutches, and thus cutting drive to the wheels. There are two advantages to this system. The first is the driver can neutralise the car when it begins to understeer, particularly in a wet corner, where the effect of cutting the drive to the rear wheels redirects additional cornering force to the front axle. Consequentially, the system can also be used to agitate the rear axle on the entry to a corner. Additionally, the same function can be used for standing starts, a manualised launch control if you like.

The technology leap keeps coming with the 991 GT3. Along with tech carried over from the previous generation of GT3s such as dynamic engine mounts and Porsche Torque Vectoring (PTV Plus), Porsche has also introduced rear-









wheel steering for the first time. At speeds up to 50km/h the rear wheels steer up to an angle of 1.5 degrees in the opposite direction to the front wheels. This virtual shortening of the wheelbase (by around 150mm) results in significant improvements in the GT3's agility and suitability in everyday driving, such as reducing the turning circle. Above 80km/h, the system steers the rear wheels in the same direction as the front wheels, resulting in a virtual lengthening of the wheelbase by 500mm, thereby increasing high-speed stability. Rear wheel steering at speed also makes for a more spontaneous and reactive cornering attitude. Porsche claim a decisive element of the 991 GT3's impressive Nürburgring lap time – claimed to be a sub-7min 30sec lap – is down to the chassis' rear-wheel steering.

More conventional improvements to the chassis include lighter all-aluminium components, including the front independent wheel mounts, extended wheel bearings and hubs and a new control arm. In using lighter components Porsche has been able to use lighter springs and damper struts (PASM is fitted as standard), these two improvements alone accounting for a three kilo weight reduction.

The 991 GT3's rear axle is largely a new casting too. Still a multi-link design, it features independent wheel mounts and hubs, as well as larger mounts which are both stronger and offer increased stability. The sub-frame is now made of hollow aluminium, resulting in a 3.9 kilo saving over its predecessor, while being stronger too. The rear axle, like that of the 997 GT2 RS, also features a rear helper spring.

The locking differential is electronically controlled and the electromechanical power steering has been modified and utilised to get the best out of the GT3's chassis. Until we try it, we can't pass judgement, but suffice to say Preuninger and his team have listened to the criticisms that have been levelled at the Carrera's EPAS system and have worked on developing the best system for the GT3.

As is the norm in today's world, the GT3's wheel sizes have increased too. Up an inch in diameter to 20 inches, the front wheels are also half-an-inch wider (measuring nine by 20) with 245/35ZR20 Dunlop Sport Maxx Race tyres. The rear wheels and tyres measure 12 by 20 with a 305/30ZR. The new wheels are also a new lighter, forged item. The GT3's front track (at 1551mm)

and rear (at 1555mm) are both wider than that of the outgoing GT3 RS.

The standard brake setup comprises steel discs with six-piston callipers for the front, four-pots for the rear with these now also measuring 380mm. If you spend the extra on PCCB both the front and rear composite discs have improved ventilation holes and the rear brakes benefit from additional cooling ducts fitted to the rear axle.

There will be no mistaking the new GT3 compared to its Carrera cousins (when has that ever been the case?). For the first time the GT3 uses the wider Carrera 4 shell (previous generations of the GT3 have used the rear-drive Carrera's narrow body, leaving the wide-body for the stripped-out RS models) and once again there is a significant rear spoiler fixed to its glass and carbon-fibre engine cover. The basic shell's weight is reduced by around 13 per cent through the use of aluminium for the front and rear body sections and the floor assembly. The roof, wings, front bootlid and doors are aluminium and overall torsional rigidity has increased by 25 per cent.

There is a new front bumper and lower spoiler design – the front headlamps are also new LED items. The larger openings in the

bumper are designed to draw increased volumes of cooling air over the Carrera. The lower front spoiler not only runs the full width across the front of the car, but continues up the leading edge of the front wheelarches and is designed to improve the level of downforce generated on the front axle. The rear bumper incorporates an outlet behind each wheel and one below the rear wing to draw hot air out of the engine, the rear wing is also adjustable and, like the aero spoilers at the front of the car, the rear wing generates genuine downforce rather than just reducing lift.

Inside, the days of bare GT3 cabins are over; the PCM screen and wide transmission tunnel are here to stay. Alcantara covers the surfaces, trimmed in hide, and a Club Sport option pack will give you bucket seats and a half a roll-cage. But quite frankly, staring at a tachometer that reads to 9000 will probably concentrate your mind to such a degree you won't care what the cabin looks like.

The years of development that have gone into the new GT3 (the 991 Carrera program started while the gen-two 997 was still being introduced to the world's press in 2008) means this is no breathed-on 991 Carrera, but a fully-fledged Porsche Motorsport developed and honed machine. At 1430kg the new car is

35kg heavier than the car it replaces, but Porsche claims it is quicker too, the 3.5-seconds to 62mph and 195mph see to that. The former is six tenths quicker than its predecessor, and the same time Porsche claimed for the 620hp GT2 RS. The claimed combined urban fuel figure is 31.7mpg, in case you were wondering. And while GT3s have never been about all-out speed, you have to concede these are very impressive numbers. You also have to remember that Porsche is not in the business of building bad sports cars, even its biggest detractors will admit the 991 Carrera is a damn fine car, one of the best despite it losing too much of the 911 character we bang on about. And taking that car as a base, giving it a motorsport-derived engine that will form the basis of the new GT3 Cup's powerplant, a gearbox that will deliver neck-snapping shifts and technology proven to work with, rather than against the driver, and the 991 GT3 is set to be the hottest car of 2013, even in a year that will also see Porsche introduce the 918 Spyder hypercar. When both hit the road in September, the GT3 wearing a minimum £100,000 price tag, it's going to be a tough choice as to which one to drive first. The draw of the GT3 has never been stronger ○



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This man says
The New GT3
is the best yet.
Why should we believe him?

