LANCASTER

## REBORN The long-unloved water-cooled 996 Carrera 3.4 is finally becoming recognised as a great basis for a performance Porsche. Total 911 tests three project

DIIRPM

TECHNIK

EPC

St.

rocket

9

cars given a new lease of life

Written by Neill Watson Photography by Chris Wallbank





he sun may be out, but the elements are against us for our group test today. Race circuits in winter are never cheery places, and there's a bracing wind scything across the Blyton Park scenery in Lincolnshire. Its open spaces and wartime airfield ancestry are very apparent, offering little sympathy to us or the cars we are here to drive. But 996 Porsches are used to this sort of treatment. The factory's initial attempt at a liquid-cooled flat six has a less than stellar reputation. IMS, cracked blocks, piston failure and the like follow the 3.4-litre 996 wherever it goes. However, today we are here for some 996 love; with air-cooled Porsche prices now beyond £30,000, if you aim to drive a 911 for less than this these days then it will be a liquid-cooled car.

So a 3.4-litre Porsche 996 is perhaps not the most inspiring car for a driver who really aspires to GT3 ownership. Its engine requires hard use to extract the 300bhp, and all too often it feels more like 250bhp. I've owned several, and can recall occasions where I've had to dig pretty deep to maintain my honour in the face of a powerful turbo diesel opponent. It doesn't look good when you have a mirror full of TDi grille badging in a straight line and you can't wait for the next corner to come soon enough to win an advantage. But 16 years after its launch, the future is actually looking quite good for the Porsche 996 – and the three cars we're driving today are all examples of ways to take a standard Porsche 996 and do something exciting with it.

We're not aiming to find a winner either; these three Porsches are too diverse for that. Today, our objective is to stimulate your thinking and be more open-minded about the possibilities of early 996 ownership and some of the opportunities that are out there for entertaining liquid-cooled 911 driving at a fraction of the cost of spiralling GT3 prices. It doesn't have to be a Mezger engine to make it fun. The base Porsche for all three of these cars is the early 3.4-litre 996, and there are actually several good reasons why it's an excellent choice. Firstly, it's probably the last 'analogue' 911. With a physical throttle cable and the most basic of traction control and stability systems that can be totally turned off, it's pretty linear and relatively simple. Secondly, it's cheap to buy, with an abundance to choose from. Thirdly, these cars are all teenagers now, so any engine tantrums are probably behind them by this point. Without further ado, it's time to drive.

The 996 CSR creation by RPM Technik is a rolling technology demonstrator developed by the company to show what can be done with a 3.4 996 without going deep into the engine. Apart from their IMS bearing modification, the engine internals are standard. Even so, the list quickens my pulse. Throttle bodies, plenum chamber, lightweight flywheel and limited-slip differential are all terms that lift my heart, so it's with anticipation that I turn the key. The flat six starts instantly with that flick-knife throttle response that we all love from the GT3. Into first, and you can't resist a flamboyant take-off just for fun. Out onto Blyton's open space, and the KW Variant 3 suspension comes alive, but in a very supple way. Hard under braking for the chicane, the front end simply inspires confidence to brake deep into the corner, offering a crisp turn in with little body roll, but riding the curbs securely.

Picking up the power mid corner, it takes a few laps to ascertain just how early you can get securely on the accelerator with this car, the limited-slip hooking up and the car doing its 911 swivellingthrough-the-hips action we all love. The KW damping, coupled with RPM Technik's chassis setup formula, means I'm on the power a good 25 per cent earlier than in a standard car without any dramas. Impressive. High-speed direction changes through Blyton's Port Froid /Port Vite curves are equally inspiring, with very little initial understeer; just a sharp left-right direction change that gives you confidence to bring more aggression to your cornering. I'm having to recalibrate my own personal 996 driving map – this is a new experience, and I'm enjoying it. Braking is through standard discs, with uprated Performance Friction pads and fluid giving a solid pedal to pivot the ball of your foot around. Add in the addictive throttle response and a pretty loud CSR Sports Exhaust, and downshifts become a tactile delight. In fact, the best word I can think of for this car is just that: tactile.

