

# Radical • hits the mainstream

British sports car maker Radical went to Le Mans for the first time in 2006, but only after it had proved to the world the success of its motorcycle-engined sports-racers

BY ED FOSTER

Over the past 10 years putting a motorcycle engine in a sports car has become a completely viable option. That's largely thanks to Radical, which was launched in 1996 and has lived up to its name when it comes to the design and marketing of sports-racers.

Before, there was the 1949 Bond Minicar – a three-wheeled, 122cc runabout – and of course the Reliant, the butt of jokes that have long gone out of fashion. Most famously in racing the 500cc movement of the 1950s launched the careers of Stirling Moss and Peter Collins, while marques like Jedi took the idea to the hillclimb world. But Radical moved things on a-pace.

The men behind the company are business partners Mick Hyde and Phil Abbott, and since their breakthrough year in 1997 Radical has reached further than most small-scale British car makers could dream of. Nowadays there are Radical race series as far away as China and in the US, the marque has dealerships in New South Wales, Australia and Dubai, and exports to nigh on 20 countries worldwide. That's a remarkable effort when you think that, unlike Caterham, its cars are only used on the track.

If putting a motorcycle engine in a sports car was such a radical idea (that's the last time I'll

use that pun, I promise), what on earth inspired Hyde and Abbott? I made my way to Brands Hatch's sweeping curves to sample their machines and ask Hyde exactly that.

"It was after a race at Snetterton when Phil purloined me and said that he had an idea of sticking a motorcycle engine in a road car," says Hyde. "I told him he was mad. That was the year the Lotus Elise came out and I said, 'you can't compete with a car like that, there's no market for it'.

"But I'd seen a little Sports 2000 called a Robinson. It was one of those cars that you walk past and stop and think, 'oh, that's pretty'. I thought, 'well, if we could have something that looks as pretty as that *and* has the benefits of a motorbike engine that revs to 11,000rpm, is very light, very powerful and we can get over all the technical issues of putting it in a car, we could have something that flies here.'

"The TVR Tuscan series was in the headlines, but it was – not being disrespectful to [owner] Peter Wheeler – a fairly agricultural car and handled like a pig. Caterhams handled quite well but weren't to everyone's tastes. So I saw there was a market for that type of car. We looked into the idea over a three-month period and decided, 'yes, let's go for it'."

Even if the cars "handled like pigs", the Tuscan series was a huge hit in the 1990s – close



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racing and wild driving meant the championship was a success with high-profile competitors and spectators alike. If Radical was to make a suitably large impact on sports car racing it had its work cut out, something that Hyde was aware of at the time.

“My background is marketing, so I realised you have to identify with your market and have a proper business plan. We worked out that not only had we got to produce the car, but produce the championship for it to go in, the rules and regulations, and spares support – something that I feel Caterham and TVR didn’t do well.”

By the spring of 1996 the pair had built chassis number one, later to be known as the Clubsport, and after various runs at Bruntingthorpe Hyde entered it for the 750 Motor Club Sports 2000 race at Brands Hatch. That race didn’t quite go according to plan with a trip to the gravel trap, but Hyde recovered well to finish 11th. Later that year another Clubsport was built and this time Abbott gave the car its first victory at Pembrey. Partly thanks to Hyde’s gander in the gravel, the Sports 2000 organisers believed the car wouldn’t trouble them too much and Radicals were allowed to compete in its 1997 championship.

“When I finished first [in the opening race of the series at Silverstone] and Phil charged

through the grid from sixth to second, I think they weren’t quite so pleased,” says Hyde with a grin. “That was when I realised PR is different in motor racing. You can’t just send out a press release saying ‘we’re thinking of finishing first and second’, you’ve got to actually do it.”

Sure enough the Clubsport troubled the Sports 2000 cars all year and were soon put in



a class of their own, imaginatively titled the Radical class. The time had come for the car’s own series, and in 1999, under the BRSCC umbrella, Radical ran its first one-make championship. A 27-car grid hinted at how successful the Peterborough-based company would become.

That same year Radical developed its

Prosport, which allowed the company to run two championships in 2000: one for sprint races in the Clubsport and the other for endurance events in the Suzuki-engined Prosport. Since then Radical has made the SR3, SR4, SR5, PR6, SR8 and even a Le Mans LMP2 car – the SR9 – which competed in the 24 Hours in 2006, finishing fifth in class and 20th overall.

In ’07 it ended the race in the wall after just 16 laps, but in ’08 it was sixth in class and 31st overall.