You have had a month to digest the news and read the views and opinions of those who made the trek to witness the 991 GT3's world debut (and probably some from those who didn't), so what do you think about it? Enraged that you will not be able to change gear manually? Distraught at the thought of the front axle now being steered by an electro-mechanical steering rack and that the rear wheels will also steer? Mourning over the loss of the Hans Mezger derived flat-six?

While the news of these developments may be shocking and saddening in equal measure, there is little that can be achieved by giving Porsche a virtual ear bashing in forums and via social media until we drive it. What we can do before those summer drives – and what we did – is sit the man responsible for the GT3 down and ask him what's going on. And for good measure, we invited his boss along too, Wolfgang Hatz, the head of Porsche R&D. So Andreas Preuninger, what have you done to our GT3?

Story: Stuart Gallagher





"I wish I could let you drive the car off the stand, that will answer all your questions about the new GT3." Preuninger has had a long day of media commitments. His voice is hoarse having spent too many hours answering questions about the car he has spent the last three years of his life working on. And when his duties are completed here he'll be ducking out of the Porsche post-show canapés and champers to catch a flight back to Spain to complete the final sign-off of the first all-new GT3 in 14 years. But for the next 30 minutes we talk GT3. Starting with the decision to switch to PDK...

"PDK has come along way since it was introduced on the 997 Carrera in 2008. In the Carrera, Boxster and Cayman it has been continuously improved and is now one of the best of its kind. But I had my concerns over fitting a GT3 with a PDK: it's heavier than a manual gearbox, which goes against everything a GT3 stands for and I know our customers are very passionate about the GT3 having a manual

gearbox. But what we have done with PDK for this car is build the best double-clutch gearbox. The ratios are shorter – the top speed is reached in seventh gear, not sixth, and the software that controls the gear changes has been developed from what we have learned on the race track. The car doesn't creep like a normal PDK and you can disengage the clutch so you can control the car if you want to slide it around. This PDK gearbox is nothing like any of the PDK cars you have driven before.

"In normal mode the shift speed is somewhere between Sport and Sport Plus on a Carrera model, in sport mode for the GT3... wow! You need to experience it! There's no loss in drive, pull the paddle and bang! You won't recognise it like any other PDK shift. And the paddles, they require 50 per cent less effort – like a short-shift for a manual transmission. On the PDK shifter, we've even changed the manual change function, so now you pull back to change up a gear, push forward to change down, just like a race car.

Perfect for the track day. Even with PDK we have managed to maintain the emotional connection that has made all GT3s so special. It really does feel like the sequential shift in a Cup car; it's nothing like the PDK shift you have experienced in a Carrera."

This is no pre-prepared statement. Preuninger is fired up about this change made to *his* car. Was a manual gearbox tested? Hatz begins to answer before Preuninger turns back to the table and interjects: "From the beginning I didn't think PDK was right for the GT3, like you I want to work in the car, be in control. And I'm a great believer in that seeing is believing and I had to be sure, so we built a car with a manual gearbox and one with the PDK that was close to the finished PDK we have today. It didn't take my team very long to be convinced that the PDK was the best option for the GT3 we wanted to build.

"The night before we showed the cars to board members, many who are GT3 RS 4.0 drivers, two came up to me and said 'you won't convince me



In developing the 991 GT3 Andreas Preuninger and his team had an enviable back catalogue to work with. The 997 GT3 RS 4.0 was the pinnacle of the previous generation GT3s and Andreas has taken much inspiration from it in creating the first 991 GT3. Porsche has yet to confirm it, but it's suggested the new GT3 will be as quick, maybe quicker around the Nürburgring than the 4.0-litre









this PDK in the new car is better than the manual in the 4.0'. In the morning it took one lap for them to be convinced. One lap."

That's the gearbox taken care of then. Now, Andreas, how about this electric power steering? "Like PDK we have worked very hard with the electric steering. We spent two-and-a-half-years just working on the steering's software. EPAS was not very well received, and I was not happy with it when I first tried it on a 991 Carrera. But it's the first system like this that Porsche has developed so the basic system is improving all the time (*something we have experienced with each subsequent drive of a new generation Porsche sports car we drive ~ Ed*); for the GT3 we worked so hard to get it right. This is the same system, the same hardware but the wheel carriers, wishbones, the stabilisers are unique to the GT3, different to the 991 Carrera. We knew we had to get the steering right, it's what makes a GT3 special: the way it reacts, the way it communicates, the way it feels, we had to get all these things right. Not just the same as the 997 GT3 RS, but better.