A reluctant cooling-down lap later, we return to the paddock. I step out and take in the bodywork of the CSR. The all-carbon bonnet is featherlight, just like a GT3 RS. At the rear end, I particularly

Model	RPM Technik CSR Carrera 2 3.4	Strassse Porsche Club racer Carrera 2 3.4	Autofarm 3.7 Carrera 2 996 (was 3.4)
Year	2001	2001	2001
Engine			
Capacity	3,387cc	3,387cc	3,700cc
Compression ratio	11.3:1	11.3:1	11.3:1
Maximum power	300bbp	300bhp	354bhp
Maximum torque	350Nm	350Nm	386Nm
muximum torque	IMS bearing ungrade: Evans waterless coolant:		Silcleave angine conversion to 3700: steel liners:
ngine modifications	Low-temp thermostat; Throttle body and plenum upgrade; CSR Lightweight clutch and flywheel; BMC Air Filter: Custom engine mapping	Steel liners; billet con rods; deep sump conversion; Schrick cams; decay exhaust, lightweight flywheel	Nikasil treated; RMS conversion kit; Deep sump conversion; Schrick fast road cams;Dansk exhaust manifolds: Miltek silencers
Transmission	Standard six speed	Standard six speed	Standard six speed
Suspension			
Front	KW Variant 3 two-way adjustable coilover, including top mounts and drop links; Powerflex bushes; Eibach hollow antiroll bars; RPM CSR chassis setup	Gaz two-way adjustable, interchangeable springs	Independent; MacPherson strut; coil springs; antiroll bar
Rear	KW Variant 3 two-way adjustable coilover, including top mounts and drop links; Powerflex bushes; Eibach hollow antiroll bars, RPM CSR chassis setup	Gaz two-way adjustable, interchangeable springs	Independent; multi-link with telescopic dampers; coil springs; aintorill bar
Wheels & tyres Front	8x18-inch HRE C100 Forged alloys; 225/40ZR/18	8.5x18-inch; 235/645x18 Pirelli custom control tyre,	8x18-inch; 225/40ZR/18
Page	11v19 ipph HDE 0100 Forged allocation 205 (2075 (10	CHOICE OF WETS OF SIICKS.	10v19 inch: 265/2570/19
Rear	11x10-INCH HKE CIUU FORGED Alloys; 285/302R/18	10x16-INCN; 2007040X18 PIReIII	10x16-INCN; 2007 30ZK/18
Dimensions			
Length	4,430mm	4,430mm	4,430mm
Width	1,765mm	1,765mm	1,765mm
Weight	1,320kg	1,320kg	1,320kg
Performance			
0-62mph	Not tested	Not tested	Not tested
Ton sneed	174mph	174mph	174mph
iop speed	1141117-11 1	ווקוודיגיד בידוויייי	ווקוודיי
rther modifications	side skirts, graphics package; GT3 bumper and mirrors, all colour-coded; Factory sports seats; extended leather; CSR Carbon fibre sill trim inserts; Alcantara Momo wheel; Alcantara gear lever; Powerflex bushes; CSR Geometry set up; CSR limited-slip differential; CSR Sports exhaust; CSR tailpipes; Performance Friction brake fluid upgrade; Performance Friction pad upgrade	Race-prepared with custom roll cage; fixed FIA spec competition seat; five-point harness- Momo wheel- EBC yellow brake pads; racing brake fluid; ride height lowered by 65mm	None
tal conversion cost	£27.000	£38.000	£15.000
		AYLIS & HARDING	
			JPP 2V
		DTRASSE COLUE	
		BTRASSE	



like the retro ducktail spoiler and carbon engine lid. If you described it to me over the phone, I'd be adamant that a ducktail on a 996 wouldn't work, but in the flesh it looks great. The expensive HRE two-piece alloys fill out the wheel arches very nicely, the combination giving the car a stance that sets it apart from a standard 996 without going for an extravagant package of huge wings and deep splitters.

Above all, I like the inspiring feel of the chassis package. The combination of KW Variant 3, hollow Eibach antiroll bars and RPM Technik settings give a drive that surprises me. All too often, I drive cars

STRASSE

that have been unfeasibly lowered in the misguided belief that this must make it better. In fact, the best chassis setups deliver a car that controls body roll, yet keeps the tyres in contact with the surface as much as possible. RPM's Darren Anderson is reluctant to delve into the intricacies of the chassis settings, but even out on the surrounding country lanes the CSR is very compliant, with none of the tendencies to 'tramline' and dive off the camber under braking that you might expect. Even though this car is only around 40 kilograms lighter than standard, it has that old-style lightweight 911 feel and agility to it that makes it perfect for bumpy UK B-roads, with none of the harshness that can make a GT3 RS a handful on such surfaces: the kind of car that makes you invent reasons to go driving.