All the cars, apart from the SR5, SR8 and SR9, are equipped with a motorcycle engine. But though their race results suggest otherwise, conquering the problems that this set-up created was easier said than done. Motorcycles normally use a chain to deliver power from the gearbox to the rear wheel. This is fine on a motorcycle as, unless you have a Honda Gullwing (heaven forbid!), there really is no need for a reverse gear, and secondly, unless you decide to put a 250bhp engine

under the fuel tank, the chain isn’t going to stretch under power. Unsurprisingly, transferring this set-up to a car requires a few alterations.

“We were the first company to get [gearbox firm] Quaife to make their diff suitable for a chain drive,” says Hyde. “You need a drivetrain and a limited slip diff that’s coupled to the rear sprocket. Quaife made diffs, but they didn’t

make them for that. You could buy these limited slip diffs, which normally go inside gearboxes and are slushed around with oil. We got Quaife to redesign it so that you could pump it full of grease or oil, suck it to a sprocket and that’s how we got our chain-driven cars giving really good grip – it’s all torque biasing diff and fairly inexpensive because of the chain drive.

“The problem with this is how do you get reverse? When we came to the SR3 we designed a gear drive system, so there are two gears that transfer the power from the bike into the sub gearbox, and then there’s a layshaft which is for reverse and the torque-biased diff.

“Prior to designing this the chain drive worked fine, until you started upping the power and then it stretched and you got all sorts of issues. Our SR4 and PR6 are still chain drive but the SR3 is maintenance free: bolt on, change the oil once a year, job’s a good’un. In my view that’s better than the Honda Hewland, the system we have in the SR5, because it’s lighter and all the mass is between the wheels. Even with a Hewland you’re hanging a hundredweight over the back wheels that does little to help the handling.

“With the SR3, there’s no weight on the other side of the wheels, and you’ve got the engine, the driver, and the chassis *inside* the wheels,

which is why they handle so well.”

Radical was a pioneer when it came to making a motorcycle-engined sports car work on the track. According to Hyde, part of this success is down to having a good business plan and clever engineering, and in the Brands pits it turns out it’s hard to find something on Radical’s new cars that hasn’t been manufactured,



designed or fabricated at its Peterborough base. As Hyde explains, it’s all very well making a quick car, but making a car that is sustainable is more of a challenge.

“With the SR3, the chassis, suspension, bodywork – we make it all ourselves. All the hubs, the uprights, even the wing mirrors we fabricate. You *cannot* buy decent wing mirrors,

they always break within a year. The only parts that we buy are shock absorbers and the steering rack, those are the main things.

“Manufacturing everything in-house allows you to develop stuff on an ongoing basis. People ask me, ‘can you guarantee that the car will be the same in a year?’ And I say, ‘I can absolutely guarantee that it won’t’. We *always* develop the car, it’s always better, there’s *always* a reason to buy a new car. We will not stand still. Spec-racers in one-make racing are a recipe for your own demise, because what happens if something’s a bit wrong with it?”

“There’s no such thing as a perfect car, you can always make it better. And that applies to road and race cars. Even though we only make 120 cars a year, we always strive for something a bit better. It gives the competition a moving target.

“When we started we seemed to have a lot of people copying us, but people made the mistake of copying what they saw us doing and we’d

already moved on by then. They also made the mistake of selling a car with which they naïvely thought they could start their own one-make series. So they end up in a series like VdeV: there are five different manufacturers trying to sell into one championship [Norma, Funyo, Ligier, EMA, and Radical]. So when you’ve sold 10 cars, what’s next? Where’s the ➤



“We only make 120 cars a year, but we always strive for something better”

MICK HYDE



Radical’s latest SR3 and Powertec V8-engined SR8 (left) racers tackle Brands. Top left: most car parts, including the SR8’s gearbox, are built by Radical

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business plan? It just doesn't make sense. And what happens if you make a car and another car is quicker. You're not going to sell many."

Arguably one of the strongest strings to Radical's bow is that although its cars date thanks to constant development, they are never made redundant. Every car Radical has produced can race in its own series around the world. In other race series the rules may change and the car you bought a few years ago is suddenly sidelined, meaning you no longer get an entry and have to race elsewhere.

"We don't do what Caterham used to do," says Hyde. "They'd announce 'we have our latest model, all new, it's got a Vauxhall engine in it', and then they'd say the following year 'we're not racing that'." Of course, Caterhams are some of the easiest cars to find a series for, but Hyde's sharp: he doesn't miss a chance to have a dig!

Radical's series have been a great success over the past decade, but merely developing what it already had was never going to be enough for Hyde: "The Le Mans project was just a natural development. We had produced a range of cars and we'd built our own V8 engine (the Powertec RP in the SR8 that uses a

Suzuki motorcycle engine head and V8 lower end). We were fairly confident in our abilities and so it was the next logical step. It's been a huge challenge, and the cost definitely gave us some pain. While all our other cars have been profitable, building a Le Mans car is *not* a good business model because it's such a strange market. A big chunk of your competition has money that comes from marketing budgets – they're not trying to build commercial cars. We tried to bring a commercial business plan to the Le Mans market, and then Porsche bring two cars that cost a million pounds and two million a year to run.