"Feedback is so important in the GT3, you have to be able to feel when the front tyres are losing grip and be able to react. Getting the feedback right was one of the most important factors in developing the GT3's steering. I promise you, you won't feel any difference between the 991 steering and the steering in a 997 GT3 if you drive them back-to-back. And believe me when I say I was shouting the loudest about not wanting this steering in the GT3.

"With a GT3 the steering is a crucial component, it's one of the areas our customers – and you, the press – always comment on positively. I had very big fears about moving to an electric system. I had yet to drive a car with electric steering that I thought was better than a hydraulic system. I know with the 991 GT3 we have developed the best electronic steering system. When I drove it back-to-back with a car with the old system I couldn't tell the difference. Honestly." That's quite a claim, but from his body language and the way Wolfgang Hatz backs up everything Andreas is saying, there's a sense that this means more than just developing a new car to these two. It's a passion.

Andreas' enthusiasm for the steering continues (accompanied by those brilliantly detailed steering inputs illustrated by delicate finger-tip movements only engineers do, that make the exaggerated armfuls of opposite lock racing drivers do look ham-fisted). "The EPAS on the GT3 is not only quick, but it is more precise than the 997 GT3 RS steering and has more feel and feedback too. When you try it call me and tell me if you don't like it." Er, okay we will.

Interestingly, the GT3 won't be available with Porsche's active anti-roll bars, PDCC, as the car doesn't suffer from the same level of body roll as the Carrera models. Criticisms we have had of 991's and their steering have always been strongest when the car has been fitted with the optional PDCC.

EPAS and PDK are familiar technology now,

fitted as they are to all of Porsche's sports cars. But with the 991 GT3 Porsche has introduced more tech, such as rear axle steering. A gimmick or essential chassis development? "We were working on another project with rear axle steer and the results were impressive and we thought why not try it on the GT3, primarily to see if it could help with high speed stability," Andreas explains. "The results were pretty good the first time we used it. When you do a lane change at 250km/h the car turns and goes where you want it to go. But at slower speeds the car shrinks, it makes the wheelbase smaller and it shrinks around you, really helping in the tighter turns. When we finished the testing these two benefits meant we had to have it on the GT3.

"But like PDK it adds more weight; the motors and actuators are nearly six kilos and the system requires a bigger current so it meant fitting a bigger battery. Every time we tried a new piece of technology and it worked I had to consider if it was worth the weight penalty – what does it add to the car and the driving experience? Like PDK, rear axle steering offered more benefits than its weight penalty brought disadvantages."

That other project? That's the 918 hyper-car that operates out of the workshop next door to the GT3 development team. "They work separately but they are always going next door to see what they other is doing," reveals Hatz. "Weissach is still a very close community, very little is kept secret inside. It's stopping the secrets from getting out that we work hardest on."



How long will it take for us to get used to a PDK lever in a GT3? Porsche claims the shifts are as quick as a sequential race car shift and that after driving PDK and manual cars back-to-back the former was the best option for the car



“The rear wheel steering also helps with controlling the tyre temperatures,” continues Andreas. “On track you know how badly a car can be affected by tyres that overheat, but with the rear axle steering the data we kept getting back was that the tyre temperatures were more consistent and maintained a very consistent temperature. For track driving this is very important. I wasn’t keen on rear wheel steering – I thought here’s more weight, more technology that moves away from the idea we all have of what a GT3 should be – but when I tried it, and it made the car better I had to have it. Nothing we have put on this car is because marketing has told us to do. It’s because it makes the GT3 the best possible car we can make and crucially – and this is really important – it’s an improvement over the old GT3 and as good, maybe better than the GT3 RS 4.0. But the 4.0 was a very special car and you have to remember that today we have launched

just the GT3, not an RS model or something like a four-point-zero, this is just the beginning of the 991 GT3.”

Thirty minutes is not long enough to discuss a car as significant as the 991 GT3 with its creator. This car is all about the detailed input that Andreas and his team have put into it. What look like carry over 991 Carrera parts are nothing of the kind. The engine shares its basic block and DFI credentials, but that’s about it. The crank, pistons, valve gear are all new and unique to the GT3. The gearbox and steering systems carry the same acronyms but they are two very different pieces of hardware controlled by their unique software. But with road cars it is different. Porsche knows its customers better than most, and its GT3 customers more so. It knows what competitor cars it would consider buying and which ones it wants to beat, not just at the bar with technical bragging rights, but out on track.

To do that, to stay at the top and build a road car that delivers at the very highest level and beyond takes commitment and belief in the project. It also means making tough decisions that you know are going to be pulled to pieces and forensically examined by customers and the media alike. If you are Porsche, you need to be ready with the answers. To hear from the man who took those decisions and made the biggest calls, give the answers with passion, enthusiasm and with utter conviction is exactly what you want to hear.

But as Andreas Preuninger said at the beginning, the best way for him to answer all our questions and the concerns customers and current GT3 owners have and quash all our fears and demonstrate that everything that has been done to the car is for the best, is to drive it. And we will do so in the summer, and that drive can’t come soon enough... for us or Andreas ●



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THE KING IS DEAD.
LONG LIVE THE KING.

The talking can stop. We've driven the new GT3 and it's brilliant.