It's time to drive a 996 engine I've heard an awful lot about, but have never experienced: Autofarm's Silsleeve engine conversion. Josh Sadler's team were one of the first to address headon the problems with the early 3.4-litre engine. The Autofarm conversion covers all of the known engine issues, ensuring they don't reoccur. Their investigations showed that the engine block was prone to flexing, the eventual failure becoming evident in a D-shaped piece of the barrel liner becoming detached at the very top where it meets the head gasket. We won't go into the in-depth reasons for the failure, but suffice to say that Autofarm is able to take an engine that would normally be considered scrap and not just repair it, but significantly improve it.

In the process, the 3.4 is taken out to 3.7-litres via fresh pistons and Nikasil-coated cast iron liners, effectively creating a 'closed deck' engine that removes all of the flex that caused early failures. This car also has a set of Schrick cams, a tuneful sports exhaust comprising Dansk manifolds and Miltek silencers and a deeper sump conversion for

DII RPM

TECHNIK

"It doesn't have to be a Mezger engine to make it filn"

ITLIS & HARDING

greater capacity, completing a very conservative package. The Arctic silver car looks completely standard from the outside. It's in immaculate condition, and a credit to its owner Jeff Pile, who has covered more than 30,000 miles since the engine was built, exploring a diverse combination of daily driving, high-speed European trips and the odd journey to the Nürburgring.

"It's probably my perfect Porsche with this engine. It has so much torque that I can cruise quietly in sixth gear on the motorway, drive on track then commute home again," says Jeff. Inside, this Porsche is standard and immaculate. Turning the key in the ignition, the engine cranks slower than you'd expect, but then responds into a slightly deeper idle than standard. Setting off, the unique characteristic of the Autofarm engine is instantly apparent: torque, and lots of it.

This engine is one of the original development cars. Josh offered Jeff the chance to be a guinea pig, and installed the engine as a development test bed, but Jeff liked it so much that he never returned it. I can see why. Blyton's long, curving Lancaster bend is a perfect place to showcase the strong mid-range punch here, the engine giving a long push all the way through the bend, gathering speed with what

## -The 996 marketplace

Early 3.4 996s are abundant below £12,000. However, whittle out the Tiptronics and you lose probably 50 per cent of the available cars. Opinions are unanimous among our specialists on the choice of a donor car. You can buy a really scruffy car very cheaply, then spend the saving on a thorough overhaul and expect a few issues along the way. Or, you can buy a well loved car as a sound basis that will give fewer worn components to deal with. The choice is yours. Josh Sadler sums it up: "I can recall how we used to sweat to try and get 100bhp per litre from air-cooled cars. These engines are actually very easy to get good power from. Solve all the known issues, add in some conventional induction and exhaust improvements and a set of good carns, and you have a really powerful car with little dramas. They're highly underrated."









seems to be so little drama from the smooth engine. There's a temptation to shift early at first in a 996 Turbo-style of drive. But hang onto the gear and the Schrick cams get to work, the exhaust note taking on a harder edge closer to the redline.

This car runs standard suspension and brakes, so in addition to providing a perfect frame of reference to the RPM Technik setup, the engine's performance gains are doubly apparent. Power is up to 354bhp, with torque a massive 385Nm and a performance curve that a Toyota Landcruiser would be proud of. This is an engine that gives you so many options. Through the tight chicane, it's the driver's whim to take second or third gear. Want to hear that exhaust bark and feel the cams? Take a blip and downshift for a good strong punch on the exit. Leave it in third, and you've none of the regrets you'd have in a standard car. On the lanes around Blyton, with lots of low hedgerows and 90-degree turns, I'd be quite happy to mix it with those pesky Turbo Diesels. The Autofarm engine is in the true tradition of Porsche engineering - an everyday car you can drive to the track, drive hard, then wash off the flies and brake dust before work on Monday.