"But it has been very successful marketing-wise, because now nobody says, 'who's Radical? Can they build race cars properly?'. In our early years, wherever we went in the world people were looking at our car and saying things like

'that'll never work' and 'that's no good'. People don't say that any more because we built a car that, straight out the box, lasted 24 hours at Le Mans. What's more, we are now the only company that can take you from complete novice through to a drive at Le Mans in one of our own cars."

Perhaps one of the biggest successes of the Radical AER LMP2 was the experience it brought to the company. "It proved very useful in terms of helping us learn about aerodynamics," says Hyde. "We got outside experts in to help us with the SR9 and we've learnt to pass that experience on to our other cars."

So where next for Radical? Its track day market takes care of itself, worldwide its race series are booked up with grids of up to 50 cars in Europe, and it has managed to design a car, bring in an engine supplier and finish Le Mans.

"Our business plan for the future is fairly straightforward, in that we are working hard to develop top distributors around the world and

we're basically taking the package, the technology and the knowledge we have in the UK and exporting it," says Hyde. "I signed a new distributor in Saudi about five months ago. A

couple of months ago I signed one in Mexico and we're looking at China. *That* is our future. Because we're sort of the market leader now, we don't have much competition. There's the odd manufacturer that produces the odd product for the odd series, but no one else does what we do."

Buoyed by its Le Mans project and the speed of its

new SR3 and SR8 models, Radical is also embarking on a road-going racing hard top. In Hyde's words it will be "faster round a circuit than an Enzo but won't cost as much".

Over the past decade Radical has changed the face of sports car racing. With so many British car manufacturers being sold to overseas owners, or disappearing altogether, there is something warming about one that has been an outstanding success. Especially when its cars are so fast they make your eyes water. **M**

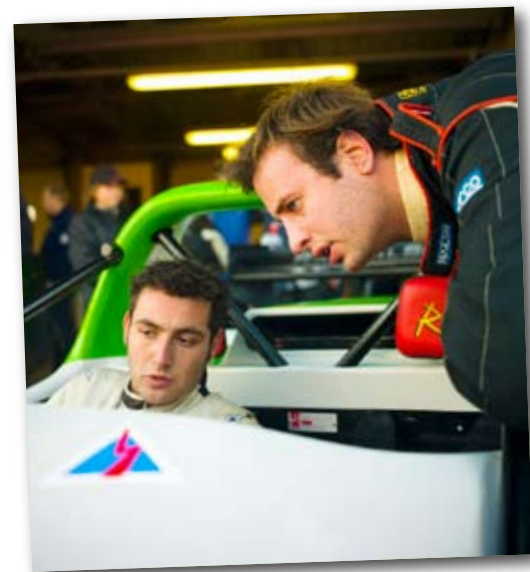


Radical is now a regular at Le Mans, while its series run worldwide (below)



"We built a car that, straight out the box, lasted 24 hours at Le Mans"

MICK HYDE



INSIGHT

## QUICK, QUICK, STALL

Radicals are very driveable and a blast on the track, once you get them going that is...

When you've never driven on a particular circuit in anger before, it helps to have a passenger ride first, just to get an idea of lines, gear changes and so on.

You can imagine my apprehension then at being sent straight out in Radical's PR6 sports-racer for my first laps of Brands Hatch's legendary Indy circuit. I cruise down the pitlane, ease onto the track and two KTM X-Bows and an SR3 scream past. Blimey, that first corner's quick. I tentatively squeeze the throttle and, *wham*, my stomach gets left behind at the bottom of Paddock Hill Bend and I'm already at Druids.

After five laps of weaving on and off what I think is the racing line, I get my head in gear and work out that as racing cars handle, this is about as good as it gets. Back in the pits (above) I jump into the SR8 and am warned that the car is "very, very fast".

"What, PR6 fast?"

"No mate, rocket ship fast."

With this wonderful, confidence-inspiring nugget firmly lodged in my by now frazzled brain, I set off. And stall. And stall again. Eventually I get to the end of the pitlane, forget all words of warning and put my foot to the floor. *My god* this is fast. Once the revs build up the noise and speed are intoxicating, so much so that I have no qualms about screaming merrily into my helmet going down the pit straight.

These cars really are high-performance racers and not for the faint-hearted, but the wonderful thing about them is that they are *very* driveable – even if you do stall an embarrassing number of times before reaching the pit exit.