Story: Adam Towler Photography: Oli Tennent

In the end, it takes just one deserted Swabian back road and approximately a minute. After months of waiting, wondering and listening to everyone who's ever held a steering wheel pontificate on the merits of paddle-shift versus a manual transmission, not to mention the demise of the 'Mezger' flat-six, finally the mute button can be firmly squished on that all pervading white noise. It's time to see what the new GT3 can do.

The answer is genuinely shocking: an experience of sheer bloody-minded ferocity that renders me more or less speechless. Pulling away from a T-junction, the GT3 squats down in that inimitable 911 fashion and then slams violently forward. From somewhere over my shoulder the engine, hitherto loud but more mannered in behaviour than of old, gains revolutions like few other engines I can recall; the rev counter needle surges 'round in an instant, and I only *just* snatch at the right-hand paddle in time as 9000rpm comes within range. Thwack. Almost instantly we're already past 7500rpm and into

the sweet spot again. This is simply outrageous.

Theoretically speaking, ahem, this process goes on for at least another couple of gears. A scream of revs, a unique sizzle sound – summon a gear change – a bang – another gear, no pause whatsoever – more engine bellow. Whatever is apparent by the end of this test-drive, whether it's to do with perceived notions of 'character', tradition, or any ephemeral quality open to discussion, one thing cannot be doubted: the new GT3 is an absolute animal of a car that redefines performance in this market segment.

But then GT3s were never just about performance. What we've come to learn in recent months is how Porsche's GT department has sought to create a 991 that not only scales new heights of speed and acceleration (0-62mph in 3.5 seconds!) but that also keeps the GT3 spirit alive and well. The big question is whether they've succeeded: it's a mark of their supreme reputation that no one doubts the car will be a blinder against the stopwatch.

So you already know about the new engine,

loosely based on the block of the 9A1 DFI Carrera motor but otherwise almost all new and complete with titanium connecting rods, forged pistons, and a proper dry sump system. Those new rocker arms allow an incredible 9000rpm limit, and also provide the aforementioned 'sizzle' sound as that lofty marker is reached. There's the gearbox with, yes, no manual alternative. As we now know, a seven-speed manual car was in development for some time alongside the PDK car but was eventually dropped. So it can be done, but Porsche has *chosen* not to do it. Bold. But then again this is PDK 3.0, we have been assured, complete with no auto-change up at the limiter, 100m/s changes, clutch in facility, no automatic 'creep': in other words, this is PDK for the hardcore not just the-can't-be-bothered and the performance-on-paper chasers.

There is also the E-diff, the wider track and longer wheelbase of the basic 991 'shell'; forged alloy wishbones and incredibly light 20" forged wheels. There is more downforce – 120kg at maximum pelt – but then there is also more to



Longer wheelbase, wider track, wider body, new engine, gearbox, steering, differential – the new GT3 is just that: all new

the kerb weight despite the engine alone saving 25kg over the old Mezger unit. With full tanks and fluids it is quoted as 1430kg, with a dry weight of 1320kg. That still makes a mockery of the competition, all told, but the upwardly mobile figure is bound to raise eyebrows.

Andreas Preuninger, head of the GT department, seemed to sense that might cause some consternation, and made two very interesting comments during the briefing. The first was: "At Porsche we love to shift gears manually, but we like to go faster even more." And the second, to paraphrase, was: 'the systems we can fit to the car (such as PDK and four-wheel steering) override their weight gains through the performance boost they bring to the car.' If you want to know how and why the new GT3 is a different kind of car to the type we've all enjoyed, either from afar or behind the 'wheel, over the past 14 years you'd do worse than ponder on those words.

Getting to know the new GT3 starts easily enough. From the outside it exudes aggression,



and I find myself contemplating, as usual, that the 991 looks like a big car 'in the metal'. Climb in and if the optional bucket seats have been specified you're clamped down low for a fantastic driving position. There's liberal use of Alcantara inside here but essentially it's business as usual.

The new engine is loud, but at idle it's more polished than the old motor. Select 'D', and you're soon rolling down the road, at which point it has already become obvious that this new GT3 redefines realistic usage of the type. Porsche tell us that 80% of GT3s will see track action, and it's prioritised that ability like never before, but it's also created a car that is barely, if at all, more demanding in everyday use than a Carrera. With optional PCM and climate

control, why couldn't you use one of these as your sole car? In fact, what the GT department has achieved with the ride quality is something quite special, as although it's obviously firm it is quite beautifully damped. There is no reason, as before, to select the firmer damper setting unless you're on a smooth, modern racing track, so in effect the engineers have come up with a 'one setting works for all' with 'normal' mode. An old fashioned concept these days, but I can't help thinking that's how it should be when done well.