In contrast to the styling of RPM Technik's CSR and the immaculate Arctic silver car Autofarm car, the Strasse race car is looking more like a boxer after winning a prize fight. It's the end of the Porsche Club racing season and the Strasseprepared 996 has been victorious, winning the championship at the hands of driver Pete Morris. Its been a long season, and it shows. Photographer Chris Wallbank frets about how to hide the marks of battle, but I urge him not to. Like a prize fighter emerging victorious after 12 rounds, the Strasse

Porsche wears the scuffs and dents of competition with pride, the champion's 'number one' already assigned as its race number for the 2015 season.

The door opens with a creak, and inside there's that curious mixture you often see in productionbased race cars of standard panels, dashboards cut to accommodate roll cages and other purposeful race preparation. The single race seat is bolted to the bare floor, and my legs are evidently much longer than the regular driver's. I contort myself past the door bars. Reassuring five-point harness in place, the steering wheel is so close my elbows are under my armpits. Still, I can drive for a brief period without losing all circulation. Starting requires no drama, circuit breakers or fuel pumps; just turn the key. Similar in tone and response to the CSR, only more muted as the de-cat exhaust system still needs to conform to noise regulations. In fact, regulation rather than modification is what this car is about.

The Porsche Club Championship demands standard power outputs, with a five per cent tolerance. Rules also strictly govern other aspects such as minimum weight, brakes and engine internals. So given those constraints, you'd think finding the edge to win would be an impossible task. It's not easy, but then motorsport never is. New tyre rules for 2014 introduced a Pirelli slick tyre. Drivers are allowed one set of tyres per meeting, and they're allowed to keep them, growing a collection as the season progresses. So part of the winning formula is being able to save your tyres and give yourself options later in the season or save them for the triple-header race weekends. Porsche Motorsport head Steve Kevlin believes the tyre regulations work well. "The new tyre was four 🎈







seconds per lap faster in pre-season testing around Donington. It's made the 25 minute races tougher, with several drivers signing up for the gym. But the Pirellis have been great, very predictable, and everyone likes the new rules." Above all, it controls costs, as at around £1,200 per set, it stops teams with a bigger budget simply throwing new tyres on for each race.

I'm not going to get much heat into the tyres today, but I can't resist pressing on a little. The car is supremely predictable, the standard ABS brakes allowing you to carry braking deep into the corners as the pedal buzzes away before picking up the power. Each lap, I push harder as I come to realise this car really needs to be grabbed by the scruff of the neck and pushed hard in order to reap rewards from it. The harder you push on, the more it responds, the chassis setup with a massive 60mm ride height reduction and Gaz dampers feeling bouncy at low speed, but coming to life when you lean on it and work the tyres. I only wish I had a seat fitting me correctly, as I'm really not sure I could catch a big slide without breaking my elbow. Through Blyton's sweeping direction changes, I feel an involuntary smile breaking out. This is huge fun – I'd better stop right now.

Setup, experience and preparation is everything with these cars. I imagine it's easy to drive right up to 95 per cent, but finding the final five per cent that gives you the top podium step is the hard part. Delivering a car that gives the driver confidence to mix it up in the pack is a vital element that money can't buy. The Strasse prepared car runs inexpensive Gaz dampers at £1,800 per set. Strasse's race prep expert Chris explains, 'He could have spend £10,000 on Ohlins, but Pete likes the car as it is. We built the engine two years ago, and it was still making good power at the season's end." Indeed, Steve Kevlin had the car power-tested, and it was right on the correct figure. Chris continues, "The engines have to be tough. Pete's engine has steel liners, billet rods and a paddle clutch. It also has the deeper sump conversion, which is allowed. Even though they're producing standard power,

they still cost around £16,000 each, but at two seasons' racing that's not too bad." Strasse have vital data sheets for every track, wet and dry, and in 2015 will be running no less than seven Porsches in the championship.

By now, my mind is full of ideas for 996 hotrod options. Each of these cars comes in comfortably under our mythical £30,000. None of them will replace the intoxicating howl of a GT3 in the upper reaches of its RPM range, but as the Mezger engine moves out of reach for many, we need to find newer ways to enjoy driving Porsche 911s hard. My commute homewards is spent mentally building the options for my own hotrod water-cooled Porsche 996. I'd have the biggest Autofarm capacity hike I could get, a lightweight flywheel, that RPM Technik chassis (I'm not sure on the wheels yet, but that will come to me). Oh. and if it had a suitable half cage in it, I guess the Porsche Club Speed Championship might let me into a few sprints and hillclimbs. The future of Porsche 911 tuning is water-cooled. Start your search now.