The next thing that's obvious is just what a great job they've done with the electric power steering system. The reaction from dead centre, weighting and self-centring all have a nicely natural feel, and yes, there is genuine feedback

Electric power steering and a PDK gear lever, potentially a recipe for disaster, except Porsche doesn't do disaster

2014 911 (991) GT3

Engine: Water-cooled flat-six, aluminium block and cylinder heads; four overhead cams, four valves per cylinder with VarioCam valve timing; direct fuel injection

Bore x stroke: 102mm x 77.5mm

Capacity: 3799cc

Max power: 475hp @ 8250rpm

Peak torque: 325lb ft @ 6250rpm

power-per-litre: 125hp

Maximum revs: 9000rpm

Transmission: Seven-speed PDK with e-diff and PTV Plus

Front suspension: MacPherson struts, coil springs with PASM dampers, anti-roll bar

Rear suspension: Multi-link, coil springs with PASM dampers, anti-roll bar, active rear-wheel steering

Steering: Electromechanical power steering

Front brakes: Six-piston aluminium callipers, drilled and ventilated 380mm discs; PSM

Rear brakes: Four-piston aluminium callipers, drilled and ventilated 380mm discs; PSM

Weight: 1430kg

Length: 1545mm

Width: 1978mm

Height: 1269mm

Wheelbase: 2457mm

Front track: 1551mm

Rear track: 1555mm

Front wheels & tyres: 9Jx20" with 245/35/ZR20 Michelin Pilot Sport Cup2

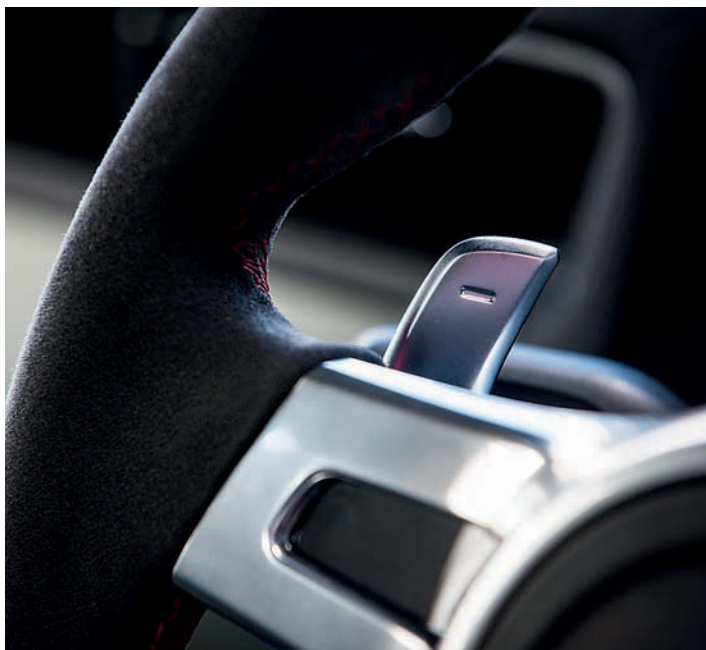
Rear wheels & tyres: 12Jx20" with 305/30ZR20 Michelin Pilot Sport Cup2

Top speed: 196mph (claimed)

0-62mph: 3.5 secs

How much: £100,540

On sale: Now



here to confront the naysayers with. I find myself obsessing over it for the purposes of this test, but it's great to report that despite no significant hardware changes, the GT department has achieved a considerable leap forward over the regular Carrera. It doesn't talk away as loudly as a 997 GT3 and definitely isn't chatty like a 996 GT3: where that car metaphorically shouted at you through the rim, the 991 GT3 whispers, so you need to listen harder to pick it up but it's there. Surely, Porsche needs to make this steering setup standard on all 991s as much – and as soon – as possible?

The same goes for PDK. Once you've experienced this new version of the dual clutch 'box there's no going back. At last, this is a semi-automatic setup that feels as though it was

designed by car enthusiasts with car enthusiasts in mind. You can leave it in 'auto' and it does a fine job, shuffling through the gears discreetly in town or working telepathically out on the open road, but I subconsciously drive with it in 'manual' as a matter of principle. In this mode it is a revelation: there's no kickdown to be avoided, no need to worry about the onset of the redline as you approach a corner in case of the dreaded last second up-change. They've even swapped the up and down configuration of the gear lever – now when you're being pushed forward under braking you push the lever forwards to change down, just as it always should have been. Again – PDK 3.0 can't come soon enough on dual-clutch Boxster, Caymans and 991s everywhere.

Soon enough, an opportunity presents itself to put the engine to work. Already there have been glimpses of its potential, when its boisterous engine note and mid-range shove made the 991 seem weightless, but as the revs pass the 7000rpm mark the note hardens and then it goes absolutely feral. The noise and the accelerative force overwhelm everything else going on in the car, at least the first few times it's experienced, and when the next gear hits home it's impossible to deny that PDK works brilliantly. The calibration is so well-judged: it has the ferocity that adds drama without the brutality that makes one cringe with mechanical sympathy. With the sports exhaust open the hills for miles around reverberate to the sound of a 125hp-per litre flat-six (we could hear other GT3s screaming on their way to us once









Much has been made about Porsche's decision to offer the 911 GT3 with only a double-clutch automatic gearbox. But Porsche has gone to great lengths to adapt its PDK 'box to suit the needs of the GT3, such as using lighter ratios. The big mechanical difference is the shorter ratios used in the GT3's PDK compared to the PDK gearbox used in the 911 Carrera S.

Gear ratio: 911 Carrera S v 911 GT3

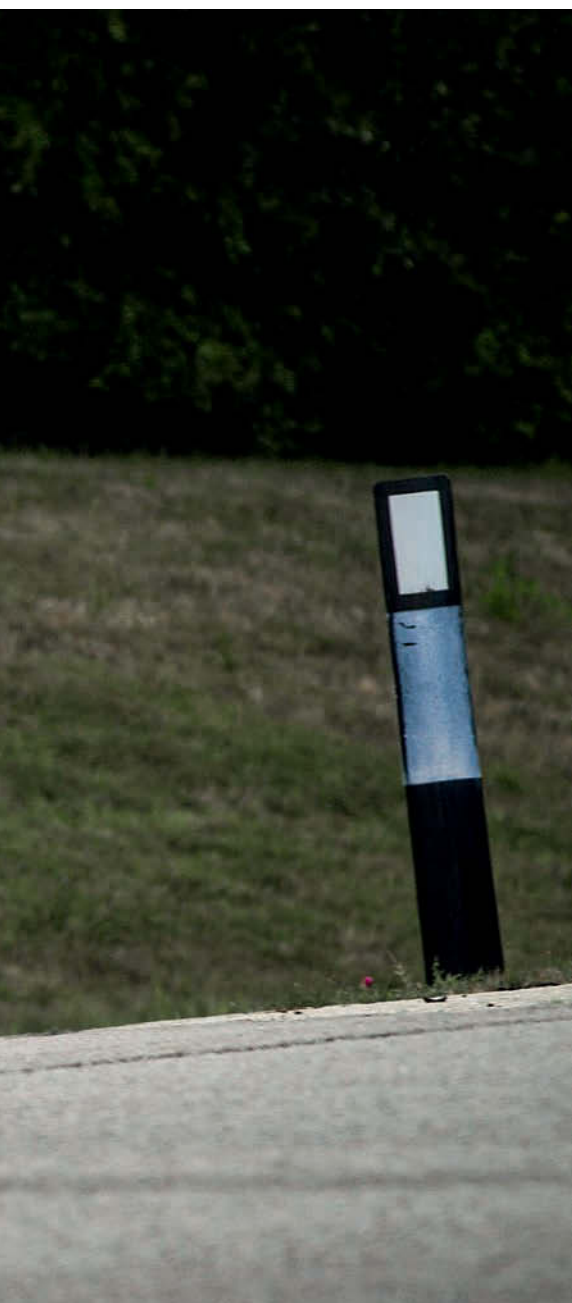
Gear	Carrera S	GT3
1st gear	3.91	3.75
2nd gear	2.29	2.38
3rd gear	1.65	1.72
4th gear	1.30	1.34
5th gear	1.08	1.11
6th gear	0.88	0.96
7th gear	0.62	0.84
Final drive	3.44	3.97
Clutch diameter	202mm/153mm	202mm/153mm

we'd parked up for some photos).

With optional PCCB ceramics – 410mm discs with six-pots shared with the 918 Spyder on the front axle – you don't need me to tell you that the new GT3 stops with a conviction that takes your breath away – literally. Given the way it piles on speed, this is very reassuring, but the regular metal discs aren't shabby either.

Given this brutal new level of performance, what happens in the corners takes a little building up to. Nevertheless, the progress that has been made is immediately apparent because this new GT3 turns into a corner like no 911 I've ever driven. The 911 genes provide some of that, but those raw ingredients harnessed by the GT department have created a 911 that points to an apex with stunning conviction, rendering the idiosyncrasies and techniques associated with

*As the revs pass the 7000rpm mark
the note hardens and then it
goes absolutely feral*



turn-in with all the previous cars instantly obsolete. You turn the 'wheel to where you want the GT3 to go, and it goes there. So you up your entry speed at the next curve and it still goes *exactly* where you want it to go – no bobbing at the front axle – at which point the forces are really squishing your sides and a glance at the speedo reveals some highly improbable numbers. The four-wheel steering? You wouldn't know it was there, but the car is fabulously agile and always light on its feet.

The car is beautifully balanced through a corner and the E-Diff applies the power really cleanly on the exit even with the torque it has to deal with. The GT3 feels smooth and unflustered: looking back on the day the speeds were high but not once did I feel the car was breaking into a sweat. I don't doubt that on a

circuit it'll be a very serious car indeed.

So, we have to try and place the new car in some kind of context, and that inevitably brings to mind its predecessor: there's no getting away from that. But at the same time I think such a comparison is perhaps the worst thing you can do with the 991 GT3. For the simple fact is that it's a very different car, just as the 991 Carrera S is a very different beast to a 997 Carrera GTS. That there is obvious similarity in the way they look tends to hide the notion that it's nearly as removed from its predecessor as the 996 was to the 993.

So if you loved every aspect of the 997 GT3, that feeling of compactness on the road, the traditional upright 911 dashboard, the individual character of the Mezger engine and the overtly mechanically-feeling manual gearbox, don't try

to find that car in the new one because you'll be disappointed. This is a new, completely different machine that works on a higher performance level, but in the process has traded some of the loveable quaintness of old. Some will call that a loss of 'character': Porsche will probably sell more of the new model.

Such intangible judgements can only be made by the individual, and not explained on any computer graph – for instance, I used to enjoy driving the old GT3 slowly, just ambling along drinking in the experience. I just wanted to drive the new one faster and faster.

So personally, I'm keeping my fingers crossed (futile, perhaps) for a Cayman Club Sport with a manual gearbox. It's not that the new GT3 misses the mark, far from it; just that I think based on this first drive, there's room for both ◯

The Making of a Legend

15 years, four GT3s; we take a look at what has made the 911 GT3 the cult hero it is today. Story: Stuart Gallagher

In less than 15 years the GT3 has firmly established itself as Porsche's über-911 sub-brand. It is the derivative that whips the motoring press, existing owners of the current and potential owners of the new GT3 into a frenzy. And that's before you take into account those who will never be in a position to buy one but will have an opinion on it anyway. The GT3 is big news for Porsche and big news for Porsche enthusiasts and 911 die-hards in particular.

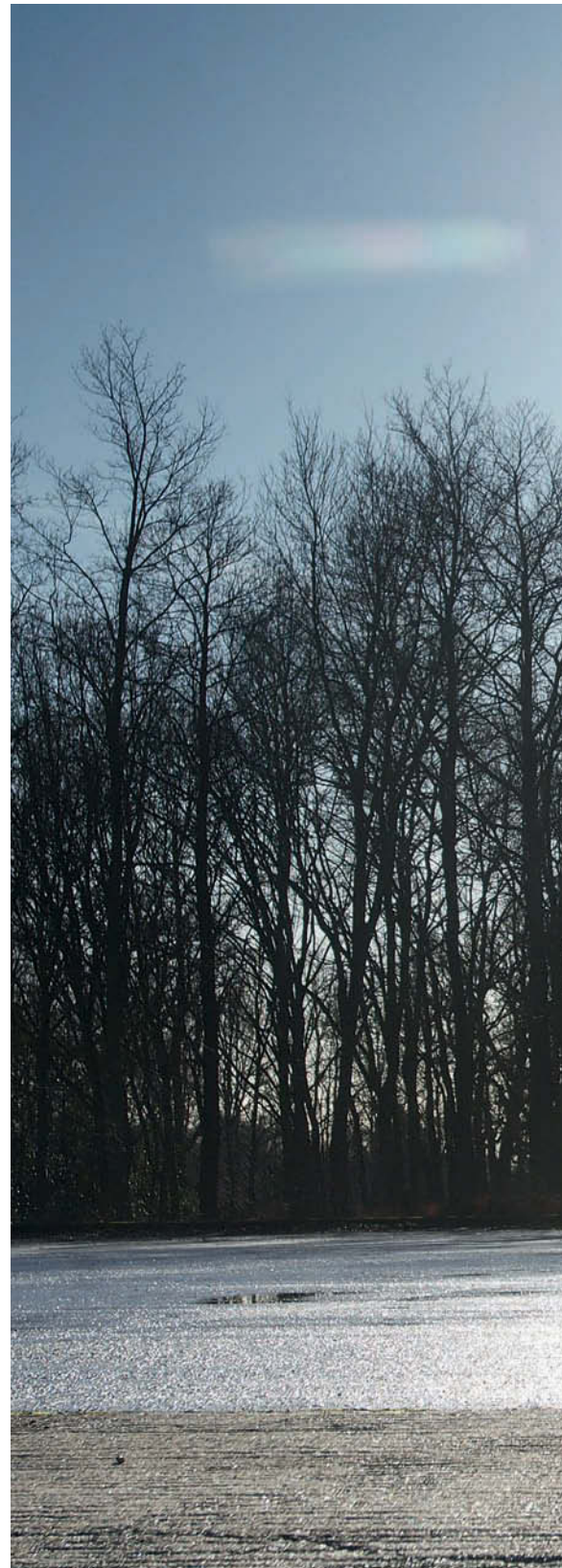
It arrived under the radar in 1999, its announcement in the news pages of the major motoring titles justifying a simple image and a caption with the barest of facts. Only after the great and the good had got behind the wheel of this breathed-upon water-cooled 911 was its full potential understood and the barrier to greatness lifted.

Back in 1999 the GT3 caused quite a few to stop and think exactly what it was that Porsche had delivered. Three years previous a rather marvellous 911 going by the name of Carrera RS had delivered, for many, the pinnacle of air-cooled 911 motoring. It had followed the traditional RS path of less weight, more power. Its chassis was tweaked, honed and signed off by the Motorsport Department before making its debut in the company's Supercup race series. Then it was sent to the OPCs to await collection by the long-serving customers deemed worthy to buy them. But the GT3 was different. For a start, it wasn't an RS and GT3 meant little to those outside of Weissach. It was also heavier than the standard Carrera on which it was based (thanks to its Carrera 4 shell), which would negate any performance advantage its larger capacity (by 200cc) 360hp engine offered, wouldn't it? In a word: no.

I worked on the same magazine as contributor Richard Meaden when the GT3 was launched and still remember how wide his grin was on returning to the office fresh from the car's international launch. That it poured with rain for two solid days didn't appear to dampen his spirits one bit and all he could do was tell us just how astonishing this new 911 was. He'd even make the tea so we would stop and listen to him. But it was for good reason the short of height, high-on-talent road tester was so excited.

Of course, this wasn't just a breathed-on Carrera. That bigger engine was as far removed from the standard car's M96 motor as could possibly be, and has since entered into folklore as one of Porsche's very best. Twelve months prior to the GT3's launch a closely related version of it had powered Porsche's GT1 to the company's 16th overall Le Mans victory and now here it was, a normally aspirated, 'productionised' version of Hans Mezger's dry-sumped masterpiece. Its crankcase may have been shared with the 964 but this was a pure-bred race engine Porsche would become rightly proud of and that those who experienced it would do anything to do so again and again. That it was bolted to a wonderful six-speed manual gearbox and had a beautifully adjustable and rewarding chassis to work with made the GT3 an instant hit. Thoughts that Porsche would struggle to turn the highly regarded 996 into anything as focused as an old-school RS were banished within the first couple of miles of driving the original GT3.

The GT3 was also the beginning of Porsche introducing a clear model cycle and continuous development programme for its cars. In developing the 996 Series the engineers were able to integrate a development plan that would see





Andrew Morgan

Four generations of GT3, 14 years of development and every single one a master of its craft. We'd have any of them any day



the 911 evolve on a four-year cycle, including the GT3. In early 2003 we tested the Gen-2 996 GT3 for the first time, a finely-honed and updated version of the original. The aerokit was sharper, the interior still fitted with essential kit but available with a few more luxury trinkets, but it was the meticulous changes to the car's engine that pushed the GT3 higher up people's 'must-drive' lists. For the generation two car saving weight in the engine was the order of the day. There were stronger but lighter pistons, the connecting rods may have been longer but they were lighter still, and the removal of the vibration damper on the crankshaft not only saved two kilos but further improved the engine's free-revving nature. The valves were reprofiled and the tappets were reshaped, smaller and 42 per cent lighter. The cams were also reshaped and the VarioCam tech and ECU software updated and rewritten respectively. The engine's maximum speed was raised to 8200rpm in the first four gears (a 400rpm increase) and the gearbox was overhauled, too, with steel instead of brass synchros used on third, fourth and fifth to further improve precision and longevity. There wasn't an area of the car nor a component of it that Porsche didn't assess, evaluate and improve upon if required and the results spoke for themselves, as the Gen 2 996 GT3 continued where the original left off when it came to superlatives and winning group tests. Incidentally, this was the first GT3 to be worked on by one Andreas Preuninger.

And then along came the 997 GT3 and with it a PCM module, sat-nav and telephone, even heated seats if you so desired. But it also had Porsche's PASM suspension, the first GT3 to offer active damping (much to the disgust of internet forum lurkers), and a simple traction control system that caused some disciples to call for the head of the man responsible for such treason. Not for the first time the internet was wrong and Porsche was right.

The 997 GT3 was the first significantly overhauled GT3 since the original. As well as the new body and changes already mentioned, the 415hp 3.6-litre engine only carried over the crankcase from the old car. It had new pistons, con rods and a lighter crank to save weight, while every other component within it were redesigned, too.

The engine wasn't the only sign of Porsche's GT3 OCD. Take the front suspension assembly, which comprised bespoke springs, cast aluminium plates, lower arms and uprights, with unique settings for the dampers. This was the first sign that directed you to the importance of the GT3 to Porsche's 911 plans.

Because despite those nods to creature comforts and nannying electronics, the generation one 997 GT3 is one of the very best. Porsche even managed to cut some of the understeer out of it thanks to modifying the diff to have 28 per cent lock-up on power but retain 40 per cent locking on the overrun. The gearshift came in for some stick for being a stiff buggler when cold and not that much more helpful when the oil was warmed up, a result of its shift being 15 per cent shorter than a 996 GT3's and 22 per cent shorter than a 997 Carrera S'. Complaining about a GT3's manual gearshift, who would have thought it?

Time is a cruel mistress and it's when you start to look back at a model's timeline that you realise four years have passed beneath your Michelin Cups and you're still sat at the same desk. Thankfully that means stuck at the same desk thinking up ingenious ways/excuses (delete as applicable) to blag another drive in a GT3. Especially the last of the 997s, the generation two car with the mighty 3.8-litre 'six that was an integral part to one of the most accomplished and revered sports cars of its time. Again the engine was more powerful (435hp), larger too (another 200cc), but again it was lighter, this time by 1.8 kilos, which was better than the three kilos it had gained when steel rather than aluminium had to be used for the liners due to the increase in bore size. Despite the regular Carrera models running a PDK 'box the seven-speed double-clutcher wouldn't fit the Mezger engine so the six-speed manual was retained. The suspension wasn't greatly changed but the minutiae of components were looked into and changes made where deemed necessary, such as a 5cm lowering of the roll centre to further curb understeer, front springs that were 5Nm stiffer and softer front and rear anti-roll bars. The PSM was taken from the GT2, electronic engine mounts were introduced to improve low speed corner traction and reduce high speed vibration, and then there was the more efficient aero, resulting in downforce increasing five-fold. The gen-two was a piece of machinery that looked infallible and uncompromised. As with the trio that had gone before it this GT3 had learnt from its predecessors, honed its technique and evolved into a machine that was appreciated by the very talented, and enjoyed equally by the not so gifted who were welcomed into a rarefied world of pure brilliance.

With every new GT3 we ask how Porsche will improve on its latest car; since 1999 it has never let us down and it doesn't look like it is going to start doing so anytime soon ○



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